

CHAPTER 4

SPATIAL TREATMENT IN JAPANESE CHILDREN'S DRAWINGS

Purposes

Based on the results of the pilot study implemented in 1993, the focus of this study was to confirm the characteristics of spatial treatment observed in Japanese children's drawings. First, by collecting Japanese children's drawings from three regions of Japan from northern to southern areas in 1996, I attempted to determine whether there was a direction in children's artistic development, especially in spatial treatment in drawing: in short, whether children's artistic ability shifts from one stage to another as Piaget stated in his developmental stage theory. Secondly, in the pilot study, at least three unique patterns of spatial treatment appeared in Japanese children's drawings which American children seldom used. The main issue of this study was to determine whether these three unique patterns (including "exaggerated views," "bird's-eye views," and "multi-perspective views") were really common characteristics in Japanese children. Since these characteristics appeared in Japanese children's drawings regardless of the region in 1996, the kinds of socio-cultural influences that could have impacted their drawings were examined in 1997. Finally, in addition to the analysis of drawings, the relationship between children's preferences and their actual drawings was examined based on six questions in which children were asked to indicate their favorite picture and the one closest to the way they created space among seven different types of spatial pictures to find whether children's drawing reflected their preferences and knowledge of spatial representation.

This research was analyzed by two methodological approaches: 1) quantitative method with statistical techniques, and 2) qualitative method with observations and interviews.

Method

Quantitative Method

First, collected drawings were classified by expert judges according to Eisner's 14 spatial categories. In addition to Eisner's categories, new categories were developed to analyze spatial treatments in Japanese children's drawings that could not be classified according to the 13 Eisner categories. In addition, this method was used to compare age groups and locations. Secondly, the statistical method, Chi-Square, was used to judge the probability of spatial similarities and differences in children's drawings among the three areas in Japan.

To find what kinds of socio-cultural factors actually influence the characteristics which appear in spatial treatment in Japanese children's drawings, two tasks were administered: one was a drawing task (spatial presentation in drawings) and another was a judgment task (aesthetic and preference tasks) with the following hypotheses:

Hypotheses

1. There is a direction of development in spatial treatment in Japanese children's drawings regardless of areas in Japan.

2. There is an artistic developmental stage theory which can describe a qualitatively equal shift from one category to another in spatial treatment.
3. The patterns of spatial presentation in children's drawings are the same regardless of social-cultural differences.

Sample

As Cole (1996) mentioned, cross-cultural research should collect enough data based on the same standard. I decided to collect drawings from three regions in Japan. Japan is a small country; however, there are diverse cultures in many districts. To find common characteristics in Japanese children's drawings and also not to reach easy conclusions, collecting data from several areas in Japan with different cultures was essential. Data was collected by the researcher in three locations in Japan:

1. Northern area (Morioka city): Morioka City is the capital city of Iwate prefecture and a typical middle sized city with a population of about 200,000. Morioka City is located in the northern part of Japan and has almost the same latitude as Chicago in the U.S. About 700 drawings for the drawing task and 350 questionnaire reports for the judgment task were collected from first through sixth grades in the elementary school attached to Iwate University.

2. Central area (Tokyo, the capital city): Tokyo is well known as the capital city of Japan and has one of the biggest populations in the world (about 12,000,000 people - almost four times the population of Chicago). About 700 drawings for the drawing task and 350 questionnaire reports for the judgment task were obtained from first through sixth grades in the elementary school attached to Ochanomizu Women's University.

3. Southern area (Naze City): Naze City, the smallest of the three cities with 50,000 people, is in the southern part of Japan. One characteristic of this city is that it is located in the center of a small island, Amami-Ooshima, which is situated between the Pacific Ocean and the East China Sea. Naze City has almost the same latitude as New Orleans in the U.S. About 500 drawings for the drawing task and 250 questionnaire reports for the judgment task were collected from first through sixth grades in Naze Municipal Naze elementary school, and about 700 drawings for the drawing task from first through sixth grades in Naze Municipal Amami elementary school.

Procedure

1. Drawing task

About 2,500 drawings by first through sixth grade students who studied under the Japanese national curriculum were collected from four elementary schools in three areas of Japan from May through July, before summer vacation in 1996: Morioka City (Northern area), Tokyo (Central area, capital city), and Naze City (Southern area) to confirm whether characteristics which appeared in drawings were really particular to Japanese children. The reason for this limited period to implement this experimentation was the educational calendar. In Japan, the academic year goes from April through March, unlike the U.S. where it goes from September through June. To look at especially the first grade student's drawings before they were influenced markedly by the nationwide art educational curriculum, the experiment needed to be implemented at the beginning of the school period, which is before summer vacation.

After discussing the details of the procedure with the researcher, this experiment was implemented under the same conditions (the same content of instruction, the limited time, the place, and materials) in each location. Drawings were collected either by the classroom teacher or the art teacher in each area depending on each school's situation. For example, in one school, the drawing task was implemented at the same time in all grades in each classroom by the chair person of the research through the school intercom. In another school, the task was done separately by the instruction of three first grade classroom teachers in each classroom and two art teachers (one is for the second through fourth graders and the other is for the fifth and six graders) in each art room. In another school, the task was separately implemented by each classroom teacher in each art class period. Familiar materials which were used in the pilot study in 1996, such as drawing paper (11" X 18"), eight different colored crayons, and pencils and erasers, were distributed. Students were instructed to draw, "My friends and me playing in the school yard," a theme investigated in earlier studies by Elliot Eisner (1967, 1972) and others (Golomb, 1983; Stansfield, 1979; Toku, 1995). Students were asked to finish their drawings on the same subject within 30 minutes without any teacher support. Drawings collected by teachers in each school in Japan were handed to the researcher in July.

Collected drawings were first classified according to Eisner's 14 categories in September in the US. Eisner's categories were constructed to show children's creative techniques to express space in two dimensional surfaces. These categories emphasize the relationship between figures (morphemes) and ground lines, the ways in which figures are drawn on the ground line, and the concept of overlapping, the ways in which figures overlap with the ground line and other figures (See Figure 1).

Then the researcher constructed new categories based on Eisner's fourteen categories to classify Japanese children's unique patterns of spatial treatment which could not be classified by Eisner's categories. As with Eisner's categories, Toku's twenty categories do not form a spatial scale to show developmental stages, which always develop from one to another, but these categories show a developmental direction in the schematic categories. This means that children do not always develop from one to another category with age, although these categories show a developmental direction from simple to complex in spatial treatment. (See Figure 7).

The main difference between Eisner's and Toku's spatial categories is that Toku's categories include the concept of relative size and location, photographic and exaggerated views, bird's-eye views, and multi-perspective views, in addition to Eisner's categories, which were based on the relationship between figures and the ground line and the concept of overlapping. To classify Japanese children's unique ways of spatial treatment, Eisner's spatial concept was not sufficient and needed to be adapted to an advanced concept of spatial presentation. Also, Eisner described the first category as the floating figure in space; however, this category was replaced by the concept of mapping in Toku's categories. At the early stage, children tended to gather and draw all figures and things that they knew related to the playground drawing theme, "Me and my friend in playground." In their drawings, figures and things are mapped and drawn rather than floating in space. Thus, categories two through twelve follow Eisner's categories, but the first category and categories thirteen through twenty were developed by the researcher.

----- Place Figure 7 about here -----(Toku's 20 Spatial Categories)

The basic style of verbal descriptions of spatial categories fundamentally follows Eisner's descriptions, and the content of each category is as follows:

A) Mapping

Category 1: Morphemes "mapping," not standing on edge of paper.

B) Alignments without a ground line

Category 2: Morphemes standing on bottom edge of paper.

Category 3: Some morphemes standing on bottom edge of paper. Others floating in space.

Category 4: Morphemes standing and aligned in space.

C) Alignments with a ground line

Category 5: Some morphemes standing on bottom edge of paper, others floating above horizon line.

Category 6: Some morphemes standing on bottom edge of paper, others standing on horizon line.

D) Alignments on/above/overlap a ground line

Category 7: Morphemes standing on horizon line.

Category 8: Morphemes floating above horizon line.

Category 9: Some morphemes standing on horizon line, others floating above horizon line.

Category 10: Some morphemes standing on horizon line, others floating above horizon line.

E) More than two ground lines

Category 11: Two or more horizon lines drawn, morphemes standing on horizon lines/ bottom-edge of paper.

Category 12: Two or more horizon lines drawn, some morphemes standing on horizon lines, others overlapping horizon lines/ space.

F) Open space

Category 13: Morphemes (same size) spreading over space --- the concept of relative position.

Category 14: Morphemes spreading over space, but getting smaller --- the concept of relative position & size.

G) Photographic & exaggerated views

Category 15: Morphemes spreading over space, but some are cut by the edge of paper --- photographic view.

Category 16: Some morphemes are exaggerated drawn in space --- exaggerated view.

H) Bird's-eye views

Category 17: Grid is drawn and morphemes are drawn from front and side view.

Category 18: Grid is drawn and morphemes are drawn from top view.

Category 19: Grid is drawn and morphemes are drawn from open view.

I) Multi-perspective views

Category 20: Unclassifiable drawing including the multi-perspective view, which is drawn from different views at the same time.

