

Creativity for the Gifted Education

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A. Creativity and Giftedness

In Guilford's theory of Structure of Intellect (1959), he tried to subsume creativity under the concept of intelligence. From that time, divergent thinking became an important factor of giftedness while teaching creativity turned the focus of gifted education. Although Getzels have argued that creativity is an entity that is psychologically distinct from intelligence (Sternberg, 1988), it still takes a great role in daily life, for examples, technology invention, business marketing or arts creation; we find that when talking about the purposes of gifted education, people seldom go far away from the issue relating to cultivating creative thinking. In Renzulli's "Three Ring Conception of Giftedness", he further emphasized that when creativity combines with task commitment and above average ability, which is giftedness (Renzulli, 1986).

We expect that every highly able student is able to be more creative and productive, although he/she may be not good at divergent thinking skills by nature. On the other hand, creative potentials need a certain threshold of intelligence, but not necessarily the highest intelligence (Getzels & Jackson, 1962). We believe that creative education should not be limited to be provided for gifted and talented students, or rather, it need to be extended to applying for ordinary students. Every student needs the environment and opportunity to develop creative potentials and realize himself.

B. Creative Education Development Plan in Taiwan

So, at the beginning of 2002, the Advisory office of the Ministry of

Education, Taiwan presented the “Creative Education White Paper” to the world. This act is based on and developed from five aspects: individuals, schools, society, industries, and culture. The aim is to change Taiwan into a creative country. Based on this Act, the Advisory Office of the Ministry of Education began the “Creative Education Development Plan” through the Enhancement of Education in Humanities and Social Science. This plan is being practiced and enhanced every year from 2002 to 2005. The aims of this plan are:

1. To experiment with the Enhancement of Education plan
2. To encourage the source of creativity
3. To gather and share educational assets
4. To strengthen both the Virtual Community and the Real Community
5. To advance the conformity of systems
6. To display exhibitions of the outcomes
7. To show a Paradigm Shift through these works

The 8 main projects and 277 sub-projects are:

1. Nurturing trips for creative learners
2. Professional development of creative teachers
3. Campus space renewal
4. Ongoing consolidation of creativity cultivation
5. Online learning via database banks
6. Creative campus life in action
7. International creativity education exchange
8. Promotion of the concepts of creativity

In three years there were a total of 120 schools, more than 200 professors from different colleges and more than 5000 students who have taken part in this project. The Creativity Education Exposition in 2004 had more than 200 desks exhibiting their results of multi-creative works and more than 62,000 visitors in only three days.

At the schools, the atmosphere of creativity and club of Creativity for teachers and students are gradually building up. Colleges have been adding a class in creativity into their general education plan; elementary and junior high schools are working together with communities developing more and more creative ideas. More than a thousand pages of both local and international information about creativity are being put online, and all the completed projects are also online for international interflows. All county governments are also encouraging creative ideas that combine local characteristics.

(Retrieved from : <http://www.creativity.edu.tw/ebook/ontheroad/page.php?page=7>
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The programs for creative learners include the following activities:

- a) Sponsoring and organizing the Intelligent Ironman Creativity Contest for senior high school students
- b) Inviting college students to reshape the image of the community around their campus
- c) Providing an inter-university course, "Generation and implementation of creative ideas," for college students
- d) Providing various summer camps for college students to develop their creativity.

(Retrieved from : http://www.creativity.edu.tw/project_introduction/english_intro.php
Nov.10, 2005)

In this speech, some activities will be introduced, such as the Intelligent Ironman Creativity Contest, the National Youth Power-Tech Contest and some gifted programs supported by local educational governments. The learners in these activities include students who come from gifted or talented classes/programs and students who are not labeled as 'gifted' but also show high creative potentials. Besides the activities mentioned above, an old school, Bei-Man Elementary School will be an example addressed for the ideas of a creative campus.

C. Cultivating Creativity for Gifted Preschoolers

There is another program worthy to introduce which is proceeding at the Special Education Center, National Taiwan Normal University. This program was set up for developing young gifted children's multiple intelligences and cultivating their problem solving ability and creativity. Another objective of this program was to offer opportunities for developing talents of gifted disabled preschoolers.

This enrichment program is run on every Saturdays. It starts from 9:00 to 12:00 in the morning, 1:30 to 4:30 in the afternoon. Courses include "Exploring DISCOVER" and "Group Activity" in the morning, "Talent Development" and "Self-Choice Activity" in the afternoon. "Exploring DISCOVER" is a course combined with multiple intelligences and problem-solving ability, which is designed to stimulate creative thinking. "Group Activity" provides opportunities for children to do social intercourse and play. "Talent Development" includes six different areas: math, nature science, linguistics, music, art and bodily-kinesthetic, in order to develop the strength of each student. "Self-Choice Activity" allows each young child to choose different corners to explore their interests and progress in self-choosing ability and learning. Also we provide courses for parents and its purpose is to improve the quality of parental education.

