

***For the Implementation of a Curriculum
Based on Metacognition***

**HAMZAOUI Hafida
(Université de Tlemcen)**

The present paper puts forward the objectives of this curriculum (that can be applied to general education as well as to university education) highlighting the different criteria to be considered in its development (i.e. the types of strategies to be taught and how they should be incorporated in instruction), and providing a framework for learning strategy instruction.

Many researchers highlight the high proportion of educational failure among Algerian pupils and students revealed namely by national examination results (Mortad, 2000; Taouinat, 2000; Ourghi, 2002). In fact, this is largely attributed to the curricula's failure to raise learners' awareness on how the learning process takes place and the development of effective learning strategies to cope with learning difficulties. In effect, INRE (1999, Institut National de Recherche en Education) observes the lack of this important component in the different syllabuses used in pre-university education, and recommends a change in these syllabuses that would put "the learner at the centre of any pedagogic undertaking" and

use “the pedagogy of discovery based on problem solving and metacognition”(p.51)¹.

Learning to learn has never been cultivated in the Algerian pupil from early schooling to university leading him to never take responsibility for learning and wait for assistance. Real barriers are encountered by this learner at university when his cognitive abilities do not allow him to cope with higher education. Being involved in a continual problem-solving task, but not possessing the necessary cognitive skills he will not assume his role of university student and will look for a way to help him cope with this situation. He, therefore, will reach a consensus with teachers satisfying both parts with teachers dictating lectures and him passively writing, feeling at ease with this type of instruction made of knowledge telling and finally pleased by the examination-oriented teaching. Unfortunately, this practice will negate even more the learner’s cognitive abilities and produce a student unable of solving problems effectively, arguing convincingly, reasoning impartially and ultimately undertaking research efficiently. However, if one considers the rapid change in science and technology in the world, it seems imperative that our students be equipped with skills and strategies to be able to learn more efficiently and self-direct their endeavours towards the success and development of our society. For this reason an educational change seems necessary. But what kind of change?

¹ Il ne faut pas perdre de vue que l’apprenant est au centre de tout projet de formation. Il est donc conseillé de privilégier la pédagogie de la découverte fondée sur la résolution de problèmes et la métacognition.

1. For the Implementation of a Strategy-based Curriculum

We tend to agree with Holec (1995:264) when he states:

To teach the learner to learn, that is to enable him to carry out the various steps which make up the learning process, is considered as the best way of insuring that learning takes place.

Indeed, learning how to learn, developing a repertoire of thinking processes which can be applied to solve problems should be a major goal of education. It is important, then, to have a new educational approach that would focus on the cognitive and metacognitive growth of the learner by integrating learning strategy training (i.e., the teaching of specific actions, behaviours, steps, or techniques used to facilitate learning and improve performance) besides content teaching starting from the primary school to higher education. This has been recommended by many researchers and educationalists, (Holec, 1987; O'Malley, 1987; O'Malley and Chamot, 1990; Lessard-Clouston, 1997; Oxford, 1990; Graham, 1997; Miliani, 1998; Hismonoglu, 2000) because many studies have showed the positive effect of the instruction of learning strategies on learning achievement. This educational change should have as a major objective the development of learners' metacognition in other words nurture and encourage thinking about their learning; because students' understanding and control of their cognitive processes leads to more profound learning and improved performance.

In effect, many research works have established a positive correlation between metacognitive knowledge

and effective learning. Collins (1994) and Schoenfeld (1987) have demonstrated in their studies a positive relationship between metacognition and performance on tasks such as reading and mathematical problem solving. This link has also been established between metacognition and writing performance by Devine (1993) and Kasper (1997) who have suggested that it is especially important to design activities to reinforce students' metacognitive models i.e., train them to develop, monitor, and evaluate a plan of action that will help them successfully complete a learning task.

Unfortunately, many of our students sadly lack the metacognitive ability. Though they are initiated to the use of some learning strategies, they are not provided with the necessary metacognitive knowledge which allows them to reflect on their learning, monitor their progress and evaluate the outcome of their learning

Consequently, there is an urgent need for change in the curriculum that would integrate learning strategy teaching besides knowledge teaching. Yet, important criteria should be taken into consideration before the development of a strategy-based curriculum such as what strategies to teach? Should strategy teaching be incorporated in content teaching? Should strategy instruction be implicit or explicit?

