

PE Division, Department of Creative Arts and Physical Education,  
The Hong Kong Institute of Education /  
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Conference

Developing Critical Thinking and Creativity-  
An Experience from Hong Kong

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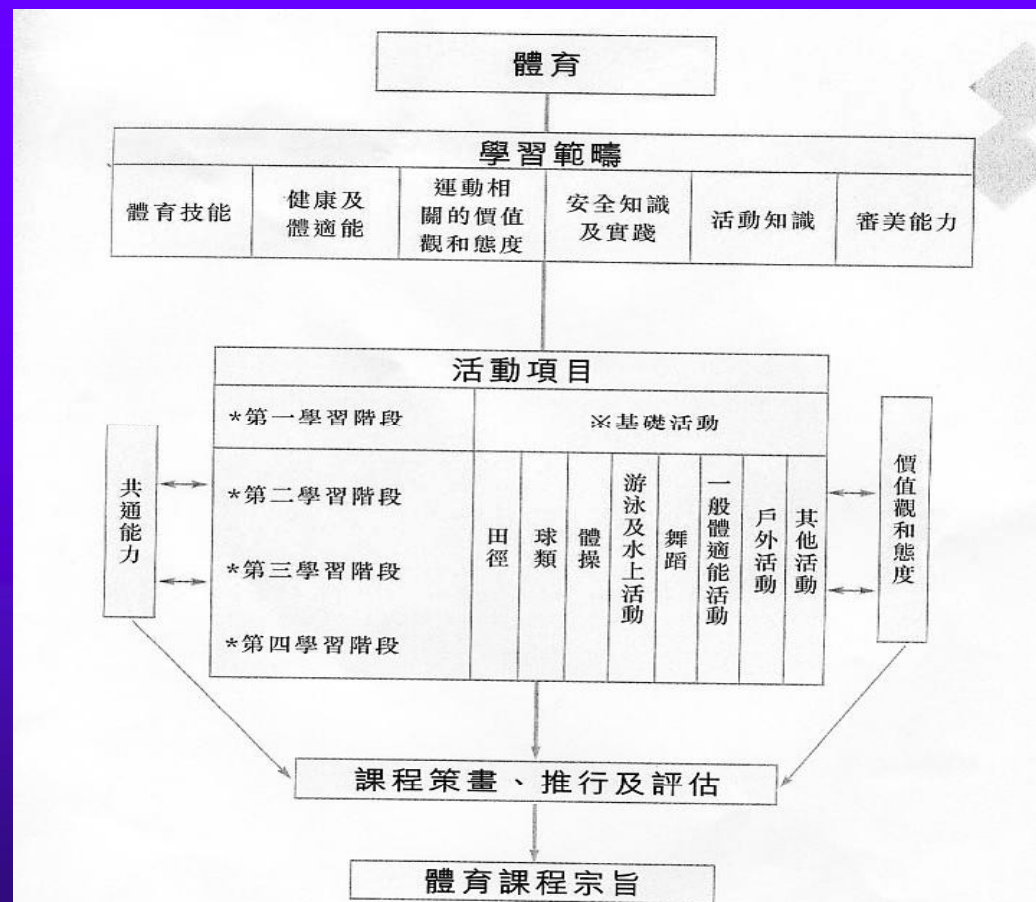
# Objectives

1. To review the current trend of students' learning in a PE lesson.
2. To review the development of teaching approaches
3. To share experience on how to nurture students' critical thinking and creativity through Physical Education.

## Outline

1. PE curriculum framework and generic skills
2. The current trend of students' learning in a PE lesson
3. The development of teaching approaches
4. Concept and practices of Critical Thinking
5. Concept and issues of Creativity
6. Suggested teaching approach/es to develop students' critical thinking and creativity in a PE lesson
7. Conclusion

# PE curriculum framework and generic skills



\*第一學習階段是小一至小三

\*第二學習階段是小四至小六

\*第三學習階段是中一至中三

\*第四學習階段是中四及以上

※基礎活動包括移動技能、平衡穩定技能及用具操控技能。

(CDC, 2002)

# Generic skills

## NINE Generic skills

- a. Collaboration
- b. Communication
- c. Creativity
- d. Critical thinking
- e. Information Technology
- f. Numeracy
- g. Problem Solving
- h. Self Management
- i. Study

# PE focuses on four generic skills

## FOUR Cs

1. Collaboration
2. Communication
3. Creativity
4. Critical thinking

# The current trend of students' learning in a PE lesson

Lean heavily on learning

- Techniques and skills of sports activities

Also practise and acquire

- Games and competitions
- PE knowledge
- Physical fitness

## Learning generic skills ????????

Delivery of PE subject matter plays a key role on the success of a PE lesson. No Matter how attractive of the subject matter is, the lesson is failed and students cannot learn properly when PE teacher deliver it in a messy way.

