Proposal for Urban Environment Using Icons with Fifth Year Elementary Students

Shoichiro Sendai[1]

[1] *Graduate School, Hiroshima Univ., Japan, sendai@hiroshima-u.ac.jp*

Abstract: This paper presents discussion of environmental proposals by children related to the change of the expression of map from the third to the fifth year students, based on the fieldwork and the workshop on "Good Place". According to the analysis of data, a child passing from the third to the fifth year estimates urban spaces more objectively. However, for iconic expression, the place diversity and the five senses are more closely interrelated.

Keywords: Proposal, Urban space, Icon, Five senses

1. INTRODUCTION

From the 1970s, Image Map Investigation by Lynch (1977) has been practiced along with children's participation in city planning (Hart, 1997; Teramoto, 1999). For a better child environment, their cognition about urban spaces should be fundamentally understood to establish a method to develop a capacity for urban proposals.

The author has practiced the methodology of environmental mapping using "Icons (fives senses' icons)" to consider urban space through the activities of "Hiroshima Eco-Peace Map" that has been conducted since 2002. Moreover, the author drilled the program for improving the proposition capability with the themes of estimation, proposal, and criticism from 2009. This was conducted with third year students of Hiroshima University's attached elementary school (39 children). The same program was conducted with the children the following year when they had become fifth year students in 2011.

Based on activity during 2009–2010, the author analyzed the relation between the estimation and the proposal for the living environment by third-year elementary students. Results showed that the changes in their proposal capabilities were attributable to the constant activity of their five senses, irrespective of the living environment or urban environment, and also discussed the relation between their egocentricity and consideration toward others within it (Ichikawa & Sendai, 2012; Sendai & Mitsuhata, 2012): the children's proposal is not only the moralistic concept which

they learn in the school. They also learn concepts based on the body sense, which brings egocentricity and consideration toward others simultaneously. Will we ever identify such a characteristic in the case of the fifth year children? Alternatively, will a moralistic concept produce advantages in the children in later years, as it does in adults?

This paper compares and analyzes the estimations and proposals related to the urban space by the children when they become fifth year elementary school students. Furthermore, the paper presents an examination of the change of proposal capability for the urban space using icons by children from the viewpoint of Kansei philosophy as a qualitative study (Kuwako, 2001). In other words, this study is an attempt to reveal the diversity of sensibility of the place rather than the universality of sensibility by quantification.

Previous studies of child proposals have examined pedagogic themes (Teramoto, 1999) or administrative methods related to child participation with city planning (Driskell, 2002). In contrast, this study highlights child sensitivity itself with the urban space through a series of processes from the estimation to the proposal, using five sense icons. Additionally, it must be emphasized that this study targets the same children for three years in the same area. Because sensitivity itself is not constant. Therefore, it changes dynamically and diversifies in answer to others or places.

2. METHOD

2.1. General activities

Research sources are based on the activities of our fieldwork and workshop.

In principle, because the paper is done with the same children from the third year passing to the fifth year, the process is included into the Integrated Study Curriculum in Japan. We encourage the children to make groups (5–6 children) from A to G by themselves. The university students, including both undergraduate and postgraduate students of Hiroshima University, were allocated to the respective groups as facilitators.

The target of the fieldwork for the "Good Place" in the urban environment is the central district of Hiroshima city. Nakajima district, where the Peace Memorial Park located, was designated as the "South Area". Motomachi district, which has cultural facilities, was designated as the "North Area" (Fig. 1).

As a method to obtain proposals from the estimation, we set up (1) "attempt to research", (2) "attempt to select signs", (3) "attempt to select icons", (4) "attempt to propose", and (5) "attempt to criticize" (Tables 1, 3). We operated (1) and (2) using fieldwork simultaneously, and (3)–(5) at a workshop in the elementary school classroom.

For fieldwork, we use simple signs consisting of spatial indexes (Good Place, Bad Place and Good/Bad Place) and time indexes (Lost Place and Future Place). The estimation place and the route were sufficient to cover main buildings and monuments, returning to the starting point within 3 hours. The safety for the children was examined. The same conditions were applied to all years.

