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INDONESIAN A.C.E. Newsletter

Southern Cross EDUCATIONAL ENTERPRISES

Critical Thinking Through Higher Order Thinking Skills.

Memorizing is Critical Thinking?

It is tragic for families after having schooled their children for twelve years to find their education time emphasized rote learning rather than developing critical thinking skills. Many think that knowing more is learning. Such is the case in Indonesia.

We need to teach children to develop higher order thinking skills such as those first defined by Bloom's Taxonomy. Thinking skills can be developed through academic and non-academic activities.

'Indonesia is arguably Asia's least well-educated country. . . Across the board, rote learning is emphasized over the development of critical thinking skills.' **(Indonesia behind the learning curve, Bill Guerin, Asia Times Online, 31st Aug. 2006)**

ICCE is comparable to Cambridge

Students in Indonesia who use the A.C.E. curriculum materials will be able to access an International Certificate of Christian Education (ICCE) that is comparable to Cambridge A Levels.

In 2011, the ICCE Advance (Academic) Certificate, was independently assessed by the National Recognition Information Centre to the United Kingdom (UK NARIC) with result that "this certificate may be considered to be comparable to the Cambridge International Examinations Advance Level standard'. (UK NARIC letter, 21 Dec 2011)

Education in Indonesia

Many families in Indonesia do not realize that the education system in this country is not helping their children.

Rote Learning

Most schools use the National curriculum that is accredited by the Education Department. Many take comfort that because these schools are accredited, their children will have a good education. Unfortunately, they do not realize that Indonesia's education system emphasizes rote learning.

Teachers in Indonesia

Worse, most teachers in Indonesia have themselves gone through the same education emphasizing rote learning. Can they now teach students critical thinking? Do they know the difference between critical thinking and rote learning? Such is the real challenge facing Indonesia.

ICCE International Certificate of Christian Education

Rote Learning in Indonesia

As Newsweek (Sept.6, 1999) pointed out, "Asia's elite, of course, always knew it takes a lot more than memorization to make it in the modern world. That's why they sent their own children to school in the West."
(Elliot, 1999)

The Making of Indonesian Education:
An Overview on Empowering Indonesian Teachers

Rote learning plays a large part in Indonesian schools because it is believed to be able to transfer knowledge to students through memorisation. . . . Even though education practitioners in Indonesia criticise the use of excessive rote learning and attempt to eliminate it (Azra, 2002), such methods prevail. (**Teuku Zulfikar,** *Monash University,* Journal of Indonesian Social Sciences and Humanities Vol. 2, 2009, pp. 13–39)

The EFA 2000 Assessment: Country Reports - Indonesia

"Due to this condition the practice of education in developing countries including Indonesia, learners are mostly experienced boring learning process through rote learning where the teacher or/and tutors use to teach in limited time and limited/poor educational environment." (Ministry of Education & Culture 1999)

Teaching Practices in Asia – The Pervasiveness of Rote Learning

"The dominant instructional practice in Indonesia was explanation, with an emphasis on rote-learning to be reproduced in examinations. Teachers are viewed as powerful know-alls, responsible for student learning. Students are seen as know-nothings who must absorb knowledge from teachers and obey them." (Jonathan E.D. Richamond ,International Education Journal, 2007, 8(1), 1-29.).

The Long and Winding Road to Improving Quality Education in Indonesia

Indonesian educators and commentators have long slammed the country's school system for placing more emphasis on rote learning than creative thinking, which has resulted in Indonesia consistently being placed at the bottom on international standard tests, even compared to other ASEAN member countries let alone western developed countries. (The Establishment Post on 22 Mar 2013 by Dewi Kurniawati.)

The Student's Progression of *Critical Thinking**

Follow Ace as he learns about the steamboat invention in one of the American History PACEs in School of Tomorrow's Social Studies curriculum. This is an example of how School of Tomorrow incorporates all 6 steps of critical thinking within its material.

KNOWLEDGE
In the early 1800s, Mr. Robert Fulton built the famous steamboat, the Clermont.

COMPREHENSION
The steamboat invention introduced a new concept to water transportation.

APPLICATION
As America built a canal to connect New York City with Lake Erie, the steamboat would prove valuable in traveling the canal transporting supplies.

