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"The Ancient Master Painted Like Me"

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By following their wonderful ideas or critical exploration, three eighth graders learned how to do traditional Chinese painting, which is taught by copying old masters' work from the Ming Dynasty in the 17th century. The standard manual, which most learners have been using for these three hundred years, is the Mustard Seed Garden Manual of Chinese Painting*, published in 1679. However, according to my literature review, I found out that ancient masters before the Ming Dynasty talked about a self-directed method of painting manifested in six different ways: (1) production from observation and experience, (2) production from the heart-mind, (3) production from mental-vision, (4) production with authenticity, (5) production with spontaneity, and (6) production with a multidisciplinary approach. As a student of Eleanor Duckworth, I wondered what might happen if beginning students are able to learn this age-old tradition of Chinese painting by just following their wonderful ideas like pre-Ming artists. In the class session described in this article, students explored Chinese brush strokes to paint the Chrysanthemum Painting, one of the traditional "Four Gentlemen Paintings," after being introduced to water and ink in a previous session. They invented their original brush strokes and uncovered brush methods used by the eminent painter, Zhao Shaoang: strokes for the pollen grains, curls of flower petals, and leaves of the chrysanthemum. When they viewed a chrysanthemum model from the* Mustard Seed Garden of Chinese Painting *after the session, they thought that their paintings surpassed it. After looking at an ancient chrysanthemum painting on her own, a student commented, "The ancient master painted like me!"*

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INTRODUCTION

Chinese painting, like ballet, vocal music, and performances of musical instruments, is normally taught with strong emphasis on traditions. Instinctively, we do not think of these art subjects as topics to teach through critical exploration. Surprisingly, when I applied this method to teaching Chinese painting, which usually is thought to require copying from manuals and learning from the teacher, I was astounded by what I found. Students depicted their subject matters with great ingenuity, resourcefulness, and creativity. I often speculated that dancers who invented ballet must have used exploration to invent their formidable steps and styles. I believe early scientists may have also employed this method of exploration in discovering natural laws.

I studied Chinese painting with the innovative Professor Chao Shao-an/Zhao Shaoang, an eminent painter belonging to the second generation of the Lingnan (Cantonese) School of Chinese Painting (Chao, 1985). Founded in the early 20th century, the Lingnan School aimed to revitalize the great traditions of the Qing Dynasty (1644–1911), the last emperors of China. Although Zhao established his own unique style, and emphasized authenticity and expressiveness, he encouraged his students to copy his brushwork before developing their own. To imitate his style was difficult. I spoiled plenty of expensive materials just imitating a few strokes. After I mastered the strokes to the point where my paintings became indistinguishable from his, Zhao pushed me to depart from his style to create my own. Plunging into a period of painful struggle to find myself, I wished my teacher had helped me to develop my authentic style from the beginning, instead of encouraging me just to emulate his.

However, ignorant of other possibilities and ignoring my own experience, I used the traditional teacher-directed method of Chinese painting (Chao, 1988) to teach painting: asking students to imitate my brush style for painting American subjects, such as irises. Very often, to pacify baffled and frustrated students, I made imitation more convenient by partitioning the images, numbering the parts, and drawing arrows to show the direction of brush movement. This experience—which, given my painful struggle as a young artist, went against my conscience—ignited my intense interest in finding an alternative teaching method.

Fortuitously, at the Harvard University Graduate School of Education, I happened to take Professor Eleanor Duckworth's course entitled *Teaching and Learning* (Duckworth, 1987/2006c). My project for the course showed that learners could discover means of producing the basic calligraphic strokes of the character *yong* [forever], 永, which form the foundation of Chinese painting (Chiu, 1995). In doing critical exploration with me as their teacher, two learners successfully formed the character from a model. Emboldened by this study, I decided for my dissertation to investigate how students learned Chinese painting while engaged in critical exploration. Working with five Asian American students between thirteen and fourteen years of age, I pursued the research question: How do beginning students

actively construct an understanding of and facility with Chinese brushwork to represent and animate natural objects in their paintings? This study (Chiu, 2003) allowed me to get insight into pedagogy and curriculum design.

