

# A Modularized Approach to the Development of the Creativity Learning Program

Kyungah Won

*Doowon Technical College, Department of Computer Graphics*

*kakim88@hotmail.com.*

**Abstract:** Art education in design has repeatedly stressed the importance of developing creativity. In the digital period, however, which shows rapid change in both forms and contents, it needs to be equipped with more flexible and systematic ways of approaching to the creativity development, especially involved with cultural diversity of the digital world. This paper primarily proposes a maximally efficient, productive creativity learning program in which the integration of expressive media and communication generates a comprehensive network of communicative information in the development of digital technologies, which, consequently, brings forth valuable cultural contents of art. The amalgamation of Won (2006)'s *Prism Effect*, with distinctive three devices, and the facilitator factors, with two different facilitators such as self-controlled and controlled plays, would function as a catalyst for cultural diversity in the digital forms and contents of art. And this will, consequently, result in producing a number of practices that can be classified and assorted for a later performance. This paper thus suggests a roadmap of how to develop the creativity learning program in which two categories of facilitators based on three thinking devices function to classify four activities. In addition, selected activities are shaped as a creativity learning program by generating learning practices with the formalizing instructional strategy that fit into a specialized educational environment and learners. The samples of learning practice design show guidelines for practice and the results of learning activity. Therefore, the eventual goal of this paper would be to establish a *creativity learning program* that constitutes a highly systematized and modularized database to maximize the efficiency and productivity of the creativity development.

**Keywords:** *Prism Effect, multi-sensory, multi-directional, storytelling, aesthetic, practical, facilitator, modularized database, creativity learning program*

## 1. Introduction

Art education in a field of design needs to be adapted to the paradigm change of cultural significance and diversity in the digital period. The integration of expressive media and communication, then, develops

into a comprehensive network of information and communication and brings forth a new concept in which art and culture produce valuable cultural contents with a development of digital technology. Conceptual changes of the practical design education are needed to develop into competitive digital contents equipped with creativity ability. The design education, therefore, needs to focus particularly on the distinguishing features of the digital media that constitute a distinct form of aesthetics that is interactive, participatory, dynamic, and customizable in its principal characteristic.

Art education, in general, needs to recognize the importance of developing basic education courses in creativity and vigorously respond to learning methods and environmental variations with research fundamentals that systematize the education program and its scientific development. It is, therefore, that the creativity process need to be related to creativity thinking way and creativity learning ways to encourage the creativity development in the curriculum. In addition, the creativity learning program should be studied on the basis of the principles of practical approach to creativity, and, therefore, a wide variety of learning activities need to be tested and revised in the classroom.

Part of the creativity development utilized in this paper is based on Won(2006)'s the "*Prism Effect*-based Creativity-Thinking Process," which mainly deals with various contents of cross-categorical digital media in artistic forms and concepts by employing creative thinking devices such as multi-sensory, multi-directional, and storytelling devices. This paper suggests that thinking devices function as "Self-controlled" and "Controlled" plays and four activities serve as "Physical activity," "Visual activity," "Linguistic activity," and "Complex activity," which appear as units in the complex process. Those plays and activities, then, function to develop modules for the aesthetic and practical aspects in creativity learning practice design. This will, in fact, have an effect of modularizing the creativity learning program by appropriately combining relevant units.

## **2. The Development of Creativity Learning Program (CLP)**

### **2.1 The *Prism Effect***

This paper mainly deals with the following issues that are fundamental not only to promote creativity but also to develop aesthetic senses by encouraging awareness of emotional senses, creative movement in time and space, and expressiveness through the form of narrative. According to the suggestion of Won's the "*Prism Effect*-based Creativity-Thinking Process (hereafter PECTP), one way of accomplishing creative thinking abilities is to integrate the PECTP with the three devices: the multi-sensory device, the multi-dimensional device, the storytelling device, which all function as an access to expressive creative abilities.

Won (2006:10) notes, "the outcome of work creation needs to be unexpected so as to include a variety of contents in number, size, and nature. The key role of the prism of the system is to absorb an

analog information source and divide it into many different pieces that are transformed into digital contents. The Prism Effect then functions to diverge onto the target of the digital information life with the amalgamation of multi-sensory, multi-dimensional, and storytelling devices that are manifested by themselves in the images of the prisms. Those three prisms interact with each other and function to constitute one single device to perform the comprehensive creative thinking”.

