

# Application of the scenario based design method for getting original ideas through the Experiential ideation process

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**Abstract:** As the significance of creativity increases, there have been demands for new kind of methods and perspectives. This study aims to seek how to enhance design creativity with scenario-based methods and suggests Experiential ideation process based on scenarios to deduce creativity.

Experiential ideation process offers the synthetic environment for designers to experience users' contexts. Designers give users missions comprised with scenarios that are achievable. Missions have restrictions in a range of free ideation. And users draw solutions, which are the form of various scenarios in the process of 'Act Out' for completing missions. With the case project, this process was applied to a show window interface design and the effectiveness of this technique was evaluated. In consequence, Experiential ideation process played crucial roles for reducing gaps existing between designers and users by making reasonable atmosphere. These relationships offered inspirations and gave opportunities to motivate creative ideations to designers.

**Key words:** *Scenario-based design, User-participatory design, Design creativity, User experience.*

## 1. Introduction

### 1.1 Background and Purpose

There have been numerous attempts to create sensational and inspirational users' experiences. Wii, the next generation game console, is a representative case that generated revolutionary and differential user experience, by conversion of existing concepts and imagination. The distinctive interface based on gestures formed contents that provide users with new kind of experiences, and this is evaluated as a critical factor that lead Wii successfully. It significantly suggests the importance of creativity. Designers' creative idea is important in the background of creative, revolutionary design and requires designers' utmost effort to being creative to make inventive artifacts for inducing creative ideas. The creative idea is an essential factor in idea expression and development, and it is practically used especially in the ideation process of and sketch in the field of design. The user experience design regard users' opinion and participation a significant part in designing, in this context, can

also be considered an endeavor for creative designing. Because not only the products but also understanding users' context, such as surroundings of using products, users, and interactions can derive creative artifacts. As the significance of user contexts increases, there have been demands for a new kind of methodology or perspective. Scenario-based design methods are one of the attempts, and it is judged that this method can draw creative design artifacts effectively, if applied to designing process. In particular, if scenario-based design methods are applicable in the early designing process, it creates the environment for designers to deduct creative ideas.

This study aims to seek how to enhance users' participation with Scenario-based design method in designing process. Furthermore, we suggest Experiential ideation process based on scenarios for drawing creative ideas effectively. Experiential ideation process, the suggested concept above, enables designers to utilize it in the real design world, and at the same time it shows new potentials and effects for creative ideas.

## **1.2 Scope and method of research**

The goal of this study is to formulate a method that lead creative ideation in interaction design process.

In chapter two, the definition and distinctive quality of creativity in the field of design are introduced. And the role of Scenario-based design methods and effects of those methods for inducing the voluntary participation of users are dealt. In chapter three, Experiential ideation process which is conducted by Scenario-based design methods, is suggested in interface design developing process. Futhermore, we suggest the framework of Experiential ideation process for interface design and set specific ways for creative ideation. In chapter four, methods framework of Experiential ideation process method is tested through case studies. With the example of a show window interface design, we try to find the fact whether Experiential ideation process dedicates to deducing creative ideas, and then we observe effects of this process and development the frame work of this process. Based on these facts, we seek ways to facilitate methods that is applied effectively to creative ideation in interface design process.

## **2. Design Creativity and Scenario-based design methods**

### **2.1 Design Creativity**

Creativity is the noble ability that originates new outcomes, which only humans can possess. The creativity can be defined as from making new objects with existing factors or unique combinations to create the new world from nothing.[1] Of all those definitions, the concept of the creativity in the design field is generating the new existence, wonderful and new ideas from complete nothing. The creative design is often thought on limited style base, made up of radical shape and material. We must keep in mind, however, the truly creative design is not about forming fascinating shapes but understanding the needs that users didn't recognize by themselves, and it is an artifact of the product, granting new concept or value based on these.

Creative thoughts of designers are the priority for creating original designs, because the creativity is recognized as a prerequisite and destiny what designers should have. For this, designers have to acquire the latest information and experiences relating to their fields, and at the same time they should always perform their works by perceiving problems caused by results of design processes with fair insights.[2] Further, various creative thought methods in the design process have been adopted and efforts for the original designs also has been keeping up in recent days. Those can be divided into two techniques, one for the divergence theory which is used

for creating various ideas infinitely and another for convergence theory which is utilized for organizing and actualizing ideas resulting from the former technique. Through the process of thinking techniques, the creative origin is emerged with various shapes of the instant creative leap.

