

## TYPICAL MOUNTAIN IMAGE OF TURKISH STUDENTS BASED ON LANDSCAPE MONTAGE TECHNIQUE: THROUGH COMPARISON WITH JAPANESE STUDENTS

Kazuhiko Yanagisawa<sup>1</sup>, Shigeyuki Okazaki<sup>1</sup>, Murat Dündar<sup>2</sup>

<sup>1</sup> Mukogawa Women's University, Japan

<sup>2</sup> Bahçeşehir University, Turkey

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### Introduction

The Landscape Montage Technique (LMT) is an art therapy technique devised by Nakai (1970, 1971) based on sandplay therapy [1] [2]. The therapist draws a frame on a piece of paper and tells the participant to draw a landscape within it. The items to be drawn are said sequentially, and the participant draws only one landscape by adding the following items in order: river, mountain, rice field, road (large items); house, tree, person (medium-sized items); flower, animal, and stone (small items). After drawing them, anything else can be added. The participant then colors the landscape to finish the drawing.

We previously conducted developmental and pathological studies on *spatial schema* using the LMT, e.g. [3] [4] [5], hypothesizing that universal and fundamental principles can be found in human beings and in the compositions of landscapes by children and schizophrenic patients.

As one of our previous studies, Yanagisawa applied LMT to 1080 Japanese students ranging from kindergarten to university age, and focused on the *space enclosed by a frame*, which is one LMT feature, analyzed how a river is drawn with respect to the frame, and clarified the developmental characteristics of the spatial composition based on the types of rivers [3].

This study is an extension of our many previous studies. Here, we focused on a cultural perspective, which is a new perspective for us, and applied LMT to Turkish students ranging from kindergarten to university age. In this paper, as part of our comparative studies between Turkey and Japan based on LMT, we analyzed mountain images in landscapes drawn by Turkish students compared with the Japanese cases in our previous study [3]. Furthermore, the analysis of the types of rivers with respect to the frames in landscapes drawn by Turkish students will be discussed in another paper.

### Method

We conducted our research on 233 Turkish students ranging from kindergarten to university age in Istanbul. Participants included 35 kindergartners (one class with four- to five-year olds and one class with five- to six-year olds), 92 elementary school students (one class per grade from first to fifth grades), 47 junior high school students (one class per grade from sixth to eighth grades), 16 high school students (volunteers from ninth to twelfth grades), and 43

university students (undergraduates from 18 to 23). Table 1 shows a breakdown of the participants.<sup>1</sup>

We conducted the research on the entire class of students during their normal class time as a group. However, for the high school students, the research was not conducted on one particular class, but on a group who volunteered. Dündar, one of the authors, explained the LMT procedure in Turkish, while Yanagisawa and class teachers supported the process from the side. B4-size paper, black felt pens, and colored pencils were used.

As for the Japanese cases for comparison, we analyzed 984 of the 1080 cases in our previous study [3], excluding the cases of entire classes where we did not have enough time for coloring of the landscapes. The original study was conducted in Kyoto, Japan.

## Results

Mountain images were analyzed based on their form and color. In analyzing the form, we focused on mountains with a form such as  $\wedge$ , which is common among the Turkish cases. We call it a “mountain of the crowned type”. Table 1 shows the number of Turkish cases with and without mountains of the crowned type and their percentages for each grade. Table 2 shows the result of the same analysis done on the Japanese cases. Figure 1 shows the percentages of the Turkish and Japanese cases with mountains of the crowned type for each grade based on Tables 1 and 2.

In analyzing the color, we identified mainly eight types of colors of the mountains (see Table 3, from cases with mountains of brown color to cases with mountains without color). Table 3 shows the number of the Turkish cases analyzed by color of mountain and their percentages for each grade. Table 4 shows the result of the same analysis done on the Japanese cases. Figure 2 shows the percentages of the Turkish and Japanese cases analyzed by color of mountain for each grade based on Tables 3 and 4.

