

Physically, public space was provided and more open to the public than alley, like that in western cities. City planners or designers often use it as space for communication between people. But in fact, we use it primarily as space for modern transportation, e.g., train station or bus stop. As a result, we feel a contradiction between the idea of public space by planners and the real use by citizens.

2.2 Artwork to find the others in shared space

Public spaces are not well functioned for communication as originally intended; therefore, what can we do to facilitate communication between people there?

We may represent our idea to let people know and think about this situation. But we thought it's more important and effective that people have an opportunity themselves to interact with each other in this space and then think about what they can do by themselves.

From this point of view, we choose to create installations that require interactions from participants in public spaces producing unexpected encounters and relationships.

But when we put interactive installations in public space, we suppose there are two difficulties.

First, facing the "artwork" like a painting or sculpture, the audience tends to maintain a certain distance and appreciates only the form and beauty of the art—this convention is a barrier to understanding artworks that require the participants interaction. In addition, media art which uses computer supported interaction tends to be complex in manipulating and understanding the artwork and therefore requires instruction.

Second, a public space is not a museum or gallery where people may expect to find or participate interactive artworks there.

Our solution is that we don't let people look at the artworks as artworks but we invite them to directly participate in the artworks and experience that interaction with others. Originally, the purpose of this project is not to tell audiences our opinion or to expose them to technology but to have them experience interaction with other people.

3. The process of approaching artworks

In our exhibition, the audience finds artwork by accident. There is no notification or clue of what it is. In our experience, audiences often think the artwork is an object in daily life. We carefully design the process approaching the artworks such that they may find themselves participants of the artwork simultaneously with triggering an interaction. All installations we produce are different in how participants interact or participate, but they all are created with simple interfaces requiring little or no instruction and for interacting among the multiple participants.

For realizing these artworks and exhibition, we concentrate on the following two process of approaching the work.

Firstly, it is important to use things familiar to us in our daily life like chairs or walls as metaphors or interfaces for the artwork so that they might not be the barriers we mentioned in the former paragraph when people find these kind of artworks in a public space. Also some of the objects, like water or chairs, in our daily life support the environment of communication. We are trying to rethink the meaning of these

objects as medium of communication and use them as the tools and interface of communication.

Secondly not only using the familiar object as material, but we give them the interactivities for the audience to participate. Then we must use the interaction which don't require difficult instruction or which is easy to understand what happens. Because another achievement of designing this approach is to bring audiences much closer, not alone but together. Each artwork has a function to promote contact among the audience and to create unique experiences which are then shared within the audience.

In this kind of interactive installation, we use computers and other machines which support this function and experience, but they are hidden behind the principal objects of the artwork. Because the artworks in our project are media between audiences in public space.

4. Artworks and exhibitions

Each art works which we have produced and which are at work has its own specific issue in detail but main concept is for the participants to experience the interaction with others in public space as we mentioned in former paragraphs. And they are similar in the point that interaction in each artworks is very simple, like movements of the objects which the participants can feel tactically in their body, ripples of water, sound, temperature or brightness of a lamp etc.

Also in each exhibition we have held was given its context according to the use or character of the public space.

4.1 artworks

We will introduce 3 artworks we have produced in past 3 years.

- "WAVE RINGS !" 1998
- "Remote Furniture" 1999
- "World/World" 2000 (work in progress)

Remote Furniture : Two rocking chairs are installed on the floor facing each other. The audience sees no interactions between chairs. The trigger of interaction happens when two persons from audience each sit in a chair and rock. Each chair has a sensor and motor.



These devices enable mutual interaction between chairs. It allows one to feel the other's action of rocking the chair. The aim of "Remote Furniture," then, is to make direct and tactile touch.

I arrived at the idea by first considering the meaning of talking. Secondly, I wondered what kind of environment supports it, and what kind of rules are there behind talking. In "Remote Furniture", two chairs facing each other represents the environment, and the type of interaction represents the rules of talking.



Technical requirement: The interaction between two chairs is caused by the control with tilt sensor and linear motor. When audience sits and shakes this chair, tilt sensor detects inclination of this chair and the data is transferred to another chair through control PC and the motor in another chair handles the movement of the chair. Usually this kind of remote object is designed with Master-Slave (one-way) method. But in Remote Furniture, full duplex (two-way) interaction is realized because it is much closer to natural feeling.

WAVE RINGS ! : This installation uses ripples of water and sound as media of communication.

