



Digilog Orchid: Interactive Ink-and-Wash Painting Project

Young-mi Kim

*Chung-Ang University, GSAIM, Art & Technology
lou50@naver.com*

ABSTRACT

This paper describes a digital project in which ink-and-wash painting, an East Asian art form with a 1,300-year history, is drawn in interaction with an audience. This project was intended to analyze the traditional thoughts and techniques associated with the ink-and-wash painting of an orchid, a design that expresses Eastern philosophy. The project relies on an interactive technique to demonstrate that modern users may derive psychological benefits from the “digilog orchid” in a manner similar to that of classical scholars of the past, who trained their minds through the act of ink-and-wash orchid painting.

Keywords: Interactive media artwork, Digilog orchid, Interactive ink-and-wash painting, Art culture technology

INTRODUCTION

The Four Gracious Plants traditionally portrayed in ink-and-wash painting by reputable scholars include the orchid, which is the subject of the digital project described in this paper. The meaning of the orchid, which symbolizes mental training in East Asian philosophy, is expressed and embodied through a training process in which scholars practice drawing the object. The “digilog orchid” project intends to heal the mind of modern people by applying the above two analogue expressive forms to reinterpret the traditional culture eventually disappearing for prevailing digitalization trend.

Digilog is a composite word derived from “digital” and “analog,” referring to the cutting-edge technology in which digital execution and analog feeling converge.

Four Gracious Plants: The Orchid

In East Asian painting, aesthetic value resides in plants. The process of symbolizing the intrinsic values of leaves, branches and flowers is expressed as art. The Four Gracious Plants are the Japanese apricot, the orchid, the chrysanthemum and bamboo. (see Fig. 1) They originally symbolized virtue, nobility and intelligence, and were used to pay tribute

to four illustrious generals from the DongZhou Dynasty.(The ancient Chinese reformation period from B.C. 8 century to B.C. 3 century) Who were renowned for their great dignity.



Fig. 1. The Four Gracious Plants traditionally portrayed in ink-and-wash painting

In other words, the great dignity and fidelity symbolized by the Four Gracious Plants are considered to be ideal human characteristics and are embodied in paintings of these plants. For this reason, the Four Gracious Plants are attractive subjects for classical scholars, who are considered to reflect the characteristics of the plants, and the act of painting these plants is intended to train minds and improve character.

Among the Four Gracious Plants, the aesthetic value of the orchid, unlike the Western orchid, lies in the leaf rather than the flower. The evergreen leaf, which is very straight, symbolizes the scholarly spirit, and its simple shape and proud solitude symbolizes the loyalty and fidelity of a scholar toward the king. These philosophies are thought to be transmitted to the characters of scholars who paint orchids.

Our ancestors kept orchids at hand like old friends and healed their minds through the action of wiping the leaves one by one after difficult experiences. Wiping the orchid leaf was not intended to clean the leaf, but rather to accept the spirit symbolized by the orchid. (see Fig. 2)

When they were troubled and weary, our ancestors trained their minds through the action of carefully wiping orchid leaves, thereby inducing a calm frame of mind. This action has an important meaning in terms of the role of the digital interface in the painting of a digilog orchid.



Fig. 2. Oriental Orchid.

Traditional Ink-and-Wash Orchid Painting(Fig. 3)

As spirituality and scholarly ideas are closely associated with orchids, there are several rules guiding orchid representation, which contain philosophical meanings.



Fig. 3. Traditional Ink-and-Wash Orchid Painting.

First, there is a sense of action. The brushing should be completed in a single stroke. This expresses the life principle that confidently executed actions are irrevocable.



Second, there is a sense of healing. When drawing an ink-and-wash painting, the palm of the left hand should be placed on the ground to receive energy from the soil, and the palm of the right hand should face up to receive energy from the sky.

Third, there is a sense of composure. This is related to the blank space in the painting. The blank space causes the artistic figure to be highlighted with respect to composure and comfort. At the same time, it is intended to indicate that there is more to the painting than is to be found the canvas.

Fourth, there is a sense of a calm mind. This meaning expresses the staunch spirits of scholars who will never submit, even when shaken by worldly events, and provides balance for the painting.

Fifth, there is a sense of self-determination. The painting is completed by explaining its topic in writing and adding a signature. To clarify the meaning of the painting, the reasons for creating the painting, its implied meaning or a suitable poem are written in the blank space. Because the signature itself is also regarded as a form of art, the best signature matching the painting is selected from among others to complete the painting. In addition, it is the tradition of Korean painting that the acquaintances of the artist as well as the artist him/herself insert comments and signatures in a balanced fashion with the blank space.

