

# Two Types of Co-Creation in Designing a Tool and an Activity program for people's expression

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**Abstract:** The importance of co-creation is pointed out, for the results of research development can be used in society really. It means that a developing team and users of system joins their creative powers. The before few years, we were organizing the design research project. On this project, art and technology collaborate to designing places of expression. The users of these places are not specialists in expression. We focus on citizens' expressive activity. In this paper, we will discuss two types of co-creation that were observed in the course of this project. As a characteristic of our design approach, there are two important points. First, the goal of this project was not merely production of knowledge; . Instead we aimed to implementation into the real world. To that end, we challenged designing a technological system and a cultural program to use system. As next point, on this project, development team's designing are expanded by participate on-the-spot like an actual school or museum. In this paper, as one result of this project, we will report about a Zuzie we designed. Zuzie is included software tool and method as a cultural program. Using concrete examples, we investigated a co-creation model for the design of expression places what we discovered was co-creation between the development team and the user community. And In this co-creation, two types of co-creation were discovered. These types are named development-team-centered co-creation and user-community-centered co-creation respectively. Their characteristics can be considered as follows. In user-community-centered co-creation the user community not only applies the results of research, but also participates in the conception, modeling, design, and implementation of modifications to the tools and methods. We can understand that this is a situation generated a shift of the center of co-creation from the development team to the users.

This is an important fact that reveals this characteristic of dynamic change in the process of co-creation. We can see that design emerges from the user community through this process. This brings a new and interesting research question about design knowing to be able to share in social.

**Key words:** *activity-based design, Co-Creation, expression*

## 1. Introduction

As various information systems are researched and developed, the importance of design that considers the user's perspective is being discussed. In addition, many have noted the importance of "co-creation" – in which a system's research development team and its users pool their respective creative powers – for the true practical application of the results of research development in society.(1) The authors of this paper are conducting joint

research in art and technology on design that constructs spaces of expression.(2) The users of spaces of expression are not specialists in expression, but rather ordinary people. The unique characteristic of the approach discussed here is in the co-creation of the design of the “spaces” by the research development team (henceforth “development team”) and the community of users, with the research processes taking place amid practical application in society. This article will discuss two types of co-creation that were observed in the course of this research.

2. The object and process of design, and subjects

2.1 The object and process of design

The goal of this research is not merely “the production of knowledge”; instead, it takes seriously the implementation of that knowledge in the real world. To that end, it strives to make its design objective a cultural program unified with a technological system. A space of expression that unifies the two is created from both an information space and a material environment, and leads to activity through the participation of ordinary people. For this reason, we refer to a use environment that fuses a technological system and a cultural program as a “participatory platform.” The total “space of expression” that is created by the people who use it is constructed as depicted in Figure 1. (3) In order to create this, the platform design process is structured through a repeating cycle of five phases (Figure 2). First (1) the space of expression is conceived and (2) ideal forms of the activities and the tools of the people in that space are modeled; (3) when those ideal forms are determined to be sufficiently attractive and valuable for society, they are designed as technological and cultural mechanisms, (4) implemented as things that can actually be used, (5) and then put into application by people. That application is scrutinized,