At the same time, I investigated the history of the teaching of Chinese painting. To my astonishment, I learned that the teaching of Chinese painting was codified only in the Ming Dynasty. Before this, ancient masters explored their individual techniques and ways of expression. In fact, the ancient masters were exploratory. The emphasis on traditions that had figured in my education as an artist had not given rise to the work of the great paintings. Instead, it was secondary painters trying to reproduce those stunning and subtle original works who insisted on these traditions. The paintings of the ancient masters were so successful that their successors codified them. My research of these masters, eminent and influential in their times, identified six distinctive features of their painting process: (1) production from observation and experience, (2) production from the heart (heart-mind[1]) [expressing feelings and ideas], (3) production from mental vision, (4) production with authenticity, (5) production with spontaneity, and (6) production with a multidisciplinary approach (Chiu 2003, Chapter 2). I thought it would be good to revive this generative outlook on painting through my teaching.

I realized that critical exploration (Duckworth, 1991/2006c, 2001a, 2005/2006e; Cavicchi et al., 2009) afforded a method both for reviving the generative approach to Chinese painting and for investigating an art experience that is in the process of developing. Dewey (1934) emphasized that art is "a product of continuous and cumulative interaction of the organic self with the world" (p. 244). To investigate this emergent quality of experience demanded a method that allowed an uninterrupted study of the flow of artistic development, which could be qualified but not quantified. In deference to the complexity of the art experience, I thought that the nuanced qualitative approach of critical exploration would be the most appropriate for my study.

THE PARTICIPANTS

After obtaining permission from the Headmaster of my secondary school for research sessions after school, I asked two art teachers to select randomly five participants from volunteer students aged thirteen to fourteen for my research. Since I was not the participants' art teacher, the research would not be affected by a need to assign a grade.

Although the number of participants was limited, I followed the logic provided by Erickson (1986) that, by studying the particular, I would come to understand the general (p. 130). A group of five was the optimum number with which I could

[1] **In Chinese, the word *xin* [heart] means more than simply "heart". It means the "heart-mind," the seat of feeling and thinking. I will translate *xin* as "heart-mind."**

follow student learning and development closely, while at the same time allowing students to interact with one another.

I chose students aged thirteen to fourteen because they had entered the formal operation stage in their cognitive development (Piaget, 1937/1986). At this stage, adolescents are in the process of experimentally trying out expressiveness in their artistic activities. Typically, the artistic efforts made by young people in their early teens indicate that they have moved on from the literal stage of middle childhood which follows the highly expressive stage that characterizes early childhood (Davis, 1991; Gardner, 1994).

Because the majority of the volunteers were Asian girls, I chose a group consisting of three Chinese girls and two Vietnamese girls. The three Chinese girls were Cindy, who was born in this country, and Qingni and Yanmei who immigrated to this country in their early childhood. The two Vietnamese girls were Daniela, who was born in this country, and Bao, who immigrated to this country as a young child. They all received their formal education in the U. S. since elementary school. They volunteered to participate in my research because they wanted to learn more about Asian art and their Asian heritage.

THE STUDY

Since the scope of Chinese painting is very wide, I concentrated on two important aspects for my study: Chinese brushwork is one aspect; flowers and birds as subject matter of paintings is another. Chinese painting is founded on Chinese calligraphy. Traditionally, there is an emphasis on brushwork in both calligraphy and painting because the *qi* [energy] manifested in the strokes forms the basis of Chinese aesthetics (Lai, 1980; Siren, 1963). To limit the extent of my research, I chose flower-and-bird painting from among the four genres of Chinese painting: mountain-and-water or landscape, flower-and-bird, animal-and-insect, and human figures. My choice was based on two reasons. First, Chinese preferred painting nature to human figures (Chiang, 1964, p. 134). Second, living flowers and birds or specimens of them were more accessible for me, as the teacher, to provide to these students as painting models, than animals, mountains, or bodies of water.

Based on these considerations, this study required participants to find a way to form energetic brush strokes to represent images of flowers and birds with life and vitality, using Chinese rice paper, ink, and colors. The thick and thin contour of each brush stroke, the essence of Chinese painting, should be created with only one precise brush movement, according to the one basic rule that underlies Chinese painting. The rule is that once a brush stroke is laid down on the paper, it cannot be worked over to improve it. Each new brush stroke is a new statement, independent of the previous one. The artist lays down each new brush stroke as a whole gesture that evokes a natural form.