## **2.2 Scenario-based design methods**

### **2.2.1 Scenario-based design methods in the participatory design**

With emerging the User-experience design, the design movement toward users has been attained by finding methods that guides users' involvement in design development process.[3] Consequently, early user involvement in the current design development process is generally accepted and standardized nowadays.[4] In addition to general and traditional methods, new methods have been adapted from other areas, such as ethnography, applied anthropology, and participatory design, to better understand the actual user situation of potential users. This means various methods, as well as traditional ones that involve users innovatively in design process, become more influential. Moreover, the methods and techniques to accomplish this may widely vary. And methods and techniques for accomplishing this may vary widely. [5]

Scenario-based design methods, one of new methods that try to renew users' participation, detect design problems and actively induce its solutions through users' circumstance scenarios. The goals of method can be categorized into two main categories, depending on what the practical goals are. First, it is constructed to check potential problems of user circumstances to arouse new ideas. Secondly, Scenarios is composed by containing solution ideas for describing future environments. These two kinds of design scenario processes are utilized according to each goal.[6] This method can be applied to the processes of collecting information corresponding with goals of each stage the whole design developing process and making persona, collecting users' requirements. Users can experience products, the circumstances that include product and users, and the interaction generated from the relationship between these three principles. These principles enable designers to better understand the real user circumstance of potential end user.

### **2.2.2 'Act Out' in Scenario-based design methods**

With traditional methods of users' participation based on scenarios, a Role-playing, a Drama, a storyboarding, and a Performance technique, are the new approach that induces creative ideas through user behaviors.[7] Especially, it can be applied to the early concept definition process, which is the most important one to predicting the success or failure, stage and make expected potential users to participate actively, and expand opportunities for creative thinking via stages of understanding them. The merits of combining scenario methods and 'Act Out' are shown below.[8]

1. These could allow designers to imagine better. Enactive, experiential behaviors might spark imagination and creativity in ways that may not occur "at the drawing board"
2. These could allow designers to empathise better with situation they are faced with having to think through the implications of new design idea "in someone else's shoes"
3. Designers could communicate better with peers, clients and perhaps users through the higher bandwidth provided by performance. A shared perspective is offered to the audience members of any performance that can form a common platform for further discussion.

### 3. Experiential ideation process

We suggested Experiential ideation process which induces performances of users by using the scenario method. And we focused on inducing creative ideas in the creative design process rather than solely depending on designers' own creative thinking. In the below phase, there are characteristics of Experiential ideation process.

#### Missions

Designers give potential-users missions that are achievable. Because it is judged targets that require relatively less effort will inspire and accelerate creative thinking.

#### Open-ended scenarios

The most prominent feature of scenarios is that they are not determined but flexible. Designers can develop Scenarios by themselves, or borrow existing scenarios such as fairy tales, animations and so on to achieve the mission. Secondly, It can be rearranged or elaborated into new scenarios by participating user. It depends on users' creativity activeness.

#### Group creative of users and Designers

Generally, small groups of 3 or 4 members make one team in a design project. The potential-users who participate in the experiment do not have to coincide with the target users of the design artifact. Instead, the users' characteristic is more critical factor. Enlisting extroverted people who easily adapt to new environment and participate actively is emphasized. Moreover, if designers or professionals who are not part of current project participate in this stage, circumstances for creative ideation can be constructed more effectively.

#### Restrictions

There are some restrictions on the process of fulfilling the mission. These can be modified according to what kind of goals the designer wants for design artifacts.



Figure.1 Experiential ideation process

Experiential ideation process should be in the interval period between Research and Analysis process in the early concept definition phase. This is the stage that designers' creativity is most activated. Furthermore, designers can be freed from boundary, that they should be generating realistic ideas to employed in design artifacts, and able to think comparatively independent divergent thinking. The phase of research, analysis, and Experiential ideation process is not advanced separately but rather exercised coordinately. This enables to draw creative design results by expanding participations and potentials for making new ideas of users.

