

FULLY ASSUMING OUR ROLE AS MEDIATORS



ÉRIC CHASSÉ
Educational Advisor
Cégep de Saint-Hyacinthe

It is especially important that we focus on what our students are not learning.

(Ruph and St-Jarre, 2006)

A few years ago, while watching my four-year-old son grow impatient as he tried to operate his new portable CD player, I reacted like any good father would: I gave him a few rather vague instructions, then, realizing his incompetence, I became impatient and irritated by his slow progress. Finally, driven by a feeling of guilt, I took the time to teach him the basics for operating this type of equipment. To my surprise, he understood everything within a few seconds!

This minor event rekindled a lingering preoccupation of mine. Am I the kind of teacher who promotes his students' cognitive development? Are my teaching strategies well adapted to my students' learning styles and to their particular difficulties? Am I contributing to the development of their intelligence?

▶ A POTENTIAL TO DEVELOP

What we need to teach is not so much techniques or methods, but rather the strategic principles that underlie their appropriate and flexible use. The important thing is that students understand why, how and when to use a particular technique or method.

(Ruph and Hrimch, 2001)

Leading a student to develop better work methods and to be able to spontaneously call on his aptitudes in various

contexts... Isn't this one of the major objectives we target as teachers? So how is it then, that despite the considerable advances in education over the last few years and, in spite of our interventions focused on the methodology of intellectual work, students sometimes seem so deprived and lacking in intellectual autonomy?

Many students face difficulties in adapting to the demands of college environment. In fact, more than 40% of CEGEP students fail at least one course in their first trimester. Many teachers are realizing that many of these students did not acquire in high school the basic intellectual and methodology skills they need to integrate into college. Some students have difficulty with basic and fundamental operations: making a rule of three, summarizing a short text, identifying the important elements of a statement, synthesizing and memorizing abstract ideas or writing proper French, to name a few. University teachers have observed the same phenomenon: students are lacking learning skills and autonomy (Ruph and Hrimch, 2001). Some even suggest that parents and high school teachers have not been doing their job. Blame is also being placed on the lack of admission criteria, the excessive value given to remunerated work, the consumerism environment or problems with career guidance (Belleau, 2001; Roy, 2006). Others attribute student adaptation difficulties to a particular social context over which the institution unfortunately has little control (Campeau, 2001).

According to Audy, Ruph and Richard (1993), the real problem lies elsewhere. In their eyes, student difficulties are largely linked to a lack of family mediation¹, to the fact children have less and less contact with adults transmitting their intellectual habits and life principles that would likely guide them in their learning. They further state that the difficulties and de-motivation that many students face are basically linked to the fact that they have not developed the strategies required to deploy their full intellectual potential. This lack of "knowing how to learn" results in academic problems, discourages students and leads some of them to drop out. Given the situation, what can a teacher do to repair the damage

In this article, we will begin by defining the role of mediator in the educational relationship. We will then present a theoretic model that takes into consideration the multiple components and factors associated with learning. Finally, we will propose a few targeted educational interventions that can be used to develop a broader and more functional repertory of strategies.

▶ THE TEACHER: A MEDIATOR ABOVE ALL

Our parents, grandparents and teachers have all acted on our intelligence by transmitting to us not only their knowledge, but also certain intellectual habits. In

¹ **Mediation** is a human intervention that seeks to filter, organize and give meaning to certain stimuli that would otherwise be unusable by the subject who is building his intelligence. The mediator teaches students habits and acts on metacognition in a way that makes students more autonomous. He explains why and under what circumstances strategies must be used. He leads the student to structure his thinking and his process. The effective mediator makes the most of an activity (consciously or not) as a pretext to develop a strategy, a life principle, a concept or a meaning.



addition to helping us filter and organize information, they taught us how to use and develop our intellectual tools. Just like the old fisherman who instils the rudiments of fishing in his apprentice, these mediators guide the learner, show him how to take a step back, lead him to analyze and critique, and contribute to the development of a broader repertory of strategies. The fundamental aptitude for learning is acquired and built through mediations (Ruph and St-Jarre, 2006).