(Liu, 2006)



# Teaching Approach

How to deliver subject matter is a matter related to teaching approaches. What kinds of teaching approaches that a teacher should adopt to support students' learning of Generic Skills ?

(Liu, 2006)

# Mosston Teaching Spectrum, 1994

The Command Style (命令式)

The Practice Style (練習式)

The Reciprocal Style (互惠式)

The Self-Check Style (自測式)

The Inclusion Style (包含式)

The Guided Discovery Style (導引式)

The Convergent Discovery Style (集中式)

The Divergent Production Style (擴散式)

The Individual Programme Learner's Design (設計式)

Learner's Initiated Style (創造式)

The Self-Teaching Style (自教式)

## Hong Kong context

- Sport-oriented and commanding approach
- Since 1960's, the PE lesson was highly structured with emphasis on the teaching of techniques (CDI, 1990)
- Technique-based approach
  - A survey (Liu, 1994) reported that 92.9% of 144 PE teachers adopted didactic approach to deliver techniques to teach ball games.

## 1. Before 1960 :

- British influence
- No formal PE syllabus
- Teaching style:
  - \* No specific approach
  - \* Army training – command
  - \* Teacher-centred

*Syllabus of Physical Training for Schools 1933,  
Board of Education.*

- Chapter II - The general methods of teaching Physical Education (p.25-31)
  - a. The control of class :
    - \* Voice
    - \* See that all children know exactly what they have to do
    - \* Show interest in the results obtained by children
    - \* Insist on absolute obedience to rules and concrete directions
    - \* keep the class spirit alive.

- b. Progressive Training
- c. When to teach and when to supervise
- d. The organization of the class in groups and teams
- e. General suggestions for training teams and leaders.

Nothing dealing with any teaching approach

But

## Commanding

Some general comments have been made on the use of the voice in the physical Training lesson. *Exercises are carried out in obedience to commands.* This is an essential feature in the development of control and the importance of a good command must be appreciated. A command tells the children what to do and gives them the signal to begin.....

## 2. 1964 – 1975

- British influence
- Sports-oriented
- First PE syllabus : *A scheme of Physical Education for Hong Kong Primary Schools, 1964.*
- No specific teaching approach
- Command style
- Teacher-centred

BUT



# Educational Gymnastics

- Guided discovery style.
- Indirect teaching

*BUT*

Others are in still taught by Command style  
(Athletics, gymnastics, ball games .....etc)

## *In Provisional Syllabus for PE, 1975*

The PE teacher should

- Discard formal drill commands in favour of the more natural teaching manner.  
Performing class control exercise in unison is out of date and totally undesirable.
- Ensure opportunities for a free choice of activity by each individual child rather than teacher-directed class exercises.

- Make full use of observation and questioning which make children understand more clearly *what* they do and *why* they do it, as Physical education ought to be as much a thinking subject as any other.
- Ensure that knowledge is created in a context of self discovery by pupils in which the teacher is a problem poser rather than a problem solver. This can be justified by the need to develop and train pupils capable of creative and inventive thinking.

(P.3)

### 3. 1975 – 1994

- International influence (British & the States)
- Teaching style:
  - \* Command style
  - \* Self-discovery style
  - \* Creative style

## *Movement Education*

### Teaching Methods

Children of all ages are well aware of their capabilities and limitations and therefore seldom attempt activities beyond their ability. *It is important that the teacher should not prescribe set activities but rather provide a framework within which each child can work at his own level of ability.*

Accidents are only likely to occur when children are forced to perform activities which are beyond their achievement level. This does not preclude teacher assistance or spotting if an individual within the class chooses to attempt, or is challenged to attempt, a difficulty. This then implies that the teacher must have sufficient knowledge to be able to assist a child when such situations arise.

