

Hong Kong Gifted Programs on Creativity: Program Implementation and Evaluation

Rex Li, David Chan, Hong Kong

Introduction

Gifted children are the most treasured resources of our society, but educational provision for special needs has long been neglected in Hong Kong. To remedy this situation, the Gifted Education Council (GEC), a voluntary agency was founded by a group of scholars and educationalists, launched its First Hong Kong Enrichment Programme for the Gifted in the summer of 1990. The programme, the first of its kind in the history of Hong Kong, was open to public participation and was free of charge. It attracted widespread publicity and received strong support from both parents and educators.

The purpose of this paper is to outline the gifted program launched in Hong Kong (1990-1993) on the teaching of creativity. Of the 235 recommendations from schools, GEC identified 33 gifted children in 1990 and provided them with an intensive training to help them become creative thinkers, creative problem-solvers and self-learners. Hundreds of professional man-hours are devoted to the program each year.

Nature and Scope of Program

In 1990, GEC formed a planning committee which decided to launch a teaching programme that is enrichment in nature. I would not interfere with regular school curriculum; rather it would enhance learning and foster participants' learning interest and guide them to become self-learners. Moreover, the programme must have very definite teaching/learning objectives so that it could be evaluated objectively.

Members brought up the issue of gifted-underachievers. As the learning and emotional needs of gifted achievers and those of gifted underachievers are different, we initially planned to develop two streams of programmes for each of them. Later, we found the task too ambitious and we decided to put our focus on a normal enrichment programme for gifted achievers for this pilot programme.

Members were much concerned with the educational system in Hong Kong which emphasize rote memorization and convergent thinking. As a result, it seems necessary to cultivate creativity among our

gifted students. This is not an easy task because Hong Kong students are just too used to spoon-feeding. Moreover, it is not easy to define creativity. While Taylor (1988) outlines four approaches to creativity and Repucci(1960) summarizes six classes of definition, Torrance (1988) admitted that creativity defies definition. A more sophisticated conception is that proposed by Gruber (1991) but it is not relevant or applicable to teaching children. On the other hand, Sternberg (1988) stresses the impact of environment on creativity. According to him, "A potential creative individual may wither in an environment that does not foster, or that actively inhibits, a display of creative behavior. That certain types of schooling, for example, can inhibit creativity." (P. 146). Thus we adopt Sternberg's (1988) three-facet model of creativity which stresses intelligence, style and personality and our program aims to provide an environment that fosters creativity.

Programme Design & Implementation

Goals and Objectives

We believe gifted education should aim at achieving the following two goals: (1) To help gifted children

become effective problem-solvers, self-learners, and creative thinker; (2) To provide the nurturing ground for future scientists, scholars, artists and high achievers through enrichment in different domains of intellectual inquiry and accommodation of their learning needs and styles.

As educators engaged in day-to-day teaching activities, we are well-aware of the fact that goals broad as the above are difficult to measure or implement. So we have to narrow them down to concrete teaching objectives and then teaching/learning points and items that are susceptible to objective transmission and measurement. For example, in this programme when we aim to help gifted children become creative thinkers, we teach them:

- * association thinking
- * imagination
- * intuition
- * brainstorming
- * ideational fluency
- * scenario thinking

To help them become self-learners, we teach them:

- * how to collect data
- * how to search for information
- * how to make use of libraries

- * how to read a book
- * how to skip through information
- * how to ask questions
- * how to search for answers
- * memory skills

To help them realize their potentials and prepare them to become future leaders, we provide them with training in:

- * public speaking skills
- * presentation skills
- * organizing ability
- * interpersonal skills
- * role and attitude of leaders

To enrich their knowledge base and foster their curiosity and interest in intellectual inquiry, we provide them with lectures on:

- * energy & science
- * the growth of science
- * scientific experiment

Theoretical Foundation and Principles of Curriculum Design

Recent research in the relationship between giftedness and metacognition (Shore & Dover 1987), the theoretical foundation of intelligence (Sternberg, 1985) and the conception of giftedness (Rezulli, 1985) have all thrown light on the design and implementation of GT

curriculum. Many teaching/learning models have been developed to provide framework for the development of objectives and teaching activities for GT, such as the Interdisciplinary Concept Model (Jacobs & Borland, 1986), the Creative Characteristic Model (Bruch, 1986), the Epistemological Model (Tannenbaum, 1983) and so on. We propose a holistic approach to gifted education which takes into account many of these research findings.