In the workshop, we instructed children to select from the five senses' icons (See, Hear, Smell, Taste and Touch) (Table 2) corresponding to the signs expressed in the estimation of the fieldwork. Additionally, we asked the children to express their ideas using colours (Green means affirmation, Red means negation, and Yellow means neutrality or affirmation/negation). To guide the children's estimation and help them make proposals based on body feelings, we use the "five senses". However, the problem of the effects of the icon forms is one of future research themes, the paper does not discuss it.

Table 1: Contents of activities in the fifth year

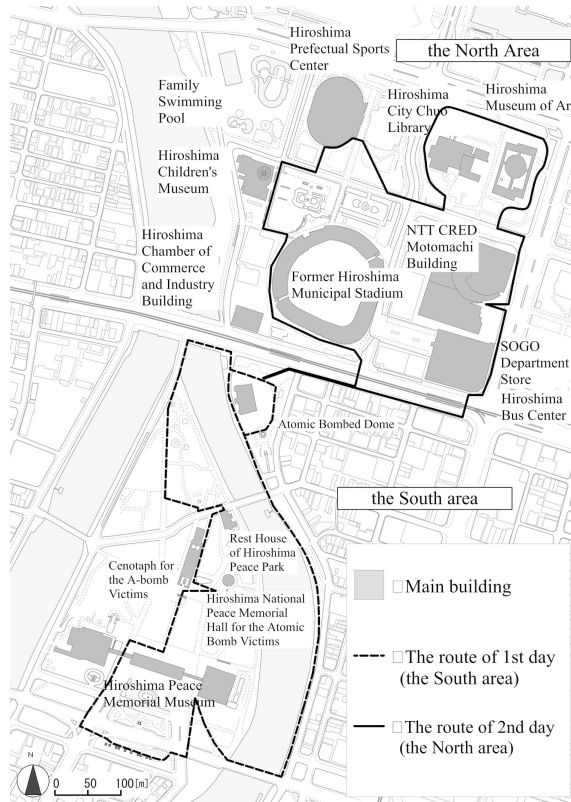| Fieldwork			
Date	November 22th and 23th, 2011		
Place	Nakajima area (the South Area) and Motomchi area (the North Area) in Hiroshima city		
Participant	Children : 39 persons Parents : 5 persons		
The contents of practice	(1) attempt to reseach (2) attempt to select signs		
	1st day	The South Area : the resarch and estimation Select the signs (○ / × / △ / ■ / □)	
	2nd day	The North Area : the resarch and estimation Select the signs (○ / × / △ / ■ / □)	
Workshop			
Date	February 27th, and 28rd, 2012		
Place	Hiroshima University attached elementary school		
Participant	Children :39 persons		
Practice	(3) attempt to select icons (4) attempt to propose		
	1st day	The South Area : Select the type of icons for the signs (see/ hear/ smell/ taste/ touch) Select the color of icons for the signs (Green / Red/ Yellow) Change the color of icons (Green) Draw the original icon	
		Presentation and discussion	
	(3) attempt to select icons (4) attempt to propose		
	2nd day	The Nouth Area : Select the type of icons for the signs (see/ hear/ smell/ taste/ touch) Select the color of icons for the signs (Green / Red/ Yellow) Change the color of icons (Green) Draw the original icon	
		Presentation by parents and discussion	

Figure 1: Fieldwork area

Table 2: Five senses' icons

meaning	See	Hear	Smell	Taste	Touch
icon					

The next stage in the workshop was to propose the urban space. We define the proposal as making the Green icon. The proposal is not only for the improvement of the Bad Place, but also the

sustainable conservation of Good Places. In addition to the icon proposal, the children write the contents of their proposal on the format seat: "actually, this is [A1] by the reason for [A2], if I try to [B1], it becomes [B2]" (Table 4).

2.2. Method of analysis

As described above, with fieldwork and the workshop for the urban environment, we introduce the simple statistic tendency of the children's estimation and their proposal, with comparison to those of the third/fourth/fifth year students. Then we attempt a qualitative interpretation of the examples showing its tendency.