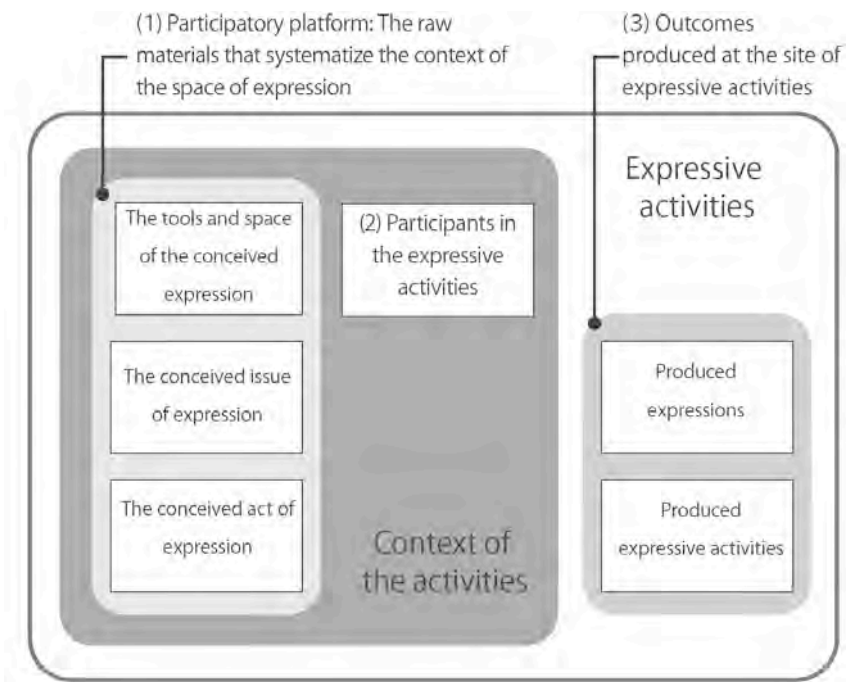


Figure1 The Total Model of the Space Of Expression

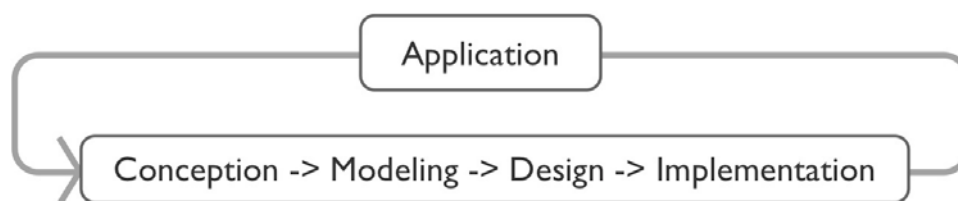


Figure2 Phase Model of Design

and the cycle begins again with the next conception. The “modeling” in step 2 is the imagining and depicting of the shape and function of the object to be designed as a material object. What is depicted are the users’ actions and tools, the things that are generated by them, and the relevant environment. The designer selects the tools and the people’s responsibilities from the expressions he or she has depicted. In the design phase, the tools and planned activities will be taken up, but in the modeling phase, the existences of the people, their activities, and the tools that will be used are expressed. In practice, there are many cases in which the order of the sequence (conception, modeling, design, implementation) will often be different, as when the description of the concept follows after modeling.

## 2.2 The designing subject and co-creation between subjects

In considering co-creation as it occurs in design, it is vital to clarify who the designing subject is. The development that occurs in this research involves two types of subjects – the development team (including the authors) and the community of real-world users – that participate in design. The members of the development team are designers from the field of fine arts and information technology researchers. The expertise of these members lies in the research development and real-world implementation of technological and cultural solutions. The community of users is a group of individuals who utilize the solutions that the research team produces. We might say that what gives social value to the results of the research is its social and cultural application by this community. This research takes the approach of having the development team head to the actual site of the user community’s application of the design, and then to participate in that actual use through new proposals.

## 3. The design of tools and methods for the creation of spaces of expression

As one result of this research, we will take up “Zuzie,” a participatory platform for the creation of spaces of expression in such venues as museums and schools. In the following text we will consider the technological system that makes up the participatory platform from the perspective of the user and the cultural program as the blueprint for the use application of this platform; we will refer to them as the “tool” and the “method” respectively.

### 3.1 The design of “Zuzie”

The goal of Zuzie is not only for the learner to “absorb” knowledge and experience, but also for the learner to “express” him or herself, and to promote new learning through that expression. The “Zuzie tool” is application software that arranges identical collections of image cards across the surfaces of multiple sheet-surfaces, and then creates visual representations of those arrangements from different perspectives (Figure 3). The “Zuzie method” is composed of a sequence of five actions that allow multiple individuals to express themselves (Figure 4). The use of the Zuzie tool occurs in steps 3, 4, and 5 of the Zuzie method.