ANALYSIS
Until this time, clipper ships, relying on wind to propel them, were the leaders in water transportation. Windless skies could strand supply loaded ships for days.

SYNTHESIS
The steamboat's consistent method of water transportation improved commerce within the country. Steam replaced wind in fueling boats to transport supplies.

EVALUATION
God enabled men to invent the steamboat. It transported supplies to growing inland cities. This invention helped young America become established more quickly.

KNOWLEDGE
To remember facts and details
list
recognize
name
tell

COMPREHENSION
To understand the main idea or purpose
explain
discuss
summarize
restate

APPLICATION
To use information in a concrete activity
demonstrate
practice
illustrate
dramatize

ANALYSIS
To break down material into parts to understand the structure
compare / contrast
classify
investigate
question

SYNTHESIS
To put parts together to form something new
compose
design
invent
produce

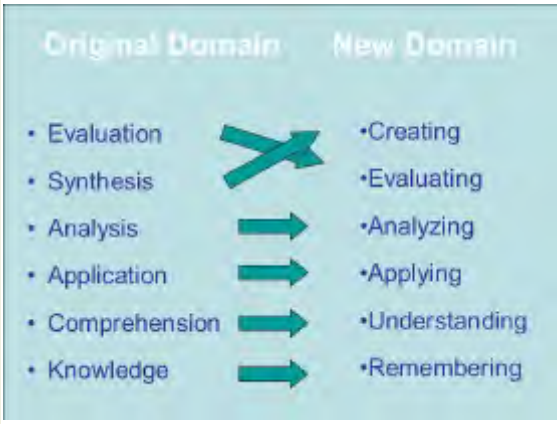
EVALUATION
To judge the value of material based on criteria
recommend
decide
judge
select

The School of Tomorrow curriculum uses the above verbs in assigning learning activities at each level, thus encouraging the student's development of critical thinking skills.

* Critical Thinking: Developing the ability to think creatively and independently within a Biblical format with a view to reaching sound conclusions which are based on all facts and to solving problems creatively.

School Of Tomorrow is A.C.E. brand in USA.

(Extract from Parent Accelegram, 1987)



Bloom's Revised Taxonomy

Lorin Anderson, a former student of Bloom, revisited the cognitive domain in the learning taxonomy in the mid-nineties and made some changes, with perhaps the two most prominent ones being, 1) changing the names in the six categories from noun to verb forms, and 2) slightly rearranging them. (Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintrich, Raths, Wittrock, 2000; Pohl, 2000).

"Guiding Learners to Using Higher-Order Thinking Skills"

As an educator, it is important to ask learners to use not only lower levels of thinking such as factual and conceptual knowledge, but also abstract types of thinking that require procedural and metacognitive knowledge. (This is, in essence, thinking about thinking).

From lower levels of thinking . . .

Questions and objectives involving simpler types of thinking are ones with answers that are generally memorized instead of learned. Although it is appropriate for some pieces of information to be memorized, richer understanding emerges when one can analyze, evaluate and create new thinking based on those bits of information.

Towards higher levels of thinking

Engaging in intellectually stimulating activities and asking more thought-provoking questions at appropriate times during a lesson is an art that can be developed by both novice and experienced educators. Taxonomy of Learning Domains by Benjamin Bloom, an American educational psychologist, is a popular framework of how people learn.

Asking more thought-provoking questions

According to Bloom, the development of intellectual skills is movement through a series of levels, from the simplest to the most complex. Learning often progresses upward through the levels, but it may skip around or cycle back – for example, analysis of a moral dilemma may bring up questions requiring additional factual answers before the analysis can proceed.

(Above is an extract from Guiding Learners To Using Higher-Order Thinking Skills by Stephanie Mardigian)

Critical Thinking is incorporated in the A.C.E. program

A.C.E. has developed its educational materials with a view to providing an excellent education for children. Incorporated into each PACE are developmental elements designed to build and to enhance a child's critical thinking skills. These elements include: rote memory, comprehension, application, analysis, evaluation and creation. Developed in order, these six elements form a building block approach to excellent education.

Most proponents of developing critical thinking skills recognize these six elements. Benjamin Bloom, in his taxonomy, identifies them as six steps to mastery learning. Sometimes these elements are termed higher thinking skills, cognitive skills or creative thinking skills.