Table 3: Flow from fieldwork to the workshop
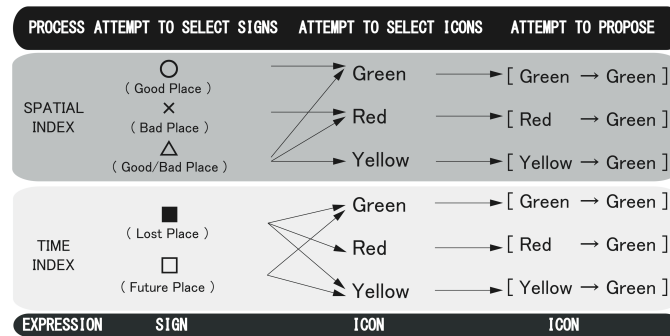
Table 4: Analysis of the contents of the children's proposal

	tool	contents	
Investigation	sign, langage		
Estimation	language	A2 (reason)	A1(actural situation)
	Icon	type	color
Proposal	language	B1 (method of proposal)	B2 (purpose of proporsal or futur situation)
	language	Soft/Hard	Development/Reproduction/Preservation
	Icon	type	color
	language	egocentricity/consideration toward the others	

3. SIGNS

3.1 Estimation by the signs (Spatial indexes) (Table 5)

In the North area and the South area, the rate of "Good Place" is greater than 60% during the fourth and fifth years. However, the total number of signs in the fieldwork by the fifth-year students decreases nearly by half. This reduction might explain the better familiarity with the areas than before, and the shorter time to walk in the field. However, in the proposal, the total number does not decrease so much compared with that in the fourth year (Table 13 – Table 17). This demonstrates a child's capacity for proposal).

3.2. Estimation by signs (Time indexes) (Table 6)

Total number of signs related to the time indexes in the fifth year decreases compared with that in the fourth year. In the South area, no mark signals the "Lost Place". The rise of the rate of the "Future Place" might indicate the potential for a proposal. In contrast, the rate of the "Lost Place" in the North area increases. In fact, that indicates the local gap of the interest for a proposal.

Table 5: Rates of estimation by signs (Spatial indexes)
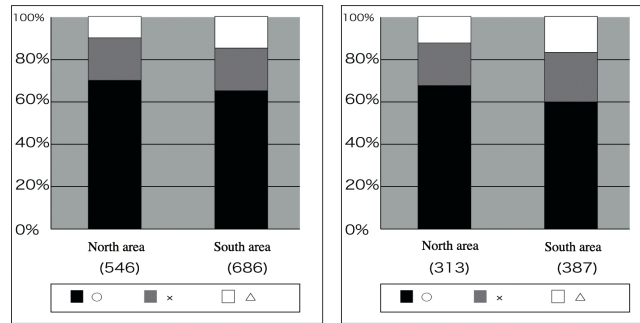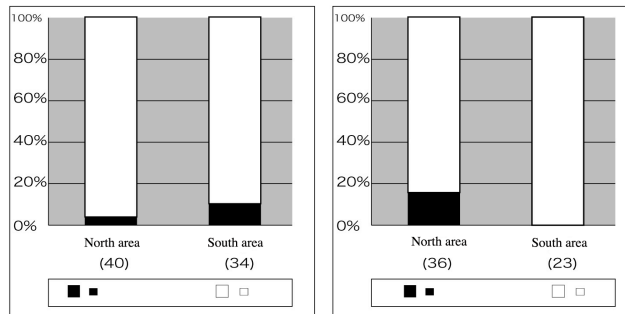
(left, fourth year; right, fifth year)

Table 6: Rates of estimation by signs (Time indexes)

(left, fourth year; right, fifth year)

3.3. Object for a sign (Table 7 and Table 8)

The rate of the signs for "Building" in the fifth year students doubles in both areas compared with that in the fourth year. However, the rates of the "Monument" and "Planting" decrease. This is the third fieldwork session for the fifth year students. They should not mark the "Monument" or the "Planting" as having a constant value, and concentrate on estimating something from which they can discover new meanings.

