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Research Note

The Experiments Giving Illuminations to the Street by Residents Participation

Shigeo KOBAYASHI* and Kazutaka MURAKAWA*

*Department of Architecture, Tokyo City University

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ABSTRACT

This research attempted to create a lighting environment of a street by residents and carried out two experiments. The first experiment was to run a workshop in which children from the neighborhood added illuminations to a 1/25 model of the street. As a result, lights were installed taking account of the types and characteristics of the buildings and the street, and an original lighting environment that the existing concept did not have was created. The next experiment involved holding an event in which handmade lights were placed on the actual street. Using LED lamps with switches, children and adults from the neighborhood made lighting products, attached magnets to them, and stuck them on shutters, guardrails, signboards, vending machines, etc. The individual landscape was produced by residents. The psychological effect and social value to the area were confirmed through the interviews.

KEYWORDS: street light, resident participation, streetscape, illumination, workshop

1. Introduction

The purpose of this research is to explore the potential for creating a streetscape by residents themselves. The street landscapes constituted by buildings, roads, plantings, etc. are usually planned and constructed by the local government, or specific contractors, planners or designers. In recent years, the usage and landscapes of streets came to be discussed by citizens' participation in municipal affairs. However, even if a plan is decided by agreement formation, the reflection of each resident to the streetscape is actually limited. It is because a street is so large-scale and the once created street cannot be changed in a short term. If a streetscape is created by residents briefly, it will be equipped with a more sociable atmosphere, and the relationship between the street and the residents will improve, and the resident's attachment to the street will also increase.

We focused our attention on illuminations of a street. Nighttime lights serve as the most principal elements in a landscape[1]. The visibility of light in a dark night becomes high even if the luminescence is not strong. In addition, light covers a wide range, illuminating features such as road surfaces and building facades. Designing a light layout is directly connected to designing landscapes. And since light can be extinguished with a switch, even if it does not have the careful agreement to landscape, it can be used to realize a challenging design with a playful imagination.

This research carried out two workshops as an experiment in creating a streetscape at night, during which residents enjoyed themselves without pressure. The Oyamadai shopping street in a typical residential area in Setagaya-ku, Tokyo was targeted.

2. Participatory illumination to a street model

The first experiment was to run a workshop in which children from the neighborhood added illuminations to a 1/25 white model of the street. The street model of the length of 100 m of absolute sizes was installed in the height of children's eyes. For this, 150 0.06-W LED lamps in five colors were used as light sources. Experiment space was switched off, and no restrictions on the use of the illuminations were made. The experiment was conducted three times by different subjects in two days. A total of Twenty-five schoolchildren participated in the workshop. They were instructed as attaching lights to the model as that the street may get more comfortable. Figure 1 shows the elevation of the model.

Figure 2 shows one of the model elevations of the illuminations given by children. Figure 3 shows the setting-up situation by a child, and Figure 4 shows accomplished model's photograph.

Table 1 shows where lights were placed in two experiments. Most lights were attached to the buildings, and they irradiated to the walls, pictures, pedestrians, or interior spaces. Several children changed the brightness and color of street lights. Lights were not added only to decorate the buildings plainly, they were trans-

Figure 1　Elevation of the street model (1/25)
Model structure: Cardboard painted white, Size: Width: 3600, Length: 4500, Height: 700 mm

Figure 2　One of the model elevation with illuminations
Materials: LED 150 pieces, 2 colors paste containing lame, 3 colors ribbon, 5 colors paper, 20 signboards

Figure 3　Setting-up situation by a schoolgirl

Figure 4　The accomplished illuminations

Table 1　The installation places of lights

Direction of radiation	Attached location			
	Building	Ground	Tree	Street light
Building wall	161*1	14	0	0
Roadside tree	3	11	7	0
Pedestrian	4*2	13	0	0
Alleyway	1	0	0	0
Added creation	17	1	0	0
Signboard	11	0	0	0
Drawing	29*3	3	0	0
Window or opening	71*4	0	0	0
Street light	0	0	0	7*5
Total	297	42	7	7

The number expresses the total of three experiments. Example Behaviors: *1 The lights united with the size and the contents of the shops were decorated. For example, the light of the color which looks delicious was attached in the restaurant. The airplane warning light was attached to the roof of the building. *2 People of the sidewalk were illuminated from the building. *3 The picture drawn on the wall was decorated. *4 The color of internal lighting was changed according to the industry of shops. *5 Street lights were changed into blue light or dark light from white bright light.