According to Audy, Ruph and Richard (1993), many students are suffering from the syndrome of mediation deprivation, characterized by weak intrinsic motivation, poor self-image, problems concentrating (no, this does not necessarily represent an attention deficit disorder!) weak concepts², life principles³ and meaning⁴ as well as a lack of cognitive efficiency⁵. According to the same authors, the erosion of the social fabric and the rise in individualistic and materialistic values have resulted in a rapid dismantling of the support and mediation network between family members and relatives. Natural mediators, the cornerstone of intellectual development in individuals, are disappearing from the students' surroundings. Consequently, the latter have not been able to develop the basic tools they need to learn and take advantage of the teaching offered to them. Accordingly, the de-motivation of certain students would seem to result from a lack of cognitive efficiency and meaning.

Some advocate a return to the more traditional teaching methods, ignoring recent discoveries in psycho-pedagogy and the social realities that determine our students' profile. Others reply that if we continue to favour the lecture approach, the students suffering from this syndrome will have no chance to evolve, will adopt a passive or even resigned attitude and, as a result, will miss the opportunity to develop strategies that promote the transfer of learning and autonomy. On the other hand, structuring our role of mediator in the educational relationship offers students a real chance to develop intellectually. So, the best solution for a teacher may be to expand this role of mediator by using interventions integrated into his practice. For example, a teacher wanting to contribute to the development of learning strategies and metacognitive strategies could make it a point to explicitly define the mental habits he believes are fundamental but too often lacking (identifying the important elements in a text, making a synopsis and organizing information, persevering and controlling one's impulsiveness, providing precise and complete answers, appropriating fundamental concepts, developing memorisation strategies, etc.).

² A **concept** is a general and abstract mental representation of an object (*Le petit Robert*) that is the basic nutrient for intelligence. It appears that an increasing number of individuals present signs of malnutrition at this level. This is especially evident when dealing with mastering abstracts concepts (Audy, Ruph and Richard, 1993).

³ **Life principles** are the rules of conduct that guide human beings in their daily decision making processes. They are universal principles that transcend regions and cultures (Audy, Ruph and Richard, 1993).

⁴ **The meaning**, the sense and value that we give to an activity, is what gives oxygen to the mind, what prevents human beings from feeling alienated and depressed. The erosion of the social fabric has deprived many individuals of the natural mediators who would traditionally transmit this meaning (Audy, Ruph and Richard, 1993).

⁵ **Cognitive efficiency** is characterized by the ability to resolve problems or perform tasks with a minimum waste of time, energy and resources and with pleasure, ease and elegance.

⁶ Unfortunately, most of us have developed over time, and sometimes in an autonomous manner, strategies that have been integrated to the point of being used spontaneously when the situation demands it.

Interventions by the teacher generally have two collateral effects: On the one hand they make the students more responsible by modifying their concept of learning (and intelligence), on the other hand they allow them to develop intellectual tools that promote their autonomy⁶. Much like an instructor, the mediator works on having the students acquire good intellectual habits (and not only theoretical knowledge) that can be used in other contexts (exam situations, dealing with other types of problems). On the whole, he is more attentive to the process leading to the solution. He asks the students more questions and specifically avoids providing "readymade" answers that keep them in a passive state.

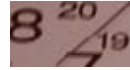
So, the best solution for a teacher may be to expand this role of mediator by using interventions integrated into his practice.

So, to initiative effective interventions among our students we must be familiar with the main factors associated with learning as well as the mechanisms that come into play when processing information. Our interventions can only be effective insofar as they are based on a proper diagnosis.

THE DIFFERENT COMPONENTS OF LEARNING: A BRIEF OVERVIEW

Generally speaking, many factors have a direct influence on intellectual performance and several researchers have developed interesting models (Sternberg, 1986; Feuerstein, 1979; Barbeau, Montini and Roy, 1997; Tardif, 1999). The model presented by Audy, Ruph and Richard (1993) is quite interesting.

To begin with, it introduces few factors that are likely to influence a student's performance. These factors have been



mentioned: the potential (natural or hereditary abilities), life principles, motivation (associated with learning concepts and determining factors), meaning, and cognitive efficiency.

According to these authors, cognitive efficiency remains the central element around which all other factors revolve. Cognitive efficiency and the control over metacognitive strategies⁷ associated with it make up the ability to resolve problems (or perform a task) with a minimum waste of time, energy and resources and also with pleasure, ease and elegance.