Table 7: Rates of objects by signs (North area)

(left, fourth year; right, fifth year)
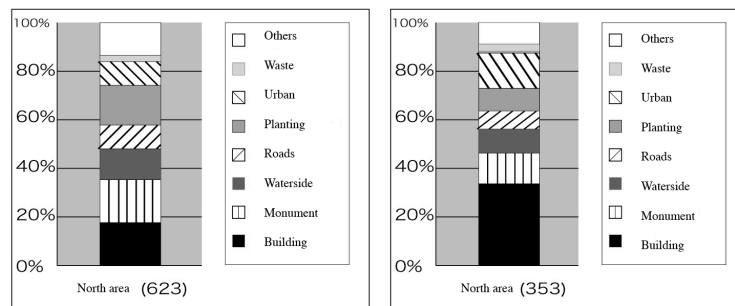
Table 8: Rates of objects by signs (South area)

(left, fourth year; right, fifth year)
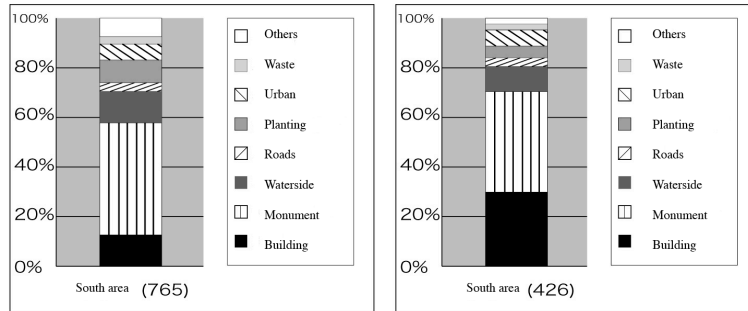
4. ICONS

4.1. Colour of the icons (Spatial indexes) (Table 9)

The rates of the Green icon are highest in both years, but the rates of the Red and Yellow icons are higher in the fifth year, which indicates that the fifth-year students obtain a more objective and critical viewpoint.

4.2. Type of icon (Spatial indexes) (Table 10)

At both years, the rate of the See icon and the Touch icon is the highest and more than 70%. Nevertheless, the rate of the See icon in the South area increases, and the rate of the Touch icon decreases compared with that in the fourth year. In contrast, the rate of the Touch icon in the North area increases, which indicates the local gap of the type of icon as well.

4.3. Colour of the icons (Time indexes) (Table 11)

The rate of the Red icon increases. However, in general, the fifth year students use Green, Red, and Yellow icons equally compared with the fourth year students. That is the same tendency as that using the colour of icon by the spatial indexes.

4.4. Type of the icons (Time indexes) (Table 12)

In both years, the rate of the See icon increases, taking nearly 50% in the fifth year. In the North area, there is no Smell icon or Taste icon. However, in the South area, the See icon and the Touch icon are greater than 80%. The result is the same as that obtained using the type of icon by the spatial indexes.

Table 9: Rates of the colours of the icons (Spatial indexes)
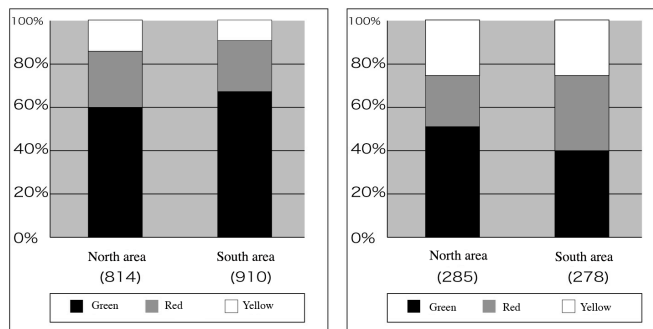
(left, fourth year; right, fifth year)

Table 10: Rates of the types of the icons (Spatial indexes)
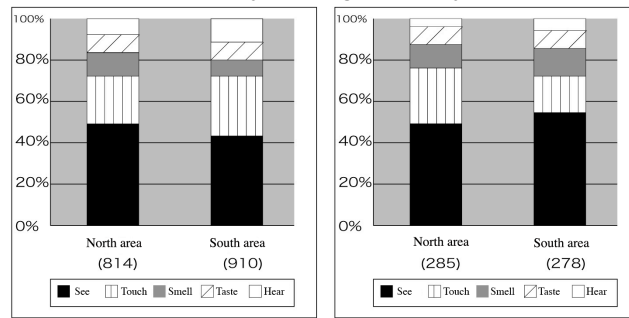
(left, fourth year; right, fifth year)