## Discussion

Figure 1 shows that there was an overwhelming majority of cases with mountains of the crowned type in the Turkish cases, whereas, in the Japanese cases, mountains of the crowned type were not drawn very much.

Furthermore, Figure 2 shows that there was an overwhelming majority of cases with mountains of brown color in the Turkish cases, whereas, there was an overwhelming majority of cases with mountains of green color in the Japanese cases.

Therefore, we found that the typical mountain image of Turkish students is a mountain of the crowned type and of brown color (Fig. 3). In contrast, we found that mountains of the crowned type occur less often and mountains of green color occur often in drawings done by Japanese students (Fig. 3). Furthermore, a future challenge remains of analyzing in detail mountain forms other than the crowned type, especially in the Japanese cases.

The characteristics of the typical image of a mountain already existed strongly at about the age of 5-6 and remained common even up to university students. Therefore, it is unlikely that developmental factors figure strongly in the background of these characteristics. Rather, we believe that cultural and climatic factors have a strong effect.

Table 1 Turkish cases with/without mountains of the crowned type and percentages for each grade

	K 4-5		K 5-6		1st graders		2nd graders		3rd graders		4th graders		5th graders		6th graders		7th graders		8th graders		9th-12th graders		Univ. students		Total	
M-CR	0	1	4	3	4	7	6	6	1	8	6	8	7	6	11	5	8	4	2	5	2	2	1	14	52	69
	1 (5.9)		7 (38.9)		11 (55.0)		12 (70.6)		9 (47.4)		14 (70.0)		13 (81.3)		16 (94.1)		12 (75.0)		7 (50.0)		4 (25.0)		15 (34.9)		121	
M-NCR	13	3	4	7	7	2	2	3	6	4	4	2	2	1	0	1	2	2	4	3	7	5	6	22	57	55
	16 (94.1)		11 (61.1)		9 (45.0)		5 (29.4)		10 (52.6)		6 (30.0)		3 (18.8)		1 (5.9)		4 (25.0)		7 (50.0)		12 (75.0)		28 (65.1)		112	
Total	13	4	8	10	11	9	8	9	7	12	10	10	9	7	11	6	10	6	6	8	9	7	7	36	109	124
	17		18		20		17		19		20		16		17		16		14		16		43		233	

For each type of mountain under each grade, upper left box indicates cases by males, upper right box indicates cases by females, and total number of cases with each type of mountain is shown in the bottom box with percentage of total number of cases for each type of mountain for each grade shown in parentheses.

M-CR: Cases with mountains of the crowned type

M-NCR: Cases without mountains of the crowned type

K 4-5: 4-5 year-old kindergartners

K 5-6: 5-6 year-old kindergartners

Table 2 Japanese cases with/without mountains of the crowned type and percentages for each grade

	K 4-5		K 5-6		1st graders		2nd graders		3rd graders		4th graders		5th graders		6th graders		7th graders		8th graders		9th-12th graders		Univ. students		Total			
M-CR	0	1	0	0	3	4	8	4	3	0	3	2	2	1	5	0	8	1	7	2	13	2	0	0	0	0	52	17
	1(4.5)		0(0.0)		7(9.3)		12(16.2)		3(4.2)		5(15.2)		3(4.1)		5(7.1)		9(10.7)		9(10.7)		15(5.1)		0(0.0)		69			
M-NCR	14	7	29	30	35	33	31	31	33	35	14	14	34	37	28	37	36	39	36	39	127	154	33	9	450	465		
	21(95.5)		59(100.0)		68(90.7)		62(83.8)		68(95.8)		28(84.8)		71(95.9)		65(92.9)		75(89.3)		75(89.3)		281(94.9)		42(100.0)		915			
Total	14	8	29	30	38	37	39	35	36	35	17	16	36	38	33	37	44	40	43	41	140	156	33	9	502	482		
	22		59		75		74		71		33		74		70		84		84		296		42		984			

For each type of mountain under each grade, upper left box indicates cases by males, upper right box indicates cases by females, and total number of cases with each type of mountain is shown in the bottom box with percentage of total number of cases for each type of mountain for each grade shown in parentheses.