According to Toku's 20 categories (1997) (which were constructed based on Eisner's 14 categories), the drawings were sorted to classify spatial presentation in Japanese children's drawings by six art educators under the instruction of the researcher. However, those art educators were first trained to understand the concept of the spatial categories under the researcher's supervision (about thirty minutes in each of the two weeks) before sorting. Then educators were divided into three teams composed of two educators each to classify the children's drawings. Thus, each drawing was classified into a category when two educators agreed that the drawing met the fundamental condition of the category. If they did not agree on the classification, the drawing was set aside, until they agreed with each other under the researcher's instruction again. The role of the researcher in this stage was to help the judges clarify the essential conditions of the category.

Each team of two art educators was in charge of classifying drawings from one of the four schools. This procedure of classification took place in two hour sessions over a period of two days. However, despite the training in understanding the concept of the spatial categories, in some cases it was still hard for art educators to judge in which category drawing should be, since some drawings showed characteristics related to more than two categories. Although the researcher supervised each team to avoid any confusion when they classified drawings, there were some misunderstandings of the concept of classification. The researcher decided to briefly check all drawings after classification by each team to make sure all drawings were classified under the concept of spatial categories. Two teams' classifications were almost the same as the researcher's judgment; however, since one team showed judgments significantly different from the researcher's in the higher categories (from category fifteen through nineteen in Toku's categories), drawings were reclassified by the researcher. This classification problem should be considered in the future plan.

In addition to the training, the direction of classification was given to the six art educators by the researcher. The directions given to judges were as follows:

- 1) Please look at just the spatial treatment carefully, but not other areas (e.g. color, figure skill, and so on).
- 2) After understanding the concept of spatial treatment, please use your judgment to classify the drawing into the proper category.
- 3) Please classify the drawing into the proper category based on the main characteristic in the drawing, if you see characteristics in the drawing related to categories.
- 4) If you do not agree with your partner, discuss and decide which is a better solution.
- 5) If you still disagree, just separate the drawing from the others and go back to it later.
- 6) You may create your own additional categories when a drawing is found which cannot be classified into the spatial categories (e.g. category 12+, 12-, and so on).

2. Judgment task

As a result of the analysis of Japanese children's drawings in 1996, there were clearly characteristics in spatial presentation which U.S. children seldom used. Thus, the judgment task was designed to clarify whether Japanese children's unique ways of spatial presentation was reflected in their knowledge of the concept of space.

The judgment task was implemented in Japan one year later in 1997. Children were asked six questions based on seven different types of spatial drawings of tree patterns which were created by the researcher to confirm the relationship between children's knowledge of space/depth, their aesthetic preference for space, and the actual spatial techniques that they use in drawings. The tree patterns were developed based on the spatial concepts of Eisner and others, and Japanese children's unique spatial patterns which were found the pilot study (Arnheim, 1954, 1974; Eisner, 1967; Golomb, 1992; Lowenfeld & Brittain, 1987; Toku, 1996).

The second phase of the study examined about 1,000 questionnaires filled out by first through sixth grade students and collected in the summer of 1997 from three elementary schools (the elementary school attached to Iwate University, the elementary school attached to Ochanomizu Women's University, and Naze Municipal Naze elementary school) in the same three areas of Japan. I asked basically six questions in the classroom to see Japanese children's preference for spatial treatment in drawings by showing seven different types of drawings in which a different way to create space was depicted. For each question, students wrote the number that they would choose among the seven drawings without discussing their answer with anyone. In addition, if students did not understand the meaning of a question, they were allowed to choose number eight.

Seven patterns of trees were drawn on 14" X 18" drawing paper by the researcher based on the following spatial concepts:

(These patterns correspond with some spatial drawings in Toku's twenty categories)

1. Alignment on the bottom-edge of paper: three trees are aligned standing on the bottom edge of paper (Category 2 in Toku's).
2. Alignment with horizon line: three trees are aligned standing on the horizon line in the paper (Category 7 in Toku's).
3. Open view: trees are drawn in a circle with trunks pointing towards the center (Category 19 in Toku's).
4. Relative position: trees are drawn the same size and spread over the paper (Category 13 in Toku's).
5. Relative size and position. trees are drawn spreading over the whole paper with different sizes, getting smaller farther away and getting bigger closer to viewers (Category 14 in Toku's).
6. Photographic view: trees are cut off by the edge of paper like a view through a camera (Category 15 in Toku's).
7. Exaggerated view: trees are drawn as a exaggerated view, which is that a part of tree such as trunk, branch, and leaf, is enlarged and drawn in the space (Category 16 in Toku's).
8. Option: students are allowed to choose this number when they do not understand the meaning of a question or when they could not decide on a particular picture.

After showing seven patterns of tree drawings by the researcher in each class, the following six questions were asked based on the seven different types of tree pictures:

1. Which picture is the best in showing spatial depth? (Which picture is the best in showing the relationship of far and close?)
2. Which picture is the worst in showing spatial depth?

3. If you were to draw a forest scene, which picture is the closest to the one that you would draw?
4. If you were to draw a forest scene, which would you never draw?
5. Which is your favorite picture?
6. Which is your least favorite picture?

----- Place Figure 8 about here -----
(Seven Tree's Pictures for Judgment Task)

The first two questions were to determine students' knowledge of representation of space in drawing. The third and fourth questions were to find what their actual drawings were like when they drew spatial scenes regardless of their knowledge of space. The fifth and sixth questions were related to aesthetics regardless of their actual drawings. These questions were given in different ways depending on students' ages to make sure of their understanding of these questions' meanings. For each question, students were allowed to select one number to indicate their choice among seven drawings. If students did not understand the meaning of the question, they were allowed to select the number eight. However, they were not allowed to discuss it with anyone. At the same time, students' reactions to these questions were observed.

Results of the Quantitative Methods

1. Drawing task

First, based on Eisner's spatial categories and then Toku's new spatial categories, the question of whether there is a direction of development, specifically spatial development, regardless of regions in Japan, was examined. Second, the probability of developmental stage theory in spatial representation in children's drawing was also examined. Thirdly, whether the patterns of spatial presentation in children's drawings are the same regardless of social-cultural differences in three regions in Japan was examined. Lastly, whether the same results appeared when compared to the pilot study was observed.

Using the Chi-Square ($p < .01$), the second and the third hypotheses were overturned due to the spatial representation of children in three different regions in Japan (See Table 6 and 7, and Figure 9). This means that Japanese children do not develop from one category to another based on Eisner's spatial categories and the patterns of spatial presentation in children's drawings are not always the same in the three regions of Japan. However, it was also found that there is a developmental direction from simple to complex in spatial treatment in children's drawings with age in the three regions. In spite of the fact that there is not an invariant sequence in development, Japanese children seem to have a tendency to create space from simple to complex reflecting the level of their cognitive development and also the level of their motor skills.

In the hypotheses, the relationship of the four schools in three regions in Japan was significant. This indicated that even in the same country there is some difference in the process of children's artistic development depending on the cultural differences in each region and the different approach to art education in each school.

There are some interesting findings from the data in each category. First, there were almost no drawings in category one, in which figures are floating in space without a ground line. This means that Japanese students already have some knowledge of spatial treatment when they start elementary school. Also, in categories four (in which figures are standing on the bottom edge of the paper and a horizon line drawn), five (in which a partial horizon line is drawn), and six (in which two or more horizon lines are drawn), there were few Japanese students. The tendency is more accurate with ages than regions. This indicates that Japanese children tend to start to use the whole paper to create space shortly after the stage of using the bottom edge of the paper as the ground line. The speed of development from the low to high categories in Japanese children is still higher than that of U.S. children, based on the pilot study (See Table 4 and Figure 3). This result was almost the same result as appeared in the pilot study based on drawings which were collected from children who were studying at a Japanese school in Chicago under the national curriculum.

Another finding was that many Japanese children's drawings regardless of the region could not be classified into Eisner's categories in the pilot study. However, the incidence of unclassifiable drawings in this 1996 research was higher than that of the pilot study. Compared to the results of the pilot study, where about 20 % of Japanese children's drawings in the Chicago Japanese school could not be classified, more than 35% of Japanese children drawings from three regions in Japan could not be classified in Eisner's categories.

What do these results mean? They indicate two things: Japanese children clearly have some unique patterns when they create space on two-dimensional surfaces, and there are some strong socio-cultural factors which influence children's drawing patterns in spatial presentation in Japan.

Why was the rate of unclassifiable drawings of Japanese children in the pilot study lower than that of Japanese children who were living in Japan? Japanese children's drawings in the pilot study were collected from a Japanese school in Chicago and some children in the school had diverse cultural backgrounds, although their parents were Japanese. For example, some children who were educated at the Japanese school in Chicago were born and grew up in the U.S. without direct exposure to Japanese culture. They must have been exposed to the American culture more than Japanese culture through their American peers, since the Japanese school in Chicago was offered only on Saturday and most of the Japanese students were studying at American schools Monday through Friday. It was easy to predict that these children were influenced by two cultures at the same time, Japanese culture from their parents and American culture from their American peers and the circumstances in Chicago. As a result, the influence of Japanese culture in their drawings was weaker than that in drawings of Japanese children who were living in Japan.

Lastly, a universal tendency still existed in the spatial treatment in Japanese children's drawings according to Eisner's spatial categories. In spite of the fact that Eisner maintained that these spatial categories were a scheme of children's spatial representation in their drawings, but not the developmental stages of spatial presentation (1967), there is a direction from the simple to the complex in spatial presentation in children's drawings (Toku, 1997). Even though more than 35 percent of Japanese children's drawings did not fit into Eisner's categories, about 65 percent of Japanese

children still used the techniques of spatial treatment that Eisner described. Although Japanese children's drawings do not always follow Eisner's spatial schema from category to category (they sometimes skip from one category to another), their techniques develop from simple to complex schema with age. They always started with the alignment drawings and reached the overlapping drawings in Eisner's categories.