Therefore, the only rule required for this project is to form brush strokes that depict nature. [The students had already discovered this basic rule during their first meeting together with me when they observed Chinese paintings at the Boston Museum of Fine Arts (Chiu, 2003, Chapter 4).] Painting by means of forming brush strokes is challenging for learners in America who are accustomed to other Western painting methods. Brush strokes are the backbone of Chinese painting and water is the medium. Skillfully manipulated, brush strokes show the size, shape, volume, texture, and the inner reality of an object. By contrast, light and shadow and colors are the chief elements in Western painting.

My research provided occasions for learners to undergo learning experiences, "to explore their ideas and to try to make sense of them" (Duckworth, 1975/2006b, p. 65). I abandoned the use of manuals and models in this teaching. I planned the activities with the goal of capturing and maintaining the interest of my students. Once learners maintain their interest, the researcher can follow how the learners came to know the subject matter in their own ways. For my study, this meant that I took the lead with suggestions of activities to do, things to look at, or questions to discuss. I did not leave to the students all the decisions about what they were to do, but gave them materials, instructions, and open-ended questions that offered them ways to engage with the subject matter (Duckworth, 2001a, p. 183), in my case, Chinese painting.

I ensured the reliability of my study by triangulating (i.e., crosschecking) data from multiple sources (Merriam, 1998, p. 204): discussions, interviews, and observations of performances as documented by my students' paintings and journals. What I had observed during the sessions was verified by the information I gathered from my conversations with students and by the visual images of their paintings. This system of checks and balances helped me make the descriptions and explanations in my study credible (Chiu, 2003). Moreover, as a teacher using critical exploration, every moment I was deciding what the participants were doing and what they needed to think about, and every moment I was checking it out. I saw and got feedback with every moment I went through.

THE PAINTING OF THE CHRYSANTHEMUM

My struggles as a teacher with critical exploration—what I noticed, wondered about, and learned—grew during seventeen sessions with the students (Chiu, 2003). In what follows, I present the fifth of these sessions, where three students were painting the chrysanthemum flower. For two of our prior sessions, the students and I visited museums: the Asian galleries of the Boston Museum of Fine Arts, and the galleries of mineral specimens, glass flowers, and preserved birds at the Harvard Museum of Natural History. During one session, the girls made ink by grinding

Figure 1. Left: Chinese painting pigments. Top row from left to right: malachite, mineral white, azurite. Middle row from left to right: vermillion, burnt sienna, indigo. Bottom: Yellow (Plant cutting called *Teng huang* in Chinese). Right: Two kinds of chrysanthemum flowers.

an ink stick[2] in water on a slate surface and used brushes with that ink to produce the Chinese character *yong* [forever] 永. At another session, they adapted the brush strokes they had previously invented in order to depict a live Cymbidium orchid while observing it.

In my account of the next session, which follows, you will witness two principal struggles that I experienced as the teacher: my struggle to refrain from dictating students' learning, and my struggle to initiate genuine exploration on the part of the students. My struggles are connected with the ways in which my students created paintings while following their "wonderful ideas" (Duckworth, 1973/2006a). I invite you to join me and the students in the art classroom.

Session 5, *March 23, 2001*: *Workshop on Painting the Chrysanthemum*

It was indeed a strange spectacle. Mortars and pestles with mineral powders of green (malachite), blue (azurite), and white (mineral white), and dishes of blue chips (indigo), burnt sienna chips (brown) and red-orange chips (vermilion), and a brownish plant cutting (yellow) were displayed on the painting table (Figure 1, left). Next to the mortars and pestles and the dishes was a vase with two kinds of live chrysanthemum blossoms (Figure 1, right). The vase contained two species of chrysanthemum: one species, having a full, globe-like shape, was represented in white and lavender blossoms; the other species, having ethereal daisy-like petals, was in purple. In this session the girls were going to explore Chinese brush strokes

[2] **The Chinese ink stick is made of a black soot combined with an animal glue, and molded into a rectangular prism, sometimes with a decorative stamp. Chinese painters consider that ink that they grind in water from a stick is superior to ink that is provided in liquid form in a bottle.**

in making the Chrysanthemum Painting, one of the "Four Gentlemen Paintings"[3] of the traditional Chinese repertoire.

On this day, the students used colors for their first time. With the term "colors", I refer to the reds, yellows, blues, and other hues that the students mixed and painted with, whether they were using Chinese pigments or Western paints. In conversation, the students and I often use the word "colors" loosely, in referring to colors [hues], paints, or pigments.