M-CR: Cases with mountains of the crowned type

M-NCR: Cases without mountains of the crowned type

K 4-5: 4-5 year-old kindergartners

K 5-6: 5-6 year-old kindergartners

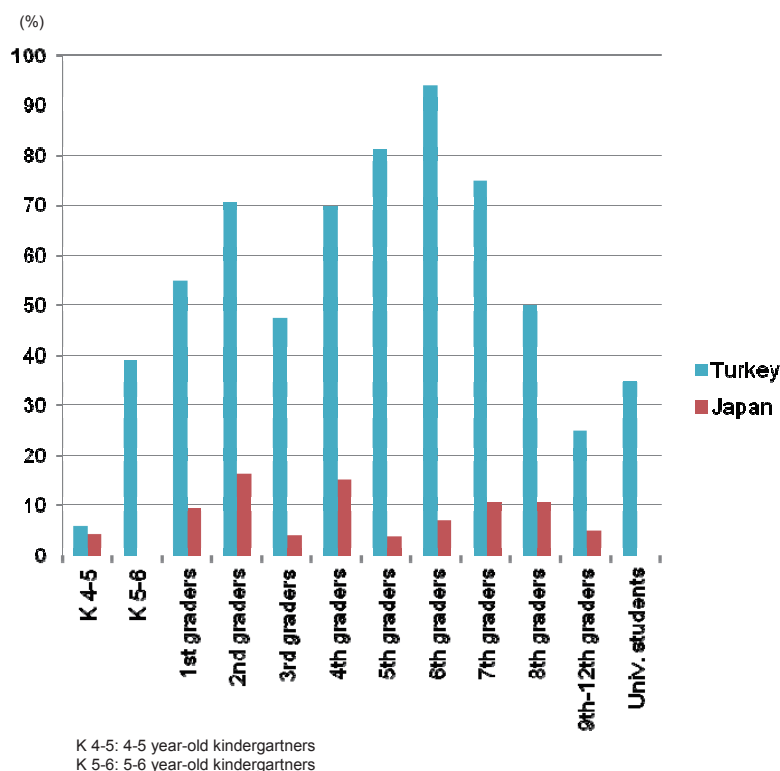


Fig. 1 Percentages of Turkish and Japanese cases with mountains of the crowned type for each grade

Table 3 Turkish cases analyzed by the color of mountain and percentages for each grade

	K 4-5	K 5-6	1st graders	2nd graders	3rd graders	4th graders	5th graders	6th graders	7th graders	8th graders	9th-12th graders	Univ. students	Total
M-BR	1   1 2 (11.8)	4   4 8 (44.4)	4   5 9 (45.0)	6   8 14 (82.4)	7   10 17 (89.5)	7   8 15 (75.0)	8   4 12 (75.0)	11   3 14 (82.4)	7   3 10 (62.5)	3   5 8 (57.1)	7   7 14 (87.5)	4   31 35 (81.4)	69   89 158
M-G	3   3 (17.6)	2   1 2 (11.1)	1   1 2 (10.0)	1   1 (5.9)	2   2 (10.5)		1   1 2 (12.5)	2   2 4 (25.0)	2   2 4 (25.0)	3   2 5 (35.7)	1   1 2 (12.5)	3   3 3 (7.0)	13   15 28
M-Y		2   2 (11.1)		1   1 (5.9)		1   1 (5.0)							3   1 4
M-R	1   1 1 (5.9)	2   1 2 (11.1)				2   2 (10.0)						1   (2.3)	2   4 6
M-P	1   1 2 (11.8)	3   1 3 (16.7)	1   (5.0)			1   (5.0)					1   (6.3)		3   5 8
M-BL	1   (5.9)	2   (11.1)	1   (5.0)	1   (5.9)									3   2 5
M-BK	1   (5.9)		2   (10.0)	1   (5.9)		3   (15.0)			1   (6.3)				8   8
M-NC	3   (17.6)	1   1 2 (11.1)	3   2 5 (25.0)				1   2 3 (18.8)	1   1 2 (12.5)	2   (7.1)	1   (6.3)	1   (6.3)	1   (2.3)	12   7 19
M-O		1   (5.6)	1   (5.0)						1   (6.3)	1   (7.1)	1   (6.3)	2   2 4 (9.3)	5   4 9
M-U	3   1 4 (23.5)	1   1 2 (11.1)											4   2 6
Number of participants	13   4 17	8   8 18	11   9 20	8   9 17	7   12 19	10   10 20	9   7 16	11   6 17	10   6 16	6   8 14	9   7 16	7   36 43	109   124 233