#### **4. Case project: Show window interface design**

This study applies Experiential ideation process to a show window interface design and evaluates the effectiveness of this technique in practical perspective.

##### **4.1 Show window interface design**

A show window design is concept of a digital catalog that can be chose and shared with other people, unlike existing paper catalogs. This concept does not demonstrate products as paper catalogs did. It provides overall experience that includes from product demonstration stage to purchasing stage. Above all, users observe the whole list of products before buying one. In addition, they can purchase products after observing the detailed product information or save this information by using personal belongings such as cell phones. The Gesture interface method is adopted for using this catalog. This has been done because intuitive interface, easily used without educational stage by customers who visit shops, should be applied.

##### **4.2 Application of Experiential ideation process**

###### **4.2.1 Goal of experiment**

The goal of this experiment is to apply to Experiential ideation process that was suggested in the input setting stage in the early concept of a show window design. Functions and operating methods of the show window design are not determined already because a show window design was suggested in concept design but never succeeded in commercial business. So, I think that designers can freely make creative ideas when Experiential ideation process is applied in designing process. The objectives of applying Experiential ideation process in the process of gesture interface for the show window design are summarized as below.

1. To actively induce users' participation in Experiential ideation process, and find out whether the designers and potential users cooperate thorough this process.
2. To find out how the given scenarios change in Experiential ideation process, and whether these can be applied to the direction of deriving creative ideas.
3. To find out whether those unexpected incidents and users' performance help designers' ideation.
4. At last, to find out if Experiential ideation process can be adopted in other interface design processes.

###### **4.2.2 Selecting participants in Experiments**

A group is composed of three members; university students, and one designer. In case of users, three members should be people in the same age or close friends, and include at least one extroverted person. This is to eliminate incidents such as participants have difficulties with expressing their behaviors, words, and thoughts, and to produce comfortable, natural environment for the members. This elevates group's cohesiveness and enhances morale of group that is the requisites for creative ideation.

###### **4.2.3 Experiment plans**

This experiment is divided into two stages. The mission of Step1 is to induce 'Act out' by the Improvisation. In Step2, participants construct the scenario by themselves. The whole experiment was videotaped and used in post analyzing stage.

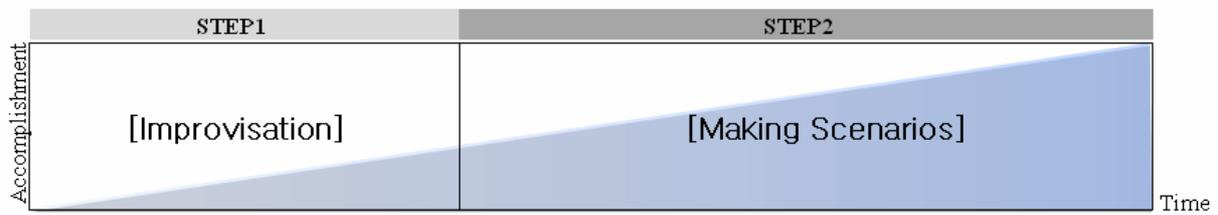


Figure.2 Experiential ideation process

### 4.3 First Experiment

The first experiment was conducted based on the layout.

Table 1. Step1 Layout

Subjects	Contents
Mission	'Improvisation': Mimic seen images on the spot. Participants can debate before expressing their thoughts. The number of image: People(10) Animal(10)
Restrictions	Speaking or making sounds beside gestures are banned



Figure. 3, 4, 5 Step2 Images

Problems were found through Step1 and characteristics of participants' performance were listed as below.

- There are participants who perform passively, being conscious about videotaping.
- When gestures are difficult to identify, time span was extended under participants' discussions.
- Participants tend to follow as shown in images, when expressing human image.
- Some participants imitate frequently other participants.

There were participants who didn't participate actively because they consciously paid attention to this experiment.(Figure 3) But they became more active during solving missions. Furthermore, collaborative works between participants and designers were shown in the process of the mission performance. As the experiment progresses, gestures became greater and observers were able to notice elevation of group cohesiveness through observing participants gestures.(Figure 4, 5) In case of notifying gesture, intuitive and logical thinking were conducted collaboratively. As a result, gestures were presented more diversely, compared to images that are easier to comprehend.