2. What Strategies to Teach?

Researchers distinguish between three main sets of learning strategies based on psychological functions: metacognitive, cognitive, and social/ affective strategies. Metacognitive strategies refer to "higher order executive

skills that may entail planning for, monitoring, or evaluating the success of a learning activity” (O’Malley & Chamot, 1990:44). In sum, metacognition can be defined simply as thinking about thinking. Whereas cognitive strategies “operate directly on incoming information, manipulating it in ways that enhance learning” such as using a dictionary to find out the meaning of a word or grouping items to be learned under categories. The third category referred to as social / affective strategies covers “either interaction with another person” (O’Malley & Chamot, 1990:45) or exercising control over emotional or affective responses to learning. Such strategies could involve asking questions for clarification or discussing one’s worries about language learning with another person. The main distinctions made between cognitive and metacognitive strategies are of value:

... because they give some indication of which strategies are the most crucial in determining the effectiveness of learning. It seems that metacognitive strategies, that allow students to plan, control, and evaluate their learning, have the most central role to play in this respect, rather than those that merely maximize interaction and input [cognitive strategies].Graham (1997:42-43)

In fact research which examined the effectiveness of teaching different types of strategies indicates that the most effective strategies are a combination of cognitive and metacognitive strategies (O’Malley 1987). Training students to use only cognitive strategies will probably help them operate directly on the input and manipulate the information to fulfil the present task, but learners will not see the relevance of such strategies to other similar

tasks, and therefore, fail to transfer these strategies to new tasks unless they have some knowledge of metacognitive strategies. The latter allows them to plan their learning, control it and finally evaluate it raising their awareness to which strategies have worked in which context. As pointed out by O'Malley and Chamot (1990:99):

Students without metacognitive approaches are essentially learners without direction and ability to review their progress accomplishments, and future learning directions.

Finally, it should be noted that social /affective strategies are also helpful as they allow the learner to control his feelings, motivation and attitudes related to the task and facilitate his interaction with others.

In sum, it is important to train students to combine the use of both cognitive and metacognitive strategies without neglecting the social /affective ones.

3. Should Strategy Training be Incorporated in Content Teaching?

There are two ways of implementing learning strategy instruction: either in a separate course or integrated with classroom instruction.

Those in favour of separate strategy training programmes explain that strategies are generalizable to many contexts and not applicable to only one area, therefore, they are to be instructed separately. Moreover, they hold that if instruction focuses on strategy training only, students will develop better strategic processing skills

then when learning the strategies related to content (Derry and Murphy, 1986; Jones et al., 1987).

On the other hand, those claiming the effectiveness of strategy training when integrated in content teaching explain that learning in context is more effective than learning these strategies apart because students will see the immediate use of these strategies. Moreover, the practice of these strategies in authentic academic tasks will lead learners to see the relevance of these strategies to similar tasks in other classes (Campione and Armbruster, 1985; O'Malley and Chamot, 1990; Nunan, 1997; Chamot, 1998). It should be pointed out that in some skill areas such as in writing; the teaching of strategies is incorporated in the general teaching of the skill. In process writing students are given exercises to train them to the task of composing by considering strategies such as planning, editing and revising (Arndt and White, 1991; Tribble, 1996). In sum, the integrated model to teach learning strategies is preferred for the benefits it presents of establishing the relationship between the taught strategy and its application to the task, thus enhancing comprehension of the instructed strategies and facilitating their retention.

4. Should Strategy Instruction be Explicit or Implicit?

The third question to decide upon is: should strategy instruction be explicit or implicit? In other words, should students be informed of the value and purpose of the strategies they receive training in, or should they simply be presented with activities and materials structured to elicit the use of the strategies being taught?

Early research on implicit teaching of learning strategies showed that learners could not transfer these strategies to new tasks (Brown et al., 1986). Though subject students showed a greater improvement in task performance than the untrained students, it was noticed that they did not develop independent learning strategies due to their unawareness of the use of these strategies and consequently, could not become autonomous learners. This is why subsequent studies have suggested adding a metacognitive dimension to strategy training by informing learners about the purpose and importance of the instructed strategies and teaching them how to regulate and monitor these strategies (Wenden 1987, Oxford 1994, Graham 1997). The addition of this metacognitive component proved to be helpful in maintaining strategy use over time and in transferring strategies to new tasks. In sum, it is recommended that learners be informed of the value and the purpose of the strategies they learn.