For each type of mountain under each grade, upper left box indicates cases by males, upper right box indicates cases by females, and total number of cases with each color of mountain is shown in the bottom box with percentage of total number of cases for each color of mountain for each grade shown in parentheses. A blank box means that no such mountain was found.

When a case showed some mountains in different colors, we counted the number of cases according to the colors. For instance, if there were two mountains of brown color and one mountain of green color in a case, we counted one case in the M-BR type and also one case in the M-G type. Therefore, the total number of cases analyzed by the color of mountain for each grade is more than the number of participants for each grade. The percentages for each grade were calculated with respect to the number of participants for each grade.

- M-BR: Cases with mountains of brown color (including orange color)
- M-G: Cases with mountains of green color (including yellow green color)
- M-Y: Cases with mountains of yellow color
- M-R: Cases with mountains of red color (including pink color)
- M-P: Cases with mountains of purple color
- M-BL: Cases with mountains of blue color (including sky blue color)
- M-BK: Cases with mountains of black color
- M-NC: Cases with mountains without color
- M-O: Cases with mountains with colors other than the above
- M-U: Cases in which mountains are unidentifiable

K 4-5: 4-5 year-old kindergartners  
K 5-6: 5-6 year-old kindergartners

Table 4 Japanese cases analyzed by the color of mountain and percentages for each grade