Table 2. Step2 Layout

Subjects	Contents
Mission	<p>Set three places and make possible scenarios of each place → made scenarios are performed only by their gestures.</p> <p>One noun, and one verb is selected for each place. These two words should be used when making scenarios.</p> <p>Library: Friendship - Turn off                      Electric railway : Earring - Wave                      Church: Love - Beat</p>
Restrictions	Speaking or making sounds beside gestures are banned



Figure. 6, 7, 8 Step2 Images

- Participants are immature to make scenarios independently.
- Completed scenarios contain general contents that can be experimented in daily lives.
- Their gestures are cliché and ordinary: Reading books, Taking beverages and so on.
- Gesture can not be effectively analyzed because some users do not see the camera directly.

First of all, participants drew a image on post-it to describe each Scene. And then, they arranged those post-its to make a whole scenario.(Figure 6) However, participants felt constrained to make a whole story directly. Contents of the scenario were also very general. Consequently, participants' gestures were cliché and general.(Figure 7, 8) It means that providing detailed common place and vocabularies disabled participants to think creatively. As a result, ideas motivating issues were not found in the first experiment clearly. This is because there are some problems with missions of Experiential ideation process and given scenarios. In the second test, we modified test layouts on a basis of results coming from the first test for promoting creativity.

#### 4.4 Second Experiment

Second experiment was adjusted reflecting the first one. Given scenarios for mission in Step1 and Step2, borrowed from existing nursery stories. Mission was altered to participants to make part of the scenario rather than whole. In addition, some restrictions were removed to extend creativity.

Table 3. Step1 Layout

Subjects	Contents
Mission	Designer story tell the nursery stories made up of images and language→ testes express meaning of some specific sentences by gestures.
	Participants can debate before expressing their thoughts
	1. 'Bremen Orchestra': express using the whole body language.
	2. 'The Red Riding Hood': express only using hand gestures.
Restrictions	Speaking or making sounds beside gestures are banned



Figure. 9 Gestures using the whole body language

Figure. 10 Gestures only using hand

- Exhibiting gestures are more diverse than first experiment.
- Gesture size and range enlarge
- Expression only using hand gestures make more diverse than these using the whole body.

Participants immersed more intense in second experiment than the first experiment, because designers told the stories. In addition, we saw that participants concentrated on solving the mission in a short time. Each Participant had different ways to analyze and reorganize stories offered by designer. And restrictions were required to use only hands or the whole body. So, their gestures made by using only hands showed various types more than gestures made by using the whole body. Exhibiting gestures were more diverse than first experiment. Furthermore, gesture size and range enlarged remarkably. It can offer motives to designer in the process of creative ideation more than former tests.

Table 4. Step2 Layout

Subjects	Contents
Mission	Participants express stories by gesture, imagining what would happen before and after the given picture.
Details	Participants can debate before expressing their thoughts. Suggested image type: Realistic images(5) Unrealistic images(5)
Restrictions	Speaking or making sounds beside gestures are banned

- Participants are immature to make scenarios independently.
- To more participants analyze the image for a longer time, to more gesture demonstrations become mediocre.

As participants had more time for analyzing the image, their gestures became mediocre because they could analyze the image reasonably. It means that performances after understanding contexts in a short time gave more chances to make a variety of gestures to users, when we compared to users given a longer time to understand the stories. In a way prompt and reflective behaviors like this could happen.



Figure. 9 A example is for expressing the sentence, "I want to be a musician"

Figure.10 A example is for expressing the sentence, "Her grandmother loves the child so much"

When participants performed "I want to be a musician", they showed the gesture playing instruments like a trumpet, drum and so on. These various gestures can offer motives to designer in the ideation process of creating ideas. Also, even though gestures looked similar, there were delicate differences such as sizes, movements repeatedly appeared through all experiments. These differences can be used to recognize users' characters and the movements that were repeated can be applied to make interface design for general users who operate interface easily.