----- Place Table 6 & 7 and Figure 9 about here -----
 (Tables of Chi-Square & the Proportion in Each Category of Each School
 Based on Eisner's 14 Categories, and the graph)

After classifying children's drawings by Eisner's categories, new spatial categories were developed to classify Japanese children's creative techniques which could not be classified into Eisner's categories. As a result, 20 spatial categories were constructed: categories 1 through 12 incorporated almost the same concepts as Eisner's, which were based on the relationships between figures and the ground line. Category 5 however was removed from the original Eisner's categories due to the fact that Japanese children failed to use this method of spatial treatment in their drawings. Categories 13 through 20 were added to classify Japanese children's characteristics in spatial drawings based on the concept of relative position and size and the multi-perspective views from different directions in space. As imagined, more than 35 percent of Japanese children's drawings from first through six grades, regardless of region in Japan, were classified into the new spatial categories of 13 through 20. The rate expanded with their age.

----- Place Table 8 & 9, and Figure 10 about here -----
 (Table of Chi-Square & the Proportion in Each Category of Each School
 Based on Toku's 20 Categories and the graph)

Japanese children showed a tendency to often use complicated techniques of creating space considering their ages. More than 35 % of drawings of Japanese children from 1st through 6th grades at 4 schools in 3 regions in Japan were classified into categories 13 through 20, which were constructed to classify the unique patterns in Japanese children's spatial presentations. This number of 35 % was equal to those which were not classified into Eisner's spatial categories.

According to the distribution in each category, we can find a tendency of Japanese children's spatial treatment in their drawings. After using a ground line to create space on the two dimensional surface, children start to express the space without the ground line. By spreading figures over the whole surface of the drawing paper, children create space with the concept of relative position, in which figures standing on the bottom of the paper are closer and figures drawn in the top are farther; however, figures are still drawn the same size without the concept of relative size at this stage. Then children start to use more advanced techniques to create space, like the concept of relative size where figures are drawn getting smaller with distance. After finding the concept of relative size to create space, children have a tendency to use a special technique, called "photographic view." The characteristic of this technique is that some figures are consciously drawn as "cut-off" bodies in the drawing. For example, a body is drawn cut off in the center by the left edge of the drawing paper or cut off in half horizontally by the bottom edge of the

paper. As a result of using this technique, the space is assumed to continue beyond the edge of paper without limitation. At this stage, children find that the paper is just a small square to express space and they no longer try to contain space inside the paper; they just use the paper as a part of the larger natural space. Also, these two spatial techniques of relative size and photographic view are often used at the same time in the same drawings. Not all, but some, children develop another technique of creating space in their drawings, the “exaggerated view.” This is the most impressive and advanced technique to create space since this technique demands not only the knowledge of space, but also considerable artistic skills. However, results of the drawing task suggest that the tendency did not appear in younger students’ drawings (first and second graders). This may be due to lack of skill rather than lack of knowledge of the concept of space: Children might not know how to draw, experiencing what Freeman (1980) calls a “performance problem.” They may tend to use alignment techniques until their skill level matches their knowledge and their preferences for space. This will be supported by the results of the judgment task later (See Figure 10).

Contrary to the tendency to develop spatial treatment by spreading figures to the exaggerated view, there is another tendency in the process of creating space on the two dimensional surface, which is called “bird’s-eye view.” Mostly, there is a grid to express a playground in the drawing in this spatial pattern, but there are three patterns depending on the angle of looking at the square line: side, top, and open view. The reason for drawing the square grid line may well be due to the environment and the system of Japanese schools. In Japan, schools are built with three or four floors surrounded by a big playground. Also, there is at least 5 minutes recess time between each class and students use that short time to play on the playground. As a result, students have frequent chances to look down at the playground from their classrooms. The pattern was produced from an ordinary scene from their school life. The side view is the most popular pattern and figures are spread equally in the square. The top view is the rarest of these three patterns with the square line in the drawing, but there were two to three cases in each school. This pattern is the most advanced pattern among the three since this is drawn as a top view looking straight down from the top. Figures are drawn with the head, arms, and feet without drawing the body itself. The third pattern of open view is very common in younger students such as first and second graders. Lowenfeld and Brittain (1970) also mention this tendency as one of the common solutions when younger children create space; they call this view of “folding over.” As the result of younger children’s struggle to create space, they create this pattern due to their lack of motor skills and the knowledge of how to reproduce the actual space on two-dimensional surfaces. However, with age, the tendency to use this pattern decreases.

The choice of this technique of bird’s-eye view seems to depend on the location and circumstance of the school that students attend. According to the data based on the Toku’s 20 categories, on the one hand, more than 25 % of students in Naze elementary school, which has five floors and has a nice view looking down on a big playground, chose this technique to express their playground scene. On the other hand, only about 7 % of students in the elementary school attached to Iwate University, which has two floors, chose this pattern to draw their play scene.

2. Judgment task

The results of drawing tasks implemented in 1996 confirmed the characteristics of Japanese children's spatial presentation in their drawings. However, it was also found that Japanese children's tendency of spatial treatment followed a universal pattern from the simple to the complex, which always started with simple alignment of figures and finally reached the complexity of photographic or exaggerated views. Here, another question appeared. How do Japanese children start to use such particular techniques of photographic and exaggerated views? When do they know the concept of space/depth? Do they use such techniques in responding to their preference/aesthetic for space? To determine the relationship between their cognitive development for space/depth and their preference, additional research in the form of a judgment task was implemented in the same regions in 1997, one year after the drawing task in 1996. Six questions were asked of students about seven different types of tree pictures. Students chose one picture from the array in response to each question.

In response to the first question concerning students' knowledge of space, in which they were asked which picture was the best or the worst in showing the relationship of far and close, there was a remarkable difference between first graders and the rest of the grades. First grade students' responses were spread over the seven pictures, which suggests that they did not have a consistent concept of space. In addition, 10 to 15 % of first grade students responded that they did not understand the meaning of the first and second questions. However, most students already tended to have the concept of space before reaching second grade. For the first question of which was the best picture in showing space/depth, most students (about 30 through 50 % of students beyond the first grade) chose picture 5, in which trees were drawn spread all over and getting smaller with relative size and position. Picture 5 was not always the "correct" choice to indicate the spatial scene of tree, but it was assumed the most reasonable picture to show space/depth.

In second grade, the majority of students chose picture 5; however, there were some students who still did not understand the meaning of the question of the concept of space (7 % of second graders chose number 8). Before reaching fourth grade, students seemed not to have any difficulty thinking about the meaning of space and they chose a particular picture for the question. When students reached third grade, picture 6 (photographic view) became the second most popular picture to show the concept of space next to picture 5. This tendency grew with their ages; by the time students were in sixth grade more than

60 % chose picture 6 and 30 % chose picture 5 in this question.

In response to the second question of students' knowledge of space, in which they were asked to choose the worst picture in showing the relationship of far and close, there was a marked difference between first and second graders and the rest of the grades. First and second graders' responses spread over the seven pictures and about 15 % of first graders and 5 % of second graders responded that they could not understand the meaning of the question. In the rest of the grades, there was a definite tendency. More than 40 % of students chose picture 1 (the alignment of trees on the bottom edge of the paper) and the responses of the rest of students were divided equally between picture 2 (alignment on the horizon line), 3 (open-box view), and 4 (spread out all over without relative size).

In the third question, in which students were asked which would be the closest picture to the one that they would draw (in order to find the way they actually drew

spatial scenes regardless of their knowledge of space), students' responses shifted from the alignment type of drawings to more complicated spatial drawings such as picture 6 (photographic picture) and 7 (exaggerated view) with their ages. Although students' tendencies regardless of age were to spread their responses over the seven pictures, the rate of choice of picture 1 (alignment picture) and picture 3 (open-box view) decreased with age. However, more than 30 % of first graders still chose picture 1 (alignment picture with a horizon line) while more than 20 % of them chose picture 5 (spread out all over with the concept of relative size) for question one in which they were asked which picture was the best in showing the relationship of far and close. About 40 % chose picture 7 (exaggerated view) for question five in which they were asked "which picture is your favorite one?" (See figure 11 and 15). This indicates that younger students' preferences and their drawing skills were not matched. Although young students had their preferences in spatial representation, they had to use such a easy alignment technique due to their lack of artistic performance, which means that they simply did not know how to draw. With students' increased ages, they could draw according to their preferences when they created space on two-dimensional surface.

In the fourth question students were asked to choose the picture that they would not draw (to find their actual drawings when they drew spatial scenes). Unlike the results of the third question, where the responses spread over seven pictures, the majority of students regardless of age (50 % of first graders through 65 % of sixth graders) chose one picture, picture 3 (open-box view). Another tendency in this question was that the choice of pictures 6 and 7 decreased with students' ages. These results suggest that younger students (first through third graders), although they would like to, could not use the techniques of photographic and exaggerated views due to their performance problems rather than their lack of motor skills. Younger children simply did not know how to draw them. For these third and fourth questions, in which students were asked to choose the picture that they would or would not draw, some students complained that they could not choose just one picture since they might use more than one technique. To respond to those questions, students were allowed to choose option number 8.