The DISCO Approach

Our Disco approach has five basic components:

- D: Diversity
- I: Inquisitiveness
- S: Self-directedness
- C: Creativity
- O: Openness

The DISCO approach cuts across the content, process and product of gifted education. It is an integrative model which embodies the spirit behind all design and implementation of our GT programme (GEC, 1989).

Diversity

- * Diversity in both teaching form & content
- * Providing a broad knowledge base

for future self-study & research

- * Exposure to a wide variety of content areas, skills & values
- * Interdisciplinary approach to subject of study

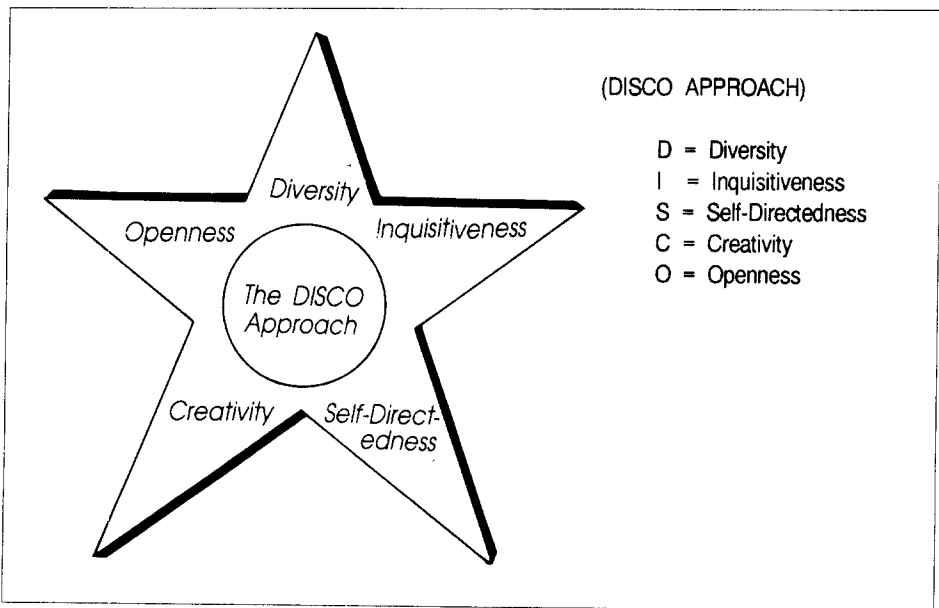
Inquisitiveness

- * Cultivation sensitivity and curiosity in human knowledge
- * Mastering learning skills, exploration & investigation
- * In-depth study on selected topics from diverse perspectives

- * Inquiring into methodological level of knowledge

Self-directedness

- * Equipped with thinking skills and tools to knowledge acquisition
- * Self-directed in learning goals & objectives
- * Become an autonomous and resourceful learner
- * Be self-reliant in learning & to cultivate a positive self-image



Creativity

- * To challenge existing ideas & conventions
- * To incorporate new and innovative ideas through theorization and synthesis
- * To cultivate sensitivity to problems and develop creative problem-solving skills
- * To enhance whole-brain learning for creativity

Openness

- * To appreciate the open-ended nature of human knowledge
- * Open-mindedness in appraising knowledge & ideas
- * Fostering an open attitude to criticize & to be criticized

The Theme

We had to find a theme for the programme that is broad enough to unify many ideas. The theme must be new, not covered in local textbooks or syllabuses, and most important of all, it should be forward-looking, and be open enough to be a fertile ground for teaching, learning and intellectual inquiry.

After many planning sessions, we settled with the theme of "Future World", for we believe gifted children are future

leaders of tomorrow and they should be inspired to take a forward-looking perspective. (App. 1)

Teaching Approach

Our teaching approach is one of discovery and participation. It is quite different from a conventional classroom where teachers do all the talking and teaching while students sit quietly and listen passively. Rather, the teachers here say little, and the students participate a lot in thinking and talking. The teacher is merely a facilitator and gives guidance and direction wherever necessary. This is easier said than done because the teachers need to be alert of the whole situation, the group dynamics, how students' thinking are going on, what hints to give when, and how to guide and redirect them to fruitful thinking and discussion. At the same time, we employ a variety of teaching formats:

- * Tutorials & Discussion
- * Guest Lecture
- * Library Visits
- * Information Search
- * Field Trips
- * Projects & Presentation

Teaching Plan

The design of the teaching plan has to take into account many factors, such as:

- * quantity of teaching materials
- * number of learning points
- * length of mental journey
- * level of difficulty
- * rate of absorption
- * variety of teaching formats

To arouse students' interest, the plan is so arranged that there is at least one game per session. The purpose of the games must be both educational & recreational.