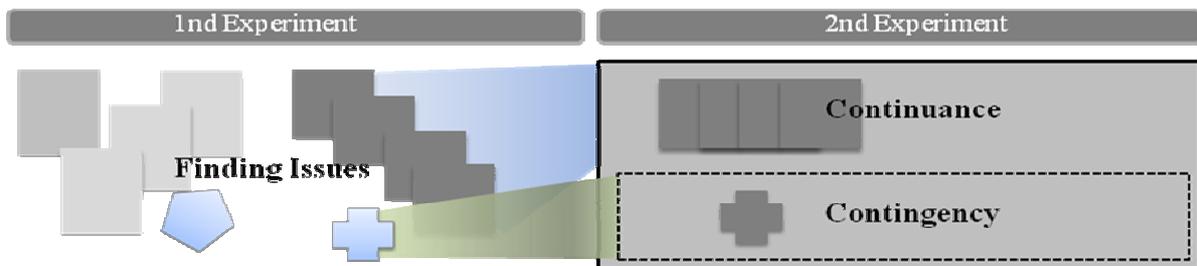


Figure. 11 Idea developing process

Figure.11 shows the process of the gesture interface ideation applied to the show window interface design. which Founded issues in tests can be classified with two categories, the continuance and the contingency. The contingency category is for accidentally occurring issues, such as unexpected behaviors and responds of participants. These issues could be start points for letting designers create ideas. Prompt and reflective behaviors like this can be a way to approach users. The continuance category is for repeatedly and continuously occurring issues. And if contingent issues occur repeatedly, those issues can also belong to this category. In this case study, especially, those patterns could be cleared through both tests. This enables to suggest basic guidelines for not only the ideation process but also design whole process. Of course, initial issues are vague and unspecific. So, designers have to work with several times for converting vague ideas into more specific and clear ideas. Because of this, designers can try to adjust some parts such as missions and scenarios of the process for developing and

specifying previous ideas. This promotes to deduce creative ideas by forming the proper atmosphere for the users' position.

## **5. Conclusions**

The main goal of Experiential ideation process is making new and various design results for users by giving proper environments which are useful to lead design creativity to designers. Based on founded issues of Experiential ideation process through the case study, we can specify the way to induce design creativity.

### **Missions and Open-ended scenarios**

Designers give potential-users missions comprised with scenarios that are achievable. First, when this mission is comprised with stories, potential-users can participate in this process to solve the mission actively. Secondly, missions have restrictions or boundaries. However, excessive or deficient restrictions would limit potential-users from finding solutions. Therefore, these should be set in a range of free ideation.

Potential-users draw solutions, which are the form of various scenarios, in the process of 'Act Out' for completing missions. So, these scenarios are always not determined but flexible. In this process, behavior features of users can be repeatedly shown in 'Act out' to designer. These features can be a standard that designers decide effectiveness and validity of their ideas in ideation and sorting idea stages.

Experiential ideation process consists of two phases, Step1 and Step2. Step1 is conducted as a warming up for step2. It is to relax potential-users and make them enjoy it as a game rather than an experiment. In Step1, simple mission that users can solve impromptu can be presented a form of scenario. In Step2, a mission was offered that users can make scenario-formed conclusion directly. Designer can offer materials such as images, words, and scene and so on. And the time and space boundaries offered by designer encourage creative ideation. Consequently, each user has different ways to understand and analyze the mission. And the solution can be seen in various forms. Especially 'Act Out' provides more opportunities to draw design creativity.

Experiential ideation process plays crucial roles for reducing the gaps existing between designers and users by making reasonable atmosphere and by persuading users in the ideation process. This process enables designers and users who participated in the designing developing process to can cooperate. The relationship between users and designers offered inspirations and motives could be bases for deducing creative ideas. Due to this way, various thinking of designers can be close to those of consumers. As a result, it gives an opportunity to motivate creative ideations to designers. However, there are some problems in this process. First of all, constructions of the proper environments should be required planned for directions which enable to create ideas freely. Secondly, opportunities of the conversation about ideas between designers and users should be offered during experiments. Moreover, when some materials or equipment for tests are prepared, users' expressions can be done more effectively.

The study for Experiential ideation process will keep going on and enable to dedicate to finding ideal results. In addition, we can establish firm frames of Experiential ideation process by applying this study to the process of other interface designing process.

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