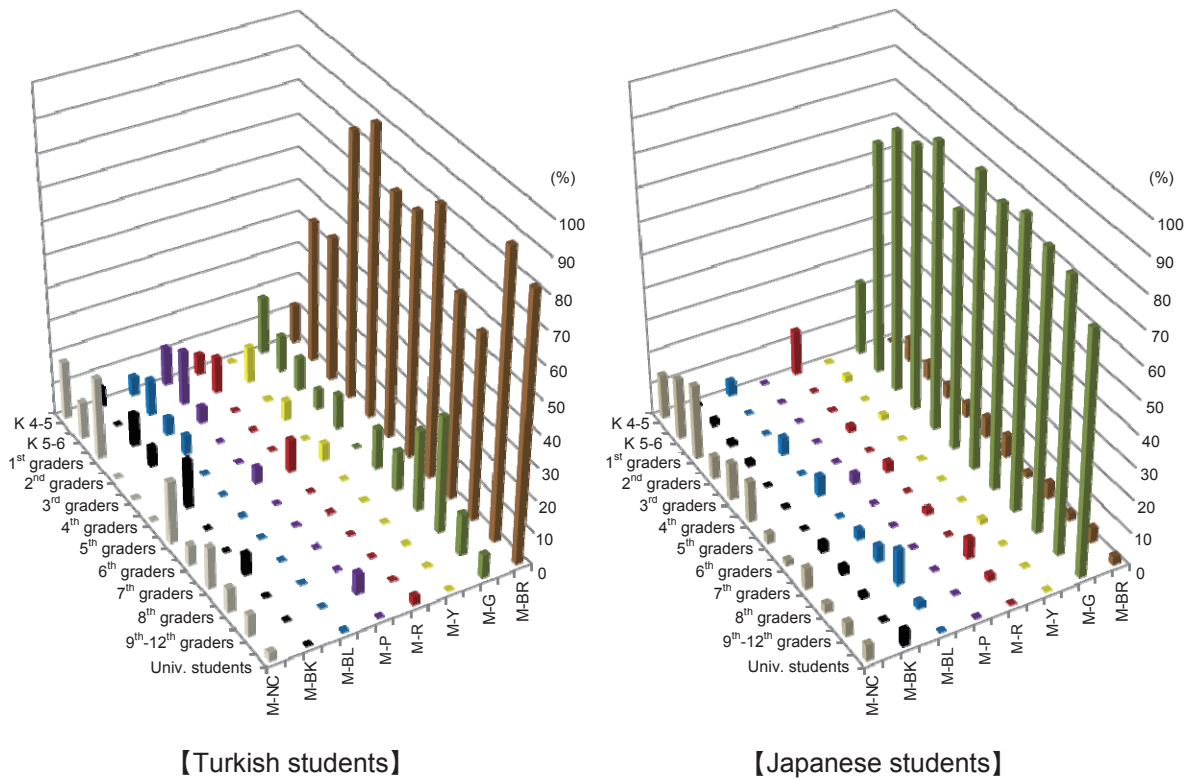
	K 4-5	K 5-6	1st graders	2nd graders	3rd graders	4th graders	5th graders	6th graders	7th graders	8th graders	9th-12th graders	Univ. students	Total
M-BR		2   2 4 (6.8)	3   1 4 (5.3)	2   1 3 (4.1)	3   (4.2)	2   (2.6)	5   (6.8)	1   (1.4)	2   2 4 (4.8)	1   1 2 (2.4)	10   3 13 (4.4)	1   (2.4)	32   10 42
M-G	5   5 (22.7)	21   21 42 (71.2)	31   29 60 (60.0)	28   32 60 (81.1)	28   34 62 (87.3)	12   12 24 (72.7)	29   37 66 (89.2)	26   34 60 (85.7)	36   38 74 (88.1)	33   38 71 (84.5)	101   144 245 (82.8)	22   9 31 (73.8)	800
M-Y		1   (1.7)		1   (1.4)					1   (1.2)				1   2 3
M-R	1   2 3 (13.6)			1   (1.4)		1   (3.0)		1   (1.4)		5   (6.0)	4   (5.1)		11   5 16
M-P						1   (3.0)							1   1
M-BL	1   (4.5)			3   1 4 (5.4)		2   (6.1)		2   (2.9)	3   1 4 (4.8)	8   1 9 (10.7)	6   (6.2)		24   4 28
M-BK		1   (1.7)	1   (1.3)	1   (1.4)				2   (2.9)	2   (2.4)	1   (1.2)	1   (0.3)	2   (4.8)	10   1 11
M-NC	3   (13.6)	4   7 11 (18.6)	9   8 17 (22.7)	5   (6.8)	7   1 8 (11.3)	2   2 4 (12.1)	1   1 2 (2.7)	1   (1.4)	3   2 5 (6.0)	2   (2.4)	12   (4.1)	2   (4.8)	44   28 72
M-O	3   2 3 (13.6)	2   (3.4)		2   3 5 (6.8)		2   (6.1)	3   1 4 (5.4)	4   1 5 (7.1)	4   1 5 (6.0)	5   2 7 (8.3)	22   7 29 (9.8)	8   (19.0)	50   20 70
M-U	5   2 7 (31.8)										1   (1.0)		6   2 8
Number of participants	14   8 22	29   30 59	38   37 75	39   35 74	36   35 71	17   16 33	36   38 74	33   37 70	44   40 84	43   41 84	140   156 296	33   9 42	502   482 984

For each type of mountain under each grade, upper left box indicates cases by males, upper right box indicates cases by females, and total number of cases with each color of mountain is shown in the bottom box with percentage of total number of cases for each color of mountain for each grade shown in parentheses. A blank box means that no such mountain was found.