Sixth, the art should establish a communion. Because ink-and-wash painting conveys the philosophy and spirituality of the artist as well as artistic properties, the audience shares the artist's feelings while viewing the painting. In other words, ink-and-wash painting can be read with the heart.

The six traditional rules described above have historical and practical contexts. First, our ancestors carefully observed the objects that they painted, and kept perfect images of the objects in their minds while painting. For this reason, they were able to confidently represent these objects in single, bold strokes. Second, the concept of the Four Gracious Plants is drawn from Confucianism as a means of expressing mental healing. Third, the painting is intended to demonstrate stable mental composure. Fourth and fifth, painting helps to maintain calm minds. With respect to self-determination, the painting is completed when the commentary and signature are added to it. Finally, the paintings are used to communicate with other scholars who in turn interpret the painting and draw the Four Gracious Plants on the past and current self.

These explanations of the traditional rules were carefully reinterpreted with respect to the digilog orchid. They were used to guide the design of the interface and to identify a means of aesthetic expression that reflects the analog feeling of ink-and-wash painting in a balanced way.

Design of the Digilog Orchid Interface

The digilog orchid consists of a simple system. A very thin band sensor is attached to the back of an actual orchid leaf so that the orchid drawn on the monitor has the same bending angle as that of the actual orchid. The use of a thin sensor has the advantage of capturing the degree of bending in a delicate manner.



Fig. 4. Digilog Orchid.

The digilog orchid user selects an orchid leaf, holds it with the left hand and rubs along the length of the leaf with his or her fingers. The leaf bends during this rubbing, and the bending is reflected on the screen. For example, when bending the leaf downward, the leaf is drawn down in a smooth parabola curve. Then, when rubbing upward, a powerful drawing is the result. The user employs rubbing motions to make various designs, through which the user may create a balance between the orchid and the blank space.

After drawing the orchid leaf, the flower is drawn. The flower of the orchid is simple, with only one or two bunches. The fragrance is elegant and delicate, and these graceful qualities attract the attention of the viewer. For this reason, the primary interface with the flower is olfactory rather than tactile. When digilog orchid users smell the flower, the

flower generates various images according to its strength. For example, the leaves establish balance, completing the painting with the figure to place force in a modest way without any competition, during which the flower is formed. This pursues pictorial plane accomplished by blank space and moderation of expression with extremely implication and simplification rather than expressing the entire object.

When the drawings of the leaf and flower are completed, a poem and comments related to the painting are added to the composition. These are borrowed from the writings of Ha-Eung Lee, a famous orchid painter of the Joseon Dynasty.(The Joseon Dynasty of Korea lasted more than 519 years (1392~1910) and encompassed the reigns of 27 kings) During this time, which ink-and-wash painting flourished and became highly developed. This is meant to convey the feeling that the painting is being evaluated by our ancestors. It may also be thought of as a form of digital communication between our ancestors and modern users. The signature used to highlight the painting is also selected among those of Ha-Eung Lee. In this way, the painting is completed as a work of art.

Skill of the Artwork

In order to hide technological devices from onlookers, a bending sensor is attached behind the leaf and an Arduino is placed under the flowerpot.(see Fig. 5) The sensor is not seen externally and it cannot be distinguished from the leaf with regards to touch. From the moment the leaves are bent (not to the point of snapping and yet being flexible), virtual leaves will appear on the monitor. The design of the painting will be illustrated in accordance to the angle the viewer wipes the leaves.

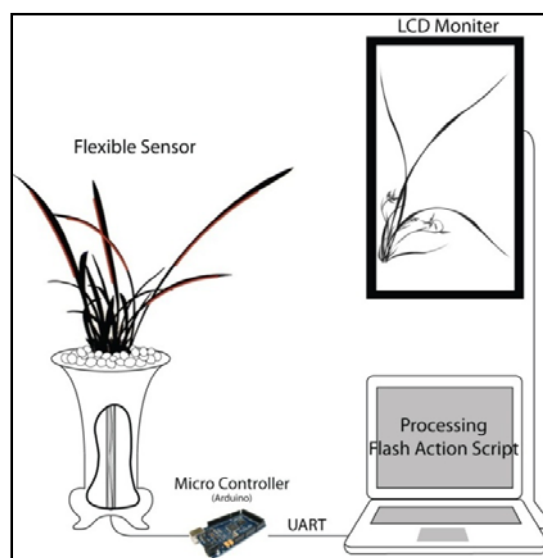


Fig. 5. Technological System of the "Digilog Orchid".