## 2.2 Creativity Thinking Devices: MSD, MDD, and SD

The Multi-Sensory Device (hereafter MSD) originates from the integration of all sensory systems we have and governs the emotional status related to digital life. It relates to the senses that integrate all sensory systems into the multiplex system that governs and opens one's emotional status playing a crucial role in understanding their complicity of digital media since the appearance of experimental digital art is no longer grounded by a single-minded sensory system which conveys its artistic expressiveness.

The Multi-Dimensional Device (hereafter MDD), which is utilized to broaden the realm of the spatial thinking toward the artistic expressions, notes a relative concept in an artistic way of thinking that experiences a relatively free movement of space and time out of a restricted realm of the 2-D way of thinking. This is believed, by Won, to have an effect of improving creative abilities with multi dimensions to spatial time, the relation between space and time, 3-D form, and 4-D expressiveness.

The Storytelling Device (hereafter SD) is to develop the basic ideas and expressions through time-based storytelling method. The SD, in particular, deals with creative thinking and expressiveness through the form of narrative and also serves as a creativity thinking tool that includes the characteristics of emotion and the concept of time and space and enhances the creative faculty.

## 2.3 Facilitators and Four Activities

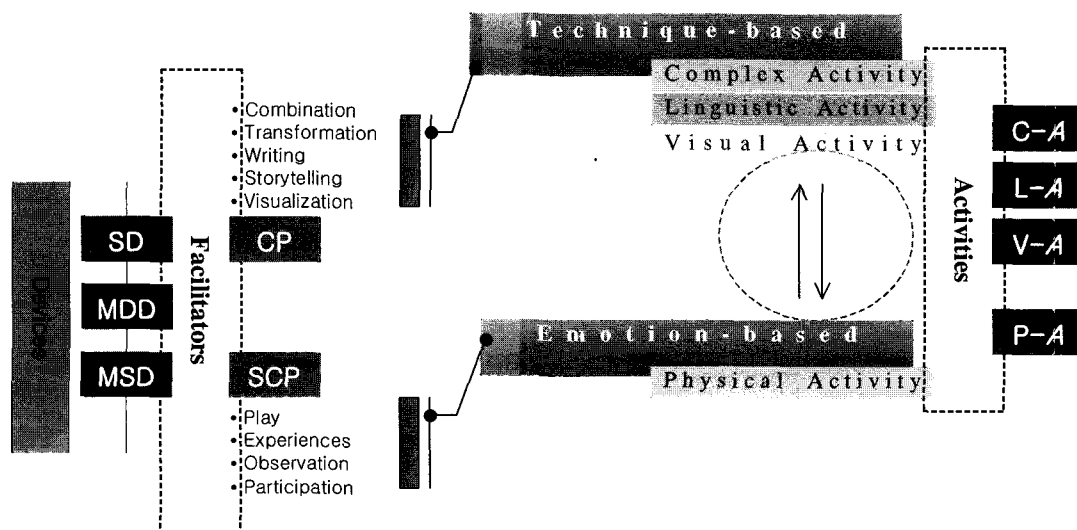


Fig. 1 Facilitators and Activities

Figure 1 shows an arrangement of how three creative thinking devices (MSD, MDD, and SD) are classified into two plays such as “Self-controlled Play” (SCP) and “Controlled Play” (CP) that depend on creative acts and aspects and arranged by four activities (PA, VA, LA, and CA)

### **1) Facilitators: Self-Controlled Play (SCP) and Controlled Play (CP)**

Play, in this paper, is defined as having a crucial role to develop many creative processes involved in creativity. Runco (1996:34) also states that some processes like imagination and divergent thinking are shown in play, expressed in play, and developed through play experiences. Play thus facilitates a number of different processes that are important in creativity.

