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Singapore teachers and their knowledge of teaching learning and thinking

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Introduction

Educators abroad are often impressed by our teachers' knowledge in the up-to-date research findings on teaching and learning. Many of us had opportunities to share the multi-media teaching materials used by our Singapore teachers at overseas conferences and visits. The presentation of our secondary science teaching materials at the annual ASCD Conference held in Baltimore early this year aroused a lot of interest. Educators were impressed by the variety of teaching strategies used by our teachers. International reports on our science and mathematics teaching materials have been good. The discussion on our history teaching materials were very well received at the Ninth Asian Workshop on Child and Adolescent Development Conference held recently in Brunei. The Straits Times on November 9, 1997 reported on the visit of the Singapore Minister of Education in California. Among some of things discussed on mathematics teaching with the California's city's State Board of Education, the Singapore Minister of Education said "They had very nice things to say about our textbooks. They requested a complete set , which will be sent to them."

In Singapore, each teacher prepares his/her own lessons based on a syllabus provided by the Ministry of Education. Each prepares her/his teaching materials from a variety of sources. These materials cater best to individual teacher's own students' specific needs and most suitable to individual teacher's own teaching style. From the available books in the market, the teacher

chooses a most appropriate one and adopts it as a textbook for his/her students.

Teaching materials used by our Singapore teachers reflect that they integrate many models/programmes in their lessons and are selective in using effective teaching strategies. Some of the models/programmes used by our teachers are:

- a. Bloom's Taxonomy: Cognitive Domain
- b. Cooperative Learning (Johnson and Johnson)
- c. CoRT (de Bono)
- d. 4MAT (Mc Carthy)
- e. Mastery Teaching (Hunter)
- f. Tactics for Thinking (Marzano and Arredondo)
- g. Brain Researched-Based Practices (Pat Wolfe)
- h. Teaching with Dimensions of Learning (Marzano)

In history, the most commonly adopted textbook by teachers is produced by the Curriculum Institute of Singapore. This paper examines some of the lessons used by the teachers based on the history instructional materials produced in 1994 by the Curriculum Institute of Singapore. It is intended to show with relevant examples how the various models/programmes are integrated into lessons and how various strategies are used by teachers.

The Lessons

Lessons on each topic consists of several sections:

(Note: The letter in bracket refers to the instructional model and programme as listed above.)

Warm Up

This section aims to help students realise the value of learning a topic as well as to arouse their interest in the topic(e). This is often done by providing a concrete experience or by linking content to be learned to students' experience(d). Opportunities are often provided for students to construct meaning on what they are going to learn (h).

Examples.

1. Trigger activity.

History of Modern Singapore Sec 1 Chapter 1 History and Us. Teacher's Guide p2.

Pupils are asked to think of events they can remember. This activity introduces the concept of timeline. Linking pupils knowledge/experience to the content to be learned.

2. Linking pupils knowledge/experience to content to be learned.

History of Modern Singapore Sec 1 Chapter 7 Trade and Growth of the Port. Teacher's Guide p50.

Pupils in small groups are to answer the following questions:

“What are some of the goods Singapore sell to foreign countries?

What are some of the goods Singapore buys from foreign countries?

What will happen to Singapore if foreign countries refuse to buy and sell goods to Singapore?”

The above examples link pupils' knowledge to the new knowledge to be acquired by the pupils. This makes the new knowledge meaningful.

Teach Content

This section helps students to acquire new information and understand concepts. They learn to organise and store knowledge (h,g). There is a need to make use of strategies to get students involved in the learning and not merely receiving information. Audiovisual materials are used to explain ideas and concepts. Laser discs incorporating stills, pictures and motion pictures are convenient to use.

Examples: Cooperative learning strategies (b), content that involve students making use of a variety of senses (games, songs, raps, etc.) (g) (d); deep processing (f), concept attainment and development strategies (f), etc. Students also learn SQ3R study skill.

1. Cooperative learning strategies

a. Reciprocal Teaching

History of Modern Singapore Sec 1. Teacher's Guide p13

Each pupil in groups of three examines one piece of evidence in the text on early Singapore. After understanding the text, each in turn has to teach the others in the group and together they carry out an exercise.

2. Deep Processing

History of Modern Singapore Sec 1. Teacher's Guide p16

Making use of various senses so as to remember better. Pupils learn to link mental pictures, emotions and physical sensations with what they

a. read. Pupils are asked to close their eyes and imagine to be Temenggong meeting Raffles for the first time.

b. Poetry is also useful to depict emotion and feeling of a situation.

History of Modern Singapore Sec 1 p165.