Finally, for the implementation of the learning strategies-based curriculum, it is all too appropriate to suggest a framework for teaching. A number of instructional models which have been published (Weinstein and Underwood, 1985; Jones et al., 1987; O'Malley and Chamot, 1990; Chamot, 1998; Anderson, 2002) share common sequences of strategy training activities and consist of five stages as represented on Figure 1:

1-Preparation and assessment: the theme of learning strategies is discussed with students. Then, with the help and guidance of their teacher, they try to discover the strategies they are currently using through group discussion, diary keeping, or think aloud-procedures. This ac-

tivity can also be followed by a comparison of strategies used by other learners.

2-Presentation and modelling: the use of the targeted strategy /strategies is described and demonstrated.

3-Practice: learners are provided with activities to practice the strategy/strategies with the teacher's guidance at first, then alone.

4-Evaluation: students are encouraged to assess whether strategy use proved its efficacy or not through diaries or group discussions, for example.

5- Expansion: application of the acquired strategies to new tasks through additional practice on similar academic tasks or tasks related to students' real-life activities or simply through discussions on metacognitive and motivational aspects of strategy use. The value of this sequence is that it allows students to develop transfer of the acquired strategies to new tasks.

It should be noted that the teacher has to be flexible in carrying out his lessons i.e., he doesn't have to be strictly linear because after *practice* the teacher may feel that his students need more *modelling*, or at the stage of *expansion* he notices that his students need more *practice*. Thereafter, the teacher is required to follow the students' progress not the lesson progression.

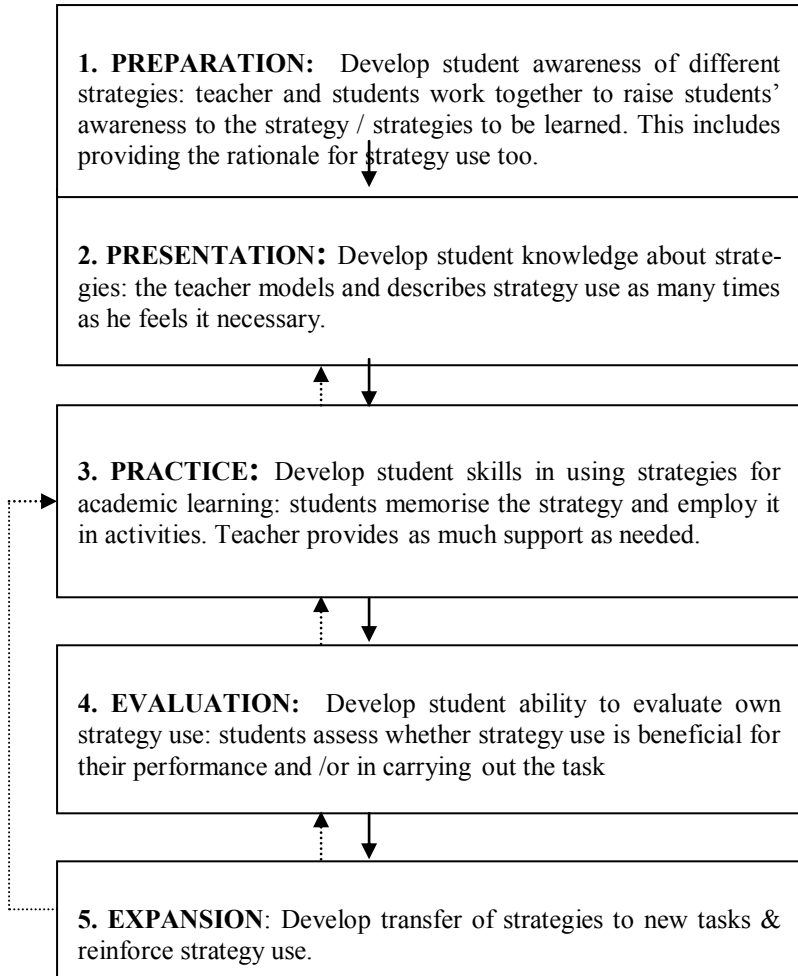
We believe that understanding and controlling cognitive processes may be one of the most essential skills that any teaching should develop within learners to lead them to profound learning and improved performance. Hence, we strongly recommend the development and implemen-

tation of a curriculum that would promote the learners' reflection on their learning through the instruction of effective strategies besides knowledge teaching in all disciplines.

A first step has been made towards these educational objectives through the newly developed competency-based approach to teaching / learning. Yet, it should be carried out through the different stages of education till university, and subjected to continual evaluation and adaptation.

Figure 1

A Framework for Learning Strategy Instruction



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