*Teacher's Handbook Physical Education (Primary) 1977*

## 4. 1995 onwards

- In 1990's slight changes with introduction of Problem Solving approach, Teaching Games for Understanding (TGfU), Guided Discovery approach.
- Through questioning, students need to think and
  - a. solve their own problems
  - b. make their own decision
  - c. explore their own tasks

## What is TGfU?

- Focus on understanding how to play the game, learning tactics and making appropriate decision (cognitive development)
- Students learn at their own levels and pace
- Techniques are needed when required by different individuals
- Ask students questions during teaching
- website: <http://resources.emb.gov.hk/phyedu/>

# Teaching approach and generic skills

## Self-reflection:

1. At present, what teaching approach/es you adopt to teach a PE lesson?
2. Can these approaches help students to develop their critical thinking and creativity ?
3. If not, how to help your students?
4. Do you need to re-think your teaching approach/es?



## Definition of critical thinking

It is drawing out meaning from given data or statements. It aims at generating and evaluating arguments. It is the questioning and enquiry we engage into judge what to believe and what not to.

(CDC, 2002)

Critical thinking is the ability to “think logically on the basis of useful assumptions; be objective; weigh evidence; evaluate events and ideas critically; think independently; and synthesize information.”

(Buren, 1977)

Ennis (1985) presented a much broader interpretation of critical thinking, defining it “as reasonable, reflective thinking that is focused on deciding what to believe or do.”

Paul & Elder (2006) define that

Critical thinking is that mode of thinking- about any subject, content, or problem- in which the thinker improves the quality of his or her thinking by skillfully **analyzing**, **assessing** and reconstructing it. Critical thinking is self-directed, self-disciplined, self monitored, and self-corrective thinking.

# Concept of critical thinking

1. Critical thinking has three dimensions: an analytic, an evaluative, and a creative component.
2. It is the **systematic monitoring of thought with the end of improvement**. When we think critically, we realize that thinking must not be accepted at face value but must be analyzed and assessed for its *clarity, accuracy, relevance, depth, breadth and logic*.

We recognize that all reasoning occurs *within points of view* and frames of reference, that self reasoning proceeds from some *goals and objectives* and has an *informational base*, that all data when used in reasoning must be *interpreted*, that interpretation involves *concepts*, that concepts entail *assumptions*, and that all basic inferences in thought have *implications*. Because problems in thinking can occur in any of these dimensions, each dimension must be monitored.

## A well-cultivated critical thinker:

1. Raises vital questions and problems, formulating them clearly and precisely.
2. Gathers and assesses relevant information, using abstract ideas to interpret it effectively.
3. Comes to well-reasoned conclusions and solutions, testing them against relevant criteria and standards.

(Paul & Elder, 2006)

4. Thinks open-mindedly within alternative systems of thought, recognizing and assessing, as need be, their assumptions, implications, and practical consequences.
5. Communicates effectively with others in figuring out solutions to complex problems.

(Paul & Elder, 2006)



# To analyze thinking

Identify its

purpose, question, information, conclusion,  
assumptions, implications, main concepts,  
point of view.

# To assess thinking

Check it for

clarity, accuracy, precision, relevance,  
depth, breadth, significance, logic and  
fairness.

## Practice of developing students' thinking skill: Example 1

Logsdon et al (1984) combines Laban's (1971) fundamental movement principles (body, space, effort and relationships) with the mechanical principles of force similar to those taught in elementary science class. Students were primarily interested in answering four basic questions about movement in a PE lesson.

1. What can my body do?
2. Where is my body moving?
3. How is my body performing the movement?
4. What relationships to other people, equipment, or boundaries are occurring, as I move?

This approach provides a carefully articulated body of knowledge as the focus of student thinking.

## Example 2 to develop thinking skills

In a study, Ennis (1991) invited two PE teachers to teach by using various methods , questioning, focusing attention, cognitive involvement to elicit thinking behaviour. It was found that many of the strategies could be grouped within comprehensive categories of deductive and inductive teaching methods.

For example:

Teacher encouraged students to concentrate on the strategies required to be good “interceptors” of objects in game situation.

Teacher: You are beginning to think, and your body is beginning to warm up. Throwers, pass the ball to other throwers. If you are not a thrower, your job is to try to catch or intercept the ball.....Stop! Now, who can tell me some strategies for being a good interceptor?

Student A: Stand behind the catchers and jump in front of them.

Student B: You can jump in front of them at the last second and catch the ball.

Student C: You can follow the throwers around so you can intercept their passes.

Teacher: That is called player-to-player defense. You recognize certain kinds of throws and can intercept the ball because you know what is going to happen. Now let's try our game again and use these strategies to be good interceptors.

## Exemplars (CDC, 2002)

### Key Stage one (P1 – P3)

#### Learners:

- Identify the effects of smoking and alcohol consumption on performance in physical activity and health.
- Understand the causal relationship between risky actions and sports injuries.