To provide variety of teaching formats, students will attend one session of lecture, take a break and then another session of tutorial (small group activities). Other varieties such as scientific experiments, slide-movie presentations, educational excursions are also arranged.

Programme Evaluation

Need for Evaluation

Our programme planners are well aware of the fact that a pilot programme of this kind must be evaluated professionally and properly. For an evaluation to be objective, it must be planned in advance, conducted carefully

and evaluate major areas and aspects of the programme. A pilot programme with objective evaluation and positive results will lend support to its future adoption at a larger scale.

Problem of Evaluation of Education Programmes

The problem is that enrichment programme of this kind is hard to evaluate. It is total educational experience for gifted children; the impact may be qualitative: it may last for years and yet it is not easily susceptible to quantitative measurement. Thus it would be unfair to merely conduct an evaluation based on measurement of test scores before and after the test. On the other hand, to rely solely on the subjective statements of teachers' or students' verbal reports is unacceptable for objective evaluation.

Programme Effectiveness Measurement

To measure the effectiveness of the programme, we thus proceed from a number of routes and try to compare their results. Our idea is that if the programme generates effective and positive results, it can be observed or measured from different perspectives. We thus make our evaluation through

students, parents as well as teachers.

1) Pre-test and Post-test

Based on our teaching objectives of the programme, we set a test for all students. The test comprises of a total of 20 questions on:

Area	No. of questions
A. Self-directed Learning	6
B. Leadership training	6
C. Creativity	4
D. Science and Knowledge	<u>4</u>
	20

We conducted the pre-test and post-test by "split-half" method. At the beginning of the first session, students were given a short test. Half of the students were asked to do all the odd number questions while the other half were asked to do all the even number ones. Each student would answer only 10 question. They were asked to do their best.

At the end of the last session, that is, 6 weeks later, they were given the same test paper again. This time in the post-test, they were asked to finish the other half. The merit of the split half method is that the questions, being in the same test paper, of the same

quantity and level of difficulty for both pre-test and post-test, would yield reliable results for measurement of effectiveness on improvement made during the Programme period.

2) Parent Meeting and Evaluation

Before the Programme started, we held a parent meeting, in which we outlined to parents what we planned to do and achieve in the Programme. We distributed our teaching plan, briefed them of the curriculum design and stated clearly the following:

- * The Programme aimed at enhancing creativity and self-directed learning. Creative problem-solving and self-study skills would be taught throughout the Programme.
- * The Programme also emphasized leadership training.
- * They would learn through games and in a very relaxed and conducive learning environment.
- * There would be educational excursions and outing.

We suggested parents observe their children in terms of their learning interest, leadership ability and self-confidence. We encouraged them to

discuss with their children what and how well they had learnt. They were welcome to share with us any interesting observation they had made.

By the end of the Programme, we sent an evaluation form to parents. They were requested to fill out and return it to us for analysis.

3) Student Feedback and Comments

These gifted children are old enough to reflect on their learning experience and state their preferences, which are of enormous value for programme designers and teachers. So in the last session we distributed a comment sheet to them. The questions are open-ended and they were free to write whatever they wanted.

Pre-test and Post-test: Analysis of Results

Pre-test and Post-test results were compiled and analyzed. In the pre-test, the range of score was 9 to 25, and the average 16.15 and standard deviation 4.34. In the post-test, the range of score was 23 to 38, the average 29.64 and the standard deviation 4.04. Comparing pre-test and post-test results, students showed a marked improvement on their average score, an increase of 83.53% in a

6-week training.

Table 1.
Pre-test and Post-test Score Comparison

	Max.Score	Range	Mean	S.D.
Pre-test (N = 33)	40	9-25	16.15	4.34
Post-test (N = 33)	40	23-28	29.64	4.04
Improvement rate	-	-	85.53%	-

As for the sub-test group, the improvement is most remarkable in Group A: Self-directed learning and Group D: Science & Knowledge. In the pre-test, the average score was 3.9 and 1.72 respectively. In the post-test it was 9.13 and 5.29, indication substantial progress in these two areas of study.