In this work, self-controlled play in art education is designed to motivate students' spontaneous emotion to take charge of their own activity through the learning processes. Thus, this values creative knowledge and experience for developing creativity. They are in principle designed for students to collaborate in the process of pre-designed activities, which mainly stress Physical Activity. Self-controlled play as a facilitator thus includes various creative acts such as "experience," "observation," "participation." Play, experiences, observation and participation function as facilitators of creativity in the emotional aspect. Emotional processes that emerge relate to facilitative creative thinking through those actions. *Experience* with all senses becomes the basis of all activities. *Experience* can unlock all of your senses and expand into your creativity. Douglass and Harnden (1996:20) also notes, “the best source of story ideas is based on your own self and those stories come from your own interests, responses, and your experiences”. The action of *observation* is to watch and study someone or something with attentions in order to discover something useful. This method becomes a powerful tool for improving an accurate description of things that are observed, resulting in developing artistic expressions. The observation allows us to find a powerful connection to ideas by recording any changes of things as time passes and by having one’s point-of-view to be diverse. The idea of *participation* supports one’s commitment to having more energetic creative attitude and thinking.

Controlled play, on the other hand, functions to facilitate between the creative thinking devices and their practices. It is, in principle, designed for students to work with the instructor in the process of pre-designed activities such as visual, linguistic, and complex ones. Controlled play as a facilitator includes creative acts such as "visualization," "writing," "story-telling," "combination," and "transformation," that belongs to the technical aspects. Alex Osborn (1991:48) states, “many students of imagination focus on combination as the essence of creativity and most combinations are related to grouping of like things and thoughts and similarity is the basic law of association”. Technical creative processes that emerge relate to facilitative creative thinking through Visual Activity, Linguistic Activity and Complex Activity.

## 2) Four Activities

### • **Emotion-based Activity: Physical Activity (P-A)**

*Physical Activity* like “play,” as Edwards(1979:93) notes, that relates to one's body in the real world rather than one's mind in someone's imagination. People are therefore asked to observe, touch, smell, taste, hear, etc. each other as well as surroundings to unlock all of their senses. This type of physical activity, as also noted by Elkins (1996:17) has an effect of meticulously observing and describing things that serve to connect to the creative ideas by recording subtle changes in the targeted objects. Physical activity can help not only relieve stress on the subject, but also deal effectively with problems by encouraging the energetic, active interaction with the related things. Healthy and positive environments induced by physical activity give rise to sound and positive feedback which strengthens the participation for the creativity-thinking process. This physical interaction helps broaden one's horizons and the creative realm of the targeted objects

### • **Technique-based Activities: Visual Activity (V-A), Linguistic Activity (L-A), Complex Activity(C-A)**

Divergent thinking is important in creativity that underlies divergent production abilities. Divergent thinking, thus, involves free association, broad scanning ability, and fluidity of thinking. Mayesky (2003:4) states, “there are two kinds of thinking to produce solutions to problem. One of these types is convergent thinking. The other type is divergent thinking”. Mayesky points out that divergent thinking is useful for various answers to a single problem by experimenting alternatives. Runco (1996:34) also explains that divergent thinking processes in creativity are categorized as transforming, associating and synthesizing abilities which require a breadth of thinking skills and activities in a way of manipulating, interpreting, coordinating, and elaborating.

The three activities categorized as Technical aspects are designed by enhancing thinking skills that take place in the course of inducing the factors of creative thinking. Won (2006:13) explains that transformational activity, for example, is another form of complex activity that relates to linguistic and visual activities that affect each other in the direction of application. Won, in particular, stresses that if the input source undergoes linguistic activity and visual activity in sequence and produces a creative story and a creative image in turn, then, transformational activity functions to reverse the direction, from visual activity to linguistic activity, resulting in a reversed output from a creative image to a creative story. Landa (1998:6) also remarks that in order to understand the design language, you need to manipulate the elements and principles to communicate an idea in visual forms.

*Visual Activity* inputs source to activate and motivate the visual images through experiences such as, various events, imagery, feelings, etc., which are neither a physical state nor written materials in any case. Visual activity orders maximum flexibility to visualize and symbolize images of experiences in the process of creativity thinking.

*Linguistic Activity* orders the input source will be activated since it involves linguistic activity like "utterance" and "writing" that are technically embodied in the "storytelling." Won (2006:12) notes that this linguistic activity involves the relatively free movement of events, images, and feelings, which are not physical in nature, so it is easily augmented in the process of creativity thinking. As noted by Weiland (2001) and Won (2006), augmentation of a story is an important strategy that enables us to have the creative, positive interpretation of the subject in digital media and facilitate communication and participation between play and emotion.