## 2. Key Stage two (P4 – P6)

### Learners:

1. Judge the reliability of sports news.
2. Understand the relationship between sports gears and performance.
3. Question the propaganda and appeal of commercial fitness plans for obese people and distinguish their practicability.

## Key Stage Three (S1-S3)

### Learner

1. Make judgements on the issue of drug abuse related to sports.
2. Examine the benefits of sports participation to individuals, and predict the associated outcomes.
3. Study different fitness plans, understand personal needs and make appropriate choices.

## Key Stage Three (S1-S3)

### Learner

1. Analyse different opinions given by different people on sports matters, distinguish the myths and facts, and make personal judgement.
2. Analyse the values and feasibility of organizing major international sports events in Hong Kong, and present their views through debates and project works.

## What is Creativity ?

It is a complex and multifaceted construct. Within the individual, creative behaviour is the result of a complex of cognitive skills, personality factors, motivation, strategies and meta-cognitive skills. A person's creative performance may not correspond to his/her developmental stage.

(CDC, 2002)

Morgan (1953) listed the universal factor for creativity to be novelty. Novelty requires originality and newness. There must be something fresh to the idea.

Sternberg and Lubert (1995) proposed that novelty must be coupled with appropriateness for something to be considered creative.

Although creativity can be seen in the products, it can also be considered in terms of the process. Weisberg (1986) proposed that creativity can be defined by the novel use of tools to solve problems or novel problem solving.

Ward, Finke, and Smith (1995) defined creativity in the products made, the differences in people, the pressures that motivate, and the processes behind creativity.

While there is debate over the guidelines for judging creativity, two things remain: novelty and appropriateness. These two things may be viewed in the product, the tools, the people, the motivation, and/or the processes, but these are the two necessary ingredients.



## Mechanism behind creativity

Bogen & Bogen, (2003) cited that creativity involves four consecutive stages:

(1)Preparation, (2) incubation,  
(3) illumination, and (4) verification.

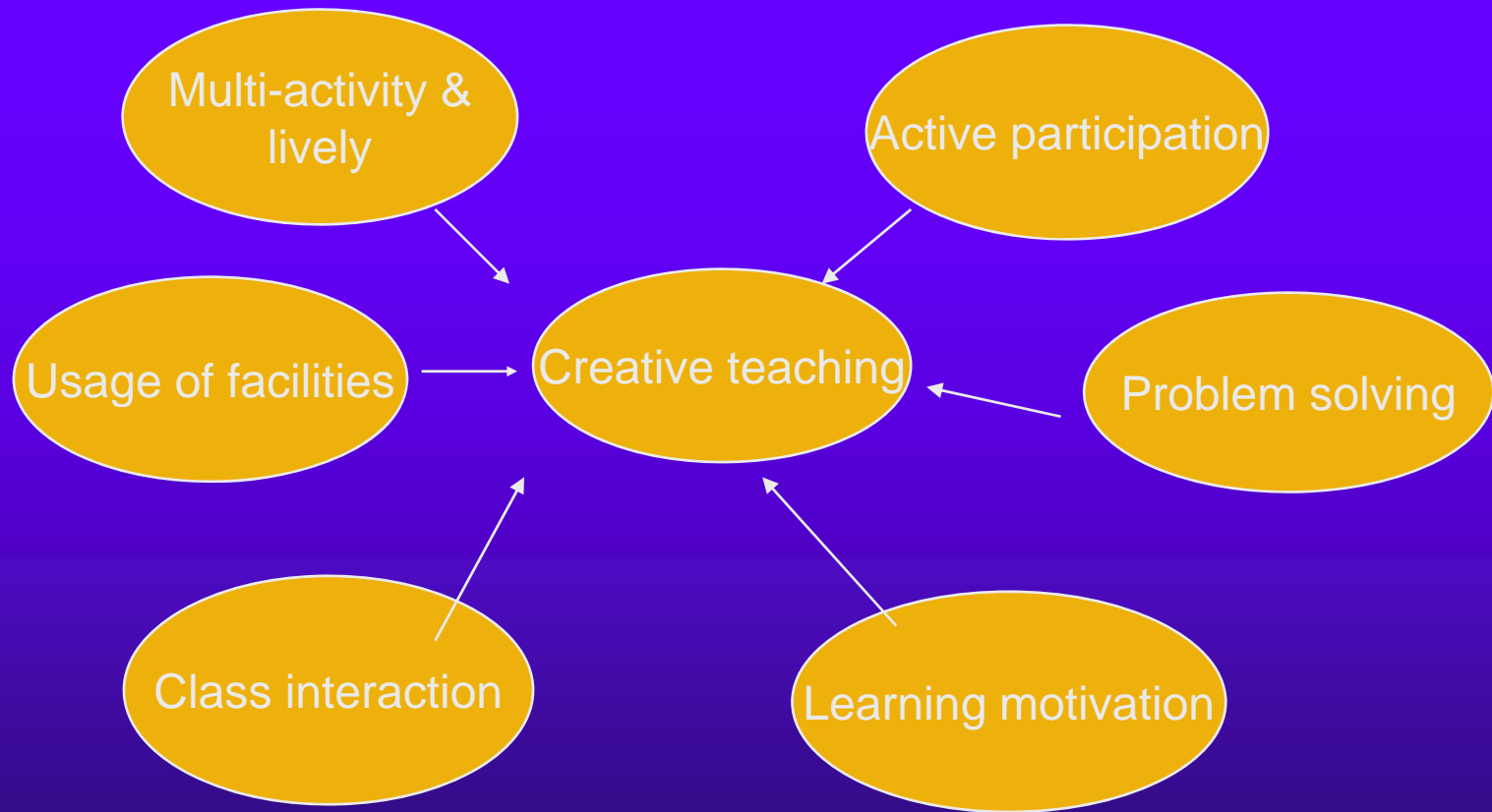
During preparation, the person absorbs information. During incubation, the information settles, During illumination, the solution manifests itself to the person, and during verification, the final product is created.