The Characteristics of Curriculum

- **Adaptation of multiple intelligencetheory**

The most importance of teaching in multiple-intelligence way is to require teachers to expand their existing knowledge and technique beyond their typical verbal and logical teaching method used in the former classroom (Armstrong, 2000). All curriculums designed for this program include at least two areas of eight multiple intelligences (linguistics, logic-mathematic, bodily-kinesthetic, spatial, interpersonal, intrapersonal, musical, and naturalist).

- **.....Inclusion of problem solving ability**

Combining the teaching of problem solving ability is adapted from DISCOVER program designed by Dr. June Maker of University of Arizona. Problem solving ability is the main part in DISCOVER curriculum, also the

foundation of its assessment and curriculum design.

1. Problem structure—problem type and performance are the key to effective learning. Type 1 is a high-structured and closed question, and type 5 is an opened and complicated question. According to this standard, DISCOVER project categorizes questions into 5 types in order: type 1, type 2, type 3, type 4 and type 5.
2. Problem method—finding out solution according problem structure. There is only one way to solve the question of type 1, and there are many ways to solve the question of type 5. Students have to learn which problem-solving way is fast and good and appropriate. That will help students to develop children's thinking skills.
3. Problem solution— there is only one answer for type 1 question and unlimited answers even no answer for question of type 5. Answers are counted as right one usually under very subjective situations.

Introductions for 5 types of questions are as follows (Maker & Schiever, 1991; Maker J., 2001):

- Type1:** questions are simple and closed; both presenters and solvers know the formula but solvers need to find out solution by him, for instance, question $3+4=?$
- Type2:** questions are simple and closed; presenters know problem method and solution, but solvers only know the question, such as the question: there are ten cookies in the can and you ate two of them; how many of cookies left in the can?
- Type3:** questions are disclosure but more opened and complicated, and there are several formulas to solve the questions. Presenters know formulas and solution, but solvers need to find them out, for example, use 3, 5 and 2 to write down as many mathematical statements as you can.
- Type4:** questions are made known, but presenters and solvers do not know either the method or solution. For example, what is the best way to cross the river? There is one specific target to solve on this type of question and solvers need to collect amount of information to find

out possible methods and solutions.

Type5: questions, methods and solutions are not defined clearly for presenters and solvers, especially questions are opened and complicated; for example, what is the most serious problem human being face nowadays and how to deal it with? There is one specific question; it is acceptable for open explanation by analyzing possible methods and solutions and creating different solutions.

●.....Theme-oriented Curriculum

In order to implement the goals and objectives of curriculum for preschoolers, it is important to plan activities by theme unit. Teaching by units provides a mechanism for coordinating activities that strengthen and reinforce desired concept (Turner & Hamner, 1994). There are six themes during one-year class: colors and shapes, others and me, growing-up, seasons, festivals and holidays, and families, which include six main themes of preschool education: cycles, change, pattern, relationship, environment, and individuality.

Curriculum content and examples

Every type of class includes six themes designed based on combination of utilizing multiple intelligences and learning the way to solve different types of problems. There are three examples listed in Table 1-Table 3. Table 4 and Table 5 show the teaching materials and the archives by our learners.

Creative Production of Handicapped Preschoolers

Case 1: Ming, an active musically talented but blind girl

Ming is a five-and-half-year-old girl; she is vigorous, active, friendly loves to meet friends and shows extreme interest and curiosity to explore and learn new things. She is very enthusiastic and responsive to every kind of learning activities although she is blind. Since Ming is deficient in sight, teachers of this program usually discuss the special needs with Ming and adjust original teaching materials and activities appropriately before the

classes. For instances, teachers were suggested to use auditory and tactile stimulus to guide Ming to be aware of the tone difference and to well pronounce and response actively. While the class was working as individual or group activity, teachers always provided needed assistance to help Ming, and evaluated her performance by her advantageous ways. Also teaching assistant or observer was needed to explain visual material or repeat what teachers say. Although teachers had to discuss possible situations and necessary adjustment before every class start, they welcomed the first blind girl enrolled in this program cautiously but excitedly.

Ming is passionate and popular among the students and teachers in this program. She said hello to every classmate and teacher and mentioned them by names, even though she just met them infrequently. When she met a new teacher, she introduced herself voluntarily and kept friendly. Her manner and passionate attitude attracted all teachers, classmates and even parents; everyone liked her. Sometimes there were challenges for teacher to balance Ming's highly spontaneous discovering and questioning with other children's needs or with designed activities. Fortunately, teaching assistants' help and guidance assisted teachers to move on their activities smoothly and to give Ming a thorough understanding of these activities.