Bao, Cindy, and Daniela examined everything with visible fascination. Looking at the raw pigments, they exclaimed, "How can we get colors from them?" Simultaneously, they regretted that Yanmei and Qingni could not share this fun and adventure, because family obligations prevented the other two girls from participating in this session. Each girl took a mortar-and-pestle containing a different mineral-based pigment. Without stopping to think, they immediately poured water into their mortar. With the pestle they ground the raw pigments under water, producing fine particles that dispersed evenly in the water solution. Cindy said that it was a "weird" experience for her because "I usually do not make paint but get paint out of tubes." Daniela remarked humorously that this session was more like "a cooking lesson using a pestle to grind a substance into dough." Bao and Cindy remarked on the "weird smelling" pigments.

In spite of their continuous grinding and adding of water, the contents of the girls' mortars still did not attain a watercolor that was "light and had a splashy feeling to it", as Daniela described it. In the meantime, Bao had the idea to see what would happen by filling ceramic dishes with water and the nonmineral Chinese pigments (indigo, vermilion, and yellow) that I provided. The brown plant cutting[4] roused their curiosity the most. Once water touched the surface of the plant, a gentle yellow appeared like magic.

After watching how these raw materials slowly turned into color to paint with, Daniela realized that Chinese colors [pigments] and U.S. paints differ in their preparation. She said:

> Those colors are basically the same. They are different because of the way you prepare them instead of how the colors actually look.

Knowing that if the girls did all the required grinding and soaking of raw pigments, the Chinese colors might not be ready until the end of the session, I had available tubes of Western paints whose colors were equivalent to raw Chinese pigments. The Western paints contained in these tubes consist of factory-prepared pigments supplemented with binders and other chemicals. By contrast, Chinese artists self-prepare their pigments by adding water to raw materials such as mineral pigments.

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[3] The orchid, the plum, the chrysanthemum, and the bamboo formed the "Four Gentlemen," traditional subject matters for beginners, symbolizing respectively humility, courage, hermitage, and uprightness—Confucian virtues (Chiang, 1964).

[4] This plant is called *Teng Huang* in Chinese, the same material for making the watercolor, *New Gamboge*, by the *Windsor & Newton* watercolor company.

Chinese artists also add a binder to these pigments. Similarly, Chinese artists self-prepare the black ink they use, by grinding the ink stick in an ink pot. The various degrees of darkness, from light to dark that they achieve in brush painting depend on the amount of water that they use in diluting the ink from the ink stick.

I knew that the consistency of watercolor paint as it comes directly out of these tubes is too thick to paint with in producing the effects of Chinese painting. Just as ink from the ink stick is diluted with water in order to apply it with a brush, paint from the tube must be diluted with water in order to paint with it. My students, however, would not have this understanding. As a teacher, I was interested to see how they found out, and responded to, the trouble with paint taken direct from the tube.

I chose not to provide a tube of black paint because Chinese painters prefer to use ink for that purpose. However I said nothing about this absence. Finding no black tube, on their own, the girls took the ink stick for black. Reading the labels on the tubes, Daniela found out that there were two kinds: watercolor paint made by Windsor & Newton and water-soluble oil paints from the Van Gogh Company. After a quarter hour, we moved on from our investigation of the paints by themselves, and began to use them with brushes and paper.

On settling down, the girls reviewed what they had learned in the previous sessions where they worked only with ink to create dark and light tones with water and brush strokes. Then I told them to continue to apply what they had learned about Chinese painting as they used colors to paint the chrysanthemums that were in a bouquet on the table before them. I encouraged them to use Chinese rice paper, the genuine Chinese painting paper made, in spite of its name, of mulberry wood pulp. In previous sessions, the girls painted on inexpensive newsprint, which is less absorbent but whose greater thickness makes it easier to handle when wet.

The girls began by looking at the flowers intently. Differentiating between the two species and the several shades of purple and pale yellow, they analyzed the stems, shapes of leaves and petals, textures, sizes, and proportions. Then, without hesitation, they took paints from the tubes and mixed them to match colors of the chrysanthemum cuttings. Cindy requested more brushes so that she could mix each color with a different brush. She mixed a shade of lavender that was very close to the shade of the flower but decided to make more before starting to paint.

I noticed that Bao and Daniela tended to mix very thick paints. Bao tried over and over again to mix crimson and indigo into a purple color for the petals. In preparing this color, she was combining a watercolor and a water-soluble oil paint.[5] She mixed the paints to obtain a purple color and then tested the color out on the bottom right corner of her painting (Figure 2) where there are many dark purplish

[5] **The issues of directly combining these two types of paint came up in the students' discussion during our next session.**

Figure 2. Bao's painting. The dark purplish marks in the bottom right corner are those Bao made to test out the paint and its colors as she mixed them.

marks. Daniela mixed thick dark green color and painted three stems of varying lengths, and some chrysanthemum leaves (Figure 3).