A verse by Michiko Ogina describing the time the atomic bomb fell on Nagasaki.

3. Mnemonics

History of Modern Singapore Sec 1. Teacher's Guide p 15.

Mnemonics in the form of a word, phrase, rhyme, etc help pupils to remember a set of linked ideas.

Summarising Content

This part involves pupils to process large chunks of information and organise them into main ideas. In this way they can see the whole picture. Mind mapping, graphic and pictorial representations of information (h), system for storing information (mnemonics, rhyming pegword, number picture (f, g) are used. Subsequently they can elaborate and rehearse what they have learned so that this information can be stored in the long term memory. Discussion with peers, oral presentation or written practices are useful forms of rehearsal.

Examples:

1. Mind Mapping

History of Modern Singapore Sec 2 (Express). Activity Book p82.

2. This a skill to enable pupils to pick out main points in the text and show how they are related and then put it into a graphic form so as to remember better.

3. Pictorial representation.

History of Modern Singapore Sec 1 (Express). Activity Book p34.

Pupils carrying out this activity learn the basic steps of diagramming a summary.

Build Skills

This section helps students refine their knowledge (h) and to integrate application and experience (d). They are provided with activities to use knowledge meaningfully. Students carry out critical and creative thinking activities (a, h). It is crucial that students should not be put down when carrying out these activities. They must be encouraged to say what they think. (Dignifying Errors, (e) is a teaching strategy which teacher can adopt.)

Examples: Comparing (h), Classifying(h), Decision Making(h), Plus Minus and Interesting (c), Consider All Factors (c), etc.

1. Compare and Contrast

History of Modern Singapore Sec 1 Teacher's Guide p 32

Compare the present population situation in Singapore to that in the 19th century.

Compare the reasons and means for increasing the population between these periods.

2. Discerning Fact from a statement of Opinion (f).

History of Modern Singapore Sec 1 (Express) p86. Appendix 7.

Pupils are to look out for words and phrases which are used to influence the readers. Pupils must check the facts. Pupils to look out words the modify meaning such as 'ought to , must, in my opinion' and adjectives and adverbs. These are indications of opinions.

3. Analysing Perspectives (h)

History of Modern Singapore Sec 1 (Express). Activity Book p104.

Pupils are given source materials which hold contrasting opinions. They are to examine different perspectives, analyse and evaluate these materials and link them to what they have learnt in the textbooks. They then have to take a stand on an issue and give reasons to support the stand.

4. CoRT Tools (PMI) (e)

History of Modern Singapore Sec 1. Teacher's Guide p119.

Pupils work on the 'Thinking of Merger'. In a brainstorming session they are encouraged to think of the possible Plus points, the possible Minus points and the Interesting points. After this exercise, they have to compare these points they have raised with the economic and political reasons for joining Malaya.

5. Problem Solving (h)

History of Modern Singapore Sec 1. Teacher's Guide p127.

Pupils are to identify the problems related to the various aspects of building a nation, discuss the steps to solve the problem and the outcomes of action taken.

6. Decision Making (h)

The Ancient History of India, Southeast Asia and China Sec 2. (Express) Activity Book p35

Pupils are led through a process to decide whether the imperial examination in China should be open to all scholars. The process consists of :

1. Consider all the factors
2. Be clear about the objectives or main aims.
3. Think of all the possible effects (good and bad).
4. Make a decision and state why such a decision is made.

Follow Up

This section allows pupils to read beyond the text and do projects independently and creatively.

1. Project work

History of Modern Singapore Secondary 1. Teacher's Guide p10.

Stonehenge
The Rosetta Stone
Ancient City of Troy.

2. To make field trip to the Singapore River and report findings of evidence of trade.

History of Modern Singapore Secondary 1. Teacher's Guide p53

Students have a chance to gain first hand experience and to integrate knowledge with application. They have an opportunity to show their initiative in discovering new ideas and reporting them creatively.

Comments

The examples cited above are confined to history. Actually in examining lessons used by teachers in other subjects are equally enlightening. Teachers in Singapore are fortunate to have many opportunities to continue learning. Workshops , conferences and seminars are conducted by many agencies besides the Ministry of Education and the National Institute of Education. Knowledge in teaching and learning are growing in leaps and bounds. There are many innovative ways which teachers are using to keep up-to-date. With their increasing knowledge, their lessons will be even more interesting and effective.

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Editor's Note: Many teachers have attended workshops conducted by ASCD (Singapore).ASC D has brought in many prominent educators. To name a few: the Johnson brothers, Bernice Mc Carthy, Madeline Hunter, Pat Wolfe and Marzano.