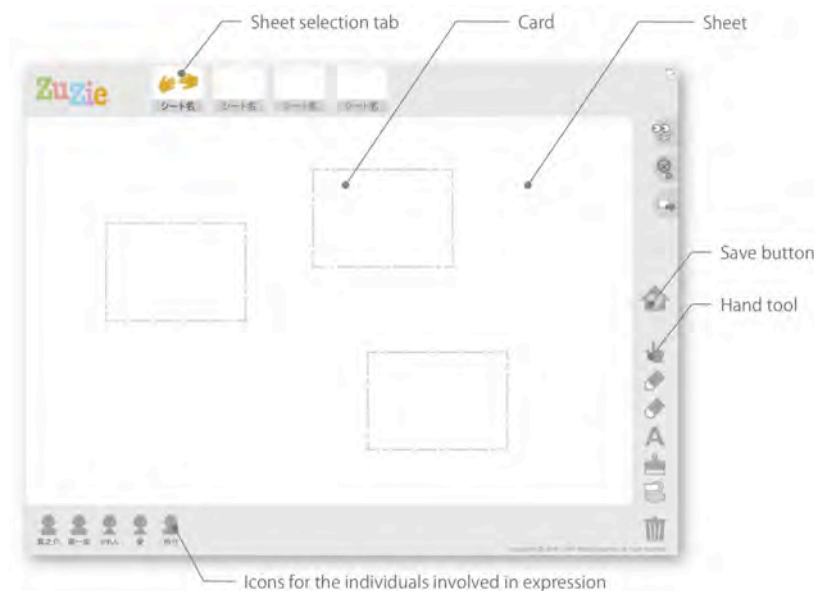


Figure 3 Zuzie Tool

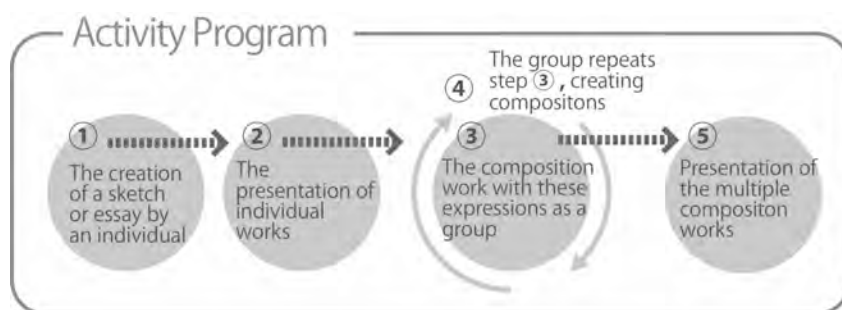


Figure 4 Zuzie Method

### 3.2 The design process situated within actual practice

We began the fundamental design of Zuzie in the winter of 2008. The development team participated in the actual activities of elementary schools, junior high schools, and museums, collaborated with those communities, and co-created the design for spaces of expression as a form of learning that will be used in each venue. In the summer of 2008, we conducted an expression workshop at a museum using the first version of Zuzie. In the autumn of 2009, the original “Zuzie” was completed.<sup>(4)</sup> During that time, the use of Zuzie spread from museums to comprehensive learning programs in elementary and junior high schools (Figure 5). In addition, we expanded it into a method and tool (Zuzie Classroom Management Version) for teachers to visualize the relationships of groups of students and to assess of their classes. In this paper, we will focus on the co-creation that was born of these design processes.



Figure 5 Part of a Zuzie Work Created at B Elementary School

### 3.3 The research development of Zuzie

The origin of Zuzie research development was when the development team participated in a class held by teacher T in elementary school A, and the team and the instructor began to conceive of expressive activities that could occur in comprehensive education. The subsequent conception and modeling of expressive tools and methods based on these initial ideas were begun jointly by the elementary school and the development team. When the fundamental design was concluding, the name “Zuzie” was created for the tool and a new collaboration between the development team and a science museum (the user community) was launched to adapt it for use there (Figure 6). In the summer of 2008, an expressive workshop using Zuzie at the M science museum was planned and conducted. At the request of the development team, instructors and thirty students from A elementary school participated. After sketching the regular exhibits of the museum, six groups created works of synthesis using Zuzie and thus produced a new expressive activity at the museum. At this stage, co-creation was occurring in the relationships between the development team and the A elementary school and between the design team and the M science museum; relationships had not yet been established between the school and the museum.

The next stage of co-creation began at multiple elementary schools that were holding classes that used Zuzie (Figure 7). This stemmed from the relocation of teacher T from A elementary school to B elementary school in 2010. For example, C elementary school, which was aware that B elementary had a class that used Zuzie (Photograph 1), tried using Zuzie in a science class itself. That fall, that class’s content was presented at “Science Research Group X.” Through such collaborations, co-creation that expands the use of the Zuzie method occurs. B elementary school is at the center of this community. The development team does not directly participate in the spread that occurs during this stage.