Noticing that the thickness of the paints from the tube mixed by Bao and Daniela might prevent them from creating the kind of flowing strokes that they accomplished in a previous session using only ink and water, I opened up a discussion. I hoped to learn what they understood about mixing water with inks and paint from a tube. Since paint from a tube is thicker than ink, more water is needed to dilute it. To inspire Daniela to add more water to her colors, I mentioned the girls' previous experimentation when they used water to dilute ink into different tones.

> Son-Mey: (To Daniela.) During the last session you painted the orchid in different ink tones by diluting the ink with water. Do you want to paint the chrysanthemum leaves in different green tones?
> Daniela: I do not want to try that [different green tones]. If I press too hard, the ink [green colored paint]... starts to dry up.
> Son-Mey: You mean the green color? Can you think of a way to make the color dry less quickly?
> Daniela: I filled the brush with more ink [green color] and then press faster. I am not so sure now.

In this context, I think that, from the perspective of Duckworth's suggestions, I might have better stimulated Daniela's thinking by a more direct approach. Instead of evoking her past memory of diluting ink with water, I might have simply asked her what she noticed about her paint. If she expressed discomfort with the thickness of the color, I could have asked her why she was dissatisfied with the thickness and how could she thin the paint. Still inept in facilitating exploration, I expanded the

Figure 3. Daniela's painting.

conversation to a lengthy but inconclusive discussion on the differences between ink and paint from the tube (which in the dialogue below is referred to as "color").

> Son-Mey: Do you use ink and color in the same way?
> Bao: Not really. Colors are much thicker than ink.
> Cindy: They are different.... They come from different places.
> Daniela:.... There are blue and black inks from Penguin [ink company]. Blue and black are colors, but we associate what comes from Penguin as ink. So, wouldn't ink and color be the same thing?

Although I was engaging to some extent in "Guess what's in the teacher's mind," I learned that Daniela did not realize the difference in the thickness between ink and paint: paints need more water to flow. Bao understood that paints are "much thicker than ink." However, she said that it was something she felt but could not find words for. So I decided to let Daniela continue to experiment and feel the difference herself.

The girls experimented with brush strokes differently. Daniela used the stroke that Yanmei had invented earlier when painting the orchid flowers (Figure 4) to paint the chrysanthemum leaves (Figure 3). (I named this stroke the "Yanmei Stroke", in talking about it with the students.) Daniela laid her brush down, imprinting the shape of the whole brush on paper with the tip facing outwards and the bottom inwards. She made two other similar brush marks flanking the first one with their bottom parts joined, creating a chrysanthemum leaf with serrated edges.

Figure 4. "The Yanmei Stroke."

Cindy, on the other hand, drew a green outline of the leaf and started to fill the color in, overlaying strokes of paint on top of other identical strokes. Her procedure differed from methods of Chinese brush painting, where an artist would make an outline of the leaf, and then put a green wash in with one broad stroke. I had to intervene with Cindy by restating that the basic rule of Chinese painting was to use brush strokes that could not be redone. I wondered whether the introduction of colors had distracted them so much that they forgot this rule.

Cindy then painted a leaf in one stroke showing its side view. However, she painted over it to make it thicker. I reminded her again. She said she really got frustrated and wondered how to make a "thick stroke" without going over. I asked her to think of another idea. Cindy then created a stroke that resembled the shape of a leaflet. She joined many of these strokes together to form a big leaf with toothed edges (Figure 5).

Son-Mey: (Excitedly.) Wow, you have done it! No more overlapping strokes. Tell us how you did it.

Cindy: Joining smaller strokes together to form a thick stroke.

Bao had a similar problem. After succeeding in mixing the right shade of purple, she began to paint the blossoms. However, the paint was so thick that she could not make a continuous stroke to represent a petal. She painted over a stroke many times as in doing oil painting (Figure 2). I decided to ask her about it.

Son-Mey: Can you tell me about the flower you painted?

Bao: I don't know. It doesn't look like it [the real flower]. I want to try it again.

Figure 5. Cindy's painting.