## Practices to develop creativity

McIntyre (1993) suggests that creativity can be encouraged through students doing various creative exercises. The format for these exercise are done in 5 steps.

1. the exercise or problem is presented to the class.
2. Students are to create solutions or ideas about the exercise.

3. The students form into groups to consolidate and discuss solutions developed in the second step.
4. Decisions are made by the group as to what the best solution is,
5. The groups present their solution to the class, and the class discusses the solutions presented.



( Ormrod, 2000 )

1. Understand pupils' learning needs.
2. Create learning atmosphere.
3. Using different teaching approaches
4. Maximize using sports facilities & equipments
5. Make full use of creative opportunities during lesson
6. Use cooperation learning & competition.
7. Using appropriate questioning skills.
8. Encourage pupils' to try

## Exemplars (CDC, 2002)

### Learners:

- ◆ Create movement sequences in educational gymnastics
- ◆ Transfer throwing skills to the actions of spiking and smashing.
- ◆ Practise “mental rehearsal” on shooting in basketball to improve their performance.
- ◆ Enhance aesthetic sensitivity through watching gymnastics and dance performance.
- ◆ Compose slogans for the cheering teams and design the programme for the sports days.

# Suggested teaching approaches to develop students' critical thinking and creativity

1. To teach through questions which can be organized into four types
  - a. Recall questions require a memory-level answer  
(Where should your eyes be looking when you are dribbling?)

b. Convergent questions require reasoning and problem solving

(What should you do if the defender steps out to guard you on a pick and roll?)

c. Divergent questions

(What strategies would you suggest when you are three points ahead with 2 minutes left in a game?)

d. Value questions

(How do you react when you are fouled but the referee doesn't call it?)



## 2. To teach in small group

- Cohen (1994) defines small group formats as “students working together in a group small enough so that everyone can participate on a task that has been clearly assigned.”
- Group members have to interact to decide how the task assigned by the teacher will be accomplished and who will do what.

- Students will have to listen, ask questions, criticize, disagree and make collaborative decisions.

This process enhances both thinking and their collaborative social skill

### 3. To teach in peer tutoring format

- Tutoring is very useful for achieving the goals of guided practice and creating conditions in which students can use higher-order thinking skills to solve problems (Siedentop & Tannehill, 2000)
- When students are in two or three in a group, each of them should know their roles as tutors or tutees. The tutors have to have the skills to teach and tutees must work cooperatively.

- Tutors must be able to evaluate and control their partner's work.
- The teacher's role during the lesson is to supervise the tutoring process, providing feedback and encouragement to both tutors and tutees.

## Conclusion

1. To nurture students' critical skills and creativity, it is envisaged that this will provide an impact to the teaching approach adopted by PE teachers as well as PE teacher training programme of the institutions.
2. PE teachers will shift from the didactic teaching approach to different new approaches (TGfU, deductive and inductive methods...) to highlight the critical thinking and creativity in a PE lesson.

Thank you  
for your Attention