In the fifth question, asking their aesthetic preference rather than their actual drawing preference, more than 40 % of all students selected the exaggerated view (picture 7) as their favorite picture. However, another tendency appeared in that first grader's responses were divided among the rest of the 6 pictures equally although the most popular picture was still picture 7 (almost 40 % of first graders chose the picture 7). Also, with students' age, the rate of preference for picture 6 (photographic view) increased, although the exaggerated view picture remained most popular (about 35 % chose picture 6 and about 45 % chose picture 7 among the sixth graders).

In the sixth and final question, asking their least favorite picture, there was a significant difference between first graders and the rest of the grades. In the first graders' responses, their least favorite picture was spread over the seven pictures. However, there was a strong tendency and direction. The rate of picture 1 (alignment picture without horizon line) and 3 (open-box view) being chosen as their least favorite picture increased with age. At the same time, the rate at which pictures 6 (photographic view) and 7 (exaggerated view) were chosen decreased with students' ages. This means that their preference shifted from the simple to the complex with age.

In addition, there was an interesting finding through these questions. In spite of the fact that most students, regardless of their ages, showed their preference for picture 7 (exaggerated view), younger students tended to choose picture 1 and 2 when they were asked which was the closest picture to the one they actually would draw. This matched the results of the drawing task. This indicates that students have a tendency to draw at their own skill level rather than their preference. Despite students' aesthetic preferences, their actual drawings showed the limitations of their abilities of performance and motor skills when they represented space on two-dimensional surfaces.

----- Place Table 10, 11, & 12, and Figure 11, 12, 13, 14, 15, & 16 about here -----
(The Result of Judgment Task based on Six Questions)

Qualitative Method

Objectives

Supporting the interpretation of statistical results, each art classroom (one class from each grade in each school) was carefully observed to determine the circumstances in which students are taught. Furthermore, through interviews with each teacher, how the teacher instructs art students with his/her concept of art was confirmed. Japan has a nationwide curriculum which dictates that, regardless of where children are born and grow up, they are given an equal level of art education through compulsory education from first to ninth grades. All teachers use the same textbook; however, the teaching approach can be quite different depending on the teacher's interpretation of the art curriculum. Observing each teacher's approach to teaching art and cultural and social circumstances are important in understanding the reason Japanese children draw in a particular way.

The purpose of using this qualitative method for my research was to support the quantitative methodology analysis of my previous research. As a result of the cross-cultural analysis of Japanese and U.S. children's drawings, I found some characteristics in Japanese children's drawings that seldom appeared in U.S. children's drawings when they created space on two dimensional surfaces. One characteristic of Japanese children was the developmental speed from the lower to the higher levels of artistic ability; Japanese children reached higher levels faster than U.S. children. Another was that Japanese children used techniques in creating space on two-dimensional drawings that U.S. children seldom used, techniques which did not fit into Eisner's 14 spatial categories.

As the result of analysis of the data and my familiarity with the historical and cultural background of both countries, I concluded that one of the major reasons for Japanese children's high artistic ability in creating space on two-dimensional surfaces was the Japanese national curriculum in art education. Children who are born as citizens of the Japanese nation are supposed to be offered an equal education during the compulsory education period from first through ninth grades, regardless of gender, culture, religion, and the place where they are born and grow up. This also means, theoretically, that all Japanese children are offered the same quality of education regardless of the difference in teachers' values since the education is implemented under the same principle called "kyouiku-shido-youryou" ("education instruction summary" in English) which is renewed generally every ten years by the Ministry of Education with

the national textbooks. However, I started to doubt this belief that all Japanese have the same quality of education under the name of the national curriculum. Even if all educators use the same text books to teach particular subjects including art, I wondered if the teacher's understanding of the curriculum and the teaching method is really equal or not.

In addition, the other question is the classroom setting. Is the art classroom set in a restricted way as a kind of teacher's lecture like other academic subjects in Japan? Many educators in the Western world seemingly still believe that Japanese children are taught under teachers' strong authority with no peer interaction allowed in the classroom and that children are encouraged to make highly skillful artworks rather than imaginative artistic artworks in art classrooms (Peak, 1991). Is it true that Japanese children take art courses in a strict classroom? Do they show much higher artistic ability in terms of the national art curriculum in such strict classroom settings?

Actually, in spite of the fact that I am a Japanese, I also had the same image of Japanese educational style. However, I started to have doubts about this when I discussed art educational curricula with a Japanese professor at an art educational conference in Tokyo, Japan, 1996. The art education professor said that art teachers do not always teach the art curriculum and individual teachers may not use the art text book in the same way, despite the national curriculum in Japan. Surprisingly, I heard practically the opposite thing from a U.S. art education professor that U.S. art teachers unconsciously teach art with the same principles and elements of art including line, shape, color, and texture, in spite of the fact that U.S. does not offer a national curriculum. I totally agree with Dr. Walsh's comment in my response to the above issue. He said, "it's probably the case that countries like Japan which have national curricula are more diverse than one would suppose, and the U.S. which has 15,000 school boards making curriculum decisions is much less diverse than one would suppose" (personal communication, Feb. 17, 1997).

In brief, the first question is whether the art curriculum is taught based on the national art educational curriculum with the national textbook regardless of the area in Japan, schools, and teachers. The second question is similar to the first one, whether teachers use the same method to teach art throughout all Japanese elementary schools. Are children taught how to create space by using particular techniques which appear in their drawings such as the techniques of *relative-size*, *relative-position*, *linear-perspectives*, and *the combination of multi-perspectives* during elementary period (first through sixth grades) through the national curriculum? If teachers do not use the same method of art curriculum and children are not taught methods of creating space in two-dimensional surfaces through art curriculum in elementary school, how do children learn these ways of creating space in their drawings? The third question is how art is taught in the classroom in Japan: in the lecture discussion style or through peer dialogue.

To find the answers to the above questions, I decided to use qualitative method including observation in art classrooms and interviews with Japanese children and teachers, during summer 1997, in Japan. In the process of posing some questions parallel to the judgment task, the relationship between Japanese children's knowledge of space and their preferences in actual drawings were examined.

Samples

Four different types of data -- 1) Judgment task and observation, 2) Video observation, 3) Interviews, and 4) Questionnaire -- were collected from the following three different areas in Japan in summer 1997:

1. Naze Municipal elementary school (Naze City, from the Southern area): 1) Judgment task and observation: one class is selected from each grade, 2) Video taping observation: a first grade class is selected, 3) Interview with an art teacher (a first grade classroom teacher), and 4) Questionnaires: all classroom teachers.

2. The elementary school attached to Ochanomizu Women's University (Tokyo, from the Central area): 1) Judgment task and observation: three classes are surveyed from first grade, one class each from second, third, and fourth grades, and two classes each from fifth and sixth grades, 2) Video observation: a fifth grade class, 3) Interview with an art teacher (a fifth grade classroom teacher), and 4) Questionnaire with three first grade teachers, the art teacher of second, third, and fourth grades, and the art teacher of fifth and sixth grades.

3. The elementary school attached to Iwate University (Morioka city, from the Northern area): Judgment task and observation: one class from first grade, two classes each from second, third, and fourth grades, and one class each from fifth and sixth grades, 2) Video observation: a third and fourth grade special setting class, 3) Interview with an art teacher (a fourth grade classroom teacher), and 4) Questionnaire: all classroom teachers.

----- Place Figure 17 about here -----
(The map of schools in Japan)

Design of the Inquiry

I used the following four different types of qualitative methods to determine the reality of the national curriculum in art education in elementary schools.

1. Judgment task and observation

This study examined about 1,000 questionnaires filled out by first through sixth grade students and collected from three elementary schools from the northern, central, and southern areas of Japan in Summer, 1997. The public schools' schedules were strictly constructed based on the national curriculum at the beginning of spring semester in March and there was generally no space to implement an additional project. However, thanks to the cooperation of each school, I could use about 30 minutes for the task in one or two classes of each grade in each school (over the period of two days to one week, depending on each school's situation). Also, in the process of doing the judgment task, students' attitudes were carefully observed by the researcher and the assisting teachers each time.

2. Video observation

One class was selected from each school to videotape in order to document the actual art classroom scene: 1) a first grade art class in Naze Municipal Naze elementary school (Southern area); 2) a fifth grade art class in the elementary school attached to

Ochanomizu Women's University (Central area); 3) a fourth grade art class in the elementary school attached to Iwate University (Northern area). The subject of each lesson was selected and implemented by the art teacher (or the classroom teacher) based on the national curriculum.

3. Interviews with art teachers

Before or after the lessons were taught, I interviewed the art teacher from each school based on a standard set of questions to ascertain their interpretations of the national curriculum in art and their method of art teaching. The interview started with open-ended questions, but the core of the questions was as follows:

Question 1. Who is teaching art in your school, an art teacher or classroom teacher?

Question 2. Does the teacher always use the national curriculum with the national art text book when he/she teaches art?

Question 3. Do you think that art teachers and classroom teachers teach in almost the same ways?

Question 4. If the approach of teaching art is different with each teacher, how is it different?

Question 5. Do you think that there is a peculiar characteristic in Japanese children's artworks compared with other countries and what is it?

Question 6. Do you think that the national art curriculum supports Japanese children's artistic abilities?

4. Questionnaires with teachers

I gave a questionnaire sheet with five questions (written in Japanese) to all classroom teachers and art teachers who were in charge of teaching art in each grade and collected it after the experimentation.

Question 1. What was the most frequent question from your students when you gave the drawing task last year? (or something you found while observing students' drawing activity).

Question 2. Do you teach how to create "space" through the art educational curriculum or by your own methods?