Table 2　The summary of interview to residents (*N*=12)

Question	Answer	Number
1) What do you think about children creating illuminations in the actual street?	Agree*1	9
	Disagree	0
	No answer	3
2) Do you like to live in a street with such lights?	Agree*2	12
	Disagree	0
3) What is required to realize this activity?	Cooperation activities*3	8
	Increase of electric lights	2
	Other answers	2
4) What is likely to happen in this street?	Favorable action*4	10
	Unfavorable action*5	2

Example Answers: *1 The individual illuminations different from usual adults are likely to be produced. *2 The street with children's works seems to be cheerful and pleasant. If residents participate to create a street, they will feel more familiarity for it. *3 Many neighboring residents have to participate in this activity. Cooperation with neighboring institutions such as parks and the museum is required. *4 Crimes will decrease and people's communication will get active. It will be easy to walk the street alone at night. *5 Some people might be unfavorite in fancy illuminations.

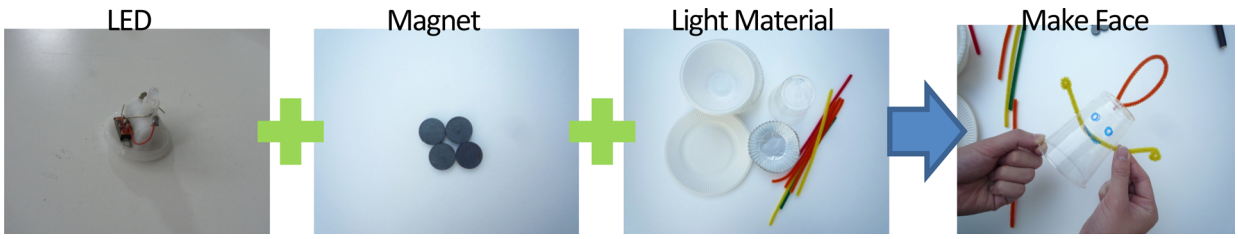

Figure 5　How to make the shining mascot
Materials: 1000 pieces of LED, 500 magnets, paper of 800 sheets, 30 clips, 860-m string, 400 glasses, 200 lace, 200 cloth, 100 blocks, 10 plants

Figure 6　Views of making and sticking lights in the street
The products manufactured on the street were attached to bicycles, automatic vending machines, shutters, etc.

formed by the function and the atmosphere of each building. For example, the light of the color which looks delicious was attached in the restaurant. As a result, lights were installed taking account of the types and characteristics of the buildings and the street, and an original lighting environment that the existing concept did not have was created. This is considered because the producers already knew the street well and their knowledge and ideas were reflected in produce.

The accomplished model was presented to the adults from the neighborhood. Table 2 summarized the interview to them. The illuminations which children ornamented were evaluated highly, and all people answered that they would like to live in such a street. As indicated in the table, not only was the visual cheerfulness of the children's work highlighted, but it was also pointed out that such a street was likely to be crime-free and to improve people's communication. It is considered to have led to those effects that each light was attached with the intention rather than was attached mechanically. Furthermore, in order to realize this activity, it was pointed out that to cooperate with various people of this area was required.

3.　Sticking handmade lights on a street

The next experiment involved holding an event in which handmade lights were placed on the actual street. In order that light might be simply attached by the street, it was considered to combine a magnet with it. Using LED lamps with switches, children and adults from the neighborhood made lighting products, and attached magnets to them. As shown in Figure 5, they were shining mascots with smiling faces using the lightest materials. The workshop was carried out from 16 : 00 to 21 : 00 in July, 2011.

After lighting products were made, they were stuck them on metaled elements, specifically shutters, guardrails, signboards, vending machines, etc. Figure 6 shows the views of the workshop and the examples of stuck lights. A total of 500 works were installed, and each spot was investigated. The originality of the residents was demonstrated in the created products and the plac-