Complex Activity, as stressed by Won (2006:13), is either combined activity of linguistic and visual activities or transformational activity that transforms visual activity into linguistic activity, or vice versa. Combined activity also encourages various events, imagery, and feelings, etc. in the mixed form of linguistic and visual activities, which brings out plenty of expressiveness in creativity thinking. Sometimes, the result of combined activity becomes too complex so that one can no longer tell the difference between them.

## 2.4 Roadmap of How to Develop the Creativity Learning Program(CLP)

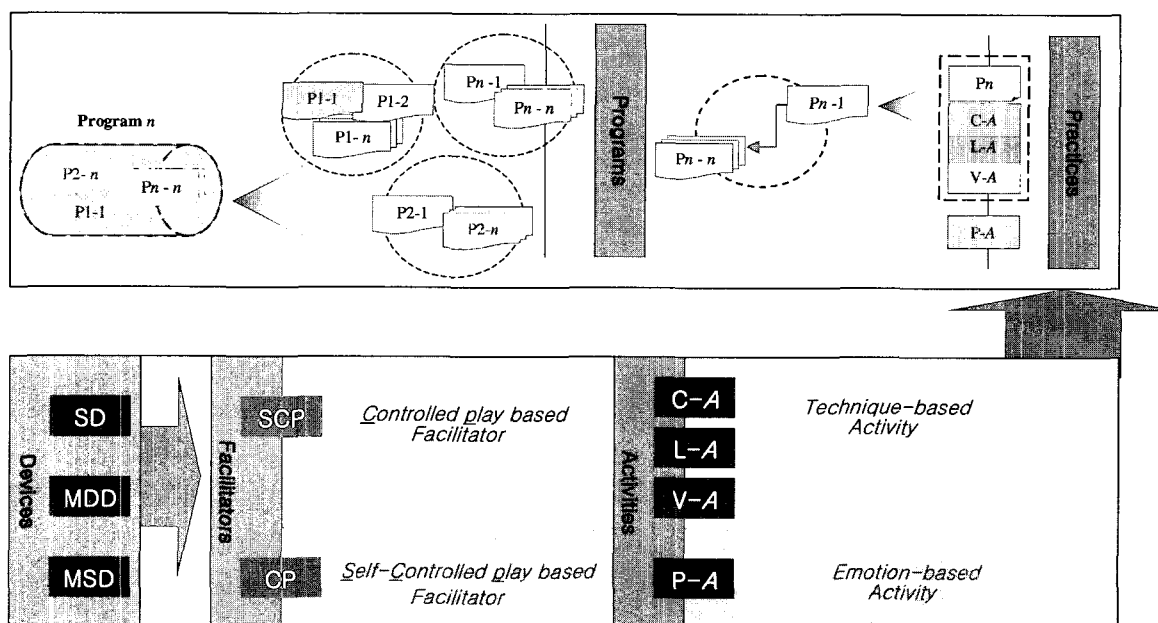


Fig. 2 Roadmap of How to Develop the CLP

Figure 2 shows a roadmap of how to develop the creativity learning program in which facilitators based on three creativity thinking devices function to motivate classified activities in the process of enhancing the creative capacity. In addition, each activity based on either technique or emotion is then applied to produce the practice design that, in turn, develops into a systematized, modularized program. Figure 2 is also considered to be a modeling of the creativity learning program that entails a very ordered process from the first step, planning creativity thinking devices, to the last step, establishing the practice

design. The finalized program can differ significantly from one process to another since teachers can have a choice between options. Thus, this selectivity makes the program modularized in a very specific way.

Those facilitators determined by three creative thinking devices (MSD, MDD, and SD) are classified into two plays such as “Self-controlled Play” (SCP) and “Controlled Play” (CP) that largely depend on creative acts and aspects and arranged by two aspects such as “Emotion-based Activity” and “Technique-based Activity” that relay on facilitators’ attributes and definitions. Those four activities, PA, VA, LA, and CA, which are applied as main learning activities in the final stage of the practice design, function to develop the curriculum of the creativity learning program. Each unit (MSD, MDD, SD, SCP, CP, P-A, V-A, L-A, and C-A) that appears in the complex process of developing the creativity learning program is in fact used to function as a developing module due to its independent property. Program designers are, therefore, able to revise, substitute, and expand the creativity learning program by simply replacing the developing modules that are necessary for the educational environment. Since each unit is interrelated within each step of the process, we can develop various kinds of the creativity learning programs.