Figure 6 Relations of Co-Creation between Subjects in the Early Stages of Zuzie Development

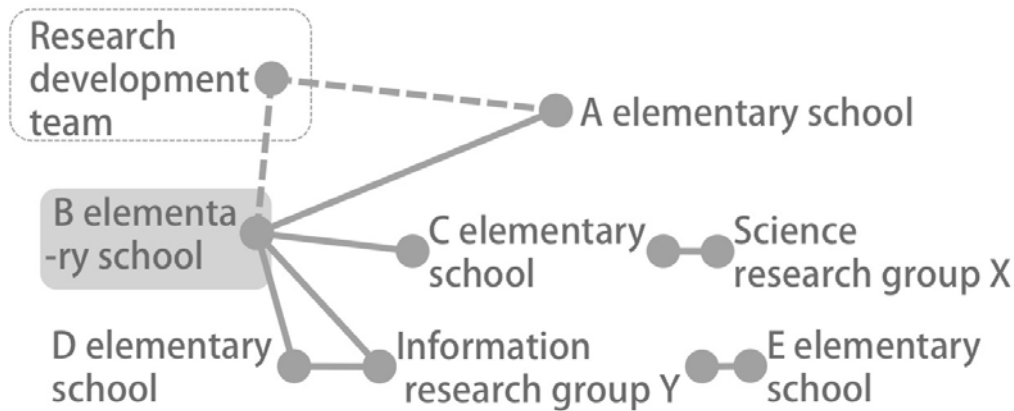


Figure 7 Current (2012) Relations of Co-Creation between Subjects



Photograph 1 Zuzie in Use in a B Elementary School Classroom

### 3.4 Research development of classroom management version, Zuzie CM

What follows is one more example of co-creation within the community of users: co-creation that emerged in the design of the “Classroom Management Zuzie” (below, ZuzieCM), the expanded version of the original “Zuzie”, between the Board of Education in Y City and several elementary schools.

ZuzieCM is a tool and a method that allows the instructor to gather together images of his or her students and to reflect on the big picture of his or her classroom through compositional arrangement. The program of activities conducted by the instructor and the head teacher for the grade, among others, is examined, and the act of assessing the class is changed from a process in which evaluation is done individually as a “chart” to one that is a collaborative expressive activity achieved through the visual composition of “images.” The “ZuzieCM Method” was designed as a variation of the Zuzie method, and helps expand the functionality of the “ZuzieCM Tool” (Figure 9). A number of functions were added, including evaluation space sheets for the purpose of assessment and a “Card Marker Tool” that adds a border in order to highlight certain cards.

At this early stage of research development, the Y school board, B elementary school, and the research development team are working together (Figure 10). The next stage of research development begins from the Spring of 2011. This stage involves a process of co-creation that occurs at a review meeting held by the Y

school board, with the participation of multiple elementary schools (Figure 11). At this stage the design of a classroom assessment method using ZuzieCM begins, linking the elementary and middle school user community, including the Y school board and the research schools (Photograph 2). In conjunction with this, the board of education and the development team handles the design and implementation phase for the ZuzieCM tool.