Table 11: Rates of the colours of the icons (Time indexes)
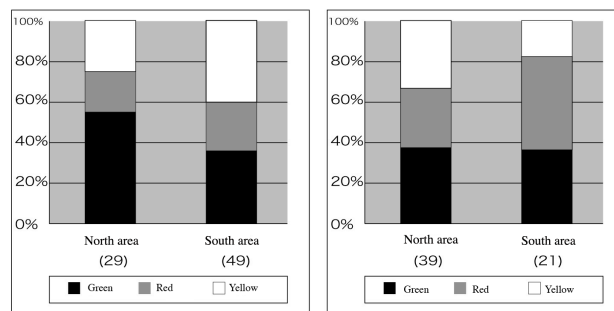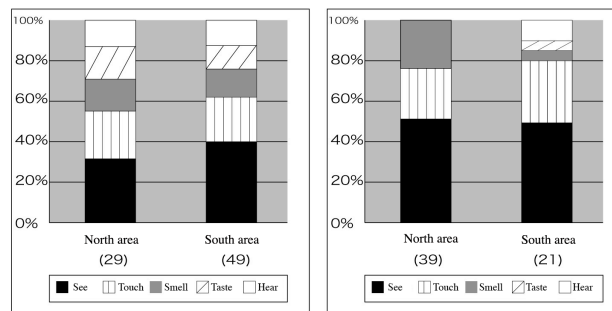
(left, fourth year; right, fifth year)

Table 12: Rates of the types of the icons (Time indexes)

(left, fourth year; right, fifth year)

5. PROPOSALS BY ICONS

5.1. Object for a proposal (Tables 13 and 14)

The rate of the proposal for the "Building" increases in both areas in the fifth year compared with that in the fourth year. Corresponding to this tendency, the rate of the other objects for a proposal decreases. Particularly the use of the "Planting" in the North area and the "Monument" in the South area decreases significantly, which reflects the tendency of the use of the objects for the sign (Table 7 and Table 8).

5.2. Method of proposal by Writings (Table 15)

We classify the method of proposal by written languages into a Hard method and a Soft method, according to the artificiality (Ichikawa & Sendai, 2012; Sendai & Mitsuhata, 2012).

For both years, in both areas, the rate of Hard is higher than that of Soft. However, the rate of

Soft in the North area increased more than 10% in the fifth year, which demonstrates the increased capacity for multilateral proposal by the Hard method and the Soft method.

Table 13: Rates of objects for proposal (North area)
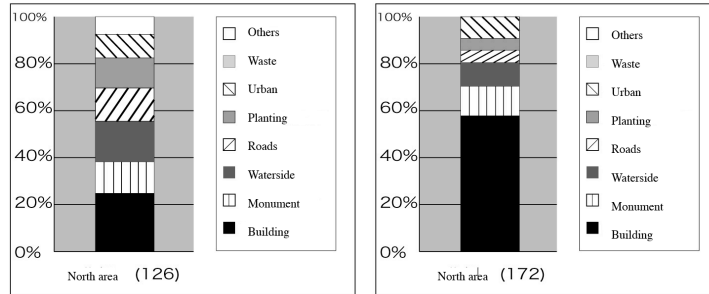
(left, fourth year; right, fifth year)

Table 14: Rates of objects for proposal (South area)
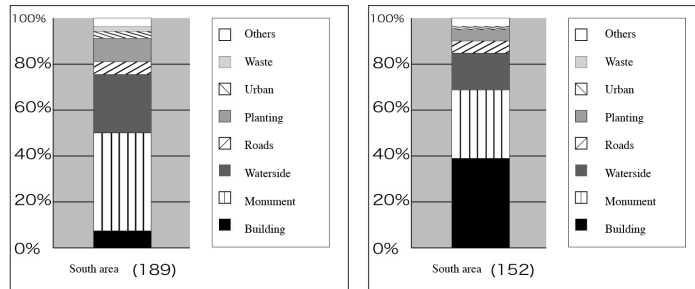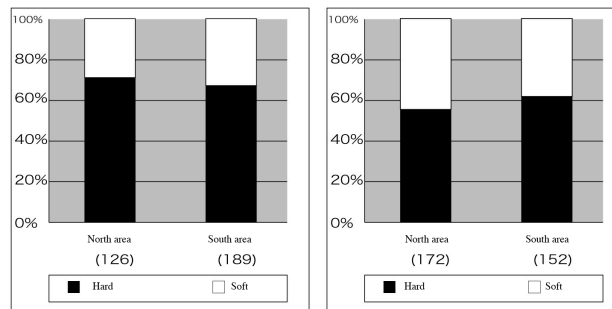
(left, fourth year; right, fifth year)