Imagine a pool which is 150 cm in diameter like a table that has 8 speakers submerged inside of it, each equidistant one another butted against the enclosing well of the pool. When someone approaches the pool, the nearest sensor to her attached on the pool will trigger the speaker, the vibration of this speaker is transformed into ripples of water that spread over the surface of water. If multiple people approach the pool at the same time, many speakers will sound forming a kaleidoscopic pattern of sound and water. Each sound and ripple has its own character: energetic, calm, or melodious, so people can choose which they like.



WAVE RINGS! in Exhibition in Keio Univ.
Created by Nodoka UI, sound design by Kohji SETOH

In the past, a public water source like a spring or a well had a very important roll not only to provide people with water but also as a place to exchange daily information,. But now, in most developed countries, we have water supply systems in each house and we don't need to gather at public water sources to fetch water. Therefore, they lost the roll as spaces of communication, and instead became object to appreciate in the form of fountains.

This installation aims to recover the roll of communication space by providing movement of water and the sound that people use as language to participate and communicate with each other.

Technical requirement: Analog signals are input from eight infrared sensors (from A to H) and are digitized by an I-CUBE analog/digital converter. This information is sent to a Macintosh Computer in the form of MIDI data. When receiving the triggering signal from a particular sensor, the corresponding sound is sent to the speaker neighboring that sensor. Max program that demonstrates the mapping from the trigger input to the resulting sound output.

World/World : This is an interactive network installation for tactile communication on a worldwide scale.

This installation consists of a pair of walls, (H300cm/W400cm/ D20cm), installed in two different cities. Each wall has two sides, one has objects like poles or lamps, the other projects a captured image from the first wall.



World/World work in progress, model image
Created by Noriyuki FUJIMURA, Nodoka UI

Each object connects to objects in the other wall through the network. If someone acts on a object, the movement made by the participant's action is sent to the object which is in the same place on the other wall. The projection on the second wall shows the actions of the participants on the first wall.

Looking around, we find that many walls surround us in our daily life. We are not always aware of the other side of a wall—the other side may be another room or may be the building's outside.

Even though we know there is another side, we don't know or think about what's there.

We can't see both sides at once. That makes us doubt "is there really another side? What if the other side is another world?" If this happened, imagine that the signals you make on one wall were sent to the another wall in a distant place, and someone saw those signal and responded.

This installation makes imagined world real. Two walls in two distant places are connected to each other through a network (the Internet). The connection enables non-verbal conversations such as sending the body movements or body temperatures amongst the audiences interacting with these two walls.

4.2 Exhibitions

We have produced following 4 exhibitions in the past. The spaces where we have held the exhibitions were normally used for the public transportation or a part of large commercial space and recognized just as passage.

Our exhibition on these spaces provides visitors a shared experience, promoting unexpected encounters between people who gather for the same purpose, shopping or working.

And the aim of our exhibition is for people to rethink the use of these vacant public spaces, and possibly see it as a space of communication.

- PCS exhibition #1 at KeioUniv Campus, Fujisawa, Kanagawa in 1998
- Artworks: "Message Board", "WAVE RINGS!", "Shared Piano"
- PCS exhibition #2 at Sukiwabashi crossing underpass, Ginza, Tokyo in 1999
- Artworks: "Remote Furniture", "WAVE RINGS!"



PCS exhibition #3 at Queen's mall Yokohama, Kanagawa in 1999



Art works: "Remote Furniture", "WAVE RINGS!"

5. User Evaluation

Through these exhibitions, it can be said that we have succeeded in audience participation without hesitation. Some have just experienced the interaction with others through the artworks and noticed the existence each other. Others have curiously participate and tried to understand the meaning of the exhibitions and the space where they had been held.

But we need to investigate in the point that how they can bring broader communication between audiences than those we have intended in our artworks.

One of the answers we are trying to do is to take the relationship between the artworks and the space into the consideration. And we need to make the artworks become a part of the environment in the long term, not just memorized as the special experiences.

6. Recent State

We are now working on the artwork "World/World" in the small version and it will participate the festival "Virtual-Mine" in Neunkirchen, Germany and will be held as the event style exhibition both in Tokyo and in Neunkirchen from 30th Aug to 3rd Sep, 2001.

7. References

- [1] "Radio Nurse" 1937 Isamu Noguchi
- [2] "Public Space/Two Audiences" 1976 Dan Graham
- [3] "Hole-in-Space" 1980 Kit Galloway & Sherrie Rabinowitz
- [4] "Boundary Function" 1998 Scott-Sona Snibbe