Consequently, the modularized creativity learning program regards the learning program as one system that is organically combined with educational constituents, or conditions, such as instructors, learners, contents, teaching methods and media, learning environments that contribute to providing the effectiveness, efficiency and attractiveness of the creative learning program.

### 3. Practices and Programs

#### 3.1 The Process of Generating of Practices and Programs

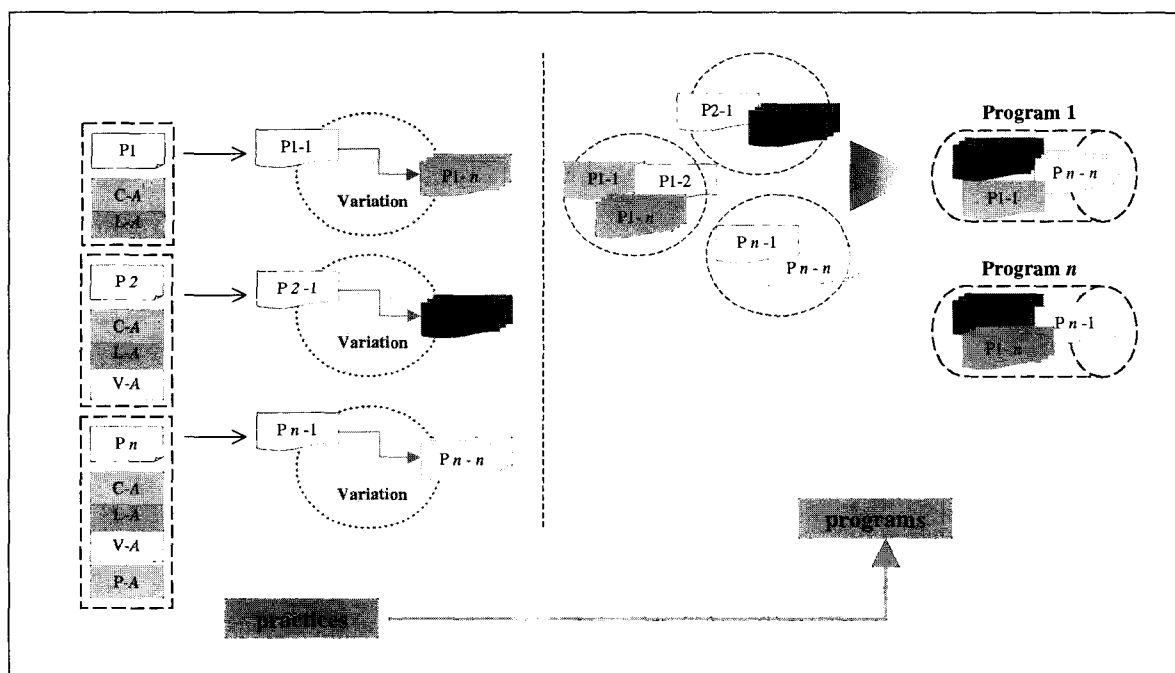


Fig. 3 The process of generating of practices and programs

The above Figure 3 shows how each practice combined with selected activities is shaped as a creativity learning program that fits into a specialized educational environment with an idiosyncratic property. For example, Practice combined with both Complex Activity (C-A) and Linguistic Activity (L-A) becomes P1 which is, in turn, transformed to various types of P1 such as P1-1, P1-2, . . . P1-n, by the worksheets and media that are designed for an individual learning practice.

On the other hand, each Practice is classified as P1, P2, . . . Pn that relies on the selectivity of main activities such as Physical Activity, Visual Activity, Linguistic Activity, and Complex Activity. Therefore, each item in the series of Practice is, then, formed as P1 (P1-1, P1-2, P1-n), P2 (P2-1, P2-2, P2-n ), Pn (Pn-1, Pn-2, Pn-n), etc. For example, instructors who plan to design a syllabus for Program 1 need to select relevant Practices, e.g., P1-1, P2-n, Pn-n, that relate to necessary learning conditions such as courses, groups, terms, etc. to optimize the learning environment.