Table 15: Rates of the method of proposal (writing)

(left, fourth year; right, fifth year)

5.3. Purpose of proposal by writing (Table 16)

We classify the purposes of proposals expressed in written language into Development, Reproduction and Preservation, according to the degree of development (Ichikawa & Sendai, 2012; Sendai & Mitsuhata, 2012).

During both years, in both areas, the rate of Development, which is higher than 60%, is higher than that of either Reproduction or the Preservation, which demonstrates the positive will of children to participate in urban space improvement.

5.4. Contents of proposal by writing (Table 17)

We classify the contents of proposal by written language into Egocentricity and Consideration for others, according to the degree of egocentricity.

In the fourth year, Consideration for others is superior in both areas, but in the fifth year, the rate of the Egocentric proposal is higher, which might explain the positivity or the strong will of the children, or a regression to the feelings of third-year students.

5.5. Purpose of proposal by icon colour (Table 18)

Regarding comparison with the fourth year students, for fifth year students, the rate of the Green icon changed from the Yellow icon increased in both areas. In general, that change reflects the raised capacity for multilateral proposals.

5.6. Method of proposal by the type of icon (Table 19)

Compared to those of the fourth year, the See icon rates increase in both areas in the fifth year. However, comparison with the increase of the See icon for the estimation, uses five senses' icons equally, which indicates that the icon expression enables children to propose a future urban space by the freer use of the five senses than by the written expression.

Table 16: Rates of the purpose of proposals (writing)
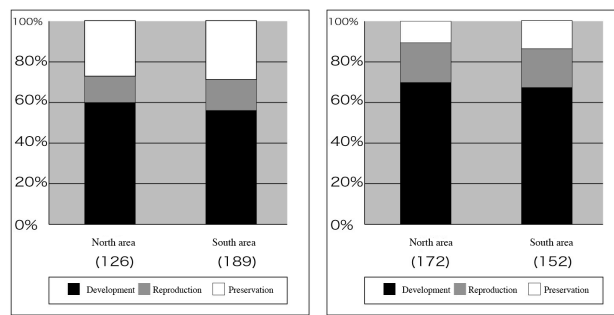
(left, fourth year; right, fifth year)

Table 17: Rates of the contents of proposals (writing)
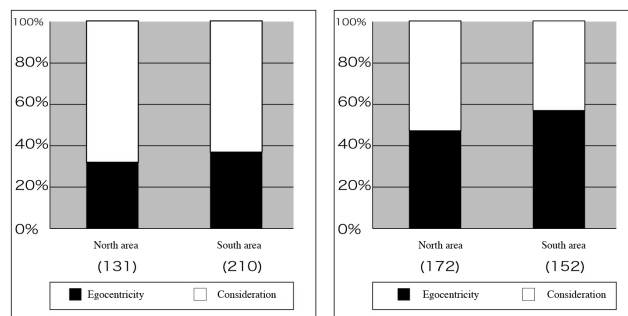
(left, fourth year; right, fifth year)

Table 18: Rates of the purpose of proposals (colour of icon)
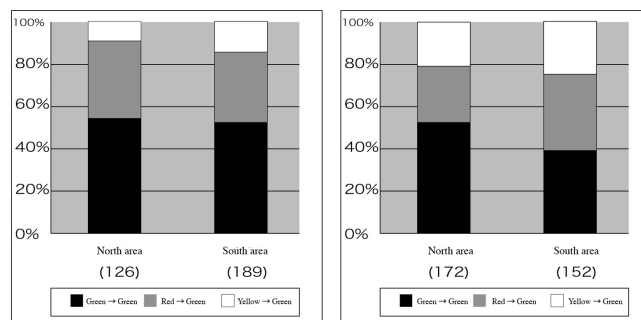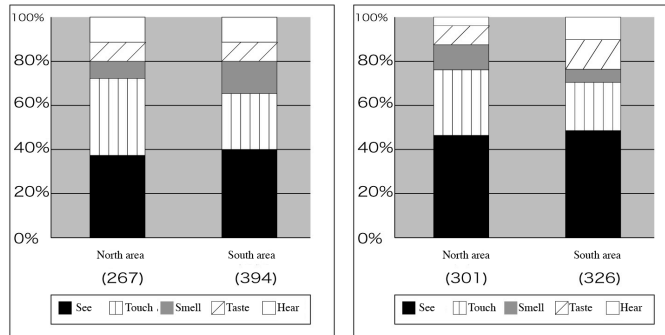
(left, fourth year; right, fifth year)