The framework for the following analysis demonstrates the complexity of mechanisms implemented when a task is performed in an efficient manner. The model presents more than 80 execution strategies as well as four metacognitive strategies. The execution system (including cognitive strategies) refers to the mental actions that enable the accomplishment of various cognitive tasks (comparing, classifying, selecting important elements), while the metacognitive management system refers to metacognitive strategies that a student uses to understand and evaluate the functioning of his thought process, his way of learning and functioning:

The problem resolution process is based on two main principles: the metacognitive management system and the execution system. The first has four complementary strategies:

- 1) anticipating the nature of the problem and its implications;

- 2) comparing and selecting execution strategies;
- 3) planning of selected strategies; and
- 4) control and regulation.

The second is subdivided into six cognitive sub-systems and two support sub-systems: emotional strategies and strategies for taking advantage of resources. The six types of cognitive strategies are: strategies for observation, searching for solutions, answering, creativity, memorization and generalization. (Audy, Rugh and Richard, 1993)

In short, the role of metacognitive strategies is to orchestrate the overall functioning of cognitive strategies. They manage, control and guide the overall process that leads to the resolution of a problem or the realization of task. If we imagine the execution strategies as the various musicians that make up an orchestra, the metacognitive strategies would represent the orchestra leader and the group's overall cohesion would be the demonstration of excellent cognitive efficiency!

The four metacognitive strategies play a major role in the problem resolution process. In fact, a subject could master all the execution strategies and still be unable to resolve a problem in the absence of an adequate metacognitive management system. This type of situation could be compared to that of a carpenter who, despite his competence, does not have or understand the plan for the house he is building. (Audy, Rugh and Richard, 1993)

WHAT IS YOUR EFFICIENCY LEVEL?

To get a better idea, I propose you try and solve the following enigma. The final answer must be unequivocal and justified. Throughout the process, pay particular attention to your internal dialogue, after ten or fifteen minutes, answer the questions that follow the enigma as honestly as possible.

Peter meets Paul on the street. He hasn't seen him for some time.

Peter: Hi Paul! How are your three children?

Paul: Hi Peter! Very well thank you.

Peter: How old are they now?

Paul: Let's say that the product of their ages is equal to 36.

Peter: That doesn't tell me how old each child is...

Paul: That's true. Then let me say that the sum of their ages equals the number on the house in front of us.

Peter (*after taking a look*): I see. But I still can't be sure how old each one is...

Paul: I will give you one last clue: the eldest loves chocolate cake.

Peter: OK! Now I get it!

* Solution at the end of the text

Questions to ask:

What difficulties did you experience in trying to solve this problem? What helped or hindered the resolution of this problem? Was there something that was blocking your progress? How did you manage to maintain your interest and concentration?

⁷ Metacognitive strategies refer to those strategies used by students to know and evaluate their thought processes, their way of learning and their way of functioning. Planning, evaluation, regulation and revision are the metacognitive strategies most frequently used by students who succeed well academically.



How did you proceed? Describe as precisely as possible, all the strategies (methods, tricks) you used. Be sure not to read what follows until you have put yourself to the test!

After completing the test more or less successfully, you will realize that your emotional reactions, your attitude towards the task, your beliefs with regard to learning and your cognitive baggage all play a major role in determining your success. Your level of commitment and motivation on the other hand, are to a large extent, dependent upon the intellectual tools (acquired strategies) that you possess at that specific time. Is your lack of success linked to the feeling that you are lacking in intellectual aptitude? Or is it rather the lack of practice that made you hesitant or anxious? Could it be simply that this type of activity generates no interest? Is it because you have always considered yourself incompetent in the use of logic? Is it simply because you have no idea what purpose this type of exercise can serve, apart from being a waste of time? And, if we take a moment to project this uneasiness and these reflections into our teaching context, do the difficulties experienced by students still remain as evident, unique and simplistic? The following table presents a few strategies that are particularly useful for accomplishing this task.