Question 3. Do you think that there are some Japanese children's characteristics in their artistic expression in general? If so, what is the cause of this?.

Question 4. How is your class located? (e.g. the north corner of third floor and can see the playground well).

Question 5. Give me any questions, opinions, and suggestions for this research.

Procedure

Prior to the implementation of this research in June and July of 1997, I contacted the principals of these three elementary schools to ask permission to conduct this phase of the study as a continuation of research which I conducted in summer of 1996. After receiving permission to do the research, I planned to visit those three elementary schools from the southern to the northern are to avoid facing the rainy season.

Naze Municipal Naze elementary school

(June 11 through 19, 1997)

Naze City in the southern part of Japan is the smallest of the three cities in which I implemented the research, with a population of 50,000 people. This city is located on the coast of a small island, Amami-Ooshima, which is situated between the Pacific Ocean and the East China Sea. Originally, Japan consisted of four big islands, which are called from north to south, Hokkaido, Honshu, Shikoku, and Kyushu. The Amami Islands continued from the southern edge of Kyusyu to the northern edge of the Okinawa (Ryukyu) Islands. Although Japan is small in area, it is spread out at great length from north to south between the Pacific Ocean and the Japan Sea. Naze city has almost the same latitude as New Orleans in the U.S. Due to such a location, it is said that Amami Ooshima island's culture is closer to South Asia (Taiwan and the Philippines) and the South Pacific islands (Polynesia and Micronesia) than to mainland Japan. Also, it is well known as a tourist town of a semi-tropical island which has an average temperature of 70 degrees Fahrenheit throughout year.

In the center of Naze city, there are three elementary schools and I selected one among them, my alma mater, Naze municipal elementary school. This school is politically and economically located in the center of Naze city near official buildings such as the Naze city building, the public art center, and so on. Like other typical elementary schools in Japan, the school building is vertically built with four floors and located next to a spacious playground.

1. Judgment task and observation

One day before the practical day of the research, I went to the school after 5:00 pm on Wednesday, June 11, to have a meeting to discuss the details of the research with a first grade classroom teacher, Ms. Nonaka, who is in charge of the art curriculum in the school. Ms. Nonaka was a friendly young teacher. She had already organized the time schedule so as not to disturb the normal classtime and asked me to use the morning meeting time for the research. According to Ms. Nonaka, only the morning time was available since the public school time schedule is strictly set in terms of the national curriculum and there was no extra classtime to teach other academic subjects. I was allowed to use three days, June 12, 13, and 14, and two classes each day were available for the research.

On the first day of my research on Thursday, June 12, I left early from my parents' house, just 10 minutes away by bicycle. I arrived at the school at 8:00 am and waited for Ms. Nonaka to come back from the teachers' meeting room since she was supposed to have the morning meeting as usual from 8:15 through 8:25 am. Around 8: 25 am, she came back and welcomed me to come to the first class for the research, a third grade class. Although I was talking with Ms. Nonaka with a smile until reaching the class, I felt a little nervous about my research, wondering if my method would really work well or not. As soon as I went into the classroom, all of the students were looking up at me with curiosity and they were quietly waiting for Ms. Nonaka's words. At that time, the classroom teacher had sat down at his chair and had already started his own work (maybe checking students' tests or something) and after introductions, he soon went back his work.

..... Place Table 13 about here
(Schedule for the Research at Naze School)

Ms. Nonaka started to introduce me to the third grade students.
Ms. Nonaka: “Good morning everybody! I would like to introduce a wonderful visitor, Ms. Toku, to you, today. I wonder if you remember that you drew a playground scene with your friend last year to send to the U.S. at the request of the art teacher in the U.S. Actually, U.S. art teacher is this Ms. Toku and she is teaching art to the U.S. students. This time, she came back to do another experiment, so can you support her research?”
Students: “Yes!”
Ms. Nonaka: “Then, Ms. Toku, please.”
Although I had to finish this research in 15 minutes, I decided to explain the reason why I came back to do more research to make sure the students understood the purpose of this research.
The researcher: “Good morning, everybody, thank you so much for your help last year. Thanks to your help, I could collect many Japanese students’ drawings last year. After collecting those drawings and comparing Japanese students’ drawings with American students’ drawings, I found very interesting things. Do you know what they were?”
Student A: “Maybe, the way of picture or something was different from American ...”
The researcher: “Good point. Actually, when compared to American students’ drawings, I found many different things and especially I found some characteristics which only appeared in Japanese students’ drawings and I did not see such characteristics in American students’ drawings. I came back to Japan to find the reason why Japanese students’ pictures were so different from those of American students. Can you help me again?”
Students: “Yes!” (Rapidly, they responded with loud voices.)
The researcher: “From now, I am going to attach seven different types of pictures to this blackboard. While I hang up these pictures, please look at them carefully to see how they are different.”
Then I looked back to the blackboard and I started to hang these seven pictures up with magnets. As soon as I finished, I looked back to the students and asked, “What are they?”
Students: “Tree pictures!” (Actually, many students responded to my question at the same time.)
The researcher: “How do you know that these are tree pictures?”
Students: “Because... they look like trees...”
The researcher: “Good! Then are they all the same tree?”
Students: “No, everything is different.”
The researcher: “How are they different, anyone?” (Some students raised their hands and I picked one student among them.)
Student B: “Each tree’s location is different.”

The researcher: “That’s right! Anyone, anything else?” (Again some students raised their hands.)

Student C: “ The trees’ sizes are different in each picture.”

Student D: “ The first one is... the same size trees lined up, in the second picture, another horizontal line appears under the trees, but the same size trees are lined up on the line, and ...” (He pointed out each picture’s characteristics and it was amazing that he found the details of each picture in such a short time and could successfully explain each in words.)

The researcher: “It’s wonderful, seemingly everyone can find the pictures’ differences. Okay, I am going to give you six questions related to these tree pictures. After each question, I would like you to choose the one picture among the seven pictures that answers the question. If you don’t understand my question, I would like you to choose the number eight. Don’t worry because there is no right answer and no wrong answer, either. So, I would like you to answer honestly without discussing it with anyone else. Again, this is not a test at all, but this is research to see what you think about each question. We will start when you receive the answer sheet that I will pass out now.”

While I was passing out the answer sheet for those questions, students were quietly waiting. Although some students were whispering, they stopped talking rapidly when Ms. Nonaka pointed her finger up to her lip. (This sign seems to be universal.)

The researcher: “Imagine you are supposed to go to a picnic or something to a mountain park with your classmates. There are trees everywhere. Can you see which tree is closer to you and which is farther away from you? Do you know the meaning of closer and farther away when you see trees?”

Students: “Yes! I know!”

The researcher: “Let’s start! The first question is ... which picture is the best in showing the relationship of far and close among trees? In which one can you easily see the relationship of far and close of each tree? Choose just one number among the seven. Again, if you don’t understand what I asked, don’t hesitate to choose number eight.”

Ms. Nonaka: “Do you understand? Ms. Toku asked you to choose the picture in which you can best see depth, or far and close, among those seven pictures.” (Ms. Nonaka supported me to make sure students understood my question by rephrasing it.)

After giving this first question, I was waiting for all the students to finish writing their selected number on the answer sheet. At the same time, Ms. Nonaka went around to students’ desks to make sure that students were finished and she encouraged students to choose one number by their first impressions without spending too much time when some students seemed to be at a loss. She was very supportive.

The researcher: “When you are finished, please look up and face me. Everybody finished? Can I start the second question?”

After seeing all students’ faces looking at me, I started the second question. The same procedure was repeated. When I finished all six questions, 15 minutes had passed. At last, I asked one more question.

The researcher: “Did you feel difficulty with these questions?” (Some students said that they were so easy, but others said that they were difficult. I asked the students which were difficult.)

The researcher: “What was so difficult?”

Some students: “It was difficult that I had to choose one picture because I thought a couple of pictures fit for one question.”

The researcher: “I know ... it must be difficult to choose just one picture, but you know... I really wanted you to choose just the one you thought was the best picture even if you might have been at a loss. Thank you very much everyone, your cooperation has been very helpful for me. The research is over, please follow your classroom teacher’s instructions to go back to your study.”

After collecting all the answer sheets from students, I left the 3rd grade classroom and started to walk to another class to do the same task with Ms. Nonaka . Likewise, I continued to go around to two classes per day with Ms. Nonaka for the remaining two days, June 17 and 19, and the same procedure was repeated. Depending on the grade and students’ comprehension of the questions, I tried to carefully select the proper words to ask without changing the concept of each question. Each time, Ms. Nonaka helped to support my research by rephrasing questions when she saw students’ puzzled faces, since students had a tendency to pretend to understand even though they are not sure of the meaning of questions and they seldom asked teachers the meaning of questions. Japanese students are shy, especially with visitors, although once they get used to them, their attitudes totally change.

2. Video observation

On Thursday, June 18, Ms. Nonaka allowed me to take a videotape of her classroom art scene (first grade) at the third and fourth period times (total 90 minutes). Before starting the art class, Ms. Nonaka gave me the lesson plan which was directly taken from the national text book (for teachers). It was really helpful to check the purpose of the art curriculum before observing the actual class. Also it made it easy to see how the teacher was going to teach and organize the lesson based on the instruction of the national art textbook. The method of instruction of a particular subject shown in the textbook was given just as an example of how to teach the content of the lesson, not as the only way to teach the lesson. Therefore, the way of instruction must have been different depending on each teacher.