Table 19: Rates of the purpose of proposals (type of icon)

(left, fourth year; right, fifth year)

	North area (267)	South area (394)		North area (301)	South area (326)
Legend	■ See ☐ Touch ▨ Smell ▧ Taste ☐ Hear			■ See ☐ Touch ▨ Smell ▧ Taste ☐ Hear	

6. RESULT

Table 20: Characteristics in the process of the proposal by the third, fourth and fifth year students

Grade		3rd grade		4th grade		5th grade	
Enviroment		North Area	South Area	North Area	South Area	North Area	South Area
Estimation by signs	Spatial Index	○(Good Place)	○(Good Place)	○(Good Place) ×(Bad Place)	○(Good Place) ×(Bad place)	○(Good Place) ×(Bad Place)	○(Good Place) ×(Bad place)
	Time Index	□(Future Place)	□(Future Place)	□(Future Place)	□(Future Place)	□(Future Place)	□(Future Place)
	Object	Building	Monument	Building	Monument	Building	Building/Monument
Estimation by icons Color	Spatial Index	Green	Green	Green and Red	Green and Red	Green, Red and Yellow	Green, Red and Yellow
	Time Index	Green	Green	Yellow	Yellow	Green, Red and Yellow	Green and Red
Kind	Spatial Index	View / Touch	View	View / Touch	View / Touch	View / Touch	View
	Time Index	View	View	View / Touch	View / Touch	View / Touch / Hear	View / Touch
Proposal by icons	Object	Architecture (Building)	Architecture (Building) / Waterside	Architecture (Building)	Architecture (Building) / Waterside	Architecture (Building)	Architecture (Building/Monument)
	The Method of Proposal (Writings)	Hard	Hard	Hard	Hard	Hard=Soft	Hard
	The Purpose of Proposal (Writings)	Development > Reproduction	Development > Reproduction	Development > Preservation	Development > Preservation	Development >Reproduction> Preservation	Development >Reproduction=Preservation
	The Contects of Proposal (Writings)	Ego = Consideration	Ego ≦ Consideration	Ego < Consideration	Ego < Consideration	Ego < Consideration	Ego > Consideration
	The Purpose of Proposal (Icons)	Green → Green	Green → Green	Green → Green Green → Red	Green → Green Green → Red	Green → Green Green → Red	Green → Green Red →Green Yellow →Green
	The Method of Proposal (Icons)	View / Touch Using the five senses	View / Touch Using the five senses	View / Touch Using the five senses	View / Touch Using the five senses	View / Touch Using the five senses	View / Touch Using the five senses

According to the analysis, the characteristics at the third, fourth and fifth year are summarized in the following Table 20. Grey-coloured parts show the important transition from the third year or the fourth year. Based on this table, when the children passed from the third to the fifth year, the transition of the estimation and the proposition for the urban environment is the following:

(1) Estimation

In the fifth year, no marked change exists in the estimation by the signs compared within the former year. However, they use the yellow icon, which means that their estimation is more objective. In fact, the See icon, which leads to a good observation, increases at the fifth year in both areas.

(2) Proposition

In the fifth year, in spite of their objective estimations, the proposal of the new development increases in the verbal level. It contrasts with the general attitude of the fifth year students who understand the social morals better than the year before and become more conservative for the innovative development of the urban space. We interpret this tendency as positive participation in the urban space because their proposals by icons become more diverse. They show a constant use of the five senses.

7. DISCUSSION

Results show that the children's estimation of the urban environment becomes more objective. Acquisition of such objectivity itself often brings superficial estimation. However, the expression of the five senses in the proposal level is constant from the third year: cognitive development from the third year to the fifth year does not lead to the dullness of sensibility. The egocentric proposal by the fifth year students is not only selfish. It also reflects a positive attitude. Such a proposal suggests that fifth year students have acquired measures to propose through their own five senses.