Son-Mey: Why do you think it doesn't look like the real flower?
Bao: Because the real flower has a lot of thin lines. My petals are too thick.
Son-Mey How can you make your petals thinner?
Bao: Can I mix the paint again [with water]?
Son-Mey: Why don't you try it?

This time I was able to encourage Bao to follow her wonderful ideas by simply asking her to "tell me more" (Duckworth, 2001b). After trying for a while, Bao finally succeeded to thin out the purple color with more water. She used it to create a chrysanthemum blossom with fluid thin lines for the petals. The secret of her success, she found out, lay in having more water in with the paint. With the thick paint, she had to keep lifting her brush off the paper as the paint dries out during the process of making a stroke. These repeated returns of the brush to the paint tray resulted in an interrupted form for the petal. But now, the sufficiently dilute paint flowed from the tip of her brush to the paper and she never had to lift her hand. The petal was one continuous purple stroke.

Bao found herself in the same dilemma in painting the stems. The green she mixed was so thick that parts became dry. After covering up these dry parts with more strokes, she used the tip of the brush to draw the lobed-edge outlines of the leaves. Then she filled in with thick green. It seemed to me as if it was difficult for Bao to forgo the techniques she adopted from Western painting.

As with Cindy, I intervened again. I reminded Bao of the basic rule that Chinese painting is made up of strokes that do not overlap. Within this tradition, an artist cannot paint over and over the same stroke.

Figure 6. My painting in the style of Chao Shao-an/Zhao Shaoang showing curls, pollen grains, and green leaves.

After the girls felt more comfortable in making strokes with colors, I noticed that they painted the chrysanthemum in different styles. Daniela piled up layers of the dot strokes she learned in the calligraphy session and formed the globe-like lavender chrysanthemum blossoms on top of the overlapping stems she had created (Figure 3). Cindy painted a lavender mum with thin, smooth petals radiating airily from the top of the stem that she painted with one sweeping stroke. Cindy added a small twisting curl on top of some petals to make them "look realistic".

Cindy's curl stroke was remarkable to me. My teacher, Zhao Shaoang, invented this technique (Figure 6); I learned it from him. However, Cindy thought of it herself. Later, Cindy disclosed that, to make thin smooth petals, she used the tip of the brush without pressing it down. Bao used thin strokes radiating from the center of the flower to create a ball-like shape. She added yellow dots in the center to represent pollen as what Professor Zhao had taught me to do (Figure 6).

Later, I noticed that the girls did not look at the plants any more while painting. They painted from their mental images rather than from the real plant. Cindy was painting flower after flower without looking up. As she progressed, her brush strokes became more fluid, smooth, and eloquent than before. Daniela continued to paint the leaves she had created all over the stems without checking their positions on the real plants. She did each leaf in a formulaic way by laying her brush in the center and then left and right. The girls were thoroughly involved in their work until I broke the silence after Cindy painted a mature chrysanthemum leaf with a complicated shape on the stem without looking at the plant (Figure 5). Cindy was

Figure 7. Chrysanthemum model from the Mustard Seed Garden Manual of Chinese Painting.

startled from her deep concentration when I talked to her.

> Son-Mey: (Drawing Cindy' attention to this leaf.) This leaf is so interesting. Where is the leaf on the plant?
> Cindy: I do not look at the leaf.
> Son-Mey: So you just remember what you have seen?
> Cindy: Yes. I just make leaves that look like leaves.

After our conversation, I noticed that Cindy dipped her brush in light green and then dark green to make the small stroke that formed part of the leaf, resulting in interesting green tones. It was also a method I learned from Professor Zhao for painting green rose leaves (Figure 6). Cindy invented it by herself. I came to the conclusion that the girls, after familiarizing themselves with the plant and formulating a method to paint each part, painted from their mental vision rather than copying the real plant.

The students' development of their own mental vision delighted me. With it, they could hold the essence of a chrysanthemum in their mind and express it artistically, without having to rely on a flower in front of them. My literature study revealed that the original ancient masters of Chinese brush painting also developed a mental vision and expressed it in painting.

I also discovered that my students extended their mental vision to something else. To make her flower "less plain", Daniela added some white dots that were not present in the real flower. She put these dots in to distinguish the purple petals from each other. Daniela went on to paint a blossom in yellow because she associated the color yellow with "the common kind Chinese chrysanthemum flower". Here, she

used lavender dots to define one yellow petal from another. Next, she painted a flower in green having its stem and leaves in purple. She said she was experimenting with "genetic engineering" to showcase "What not to do when combining the DNA of flowers." It seemed that Daniela used her painting to test out visually the look of the Chinese chrysanthemum and a flower of the wrong DNA (Figure 3). She reminded me of Leonardo da Vinci who used art to test his scientific ideas (Chiu, 2000).