CATEGORIES	USEFUL STRATEGIES
Metacognitive strategies	<ul style="list-style-type: none"> I am able to anticipate the nature and implications of the task I compare and select relevant execution strategies I plan the selected strategies I control and regulate the problem resolution process
Observation strategies (<i>Input</i>)	<ul style="list-style-type: none"> I observe the data very carefully I select relevant data I compile the data retained
Strategies for finding solutions	<ul style="list-style-type: none"> I define the problem accurately I compare the problem with others already done I plan the steps for resolving the problem I break the problem down into sub-problems I elaborate different hypotheses for the solution
Strategies for expressing the answer (<i>Output</i>)	<ul style="list-style-type: none"> I consider my answer beforehand I answer in a precise manner I verify my answer after producing it
Memorization strategies	<ul style="list-style-type: none"> Not specifically solicited
Emotional support strategies	<ul style="list-style-type: none"> I control my impulsiveness I overcome blockages I speak to myself in a positive manner I persevere
Creative strategies	<ul style="list-style-type: none"> I generate random combinations I am receptive to my intuition
Generalization strategies	<ul style="list-style-type: none"> I imagine transpositions of acquired knowledge in different contexts I transfer acquired knowledge to different contexts of utilization
Support strategies for making the most of resources	<ul style="list-style-type: none"> I mobilize my attention I use internal language I use mental imagery I resort to competent and available human resources

The fact is, that regardless of the task, problem or exercise at hand, the same strategies will very often be used. Therefore you will be able to solicit them in certain contexts (when you are guided, motivated or disposed to do so) and not at all in other circumstances (when you feel incompetent in a given field, for example).

In my opinion, most of the time there are major gaps in the metacognitive strategies and emotional support strategies of our students, which prevents them from using the normal cognitive strategies that they have already acquired over the years.

From this perspective, in the context of our teaching, we can never resolve a student's learning problem by explaining the subject matter over and over again. The informed teacher will therefore try to identify the origin of the difficulty and act on what he believes is the main obstacle to the student's cognitive evolution.

[...] we can never resolve a student's learning problem by explaining the subject matter over and over again.

He will sometimes question students on their way of doing things (strategies used and those not used), on their concept of learning, their internal dialogue, on their way of assimilating new concepts, errors committed, methods, sources of blockage. Without totally negating his role as teacher, he will attempt to adopt, at least momentarily, whether individually or in a group, the role of re-educator⁸.

ADAPTING EDUCATIONAL PRACTICES TO STUDENT DIFFICULTIES

Once the diagnosis has been established, in order for his interventions to have a lasting impact, a teacher must not only demonstrate to his students how to master certain mental operations

⁸ According to Steinberg (1986), the simple fact of taking the time to question students can lead them to develop the habit of controlling their impulsiveness while encouraging them to take the time to specify and refine their method of problem resolution.



in order to learn, he must also lead them to discover **why and under what circumstances** to do this, then offer them a variety of opportunities to apply these new skills.

As the students develop their expertise, the teacher should reduce his support, taking on the role of a guide [...]. When they have become even more competent, they can become autonomous in practice [...].

Presseau (2004) suggests that the teacher-mediator act primarily as an **explicit model**, that he describe out loud the knowledge he is mobilizing to complete a task, the way he tackles it and the reasons that make him act this way. As the students develop their expertise, the teacher should reduce his support, taking on the role of a **guide** (support them by asking questions but letting them complete the task). When they have become even more competent, they can become **autonomous** in practice (the teacher simply validates the students' initiatives and processes).

As part of his teaching, the teacher can expose the student to complex and diverse situations, problems or tasks, (Tardif, 1999; Morrissette, 2002) to help him develop the habit of:

- reflecting on the social, emotional and motivational aspects that condition his behaviour toward learning activities (his concept of learning, what he sees as the cause of the difficulties he is experiencing, his short and long term goals, his feeling of competence) (Ruph and St-Jarre, 2006);
- specifying the objective to be reached and questioning oneself before attempt in to complete the task;

- verifying the data for a problem or a task;
- developing the strategies and tools to help with memorization (summaries, synopsis tables, concept diagrams);
- learning or re-learning misunderstood concepts;
- adopting good observation and reading habits;
- overcoming emotional blockages;
- breaking down the problem or task by identifying intermediate objectives;
- searching for various ways of arranging the data associated with the problem by identifying interrelationships, imagining and comparing several possible hypotheses;
- identifying strategies that have been useful and those that will be in the future;
- systematically verifying a hypothesis or a proposed solution.