However, typical proposals of the Development type corresponding to the result show that the intensities of egocentricity in the North area and in the South area have a gap.

We can find the following description of the proposal in the North area.

Figure 2: Description of the proposal in the North area (fifth-year students 1).

"Now, we can play with the small stones. However, we might be injured because of the very smooth stones without railings. If we install railings, we can play pleasantly." (Fig. 2).

Sculptural work is presented as a stone circle in front of the Sports Centre, providing a place for children to sit and climb, and inducing the children to play freely. Nevertheless, this child assigns this space a Yellow icon. He proposes improvement from the perspective of publicity and safety.

Another child presents the following typical proposal for the North area.

Figure 3: Description of the proposal in the North area (fifth year students 2)

"Now, we are entertained with pools of several sorts. If a pool for adults were to exist, more people could enjoy them." (Fig. 3).

This proposal is intended for improvement of the Family Swimming Pool for many users just as it has been made for children. The image of "a pool for adults" is not so clear, but the expression of "more people" includes consideration for others.

These typical proposals for the North area include consideration of others to a greater or lesser degree. We can find a Touch icon in such a proposal. However, we can find the following description on the proposal in the South area.

Figure 4: Description of the proposal in the South area (fifth year students 3).

"Now, the Peace Memorial Museum is terrible because the arranged photographs represent people who spill blood. Certainly, the present terrible space is important, but we need photographs like a picture book for children to understand it more easily. It is better to divide important images with some degree of fearfulness." (Fig. 4).

Figure 5: Description of proposals in the South area (fifth year students 4).

"Now, I estimate this model with the Yellow icon because the model is a little bit scary. Certainly, the model lets us know of peace, but I can also think of another way of giving a message. For example, a style of picture, not of a model." (Fig. 5).

Both proposals are related to the display to transmit the misery of damage caused by the atomic bomb. However, they want to replace the present display because children cannot be patient with their "terrible" feelings. Furthermore, such an egocentric proposal is expressed through the See icon.

The proposals above reflect that the proposal contents depend on the North area and the South area characteristics: for the South area, the proposals are more egocentric with the See icons, for the North area, the typical proposal is more considerate of others with icons of more types. The uses of colour and the types of icons differ between the two areas. The sensibility aspect depends on the place for the fifth year students.

Regarding local characteristics, the North area has diverse building types (Children's Museum, Department store, Bus centre, former Municipal Stadium under destruction, etc.). In this field, the children try to make a proposal from the perspective of consideration of others. However, in the South area, this field consists of the similar facilities with the theme of peace (Atomic Bomb Dome, Peace Memorial Museum, etc.). This area is often held up for use as teaching materials of school. Children must understand the moralistic sympathy with the others. Nevertheless, their proposals are more egocentric.

The use of the See icon in the South area represents egocentricity of a proposal. Conversely, the Touch icon as fundamental skin feeling in the North area is the starting point of the consideration of others.

8. CONCLUSIONS

From results and discussion, we conclude that the activities of five senses is durable and that it depends upon the characteristics of the place in the fifth year students. The consistent place as the South area tends to lead the egocentric proposal with the See icon. However, the more diverse

place as the North area brings consideration of others with the fundamental feeling as a Touch icon. Such a contrastive aspect of the sensibility suggests the affinity between the place where the senses awaken and the place where the others interact.

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BIOGRAPHY

1968, Born in Kyoto. 1998, Doctor Course Graduate School, Division of Engineering, Kyoto University. Associate Professor, Doctor Eng., Graduate School of Engineering (Division of Social Environment and Space) Hiroshima University. Major Publications: *Kansei Field* (Toshindo, 2012), *Fudo in City* (Minerva, 2009), *Technique and Body* (Minerva, 2006), *The Creation and "the Architectural landscape": The religious architecture of Le Corbusier* (Chuokoron-bijutsusyuppan, 2004) (Award of Japanese Society of Kansei Engineering, 2004), etc. Main works: The modern architectural landscape of Le Corbusier, the history of peace in Hiroshima and the children's environment.