A.C.E. defines the term "critical thinking" in relation to the child's ability to think creatively and independently within a Biblical framework. This means that the child is able to reach sound conclusions based upon all the facts available, to solve problems creatively.

For forty-four years, A.C.E. has maintained that young children think primarily in concrete rather than abstract terms. Consequently, the PACE structure and activities in lower grade levels present exercises requiring simpler forms of critical thinking.

As the student progresses through the curriculum levels, he is presented with increasingly challenging activities. These more complex exercises further develop his critical thinking abilities. Both academic and spiritual truths are treated in this manner.

Every PACE addresses the development of critical thinking skills. Foundationally, rote memory is the essential starting block. For this reason, lower level PACEs provide frequent opportunities for the child to memorize.

Comprehension skills are exercised by means of math exercises, fill-in-the-blank questions, and objective-answer questions. **Application skills** are developed through the use of word problems, puzzles, science projects and essay questions.

Analytical skills are challenged by the use of mazes, examination of prose and poetry, and geometric proofs. Analytical activities can be readily identified by words and terms such as "think", "best answer", "answer may vary", "from what you have read" and "the answer may not be obvious." **Evaluation thinking** is also seen throughout the PACEs as students are asked to assess and critique the topics of discussion.

All research projects, outlining, higher math, science concepts and lab reports provide practice in synthesis. Activities in Student Convention provide many opportunities to develop, design and create projects from scratch. **Creating** is the highest thinking skill.
(Extracts from Parent Accelegram 1987)

A.C.E. contacts in Indonesia:
SCEE website : www.scee.edu.au
SCEE Indonesian Coordinators: Janto & Ester Djaja
SCEE Indonesian contact: janto.sceeindonesia@gmail.com
SCEE Indonesian office:
Jalan Raya Kencana Loka No.3, Sektor 12, BSD, Serpong, Tangerang Selatan, Indonesia 15318. Telp: 021 75876705.

Level 1: REMEMBER

Knowledge/remembering is the initial step of using one's intellectual abilities. It involves the least amount of cognitive stimulation as the title suggests, the learner is simply committing facts to memory so that they may be recalled later. Questions to be answered from memory can be important at the beginning of a discussion, which can then move on to richer questions. Potential activities at this lower level might include making a timeline of events or listing all the particulars in a story.

Level 2: UNDERSTANDING

At this level, individuals use the knowledge they have attained in order to construct meaning. They demonstrate their understanding of the facts learned at the previous level. At this stage a person can restate something in his own words instead of giving a textbook definition. Possible activities include role-playing a story or painting a picture of a favorite part of a story.

Level 3: APPLICATION

Once learners have "the facts" and are able to construct their own meanings, they can begin to use their understanding and apply the knowledge they have acquired. They are able to explore and experience the possibilities of using information they now comprehend. Potential activities at this level include taking photographs to illustrate a concept and making a diorama to illustrate an important event.

Level 4: ANALYZING

In analyzing an individual must break down material that they have learned into basic parts. This can lead to discovering reasons why something has happened or determining how those basic parts are inter-related. For classroom activities, an educator could have students study an icon in terms of its color or make a chart, such as a flow chart or family tree, to show relationships within the material.

Level 5: EVALUATING

After analyzing a topic, a person can develop and defend an opinion, making judgments based on a set of criteria and determining the validity of statements or ideas. Evaluating is essentially answering the question "Why?"

For example, an educator may ask questions such as, "Why might you choose to use the Ten Commandments as your guide to living a more holy lifestyle instead of some other set of rules?" For activity, organize a debate on a current and controversial issue, assigning one half of the class to each side of the issue. Have the teams prepare their case and then defend their stance. Another activity could be making a list of ratings or priorities.

Level 6: CREATING

The final step in allowing a learner to use higher-order thinking skills is creation. To create means to develop a new idea or model. A creation – of whatever kind – can demonstrate that the learner has a solid, comprehensive grasp of the lower-order thinking skills associated with the topics.

The more often an educator encourages learners to use higher-order thinking skills, the more familiar the habits of thoughts become, and the more the learners come to expect such questions and activities in class. Asking questions such as these shows learners that the educator believes they have the capability of reaching greater intellectual heights.

("Guiding Learners to using Higher-Order Thinking Skills" by Stephanie Mardigian)