When these scholars painted, they would hold the brush with the right hand and support their body with their left hand placed on the ground. The energy from the ground passes through the left hand and the hand holding the brush receives the energy from the sky. In the case of the writer, the left hand feels the energy of the ground by taking the closest side near the root of the orchid and its leaves are expressed with the act of sweeping down and feeling the energy from the sky with the right hand.

The new media work of art employs all kinds of synesthesia that ranges from the visual flow being depicted on screen from the tactile approach and the performers' spirituality and physical flow that is present in their attitude when wiping the leaves. For instance, after consideration of the theoretical background and the contemplation of the subject, a proper establishment of the interface will lead to an area of art that which could be experienced physically.

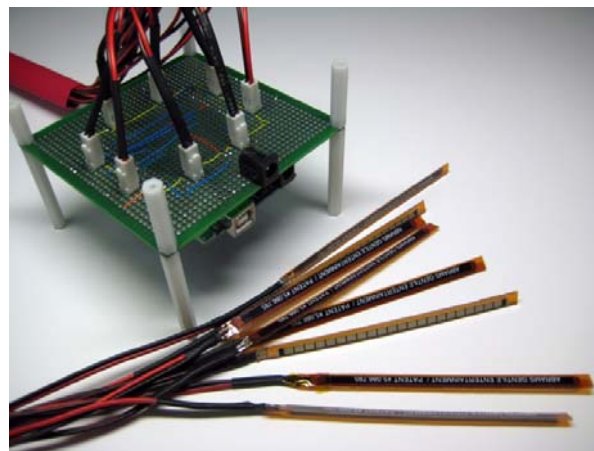


Fig. 6. Bending Sensors Attached to the Arduino.

Information Regarding the Leaves of orchid is as follows: A flexible sensor is attached behind the orchid leaves. The flexible sensor will measure the angle of orchid leaf when it is curved using the change in electrical currents. The micro controller detects this signal and converts the analog signal into a digital signal. This data is then sent to a PC using an UART communication device. The server program will then detect the UART output signal sent to the desktop from the micro controller and converts this data to a TCP/IP data format. As a result, the data format can be sent from the server to the client. Once the data is received, the client draws the painting according to the signals detected. The software used for this work are Processing and Adobe Flash. Processing receives the signal of Arduino and Adobe Flash analyzes the data and prints it out. (see Fig.6)



Technologically, the method used is quite simple. The unique feature of this artwork is that the technical expression medium used is something that people are not familiar with. The core values of this work cannot simply be explained with the word, technology. This "technology" is not seeking any temporary effects like "amazement" or "wonder"; Rather, it hopes to receive "constant interest and communion" which can be shared by everyone. To that end, the proper set-up of "space, time and human relationship" is considered to be of great importance. After all, in order to actualize any medium or have a device that makes eidetic and emotional human relationships possible, there should be accuracy in the technology and the approach should be human-oriented.

Exhibition and Future Work

The digilog orchid provides an interesting approach to look back at a past way of life and to understand this traditional culture. In addition, it is intended to provide an opportunity for Westerners to learn about the sensibilities of East Asian cultures in an interesting way. As a result, the digilog orchid was exhibited twice in 2010 in the Banff Center in Canada and the Science Museum in Barcelona, Spain. During the exhibitions, a viewer commented that, "this work gives the feeling that I can have my own time and take a rest with the orchid." East Asian aesthetics, with which Westerners are largely unfamiliar, were evaluated as the "digitalization of graceful Korean traditional culture that can help in emotional stability of modern people." For example, when the Four Gracious Plants commonly portrayed in Korean ink-and-wash paintings are perceived with the five senses of modern users, they express the ideas contained in them, although the work is completed by the actions of the viewer. The digilog orchid preserves traditional Korean culture through the balanced convergence of analog emotions and technology, and helps modern users to heal their minds.

Future work in this field will entail the design and fabrication of digital folding screens portraying all of the Four Gracious Plants, which will allow users to draw digital images of all Four Gracious Plants interactively. In addition, it is hoped that by offering four different types of interfaces corresponding to each plant, the interface representing each user's own most effective emotional healing method will be identified.

Because orchid paintings that are similar may differ in their expressions and in the feelings conveyed by the artists, it is necessary to understand the meanings and mindsets that individual artists bring to their paintings. Thus, East Asian art has a softness that tends to be naturally accepted by viewers and that is expressed naively and plainly in harmony with nature. Such drawings as those described in this work should be rendered as delicately as tea leaves are brewed for drinking, to experience the delicate



taste and flavor completely. When drawing, we can gain a closer understanding of the minds and lives of the ancient people who drew the Four Gracious Plants in a natural way.

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