According to the lesson plan selected from the national text book for 1st grade, the title was “Let’s make your own insect box (or animal zoo).” The purpose was to encourage students to create insects or animals and to think about the environment by using found materials which they brought from their homes, such as boxes, plastic, wrapping paper, and so on.

..... Place Table 14 about here

(Lesson plan of Ms. Nonaka)

Ms. Nonaka clearly explained the purpose of this study to students and let students move their desks to the corners to make a working space in the center of the classroom. (The classroom floor was made of wood and students had to enter the room after taking off their shoes.) Some students sat directly on the floor and then started to

work on the project with their peers. The others stayed on their own chairs and started to work on the project alone. The students, who were listening quietly while Ms. Nonaka was explaining the project, started to talk loudly with peers once they started to work on the project. It was amazing to see the rapid change in attitudes from obedient and quiet angels to noisy nuts. However, Ms. Nonaka let students work freely as long as they did not disturb other students' work. Also, she did not force students to change their processes and working styles for the project. She did not even give any suggestions to students who did not ask for her help. Rather she went around from desk to desk and student to student to discuss the students' work to make sure that everything was going okay.

The art classroom scene looked chaotic and noisy to me, familiar as I am with the art classroom scene in the U.S., where the students I have observed and taught are encouraged to work quietly and independently on projects. Also, the room was becoming gradually messier due to the students' usage of art materials. I was really worried about how Ms. Nonaka would organize such a messy and chaotic situation by the end of the class period. Whether she knew my worry or not, she continued to go around to students' working space as usual to discuss and give some suggestions to respond to students' needs.

About 10 minutes before the end of the class period, Ms. Nonaka suddenly clapped her hands twice to get students' attention and she said to students, "It's time to clean up, students! Let's stop now and start to clean up!"

As soon as Ms. Nonaka said that, most students stopped their work and each student started to go to their own routine work after the art class. Some students picked up brooms and dust pans and others started to return their desks and chairs to the previous positions. As if students ignored my worry, the chaotic classroom gradually returned to the pre-art class. It was amazing. In just 10 minutes, in spite of the fact these students were just first grade students, they did a perfect job. Unlike the U.S. schools, in Japan there are no janitors designated to clean up classrooms. As a result, even in such early grades, students are encouraged to take responsibility to clean up their own classroom (even if they cannot to do a perfect job and each classroom teacher actually has to go back to clean up).

After confirming whether all students had returned to their own places, Ms. Nonaka started to discuss students' projects that day for the rest of the art time. Ms. Nonaka questioned how students worked and what students made, and almost all students raised their hands to speak about their own art projects. It was a very lively discussion. Contrary to my image of Japanese students who are very shy and seldom opened their mouths to explain their own artworks, they never hesitated to talk about their own projects.

After the art class, I had a chance to ask Ms. Nonaka whether students' attitudes that day were typical. She said that their attitudes and the situation of the art classroom were pretty normal, although they were a little conscious of the videotaping at the beginning. At the end of two periods of art class (about 90 minutes), there were wonderful insect boxes and animal zoos everywhere in the classroom.

3. Interviews with teachers

Responding to Ms. Nonaka's request, I had a very casual lecture and discussion time with some teachers after school on Tuesday, June 17, in Ms. Nonaka's classroom. After presenting the differences and similarities of art educational curriculum between the U.S. and Japan (based on the differences between district-based art education in the U.S. and the national art educational curriculum in Japan), some teachers asked me to explain the U.S. students' drawings (first through sixth grades) which I brought from St. Matthew school where I was teaching art. I explained the purpose and methodology of the art project which I gave students.

Teacher A: "What a big difference compared with Japanese children's drawings!"

The researcher: "What is the difference?"

Teacher A: "I feel ... there are many differences, but maybe the use of color is quite different from those of Japanese students."

The researcher: "How is it different?"

Teacher A: "For example, see this drawing, if Japanese students had drawn it, they would never have used such vivid colors all at the same time ... green, pink, yellow, purple,... it's so colorful."

Thus, we discussed each country's students' characteristics in their artworks. When I finished our enjoyable discussion, almost two hours had passed. After all the teachers had left from Ms. Nonaka's classroom, Ms. Nonaka and I had a chance to talk about the general art education situation in Japan. It might not have been an "interview," but more like a frank and casual conversation between us.

I was especially interested in asking who was teaching art in each class and how he/she was teaching the art curriculum based on the national art educational curriculum in Japan.

The researcher: "I am wondering who is teaching art now in this school ... one art teacher used to teach art to all the grades when I was a student in this school about 30 years ago."

Ms. Nonaka: "Actually, now each classroom teacher is also teaching art."

The researcher: "So, you mean is there no professional art teacher in this school?"

Ms. Nonaka: "That's right ... although I am in charge of assessing the art educational curriculum in this school, I don't teach art to all grades. I teach just my class like other teachers are teaching their own classes."

The researcher: "I didn't know that ... I believed that all schools still had professional art teachers ... How about other schools?"

Ms. Nonaka: "I don't think that any schools have such professional art teachers any more at least in this town."

The researcher: "So, it must be very different how each teacher teaches art... how does everybody teach art in this school?"

Ms. Nonaka: "You are right ... it's totally up to the teacher ... so, to be honest, some teachers might just follow the national curriculum and just let students work based on the textbook and they might use the art time to work on other subjects, for example, grading, preparing other academic subjects..."

The researcher: "Then how do teachers use the national textbook?"

Ms. Nonaka: “The attitude towards the art class and curriculum is quite different from each teacher ... I mean that some teachers who are really interested in art will teach art more actively and energetically beyond what’s in the national textbook than others ... others might just follow the national textbook.”

I was shocked since I never doubted that all elementary schools must have a professional art teacher to teach not only the making of art, but also the concept of art, just as I learned from professional art teacher when I was an elementary student. In addition, this situation exists not only in Naze city, but in almost all public schools in Japan. In the last 30 years, the situation of art education has seemingly changed considerably in Japan. Of course, the classroom teacher teaching art may be a good thing for both the teacher and students since the relationship between the classroom teacher and the students is closer than that between the art teacher and the students. It might be easier for the teacher to run the art class flexibly depending on the situation. It is also true that there are many wonderful teachers who can teach art even if their major is not art. However, it is still doubtful whether the classroom teacher can teach art deeply based on the concept of the national curriculum. I was anxious that the art class might just follow the model lesson plan in the national text book in practice since Japanese classroom teachers are generally too busy to think about all academic subjects at the same level.

4. Questionnaires with teachers

I gave the following to all classroom teachers and art teachers who were in charge of teaching art in each grade and collected it after the experimentation.

----- Place Table 15 about here -----
(Questionnaires translated in English)

I asked Ms. Nonaka to distribute the questionnaire sheet to all the teachers in the school. The purpose of this questionnaire was to collect as many teachers’ opinions as possible to check the art educational situation in Japan and the situation during the implementation of the drawing task in summer, 1996.

The most interesting answers to the questionnaire were in response to the second question that asked whether teachers teach ways of creating space to students through the art curriculum. Most teachers responded that they did not teach spatial treatment particularly through the art class since the national art educational curriculum did not have a sequence of lessons for teaching the concept of space. However, some teachers mentioned that they sometimes taught it responding to students’ needs and requests when they wanted to know how to create space on two-dimensional surfaces. Even then, the methods of creating space they taught were based on the techniques of overlapping and size differences, but not on the linear-perspective method.

The teachers’ responses to the question raised a big question for me: Why do Japanese children use advanced techniques of creating space although they never learn them through the art curriculum or the teacher?

**The elementary school attached to Ochanomizu University
(June 23, 24, and 25, 1997)**

I selected this particular school as the representative school for the central area because I was familiar with one of the art teachers in that school, Mr. Furihata, whom I first met in the Chicago Japanese school where I taught seventh grade from 1991 through 1993. Mr. Furihata was sent to the Chicago Japanese regular school from the Educational Ministry in Japan as an official art teacher from Japan in conjunction with a three year's overseas teaching program. In addition, the school where he now teaches is attached to one of the national universities, Ochanomizu Women's University, and has a principle of supporting all kinds of educational projects as an experimental school. Unlike other public schools in Japan which strictly follow the national curriculum, this school's curriculum is flexible in order to cope with such educational projects. Responding to the official request letter from Dr. Christine Thompson from the University of Illinois at Urbana-Champaign, the school was ready to welcome me and my research when I came from my hometown, Naze city, at the end of June.

Right after coming back from my hometown on Friday, June 20, I called Mr. Furihata to discuss the details of the experimental schedule and decided to go to the school on Monday, June 23.

There were about 800 students in Ochanomizu elementary school and each grade had three classes, making a total of 18 classes. This school had one class each in the fourth, fifth, and sixth grades for returnees from overseas. I tried to follow the same procedure implemented at the Naze municipal Naze elementary school, in order to avoid any kind of bias that might be produced depending on the area, teachers, or circumstances of the school. As a result, there were not any outstanding differences compared to the Naze elementary school in the procedure and students' reactions. In the process of this same research, I would like to herein pick up some interesting things which I did not see in the Naze elementary school that I found in this school through observations.

----- Place Table 16 about here -----
(Schedule for the Research at Ochanomizu School)

1. Judgment task and observation

Unlike Naze elementary school where art class was taught by each classroom teacher, the art courses of Ochanomizu elementary school were instructed depending on the grade by different teachers: first grade was taught by the classroom teachers (3 classes, by Mr. Nakamura, Mr. Murakami, and Mr. Tanaka); second through fourth grade were taught by an art teacher, Ms. Ebihara; and fifth and sixth grades were taught by another art teacher, Mr. Furihata. According to Mr. Furihata, even now, Tokyo city employs art teachers who have professional certificates as art teachers. However, this does not mean that all districts in Japan have the same educational system; rather each district depending on each prefecture has a different system of teaching art although art is one of the required courses as well as other academic courses under the national curriculum.