Ming is just like other gifted children, enthusiastic for every activity, good at performing and demonstrating, eagerly involved and having her own ideas and creativity, actively cooperating and asking for help when needed during group activities and peer interaction. In the beginning, other children felt confused and curious of her special behavior and needs while they gave Ming a hand; however, they gradually understood Ming's disability and voluntarily helped her.

In the course of "Talent Development," Ming was highly recommended for her musical, bodily-kinesthetic and logic-mathematic talents, especially for her high auditory sensitivity and extreme potential on music. She was suggested to focus her talents on music by one-by-one teaching and multiple intelligence stimuli. Her high self-expectation, self-discipline, and strong enthusiasm on music were fully developed in the course, "Talent Development." She used her auditory and tactile sensory to memorize every song, perform finely and even add her creation. At this stage we.

Table 1 Example of the theme, “Colors and Shapes”

(Designer: Lin, Linshui)

Class: Linguistic Activity : Colors and shapes in child’s poetry				
Objectives	Content	Type of Problem	Involved Intelligence	Resource
1. Understanding the relationship of colors and emotion	1. come to eat watermelon (increase motivation)	Type 1	Linguistic	Watermelon Paper Colored pens Fruits
	2. Read a Child’s Poem: I am Daddy Watermelon.		Intrapersonal Interpersonal	
2. Understanding the concept of imagination being a component of writing poems	Q: write down what colors are used in this poem? Which color express the feeling of being cold?	Type 2	Spatial Naturalist	
	3. Discussion Q1: Can you separate the poem into three section based on the meaning of this poem? Q2: Do you know the author’s intention of writing this poem?			
3. Understanding the rule of writing poems	4. Riddle of “Fruit Poem” Q1: what would it be if swallowing the watermelon’s seeds?	Type 3		
4. Understanding the meaning of certain poems	Q2: Can colors influence our feelings? For example: green, red, black, or yellow river.	Type 3		
	Q3: what is your favorite poem and reason it.	Type 4		
5. Being able to create a “fruit poem” with color words	5. Create your own “fruit poem” with colors.	Type 5		
	Q: Try to create a “fruit poem” with colors.			

Table 2 Example of the theme, “Growing-up” (Designer: Chien, Weichun)

Class: Exploring DISCOVER Activity : The story about growing up of seeds				
Objectives	Content	Type of Problem	Involved Intelligence	Resource
1. observing characteristic of different seeds	1. What are seeds?	Type 2	Naturalist	Seeds, pictures of seeds, paper and colored pens
	Teachers introduce different kinds of seeds, including seeds of corns, red/green beans, and peanut; students are allowed to observe the similarity and difference and count the numbers of every kind of seeds.	Type 1	Logic-mathematical	
2. Understanding the concept of square and rectangle through lining seeds	3. Line-up	Type 1	Logic-mathematical	
	Teachers use 4 and 6 peanuts to line up the square and rectangle and ask students to repeat first and then, to perform shapes by using ten peanuts.	Type 3		
3. Understanding the process of seed's growing	3. The growing process of seeds	Type 3	Naturalist	
	Teachers introduce the growing process of seed, and ask students to observe.			
4. Showing the process of seed's growing by music and movement.	4. Students are encouraged to group and use voice and movement to perform how seeds sprout, flower, and bear fruit.	Type 4	Bodily-kinesthetic Musical	
	5. Students are allowed to pick up their favorite plants, and to draw the process of seeds' growing.	Type 5	Naturalist Spatial	

Table3 Example of “Colors and shapes-- King of Cookies”

(Designer: Wu, Chang-Sheng)

Theme		Colors and shapes			
unit	Objectives	Content	Problem Type	MI Implication	Adjustment
King of cookies	1. Appreciating the archives of Arcimboldo at 16 th century	1. Appreciation Appreciate of artworks such as “Gardener,” “Librarian,” “Four seasons,” “Element”	Type I: observe clearly and describe the components of objects	Naturalistic Observation	Type V: suggest weak-performed students to start out creating connection of objects’ shapes and bodies while trying “Material Portrait”.
	2. Observing artwork’s outline and making connection	2. Compare the connection between outline of object and facial features	Type V: create a story about people by using foods and animals	Visual spatial	
	3. Allocating and matching by using cookies or candies	3. Create one imaginary Arcimboldo’s creature	Type IV: use cookies or candies to create a portrait of king (queen, princess etc.)	Visual spatial	Type IV: remind strong-performed students to notice the changes of colors while creating “king of cookies”.
		4. Create a portrait of king (queen, princess, etc.) of cookies after observing provided cookies’ shapes clearly			

Table 4 Teaching materials used in “King of Cookie”

Code	Painting	Origin
Arcimboldo 01		God of Harvest, 1591.
Arcimboldo 2		Librarian, 1566.
Arcimboldo 3		Water, 1563-64.