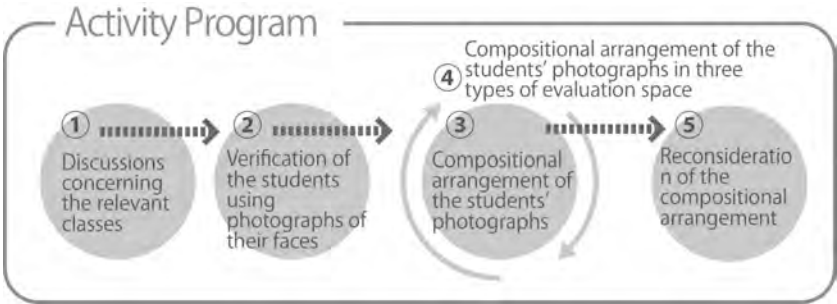


Figure 8 ZuzieCM Classroom Management Method

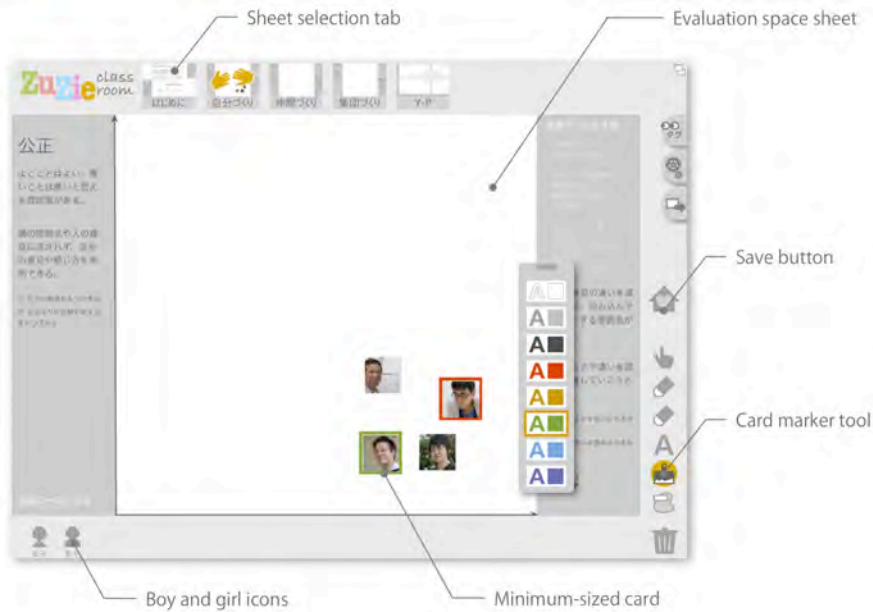


Figure 9 ZuzieCM Classroom Management Tool

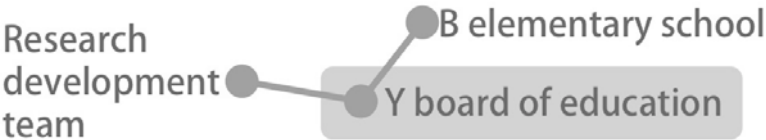


Figure 10 Relations of Co-Creation between Subjects in the Early Stages of ZuzieCM Development



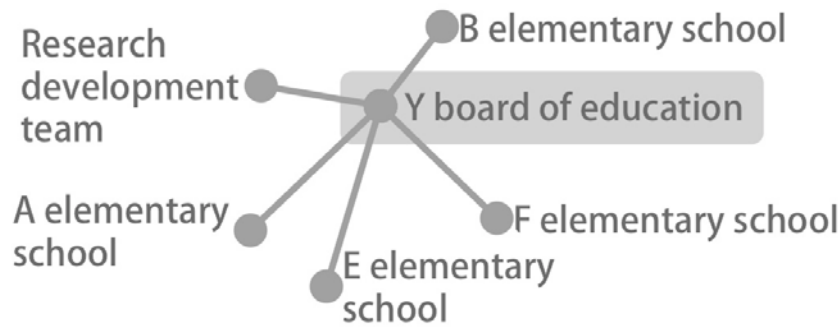
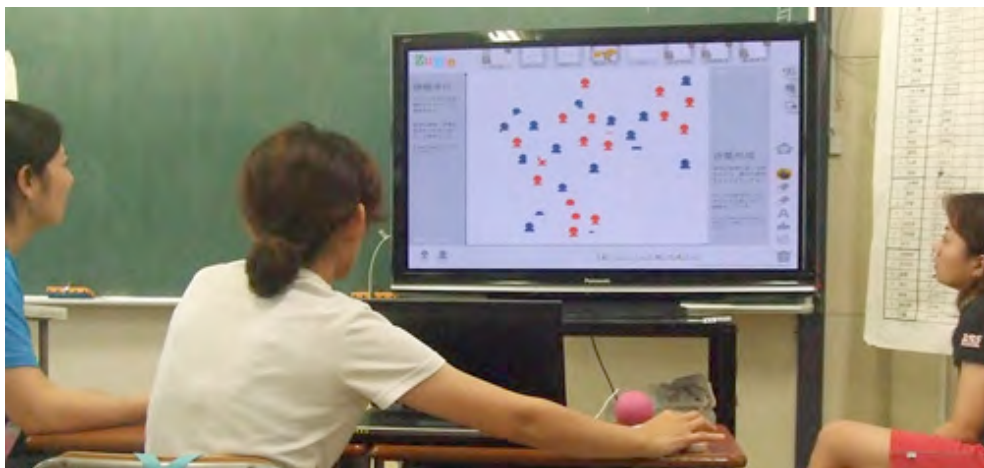


Figure 11 Current (2012) Relations of Co-Creation between Subjects in ZuzieCM Development



Photograph 2 Experimental Use of ZuzieCM by Elementary School Instructors

## 4. Observations and Summary

### 4.1 Co-creation center

Using concrete examples, we investigate a co-creation model for the design of “spaces.” What we discovered was co-creation between the development team and the user community. In the course of this co-creation, the development team functioned as the “center,” producing the Zuzie tool as a new instrument and the Zuzie method as the foundation for expressive activities that use this instrument. In this way, we might think of co-creation in which the development team functions as the center as “development-team-centered co-creation.”