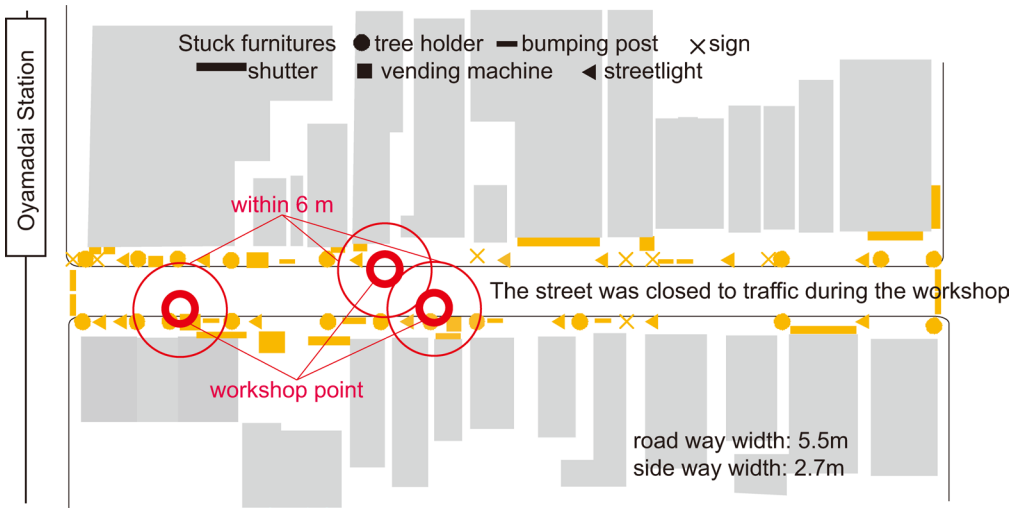

Figure 7　The metal elements on the street in which handmade lights were stuck

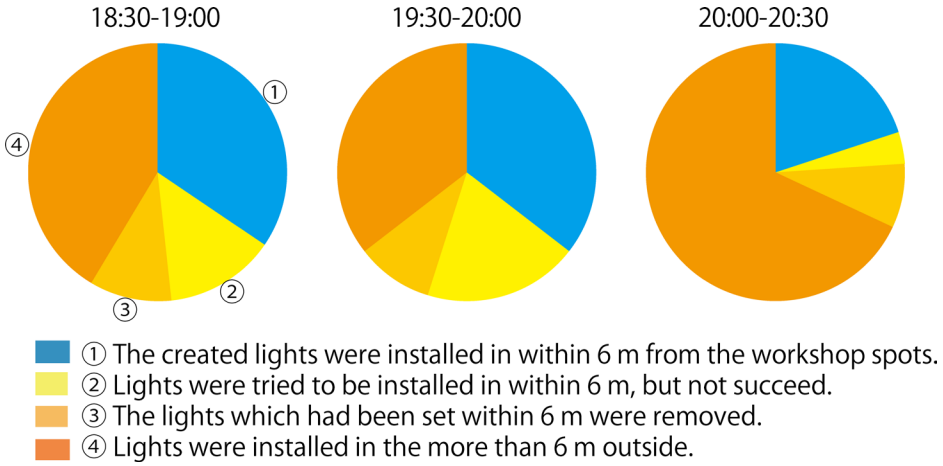

Figure 8　Installed locations according to time

Table 3　The summary of interview to shop owners (*N*=24)

Question	Positive answer	Negative answer	Neither
1) What do you think of this workshop?	21*1	0	3
2) What do you think about installing handmade lights in the street, especially to your shops?	17*2	1	6
3) What do you think about the landscape of children's works being decorated?	16*3	0	8
4) Do you like to participate in such activity?	21*4	0	3

Example Answers: *1 It is good to decorate the street with the made product, without bringing home instantly. They are interesting in landscape and there is feeling of security. *2 Handmade illuminations will definitely attract other people. The event making something in a street is more desirable rather than the event selling something. There is a place where light can be attached in my store. *3 People and storekeepers get close relationship. The process carried out has important meaning rather than the quality of what completed. *4 We would like to cooperate in activity as much as possible. Eaves and Signboards can be decorated with lights. Lights can be installed if they are not completely against our business.

es where they were placed.

Figure 7 shows the elements in which lights were stuck, and Figure 8 shows how they spread according time. These lights were placed in a limited area near the workshop at first, but spread over a large range gradually. When it passed 2 hours after starting the workshop, they were stuck over about 100 m of the street. It was observed that not only children placed lights to the street, but they rearranged them several times or took communication through lights. All the street lights of this area were switched off for 30 minutes from 20 : 00 to 20 : 30. Therefore, although it was temporary, the streetscape was formed of numerous handmade lights.

Interviews with shop owners in the street were held, and Table 3 shows the outline of the result. According to the interview, most owners were positive to this activity. The owners of 17 shops among 24 shops accepted that children's lights were attached to their shops. The owners of 21 shops expressed that they would like to participate in next activity. It was also evaluated highly by participants, residents and pedestrians. It was confirmed that the lights had increased people's concern for the street. Several residents mentioned that they have felt easy when such lights were on the street. On the other hand, the management difficulty at the time of long-term setting was mentioned as a negative opinion.

Although the safety of a street generally improves by illuminance on the street or color rendering properties[2)3)], it was also confirmed that it had improved by the lights attached to buildings and houses in our previous researches[1)4)5)]. For example, in the residential street of the suburbs, the evaluation of lighting environment was improved not only by the amount of light but by the light fittings attached on the gate or at the entryway or on the hedge belonging to private property[5)] because they were connected to residents' existence[6)]. Creation of the lighting environment of the street by residents which was performed by this research expresses people's existences to the outdoors more strongly, and will contribute to deterring immoral behavior in the street.

4. Concluding remark

Through these two experiments, it was found that a streetscape that includes people's individual ideas could be expressed readily by using lights, and the possibility of improvement of the local environment, such as facilitating crime prevention, was indicated. Making the lights of a street by resident participation will contribute to growing the concern about light or a street. In order to realize this goal, it is required to consider not a short-term event but the long-term installation method. It is also essential to increase the accuracy of the experiment and involve various residents, workers, students and children who have involvement in the same area.

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