Problem Type	Content
Type V: create a story about people by using foods and animals	Create one imaginary Arcimboldo's creature
Type IV: use cookies or candies to create a portrait of king (queen, princess etc.)	Use cookies to create a portrait of king (queen, princess, etc.) after observing the shapes of provided cookie

Table 5 Someartworks of children

Type V--- “Material Portrait”& Type IV--- “King of Cookies”

Unit Topic	Title	Photos of students' artworks	Description
King of Cookies	Material Portrait 1		<p>Ying's work is about "animal person" with lion's head, bunny and cat's shoulder, snake's hair; the animal person is ready to serve tea for friends.</p>
King of Cookies	Material Portrait 2		<p>Ting's work is "fruit person," who has apple head, grape eyes, banana hair, carrot nose and water-drop lips. Along with blackboard and eraser, the fruit person is ready for class.</p>
	Material Portrait 3		<p>Jack's work is "Insect Person." His hair, nose and body are made of rhinoceros beetle and stag beetle; ladybugs are his eyes, and oak's roots are his beards.</p>
	Material Portrait 4		<p>Joan's artwork is "Fruit Person." Cherry and apple become eyes and chin; woodblock is nose, and mouth is "poisonous" banana.</p>

<p>King of cookies 1</p>		<p>Ying's "king of cookies" has pentagonal face and triangle hat with long-shaped cookies; facial features are mostly made of round cookies and two-side-of chins by potato chips. After finishing the head part, Ying added two arms for the "king" and explained that "one (arm is) for eating, and another is for reading."</p>
<p>King of cookies 2</p>		<p>Ting's "Queen of Cookies" has quadrangular face and web-shaped hair. Her wave-shaped potato chip lips are smiling.</p>
<p>King of cookies 3</p>		<p>Jack's "King of Cookies" has full-of-mouth beard, round eyes and nose, having triangle cookie-crown and a sword.</p>
<p>King of cookies 4</p>		<p>Joan uses round cookies as face, long-shaped beans as body and hair to create "an angel." However, Joan is not very attentive but busy eating sugar, when she is creating the "angel."</p>

offer the opportunity for her to learn music Braille, and hope her potentials can develop fully.

Just like other gifted children, Ming's perfectionism gives her quite difficult time when meeting unexpected situations, such as forgetting to bring required photograph or being late. Besides giving her needed comforts, teachers gradually make her understand the importance of relaxing and adjustment.

During previous one-year teaching, Ming showed her infinite creativity and always surprised all members in the program. She composed songs and made recordings from time to time. In our program, we do not teach her how to compose; or rather, we provide opportunities for her to create and to fulfill her potentials. In my oral presentation, her music will be introduced.

Case 2: Jack, an artistically talented boy diagnosed as Asperger Syndrome

Jack is a five-year-old boy who is good at observing natural and current existing environment. He was shy at the beginning but he showed his passion and extrovert to others after being familiar with others. Jack had been diagnosed as Asperger Syndrome before entering this program; however, in the individual intellectual test, Jack's occupational part graded as 134, linguistic part graded as 89 and total graded as 112. This showed that Jack had obvious inner difference from his physical characteristics; however, this result also delivered unusual but abundant potentials in spatial and mechanical intelligence. Through the observation period, Jack was noticed by unfamiliarity with the environment and difficulty in interaction. However, his talents on visual-spatial ability and creation had not been limited by his barriers; or rather, his talents had been appraised by art teachers.

In order to allow Jack to be familiar with the class environment and activities in this program, we analyzed Jack's learning pattern in kindergarten and at home, and Jack's interaction with parents; we also combined these analyses with Professor H. C. Hu's professional consultation, and one observer's full assistance.

In the beginning of classes, Professor Hu observed Jack's behavior and provided suggestions and direction in time to the observer, for the purpose of assisting Jack's learning. After a couple weeks of guiding, Jack was gradually familiar with the environment and progressed in the activity and even, was able to join the class activities voluntarily.

After voluntarily joining activity, the contiguously interfering by his barriers and talents still affected on him. Jack showed acute in observing, depth of knowledge in natural science with his creative and profound answers which surprise teachers frequently. However, his obstinate personality influenced his participation by tending to be obsessed on one particular activity or interesting experience weeks ago. Therefore, constant reminding was still crucial to guide Jack focusing on current requirement and fortunately all teachers were familiar with his situation and successfully created the joyful learning environment for Jack.

Jack has participated in our program for one year and was amazed at the excellence of his painting. As a child diagnosed as Asperger Syndrome, he displayed his abundant knowledge and creativity by painting when taking part in Type 5 activities. In my oral presentation, his archives will be shared and enjoyed.

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