### 3.2 Template for Learning Practice Design

Practice	Main Activity				Learning Activity Package		
	P-A	V-A	L-A	C-A	Worksheet		Media
P1-1		X	X		<ul style="list-style-type: none"> <li>•general/specific goals</li> <li>•suggestion for activity etc.</li> </ul>	<ul style="list-style-type: none"> <li>•procedure</li> </ul>	<ul style="list-style-type: none"> <li>•materials &amp; tools</li> <li>•subjects</li> <li>•audiovisual materials</li> <li>•activity worksheets, etc.</li> </ul>
Practice	Main Activity				Learning Activity Package		
	P-A	V-A	L-A	C-A	Worksheet		Media
Pn-n	X	X	X	X	<ul style="list-style-type: none"> <li>•general/specific goals</li> <li>•suggestion for activity etc.</li> </ul>	<ul style="list-style-type: none"> <li>•procedure</li> </ul>	<ul style="list-style-type: none"> <li>•materials &amp; tools</li> <li>•subjects</li> <li>•audiovisual materials</li> <li>•activity worksheets, etc.</li> </ul>

Fig. 4 Template for Learning Practice Design

Figure 4 shows that the template menu is composed of “main activity” and “learning activity package.” The checked, or selected, activities out of the “main activity” are based to establish desirable learning activities and objectives for creativity learning practice. The “learning activity package” includes worksheets and media designed for learning activities and objectives and contributes to formalizing the instructional strategy. Worksheets that include guidelines about learning contents and courses illustrate general and specific goals, suggestions for creative processes, and procedure, etc. Media as learning and instructional materials or tools are designed to provide activity-worksheets, craft materials and tools, activity-subjects, and audiovisual materials, which all conform to “worksheets” as planned.

Since the development of media in the “learning activity package” menu functions to broaden the realm of creative activity and elicit various learning activities from students, it becomes a key factor in improving the creativity learning program.



### 3.3 Sample of Learning Practice: Practice Design and Result

#### 1) Sample 1: Practice- “Creating on shoe box frame”


Practice	Main Activity				Learning Activity Package	
	P-A	V-A	L-A	C-A	Worksheet	Media
Creating on shoe box frame	✕	✕			1.Goals: Creating on shoe box 2.Suggestion: Exploring with box frame 3.Procedure: -Playing with shoe box -Creating on shoe box frame -Using frames (on frame,inside/outside frame)	<ul style="list-style-type: none"> <li>•Shoe box</li> <li>•Materials &amp; craft tools</li> </ul> 

Fig. 5 Sample 1: Practice- “Creating on shoe box frame”

#### Step1: Playing and exploring with shoe box



#### Step2: Creating on shoe box frame

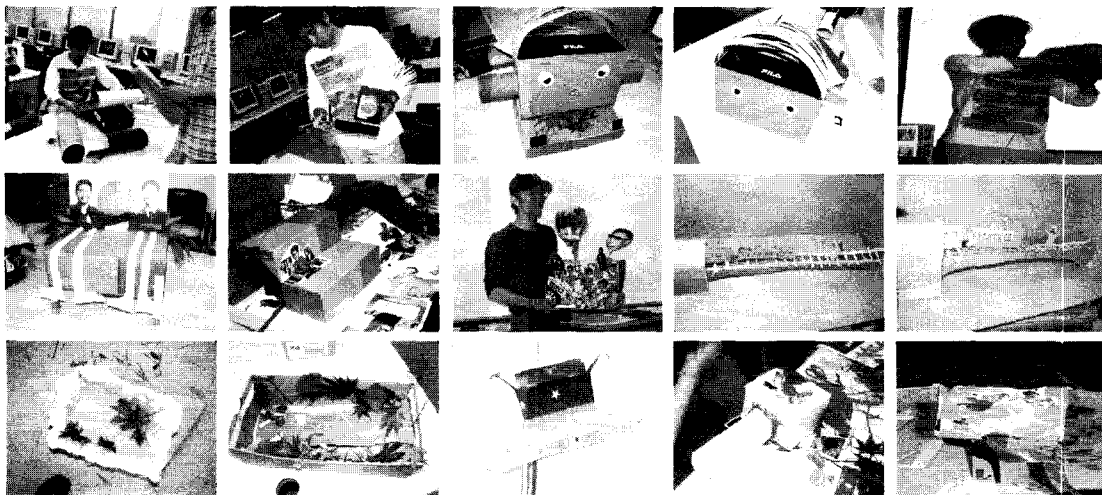


Fig. 5-1 Result: Practice- “Creating on shoe box frame”

