السادة الزملاء الأعزاء

تحية طيبة وبعد...

في إطار تطوير المناهج والجهود التي تبذل في مشروع الجودة، مرفق بعض الأفكار عن مهارات التفكير والتي من المفترض أن تضمن المناهج تطبيقاتها وكذلك أيضا بعض التعريفات الخاصة بمهارات التفكير.

برجاء التكرم بالاطلاع وأمل أن تتوسع في وضع مثل هذه الاعتبارات عند تدريس المناهج بالبرامج الدراسية المختلفة.

وتفضّلوا بقبول خالص مودتي

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What are thinking skills?

Thinking skills are not mysterious entities existing somewhere in the mind. Nor are they like mental muscles that have a physical presence in the brain. What the term refers to is the human capacity to think in conscious ways to achieve certain purposes. Such processes include remembering, questioning, forming concepts, planning, reasoning, imagining, solving problems, making decisions and judgments, translating thoughts into words and so on. Thinking skills are ways in which humans exercise the sapiens part of being homo sapiens.

A skill is commonly defined as a practical ability in doing something or succeeding in a task. Usually we refer to skills in particular contexts, such as being 'good at cooking' but they can also refer to general areas of performance, such as having a logical mind, good memory, being creative and so on. A thinking skill is a practical ability to think in ways that are judged to be more or less effective or skilled. They are the habits of intelligent behaviour learned through practice, for example children can become better at giving reasons or asking questions the more they practice doing so.

If thinking skills are the mental capacities we use to investigate the world, to solve problems and make judgements then to identify every such skill would be to enumerate all the capacities of the human mind and the list would be endless. Many researchers have attempted to identify the key skills in human thinking, and the most famous of these is Bloom’s Taxonomy (see Fig 1).

Bloom’s taxonomy of thinking skills (what he called ‘the cognitive goals of education’) has been widely used by teachers in planning their teaching. He identifies a number of basic or ‘lower order’ cognitive skills - knowledge, comprehension and application, and a number of higher order skills – analysis, synthesis and evaluation. The following are the various categories identified by Bloom and processes involved in the various thinking levels.

**Bloom’s Taxonomy** (Source: Bloom & Krathwohl 1956)

**Cognitive goal -------------------------- Thinking cues**

1 Knowledge -------------------------- Say what you know, or remember, describe, (knowing and remembering) repeat, define, identify, tell who, when, which, where, what

2 Comprehension ---------------------- Describe in your own words, tell how you feel (interpreting and understanding) about it, what it means, explain, compare, relate

3 Application ------------------------ How can you use it, where does it lead,
apply (applying, making use of) what you know, use it to solve problems, demonstrate

4 Analysis ------------------------- What are the parts, the order, the reasons why, (taking apart, being critical) the causes/problems/solutions/consequences

5 Synthesis ------------------------ How might it be different, how else, what if, (connecting, being creative) suppose, put together, develop, improve, create your own

6 Evaluation ----------------------- How would you judge it, does it succeed, will it (judging and assessing) work, what would you prefer, why you think so

You could plan or analyse many learning activities in terms of the above categories. For example when telling a story, a teacher might ask the following kinds of questions,

1 Knowledge What happened in the story?
2 Comprehension Why did it happen that way?
3 Application What would you have done?
4 Analysis Which part did you like best?
5 Synthesis Can you think of a different ending?
6 Evaluation What did you think of the story? Why?

Bloom’s taxonomy built on earlier research by Piaget and Vygotsky that suggested that thinking skills and capacities are developed by cognitive challenge. Teachers need to challenge children to think more deeply and more widely and in more systematic and sustained ways. Or as Tom, aged 10 put it: ‘A good teacher makes you think ... even when you don’t want to.’ One way in which you, as a good teacher, can do this is by asking questions that challenge children’s thinking.
Bloom's Digital Taxonomy

Key Terms
- Creating
  Verbs: Designing, constructing, planning, producing, inventing, devising, making, programming, filming, animating, blogging, video blogging, mixing, re-mixing, wiki-ing, publishing, videocasting, podcasting, directing, broadcasting
- Evaluating
  Verbs: Checking, hypothesising, critiquing, Experimenting, judging, testing, detecting, Monitoring, blog commenting, reviewing, posting, moderating, collaborating, networking, refactoring, testing.
- Analysing
  Verbs: Comparing, organising, deconstructing, attributing, outlining, finding, structuring, integrating, mashing, linking, validating, reverse engineering, cracking, media clipping
- Applying
  Verbs: Implementing, carrying out, using, executing, running, loading, playing, operating, hacking, uploading, sharing, editing
- Understanding
  Verbs: Interpreting, summarising, inferring, paraphrasing, classifying, comparing, explaining, exemplifying, advanced searches, Boolean searches, blog journaling, twittering, categorising, tagging, commenting, annotating, subscribing.
- Remembering
  Verbs: Recognising, listing, describing, identifying, retrieving, naming, locating, finding, bullet pointing, highlighting, bookmarking, social networking, social bookmarking, favouriting/local bookmarking, searching, googling.

HOTS
Higher Order Thinking Skills

LOTS
Lower Order Thinking Skills

COMMUNICATION SPECTRUM
- Collaborating
- Moderating
- Negotiating
- Debating
- Commenting
- Net meeting
- Skyping
- Video conferencing
- Reviewing
- Questioning
- Replying
- Posting & Blogging
- Networking
- Contributing
- Chatting
- E-mailing
- Twittering/Microblogging
- Instant messaging
- Texting