The girls' accomplishment of producing fluid brush strokes without looking at the plant was a practice that settled their images of the plant in their memory. In her final success with the chrysanthemum, Bao painted fluid green stem with small leaves in simple strokes, and a flower with thin, smooth, lavender lines in a spontaneous way. In our conversation, Bao revealed the secret that underlay this achievement.

> Bao: Because I know the flower and because I have practiced drawing it.
> Son-Mey: (To all the girls.) Now you do not look at the plant any more because you have memorized it?
> Girls: (Nodding.) Yes.

Cindy's practice also resulted in painting in such a fluent and spontaneous manner that she accepted the challenge of painting on rice paper, unlike the other two girls.

At the end of the session, I opened the *Mustard Seed Garden Manual of Painting* (1679/1978) to the illustration of the "correct way" to paint a chrysanthemum flower (Figure 7). This manual, a basis for the teacher-directed approach of traditional Chinese painting, contains step-by-step instructions for making brush strokes and producing paintings. I was curious to see the students' reaction to this model. The girls did not take an interest in it. They said they had surpassed it.

The girls, in general, were pleased with what they had explored and achieved. They were particularly happy to use "pretty colors" in this session. Cindy enjoyed learning on her own. She said:

> ... this is the most successful session. I don't know that I actually know so much more [i.e., so as to say much more] about Chinese painting than when I started. In school the teacher will teach you by telling you most of the facts and let you figure out the rest, but in these sessions, we have to figure out by ourselves. When we first began, every stroke and technique was frustrating to us. We were ready to strangle someone! Now to our great surprise, we have learned and we have accomplished much.

Indeed, the girls, through much struggle, learned how to use colors and invented their own brushwork in presenting the chrysanthemum. They learned that, through practice, they could reproduce the plant on paper spontaneously from their memory

and mental visions. Through this exploratory method, Daniela even ventured into testing her scientific idea—reversing the DNA of the flower and stem of the chrysanthemum. Most important of all, they uncovered many of the brush techniques that masters in the past had created. Their greatest accomplishment can be summarized by what Cindy told me excitedly the next day. At home that night, she opened a picture book to a reproduction of a chrysanthemum painting done by an ancient master:

> Ms. Chiu, guess what. I saw a chrysanthemum painting yesterday after the session. The ancient master painted like me!

CONCLUSION

In the above research session, students followed their personal "wonderful ideas" in exploring the art of Chinese painting. Instead of following instructions from a manual, they began with a personal exploration of the properties of brush strokes and mixing colors and ink, and began painting flowers by looking at real flowers as they painted. Their own exploration of stroke and color allowed them to eventually paint from an image of the flower that was within themselves, much as a master painter would describe the process. By the end of the session, the girls produced paintings that recreated both the process and the visual effects of "ancient masters." When looking at an ancient painting, they could appreciate the kind of thought and tradition that went into its creation. Thus, removing the manual did not eliminate the tradition it represents. The evidence suggests that the students may have learned to understand that tradition more completely than if they had learned by rote using the traditional methods.

My study clearly demonstrated that a teacher can use critical exploration to facilitate the learning of Chinese painting, which has been taught didactically for three hundred years. However, teaching through critical exploration does not entail staying in the background and granting students total freedom to do whatever they like. Facilitating learning was more demanding for me as the teacher than dictating what students had to do to learn. Teaching in this manner requires not only mastery of the subject matter, but also the skill to explore exactly what students do and do not understand, in order to help them build their knowledge and skills in the context of what they have already learned and understood.