Figure 5, “Creating on Shoe Box Frame”, at first, deals with Physical and Visual activities as main activities. Worksheet, which is part of Learning Activity Package, includes guidelines for such goals, suggestion, and procedure as practice activities. One thing to note is that the procedure requires students’ play to last long enough with a target, the shoe box, with various ways before creating an artistic work on the shoe

box. The instructor needs to direct students to explore the box frame itself without adhering to the functional, conceptual, and original box frame. Media, which is part of Learning Activity Package, requires students to prepare necessities such as an empty shoe box and craft materials and tools. The result of this practice is revealed in Figure 5-1

## 2) Sample 2: Practice-“Exploring things”



Practice	Main Activity				Learning Activity Package	
	P-A	V-A	L-A	C-A	Worksheet	Media
Exploring things	✕	✕	✕	✕	<p>1.Goals: -Collecting data in an idea box -Choosing a theme and Theme Development -Theme Presentation</p> <p>2.Suggestions: -Listen, open, explore, share, watch, note-taking, scribble, pick-up, etc.. -Questions: “What about...”, “What if...”. “What else...”Just...suppose. -Presentation: Non-static forms No limitation in time, space, expression, medium, etc.. (installation,performance, mixed media, quizzes, games, etc.)</p> <p>3. Procedure: -Understanding and communicating with surroundings. -Finding raw data through exploring. -Sorting the collected materials. -Listing and placing in order known facts. -Start thinking up all possible ideas using association, combination, chain-thinking, word puzzling, drawing, storytelling, etc. -Focusing your own intention. -Finding a relevant motives -Planning: methods of presentation, flow of presenting</p>	<p>•Idea box</p>  <p>•Raw data(materials)</p> 

Fig. 6 Sample 2: Practice-“Exploring things”

Figure 6, “Exploring Things”, deals with four activities such as Physical, Visual, Linguistic, and Complex ones, which show that emotion and technique-based activities are simultaneously utilized in the practice activity. Since this practice is usually characterized as requiring more time for the accomplishment, the instructor needs to guide students to the gradual suggestion of Worksheet. Media utilized in this practice is an idea box and raw data (materials), in which students should build by themselves in the course of establishing the first practice goal that collects relevant data in the students’ own idea box.

### 3) Sample 3: Practice-“Visible-Invisible”

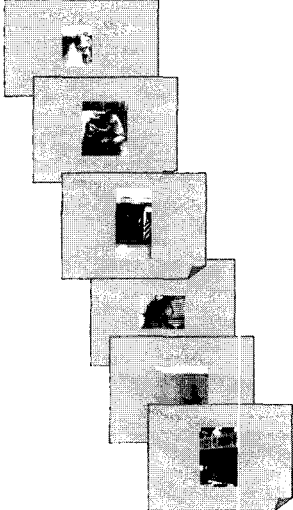
Practice	Main Activity				Learning Activity Package	
	P-A	V-A	L-A	C-A	Worksheet	Media
Visible Invisible		X	X	X	1.Goals: Imagination with images 2.Suggestion: -Imagine situation with images -Imagine episode with images -Drawing and storymaking 3.Procedure: -Imagination with visible images -Creating invisible images with visible images -Writing or Storytelling	•Activity-worksheets(1~7) 

Fig.7 Sample 3: Practice-“Visible-Invisible”

Figure 7, “Visible-Invisible”, deals with Visual, Linguistic, and Complex activities as main activities. Media, which is part of Learning Activity Package, provides students with seven “activity-worksheets,” which are arrayed in the center of the worksheet with the picture images of the seven situations. Each activity-worksheet is equipped with relevant pictures and stories around the centered picture created by students. This activity is characterized to induce students’ imagination on the invisible situations from visible situations. It is critical for the instructor to encourage students to induce various imaginative situations through space and time. The result of this practice is revealed in Figure 7-1.