In the early morning of Monday, June 23, I left my house in Kawasaki city (which is a kind of satellite city of Tokyo, located to the south next to Yokohama city, which has a population of two million) at 6:30 am to see the first period class at 9:00 am. It is well known that the Tokyo area's commuter rush hour is incredibly crowded, especially Monday morning from 7:00 am through 9:00 am. In addition to the centralization of

population in such a small area, many people who live in such satellite cities gather in Tokyo to work. During morning rush hours all public transportation such as bus, subway, and train, is so crowded that people cannot move. Using cars is the worst idea since the highway and main roads around Tokyo become a huge parking lot during morning rush hours and it takes people forever to reach work.

Due to this crazy situation, I decided to leave my house early to arrive at the school on time. When I arrived at the school at 8:30 am, the morning classroom meeting had started. I was waiting for Mr. Furihata in the art room office to discuss the research again briefly. While I was waiting for Mr. Furihata, another art teacher who was in charge of second through fourth grade students came into the office. I had to explain my whole research situation and the purpose of my research in detail since she was a little skeptical of my research. However, after carefully listening to the purpose of my research, she understood and she opened her schedule for my research. During the discussion with Ms. Ebihara, Mr. Furihata also came back from his classroom. He had already set up the meeting with other first grade teachers for me that day and I promised to stop over at the first grade classroom during lunch time that day.

The first art class period (9:00 - 9:45 am) was sixth grade which Mr. Furihata was teaching. I borrowed the first 10 to 15 minutes for my research. At first, Mr. Furihata introduced students to me. Then I followed the same research procedure as I had done at Naze elementary school. First, I briefly explained the purpose of this research and how to answer my questions without discussing with their peers. Secondly, I spent a couple of minutes to explain the meaning of space and depth by using some examples with forest scenes and so on to classify the meaning of the questions. Between each question I made sure that all students knew the meaning of the question and could respond to it. After the research, I asked students whether this questionnaire was easy or not. All (I feel almost) students responded so rapidly to my questions that it was seemingly very easy.

After the research with sixth grade students, Mr. Furihata suggested that I did not have to explain the meaning of space and depth to the older students (fifth and sixth grades) since they were familiar with those concepts. Thanks to Mr. Furihata's suggestion, I realized that I did the research as if they were first and second grade students. Also, I found that fifth and sixth grade students were more mature than I thought, especially those young students who were living in such a big city, Tokyo, since they were surrounded by a lot of information.

After finishing the research with the fourth graders with Ms. Ebihara at the 4th period time (11:40 - 12:25 pm), I went to the first grade classroom to discuss the schedule with the first grade classroom teachers. Normally, I ask to select one class from each grade, but these first grade teachers kindly offered to let me use all three first grade classes for my research. Of course, I accepted such a wonderful offer since collecting as much data as possible was beneficial to my research. Through the discussion with the 1st grade teachers, we decided to implement the research through two days, June 24 and 25, in the mornings. Mr. Furihata also offered to let me use two classes of fifth and sixth grades for my research during the next two days.

Through this research with Ochanomizu elementary school, I found some characteristics that I did not find at Naze elementary school. The students who were living in Tokyo did not hesitate with a stranger and they did not show much curiosity. They behaved as usual, as if I was not there. Although some students (fifth grade students

at that time) came up to me to ask who I was and where I was from, their attitude of questioning was not hesitant and I felt that I was interviewed by them.

I was especially surprised by one first grade girl's question while I was explaining the situation of the forest scene to help them understand the concepts of space and depth. On Wednesday, June 25, at the morning classroom meeting time of Mr. Nakamura's class, after explaining the procedure of this research and the usage of the answer sheet (and not to forget name, gender, grade and school name, and to write one number for each question that you select), I tried to help students understand the situation by using the forest scene as usual.

The researcher: "Close your eyes and imagine that you went to a forest park with your friends one Sunday afternoon. There was a huge park and many trees. Let's imagine now that you are standing in the forest. Can you see which tree is closer or farther away? Then open your eyes! There are seven pictures of such a forest scene. Do you know the difference between these seven pictures? Since I am going to ask six different questions about these tree scenes, please choose one picture for each question! The first question is ... which picture is the best in showing the relationship of far and close?"

As soon as I asked the first question, one girl raised her hand.

Girl A: "Ms. Toku, should I answer all questions as if I am standing in a forest now or I am looking at the forest from this desk with imagination? Which way should I imagine to answer the question?"

I doubted my ears when I heard this question since I could not believe that this was a first grade student's question. I gently responded to her question.

The researcher: "That's a great question. Either way is fine, but it must be easy for you to imagine that you are looking at the forest from the position where you sit now."

Although her question surprised me and it was an exception as a first grade student's question, I found that almost all students' reaction to this research was the same as the students in Naze elementary school. For first and second grade students, understanding of the concepts of space and depth (the first and second questions) was difficult. Regardless of the grade, the easiest questions seemed to be the questions asking the way that students would draw the forest scene by themselves or would never draw (the third and fourth questions). Also, the last two questions of preference were not easy for them; they found more than one picture that they liked or disliked.

2. Video observation

On the last day of my research, Wednesday, June 25, I had a chance to tape one of the fifth grade art classes that Mr. Furihata was teaching. The class was doing a project of assembling wood to create a meaningful object for oneself. The title was "Giko Giko (the sound of sawing something) Art."

The day was already the fourth week (one week was equal to two class periods, of 90 minutes) for the project and students had almost finished cutting wood and they had already started to construct shapes.

The project was not in the national curriculum text book, but it was Mr. Furihata's idea since he had a chance to gather such a lot of wood from one of his friends. It seemed like an interesting project, but at the same time, it looked like a very dangerous project

since all students had to use dangerous tools including saws, hammers, and electric cutters. I never would let such fifth grade students use such dangerous supplies since it is possible to be sued by students' parents in case of an accident in the U.S. However, according to Mr. Furihata, learning to use such carpenter's tools through art class was required based on the national art curriculum. I again felt that this was possible in Japan, but not in the U.S., for Japanese parents' attitudes are seemingly more tolerant and trustful of school and the educational curriculum.

Again, the art class was noisy and chaotic. However, Mr. Furihata was going around to students' tables one by one to give suggestions for students' works and to respond to students' questions as if this were a usual scene.

Ten minutes before the end of class time, Mr. Furihata let students stop their work and encouraged students to begin cleaning activity. When students almost finished cleaning up their artworks and the art classroom, they started to write their impressions of the project in their art notebooks. This was Mr. Furihata's original idea to let students confirm what they learned through the project. Normally, art class in Japan entails making art, but not reflecting on what is learned. Mr. Furihata's idea was interesting to let students review their own artwork and the project itself to make students' work more meaningful.

At the very end of the art class, Mr. Furihata mentioned that the project would be finished next week. With a class leader's call, students said good-bye to the teacher and the art class was over.

3. Interviews with teachers

Through casual interviews with teachers (Mr. Furihata as art teacher of fifth and sixth grades; Mr. Nakamura, Mr. Murakami, and Mr. Tanaka, the first grade classroom teachers) I found some interesting things. Unlike other public schools, the school was officially independent from the instruction of the Ministry of Education because it is attached to Ochanomizu Women's University. This means that this school was an experimental elementary school which implemented different kinds of educational programs to find new directions for better education in Japan and did not have to follow the national curriculum tightly. Nevertheless, this school basically still followed the national curriculum; however, it was more flexible than other public schools throughout Japan in time, subject, so on. Therefore, not only my research, but also many other projects, were implemented at the school.

In addition, the status of teachers was different from other public schools in that teachers of Ochanomizu elementary school were federal government employees and other public school teachers were local government employees. Private school teachers did not belong to government and just belonged to the private school itself; this means that the private schools teachers were not generally supposed to be influenced by government instruction and the national curriculum at all.

4. Questionnaires with teachers

The results of the questionnaires that I distributed to teachers were the same as those from teachers in Naze elementary school. They claimed that they never specifically taught the concepts of space and depth, or the techniques of creating space on two-dimensional surfaces. If students needed teachers' help to create space on paper, teachers

sometimes taught them how to create space by overlapping and different size techniques; however, teachers themselves never taught the methods of creating space since the concept was not a required subject in the national curriculum through the elementary school period. Also, teachers felt that the influence of comic book (Manga) strongly appeared in students' drawings, especially in figures, as a cultural characteristic of Japanese society. Mr. Furihata mentioned that it was impossible for teachers to ban using such cartoonistic techniques since the majority of students were using the techniques nowadays and the tendency increased with students' age.

The elementary school attached to Iwate University (June 30 and July 1)

Morioka city is the capital city of Iwate prefecture and a typical middle sized city with a population of about 200,000. Morioka city is located in the northern part of Japan about 300 hundreds kilometers from Tokyo or about two and half hours by Shinkansen (nicknamed the "bullet train" because of its high speed) and has almost the same latitude as Chicago in the U.S.

Morioka city historically developed as a castle town during the Edo period of the 17th century and it was well known as one of the best rice farming areas in Japan. On the way to Morioka city by Shinkansen, people can see the wide rice farms everywhere and it is hard to believe that this is Japan since it is said that Japan does not have such a wealth of farm land. The northern part of Japan is an exception. Due to its historical background and location, Morioka city still keeps its calm and peaceful atmosphere despite being a big city.