When a case showed some mountains in different colors, we counted the number of cases according to the colors. For instance, if there were two mountains of brown color and one mountain of green color in a case, we counted one case in the M-BR type and also one case in the M-G type. Therefore, the total number of cases analyzed by the color of mountain for each grade is more than the number of participants for each grade. The percentages for each grade were calculated with respect to the number of participants for each grade.

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- M-P: Cases with mountains of purple color
- M-BL: Cases with mountains of blue color (including sky blue color)
- M-BK: Cases with mountains of black color
- M-NC: Cases with mountains without color
- M-O: Cases with mountains with colors other than the above
- M-U: Cases in which mountains are unidentifiable

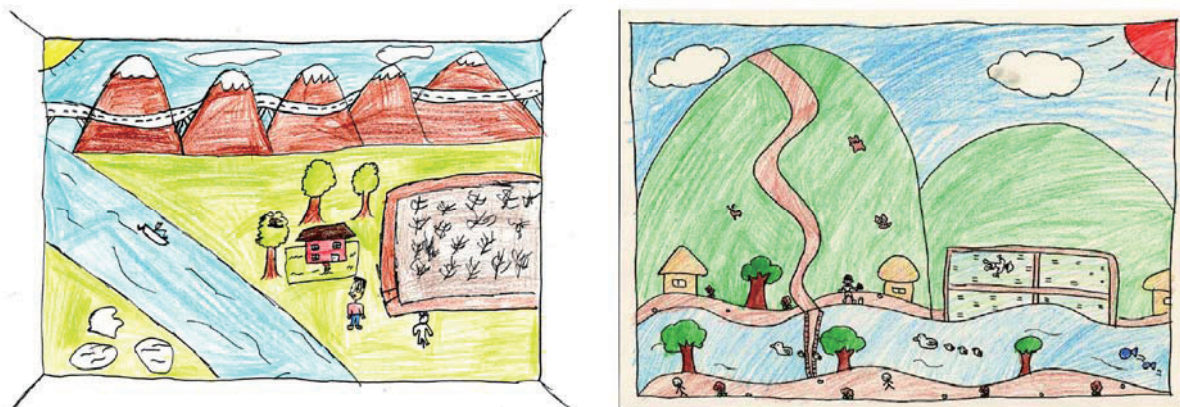
K 4-5: 4-5 year-old kindergartners  
K 5-6: 5-6 year-old kindergartners



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M-BK: Cases with mountains of black color  
M-NC: Cases with mountains without color

K 4-5: 4-5 year-old kindergartners  
K 5-6: 5-6 year-old kindergartners

Fig. 2 Percentages of Turkish and Japanese cases analyzed by the color of mountain for each grade



Turkish student, 6th grader, male

Japanese student, 6th grader, female

Fig. 3 Typical Examples of LMT

## Conclusion

We applied the Landscape Montage Technique to 233 Turkish students ranging from kindergarten to university age, analyzed mountain images in landscapes drawn by Turkish students, and compared them with the Japanese cases in our previous study. We found the following.

1. There was an overwhelming majority of cases with mountains of the crowned type in the Turkish cases, whereas in the Japanese cases, mountains of the crowned type were not drawn very much.
2. There was an overwhelming majority of cases with mountains of brown color in the Turkish cases, whereas there was an overwhelming majority of cases with mountains of green color in the Japanese cases.
3. The typical mountain image of Turkish students is a mountain of the crowned type and of brown color. In contrast, we found that mountains of the crowned type occur less often and mountains of green color occur often in drawings done by Japanese students.
4. Cultural and climatic factors, rather than developmental factors, strongly influence the above characteristics.

## Notes

1. The number of cases of high school students was very low. Therefore, in this paper we grouped them together as “9<sup>th</sup>-12<sup>th</sup> graders.” A future challenge remains to increase the number of cases of high school students.

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