**Step1: Imagine situation with visible images**

**Step2: Creating invisible images with visible images**

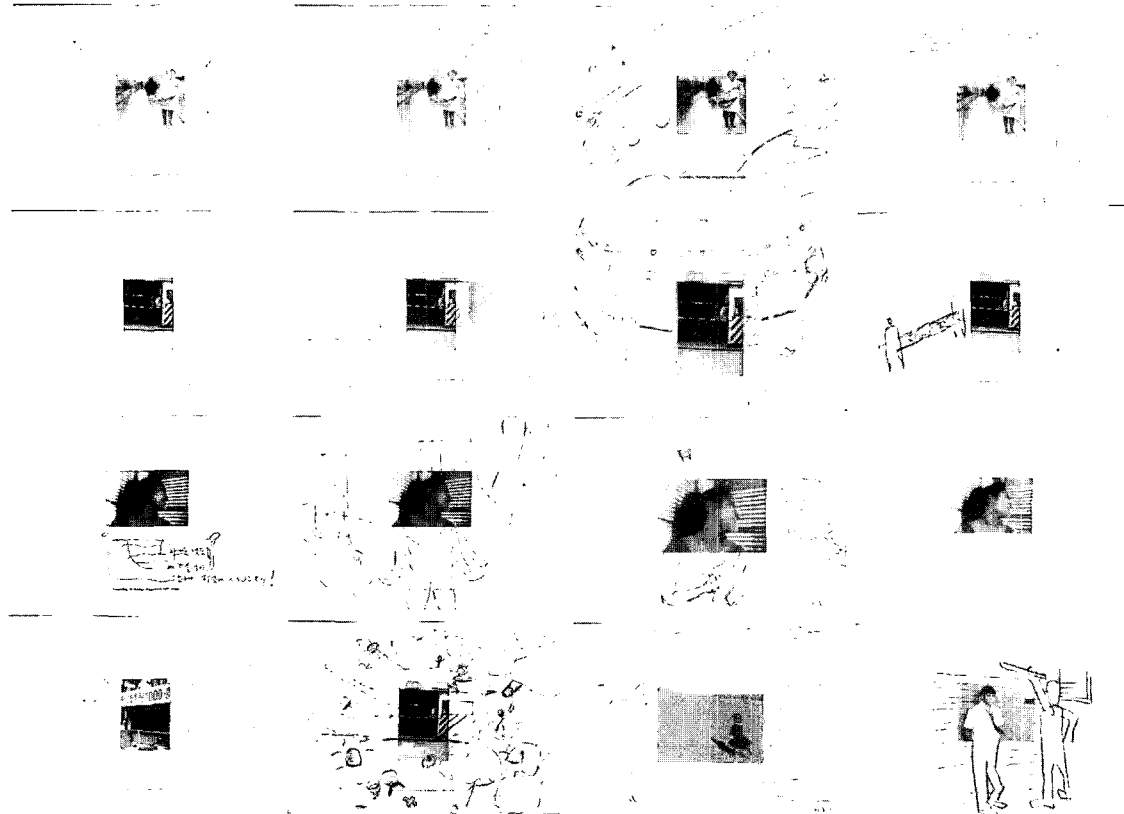


Fig. 7-1 Result: Practice- "Visible-Invisible"

#### **4. Conclusion**

This paper primarily proposes a maximally efficient, productive creativity learning program in which the integration of expressive media and communication generates a comprehensive network of communicative information in the development of digital technologies, which, consequently, brings forth valuable cultural contents of art. The amalgamation of the *Prism Effect*, with distinctive three devices, and the facilitator factors, with two different groups of facilitators such as self-controlled and controlled plays, and four activities, with two aspects of activity such as emotion-based activity and technique-based activities, would function as a catalyst for cultural diversity in the digital forms and contents of art. And this will, consequently, result in producing a number of practices that can be classified and assorted for a later performance.

This paper thus suggests a roadmap of how to develop the creativity learning program in which two categories of facilitators based on three thinking devices function to classify four activities. In addition, selected activities are shaped as a creativity learning program by generating learning practices with the

formalizing instructional strategy that fit into a specialized educational environment and learners. The samples of learning practice design show guidelines for practice and the results of learning activity. Therefore, the eventual goal of this paper would be to establish a creativity learning program that constitutes a highly systematized and modularized database to maximize the efficiency and productivity of the creativity development.

Consequently, Program designers are, therefore, able to revise, substitute, and expand the creativity learning program by simply replacing the developing modules that are necessary for the educational environment. Since each unit is interrelated within each step of the process, we can develop various kinds of the creativity learning programs. The modularized creativity learning program regards the learning program as one system that is organically combined with educational constituents, or conditions, such as instructors, learners, contents, teaching methods and media, learning environments that contribute to providing the effectiveness, efficiency and attractiveness of the creative learning program.

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