There is a story behind my contact with the elementary school attached to Iwate University (which I will call Iwate elementary school after this). At the beginning of the research in 1996, one of the elementary schools in Hokkaido was selected as the experimental school for my research in the northern area since a teacher whom I met at the Chicago Japanese school was teaching in Hokkaido. However, in the middle of planning, the teacher was transferred to an other area and I lost my connection with the Hokkaido area. When I was considering another possible school for my research from the northern part of Japan, one of my old Japanese friends introduced me to a professor at Iwate University and I established contact with Iwate elementary school through the professor's introduction.

Like the other two elementary schools, Iwate elementary school had about 800 students, three classes in each grade. As a characteristic of this school, there were the double entry classes (which means that more than two grades are studying in the same classroom due to the limited number of students) of first and second, third and fourth, and fifth and sixth grades to cope with an educational problem in the area. Iwate prefecture had many depopulated districts. As a result, some schools adopted the double entry education system depending on the number of students in schools. By artificially creating such double entry classes in the school, Iwate elementary school tried to find the possibility of offering the proper education. Much like Ochanomuzu elementary school, Iwate elementary school was also an experimental school to search the best educational system reflecting some educational issues of Iwate prefecture.

Due to the request of the art teacher, Ms Nozawa, the research was implemented on June 30 and July 1 with the usual procedure.

----- Place Table 17 about here -----
(Schedule for the Research at Iwate School)

1. Judgment task and observation

On the first day of June 30, using the morning time, I finished the judgment task in each class from first through sixth grades. Just as in the other two elementary schools that I had already studied, I could smoothly implement the research since the art teacher always introduced me to each class before starting.

On the second day, July 1, I asked Ms. Nozawa about the possibility of surveying one more class each of second, third, and fourth graders (since I already collected the data of two classes each from first, fifth, and sixth grades) to equalize the number of subjects from each grade through three elementary schools. In spite of the fact that it was an unexpected request for her, Ms. Nozawa adjusted the class time schedule with other classroom teachers for me so that I could implement the extra research.

Compared with the other two elementary schools, I could not find any special differences in students' reactions to the judgment test: younger grade students (first and second graders) experienced some difficulty with the first two questions about the concepts of space and depth due to their lack of comprehension of space; the questions of which picture was similar or different from students' actual drawings seemed to be the easiest for students in all grades; the last two questions about students' preferences for forest scenes were relatively hard because they had to choose only one picture among seven even though they otherwise might have selected more than one.

2. Video observation

On the second day of the research, July 1, right after implementing the judgment task in a fourth grade class, I had a chance to take a videotape of the art classroom scene of the same fourth grade class.

The fourth grade art class was instructed by Ms. Nozawa and the subject at that time was "If something had wings (which does not normally have them)," a lesson, drawn from the national art curriculum, which students were continuing from the previous week. The concept of the project was to create something with wings from the imagination. Art was taught in the regular classroom, not in the art room, and students sat in their own chairs working on the small space of their own desks. Since it was the second week of the project, most students had already finished making the imaginative creatures with paper clays and they had already started to draw wings surrounding the creatures on drawing paper with watercolor painting. At the beginning of the art class, Ms. Nozawa showed some artists' reproductions to give students ideas of what kinds of colors and design were used in the reproductions. After letting students find the characteristics of reproductions by themselves, Ms. Nozawa encouraged students to use the same kinds of ideas in their own artworks, especially in the process of designing creatures' wings in watercolor paintings. Also, she encouraged the students to have fun creating the artworks. The project were a combination of clay (the body of the creature) and watercolor paintings (wings) on drawing paper. With students' imagination, there

were many different creatures with colorful and different types of wings produced on the drawing paper, such as turtles with wings, snakes with wings, apples with wings, heart shapes with wings, rice balls with wings, computer game characters with wings, etc. Students created winged creatures not only from animals, but also from many things that adults normally would never imagine. For children, imagination seems to be limitless.

About 10 minutes before the end of class, Ms. Nozawa let students stop working to clean the classroom. Also, she gave students a chance to present their own artworks, to describe the characteristics of the artworks and how they felt about them. In addition to the presentation, Ms. Nozawa asked other students to find the good points of the artwork. It was interesting to me that Ms. Nozawa never asked students to find bad things about other students' artworks; rather she just encouraged students to find only good points. Students tried to look at the presenter's artwork carefully to find the good points of shapes, colors, brush strokes, and so on, and they criticized in their own words.

3. Interviews with teachers

At Iwate elementary school, although there were some professional subject teachers in Japanese, science, sociology, and music, art was taught by the classroom teachers.

According to Ms. Nozawa who was in charge of the art curriculum at the school, she basically selected the subjects for art from the text book of the national curriculum. However, the materials were not always the same as recommended by the textbook; rather they were often collected or chosen from nature in the area. The textbook seemed to be just a reference and teachers sometimes adopted subjects and materials depending on their ideas and the situation. Thus, the method of teaching art seemed to be quite different depending on each teacher although all teachers used the same art textbook under the national curriculum.

4. Questionnaires with teachers

The tendencies in teachers' responses to questionnaires were almost the same as in the other two elementary schools. Most teachers responded that they never specially taught the concepts of space and depth; however, they often had to teach these depending on students' needs. When asked whether they felt that there were some characteristics which appear only in Japanese children's drawings, many teachers responded that they found the characteristics which were influenced by cartoon book and animation in students' drawings, and the stylization of their drawings were particularly Japanese. In addition, some teachers thought that Japanese children's drawings lacked creativity and expression although they had skills, compared with students of other countries (although teachers could not determine which countries; instead, they said foreign countries in general).

Results of Observation of Judgment Task and Art Classes in Three Elementary Schools

These six questions of judgment task were not difficult at all for third through sixth grade students, but were difficult for first and second grade students, especially the first and second questions that asked their understanding of the relationship of far and close, which is the concept of spatial depth. Also, students never learned officially the

concept and techniques of creating space on two-dimensional surfaces (drawing paper) as a part of the national curriculum of art education in Japan, even though teachers occasionally had a chance to teach them in responding to students' needs. This means that students somehow knew techniques of creating space on drawing paper in spite of this.

Unlike my first assumption that Japanese children learn the process of creating spatial depth through the national art educational curriculum from teachers who are in charge of teaching art, Japanese children apparently learn the techniques from something or someone else, but not from the curriculum and teachers. Where do students get such ideas? How did Japanese children learn such particular ways of creating spaces which U.S. children seldom used? Even in Japanese children about 30 years ago (when I was an elementary student), the characteristics were not so outstanding that art educators realized Japanese children's tendency of creating space. What happened in the last 30 years in Japanese society to change this? If a drastic cultural change did occur in Japanese society, how was it able to spread all over Japan and have a strong influential power on children's cognitive development?

Generally, as art education was implemented under the national curriculum throughout Japan, the way of using the curriculum depended on each teacher who was in charge of teaching art. Some teachers might follow faithfully the national curriculum with the national textbook. Others might use partially the national curriculum depending on the subject while choosing different materials to teach particular subjects from the national textbook. However, almost all teachers seemed to use the national curriculum on some level and there was no teacher who totally ignored the national curriculum to teach art in his/her own way in the public schools.

Finally, there were three patterns of teaching art in public schools in Japan:

- 1) art specialists (art educators) teaching all grades;
- 2) art educators and classroom teachers; for example, first and second grades are taught by the classroom teachers and other grades are taught by art educator(s);
- 3) classroom teachers, although there is at least one art educator who is in charge of checking the art curriculum in the school.

As a result, contrary to the principle of uniformity implicit in the national curriculum in Japan, that students have an opportunity to be given the same quality of education regardless of region, culture, gender, the quality of teachers, and the values of teachers, Japanese children seemed to be educated in art differently depending on the teachers.

Conclusion of Qualitative Method

In general, unlike the purpose of quantitative methodology, the purpose of using qualitative methods is not to generalize the result into another situation. Nevertheless, I could find some common characteristics in art educational styles in Japan through these three elementary schools where the research was implemented in summer of 1997.

In spite of the fact that Japanese education is constructed under the national curriculum with the national textbooks, the administration of the art curriculum was quite different depending on district and each school. How to implement art education totally depended on each school under the control of the prefectural Ministry of Education.

Whether art teachers should be employed to teach art was up to the school. As a result, art in some schools was taught by each classroom teacher, in others by a combination of art teachers and classroom teachers, and sometimes all classes were taught by the art teacher. In addition, the ways of using the textbook were diverse. Although all teachers followed the concept of the national art educational curriculum on some level, they do not always use the textbook, but the content of the textbook was partially used depending on the subject of the art project.

Thus, by using qualitative methods of observations and interviews, I could find things that I could not find through quantitative methodology. Through Japanese children's drawings, I found some characteristics which appear only in Japanese children; however, I could not prove the reason for the characteristics, or why they used such particular ways in their drawings when they created space on two-dimensional surfaces. First, I simply hypothesized that the characteristics of children's creative techniques of space were due to the national curriculum in Japan. The assumption was disproved by the observation in each classroom, interviews with teachers, and questionnaires. If I had not had a chance to use such qualitative methodology, I still would have had the same assumptions to explain such Japanese children's characteristics. Whether quantitative or qualitative should be prioritized in research is totally up to the researcher; however, using both methodologies on some level must be helpful to find the facts.