The teacher orchestrates learning not by instilling what is known and practiced into learners' minds, but instead by arousing their curiosity, challenging their intellect, inspiring investigation and exploration, and sustaining their interests. In short, I experienced what Hawkins (1969/2002) said about teaching through the learner's noticing and telling, which were the goings-on between the I, Thou, and It (see Cavicchi et al, this issue 2009). In reflecting on the experiences of science teachers who were involving school children in exploring materials like pendulums,

shadows, and lenses, Hawkins wrote:

> It seems to me that many of us, whether our background was in science or not, have learned something about ourselves from working with children in this way [through children's noticing and telling] that we've begun to explore. We've begun to see the things of the physical and biological world through children's eyes rather more than we were able to before, and have discovered and enjoyed a lot that is there that we were not aware of before. We don't any longer feel satisfied with the kind of adult grasp that we had of the very subject matter that we've been teaching; we find it more problematic, more full of surprises, and less and less a matter of the textbook order. (Hawkins, 1969/2002, pp. 64)

As a teacher, I discovered that the process of supporting students as they invent their own personal and expressive ways to paint is similar to what a science teacher does in supporting students' investigations of nature (see Cavicchi, 2009, this issue; McDonnell, 2009, this issue).

Once we cast away the "textbooks"—the manuals of painting—Chinese painting became immensely more complex and "problematic." The transition involves a shift from "how" to "why" things are done. However, in spite of the many struggles and challenges, my students succeeded in painting the chrysanthemum in the Chinese style without "textbooks." According to their own judgment, they better experienced the process of painting in a way that helped them understand the ancient masters.

After much reflection, I have the following thoughts about what this study implies to education.

Teachers and learners who are accustomed to the teacher-directed way of teaching and learning have difficulty accepting and adapting to critical exploration because of the belief that the teacher should know and give the "right answer." It took my learners and myself some time to adapt to a different process of constructing our knowledge, skills, and meanings from our experiences. My learners understood gradually that other people's paintings were just references, other ways of doing things, not absolute models.

Critical exploration can be applied productively in the teaching and learning of subject matter whose instruction is typically characterized by strict emphasis on tradition and authority. Many generations of Chinese painters have learned to paint from an authoritarian master who imposed rigorous discipline in the copying of models passed down from ancient traditions. Armed with only one rule—to lay each brush stroke down as a whole gesture evocative of a natural form—the learners in my study followed their ideas, modified their Western artistic training, and created fresh Chinese paintings, each in her own style. They worked in a self-directed way similar to that promoted by important masters in the distant past; their

discipline came from within, and was not imposed from without. While innovating fresh ways of painting, they did not destroy traditions; instead, they uncovered them.

To be able to set aside authoritarian practices of instruction, a teacher needs to trust that learners' ideas will take them to meaningful engagement with the subject matter (Schneier, 2001). In my research, when the learners were given opportunities to explore their ideas, they acquired knowledge of and skills in Chinese painting based on the integrity that their ideas earned in exploring individual and personally expressive paths. Another characteristic of critical exploration is fostering learners' confidence and independence in learning. In this study the learners, undaunted by the accomplished paintings that they viewed in photograph books, felt confident that they could develop their own styles to similarly high levels.

My experience as a teacher in critical exploration throws light on the curriculum of Chinese brush painting. That curriculum has long been identified with manuals containing codified brush strokes and prescriptive patterns showing the finished product of a painting. I propose that active exploration be at the core of the curriculum for painting. Active exploration applies to every aspect of the curriculum. In making brush strokes, students should have a free hand, full of energy, and open to experiment with any style. Real flowers and birds, not patterns, should be the inspiration.

I believe that Hawkins (1973/2000) was correct in asserting:

> Subject matter belongs to the universe, and books and lectures are only a small part of the discipline of being engrossed in subject matter. (p. 11)

The learners demonstrated that when they encountered nature [the subject matter of Chinese painting] in its totality, their questions and their pursuit went beyond the prescriptions of the manuals.

In conclusion, this study not only provides insight for pedagogy and curriculum design for Chinese art, but also informs the broader scene of teaching and learning about the importance of the integrity of learners' ideas in all domains of learning, even in those that have commonly emphasized authority and tradition.

It is a common belief, in instructing students about many traditional forms, that there is no substitute for copying the instructions of the masters. In fact, historical literature indicates that in the centuries before the "instruction manuals" existed, painting was learned through explorations of the heart and mind (Chiu, 2003). My study demonstrates that giving students the freedom to question and explore for themselves allows them to master subject areas that are traditionally taught by rote. It has the additional benefit that students come to understand that there are many valid approaches to achieving the same kind of result, leading to a potentially more complete mastery of the form. But while this seems like a revolutionary and nontraditional concept, it is really no different than the earliest

ancient masters' process of learning to paint from "exploration of the heart and mind", and has the potential—in concert with skilled responses from the teacher—to promote better understanding of tradition than one gets from repeating a description.

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