What were able to discover in the second phase of Zuzie research development and in the development of ZuzieCM concerned activation of the links between different members of the user community through co-creation. In this case, it was B elementary school and the Y school board that functioned as the center. In the course of their co-creation, new expressive activities for classroom management were produced, and the ZuzieCM method was designed. As part of this co-creative relationship, the development team implemented the extended functionality of the ZuzieCM tool. In this way, we might think of co-creation in which the user community functions as the center as “user-community-centered co-creation.”

### 4.2 Summary: The Characteristics of Co-Creation



In the cooperation between the development team and the user community, two types of co-creation were discovered. Below is a summary of the characteristics of “development-team-centered co-creation” and “user-community-centered co-creation.”

In “development-team-centered co-creation,” the development team participated in the user community’s utilization, using the knowledge acquired to contribute to the processes of conception, modeling, design, and implementation. Cooperation occurs as the development team undertakes the conception, modeling, design, and implementation, and the user community (one or more) undertakes the application of the results of that research (Figure 12).

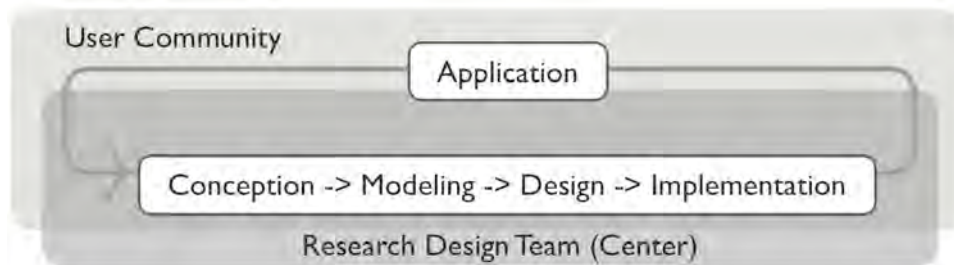


Figure 12 Model of Creation Using Research Design Team-Centered Co-Creation

In “user-community-centered co-creation,” the user community not only applies the results of research, but also participates in the conception, modeling, design, and implementation of modifications to the tools and methods. With the user community undertaking a portion of the research development, the development team takes responsibility for the design and implementation that requires specialization (Figure 13).

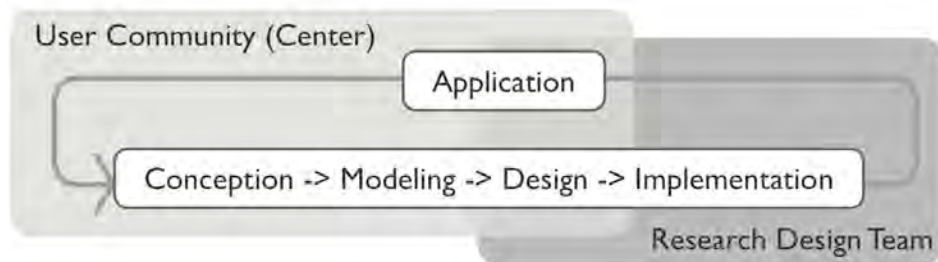


Figure 13 Model of Creation Using User-Community-Centered Co-Creation

Co-creation is a dynamic phenomenon. From the beginning of collaboration throughout its development, the phases of multiple subjects’ co-creation change dynamically. A portion of the conception, modeling, and design phases transfers from the development team to the users, so that the users advance the process as the center of co-creation. This is an important fact that reveals this characteristic of dynamic change in the process of co-creation. We can see that design emerges from the user community through this process.

## 5. In Conclusion

We have discussed the two types of co-creation that occur in collaboration between development teams and user communities. What we discovered is that the center of co-creation shifts from the development team to the user community, and that this shift promotes the social implementation of research development results. As a result of the shift, design knowledge in a portion of the design phases is divulged to the user community. This brings a new and interesting research question to light: the construction of “design as social knowledge.”

A portion of this research was supported by the Japan Science and Technology Agency's Core Research for Evolutional Science & Technology Program (CREST) and Yokohama City Board of Education.

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