When faced with fundamental cognitive difficulties, educational tools can contribute to the development of metacognitive strategies that are essential for the transfer of learning and the development of autonomy (St-Pierre, 2004; Presseau, 2004; Tremblay, R. R. and Perrier, Y., 2006). One can, for example:

- **make the student aware of his thought process, have him plan, take the time to identify the required resources, to look for feedback and to evaluate his work** (correction criteria, self-correction grid);
- **encourage the student to use internal dialogue:** insist that he explain his process, method and reasoning, and describe explicitly out loud our own way of proceeding, our process (provide a model of one's own way of learning, verbalize our difficulties and our questioning);
- **give feedback systematically** (personalized if possible) on activities, assignments and exams taken;
- **organize knowledge with the student in an explicit manner:** support him in the exploration of various mental representation of a problem, lead him to refine his study methods and to take into account the way memory functions, and offer paths for transfer by linking concepts to daily life;
- **introduce methodology capsules in the course**, in other words put the accent on fundamental training;
- **promote trial and error and encourage the students to become active:** talk less, ask more questions, lead students to clarify their thoughts and develop their arguments (especially in writing). One can also ask them to summarize ideas already covered (using concept diagrams for example) and to take the time to identify errors in their reasoning, their way of conceptualizing;
- **change our evaluation report:** guide the student so he will be able to decode exam questions, demystify the function of the evaluation process, propose more reading tests and formative evaluations, self-correcting exercises;
- **provide challenges for the students:** clarify and maintain our requirements, plan activities that are diverse and stimulating;
- **encourage peer interactions as much as possible:** students are able to carry out some mediation work.



Ruph and St-Jarre (2006), quoting Vygotsky, confirm the importance of using our interventions to develop an internal dialogue in students that will sharpen their awareness of their mental processes. The objective is to bring them to self-regulate their thoughts. A few fundamental and transversal mental operations, common to all our learning, prove to be particularly important. Operations like comparing objects (what is similar, what is different), getting into the habit of filing or organizing, or even getting into the habit of making deductions, inferences, formulating and verifying hypotheses. For the student who has not automated these basic operations, new data will tend to remain separate from acquired knowledge, or only partially linked and, generally speaking, badly or insufficiently organized (Ruph and St-Jarre, 2006).

FROM THEORY TO PRACTICE

These methods have generated certain reactions. Many teachers fear that putting the accent on the mediation of learning strategies in class will affect the quality of their teaching. Others feel that the fact of being interested in students' cognitive development, and more specifically the fact of making them use and identify learning strategies that are useful under certain circumstances, makes them more responsible while forcing them to mobilize their resources and ultimately become more autonomous.

This obviously implies rearranging a teacher's priorities: He will sometimes have to break away from lecturing and take the time to develop activities that deal with relating to and interacting with the student, as prescribed in a socio-constructivist approach. In reality, our education system, by overestimating the impact of reforms and other accompanying cosmetic changes, too often undermines its main mandate: To equip teachers on a day-to-day basis and offer them conditions (physical and material) that allow them to exercise their role of mediator.

The development of certain basic strategies indispensable for the deployment of student intelligence will always be a priority, regardless of proposed reforms. We can only hope that our leaders will allow us to fully exercise this fundamental role. ●

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Éric CHASSÉ was a psychology teacher from 1993 to 2005; he also held a number of other positions concurrently including that of psychologist. In recent years he has become interested in factors associated with academic success and failure: learning and study strategies, processing information, motivation, performance anxiety and the educational relationship. He is an Educational advisor at Cégep de Saint-Hyacinthe, in charge of the *Centre d'aide à la réussite et du tutorat par les pairs*, and provides assistance for students with problems adapting to college life. He also teaches the PED-860 course *Des stratégies pour faire apprendre*, to MIPEC teachers.

echasse@cegesth.qc.ca



SOLUTION FOR PAGE 18

There is more than one way to find the solution. It is possible to proceed efficiently, using the strategies suggested in the table on page 18. I will outline the most important steps here.

1. The important data is: there are three children, the product of their ages, the sum of their ages and the fact that there is only one oldest child.
2. Here is a list of the possible products of their ages and the sums associated with each:
3. Why can't Peter determine the answer even with the sum of the children's ages in front of him? You realize that his uncertainty is probably due to the fact that two combinations of the children's ages add up to the same total. The fact that there is only one oldest child allows him to ascertain without any doubt that the children's ages are 2, 2 and 9.

PRODUCT	SUM
1 x 1 x 36	38
1 x 2 x 18	21
1 x 3 x 12	16
1 x 4 x 9	14
1 x 6 x 6	13
2 x 2 x 9	13
2 x 3 x 6	11
3 x 3 x 4	10

What strategies did you use to solve the enigma? Are they the same as the ones presented on page 18? What lessons can you draw from this short exercise?