Table 2.
Pre-test Score Breakdown

	Max. Score	Range	Mean	S.D.
Group A Self-directed Learning	12	1-9	3.9	1.83
Group B Leadership Training	12	2-10	5.3	2.02
Group C Leadership Training	8	2-7	5.21	1.59
Group D Science & Knowledge	8	1-4	1.72	1.19

Table 3. Post-test Score Breakdown

	Max. Score	Range	Mean	S.D.
Group A Self-directed Learning	12	4-12	9.13	2.54
Group B Leadership Training	12	6-12	8.8	1.63
Group C Leadership Training	8	2-8	6.24	1.40
Group D Science & Knowledge	8	4-8	5.29	1.25

The level of difficulty of odd and even number question is studied and found to be very much the same. In the pre-test, the average score for odd and even number questions are 16.06 and 16.23 respectively, indicating no statistical significance. In the post-test, the scores are 30.75 and 28.46. It is thus safe to conclude that the split-half method is employed fairly and it serves well in this evaluation.

Parent Evaluation: Analysis of Results

Responses from parents had been overwhelmingly positive. 93% felt that the programme was very well designed and its content very substantial. Some

Table 4. Split-Half Method: Odd No. - Even No. Comparison in Pre-test

	Odd.No.	Even.No.	Variation
No.of Candidates	16	17	-
Score Range	9-25	10-24	insignificant
Mean	16.06	16.23	insignificant
S.D.	4.65	4.02	insignificant

Table 5. Split-Half Method: Odd No. - Even No. Comparison in Post-test

	Odd.No.	Even.No.	Variation
No.of Candidates	16	15	-
Score Range	26-38	23-36	insignificant
Mean	30.75	28.46	insignificant
S.D.	3.63	4.13	insignificant

praised the diversity and creativity of programme design. Other said that they couldn't learn this in the normal school.

As to parent-child interaction, 83% did discuss the programme with their children. Some children talked it over and over every week. Other children thought they had learnt some useful things/ideas in the programme. As to the

most important thing they had learned:

Curriculum areas	Rate as the most important
Self-directed learning skills	17%
Creativity	7%
Leadership training	34.5%
Science and knowledge	34.5%
No comments	7%

Do their children want to continue? Is the training valuable? All the parents, i.e. 100%, said the training should continue, hopefully outside normal school hours. This invaluable training was too short, they complained, and wished it could last longer.

Student Feedback and Comments : Analysis

Students were asked the following questions and their feedback were:

1) Which content area do you like most?

Week 1 : Energy and Science Public Speaking Skills	19%
Week 2 : Science/Self-directed Learning	3%
Week 3 : Library visits	16%
Week 4 : Field trip	36%
Week 5 : Leadership training HK Hero 2001	16%

Week 6 : Leadership/Brainstorming	6%
Everything	3%

2) Which game do you like most?

* Hong Kong Hero 2001 (leadership)	26%
* Draw your objects (Association)	32%
* As you like it (Brainstorming)	26%
* Others	9%
* Like all the games	3%

3) What learning item can you apply in the future to real-life situations and to facilitate learning?

*Leadership training	42%
*Science and knowledge	16%
*Self-directed learning	36%
*Others	6%

4) Do you want to continue?

Yes	84%
No	9.5%
No of sure	6.5%

We gain a few insights in students' responses. First, quite a significant number, 68% of them specifically mentioned the friends they made here. Some said that the most memorable experience was that they meet children of their calibre. They described their gifted peers as creative, smart and

dynamic and they made very good friends here. One mentioned this was the first time he finally met children that were talented enough to compete with him. In other words, socialization and memorable acquaintance became a by-product of this programme.

Conclusion

The First Hong Kong Enrichment Programme for the gifted in 1990 was a major success for its organizers, and an eye-opening experience for its participants. On the one hand, the Gifted Education Council (GEC) was able to achieve its aim of providing educational enrichment for gifted children in Hong Kong; on the other hand, those who took part in the function had a precious opportunity to receive well-designed training on creativity, leadership, self-directed learning and the pursuit of scientific inquiry.

The project has also enabled us to come into close contact with the local gifted children in a setting specially designed for them. As they are from diverse family background and possess various talents, our experience with them enhances our understanding of the needs and aspirations of gifted children in Hong Kong. Also our communication

with their fathers and mothers has helped us to better appreciate the problems and challenges faced by parents of gifted children, an important area which we think should be looked into more carefully in the future.

GEC has since then launched summer Enrichment Programme to gifted children in Hong Kong each year. In 1993 we offered the programme to over 60 gifted children and in 1994 to over 100 gifted children. The curriculum was improved year after year to help better enhance creativity among gifted children in Hong Kong.

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