

Metacognition in connection with competency development (Part 1)

Accompaniment for the implementation of the QEP
2008

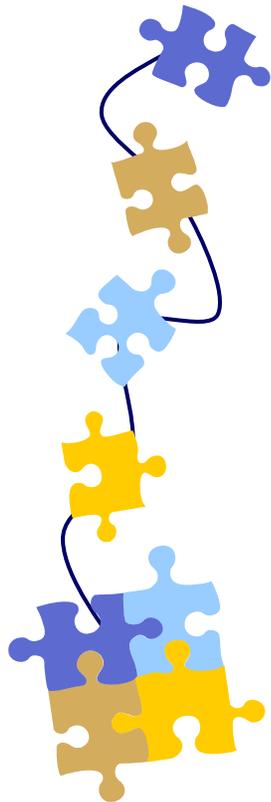
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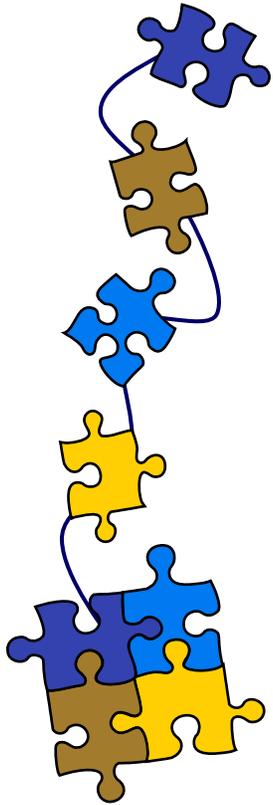


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Content

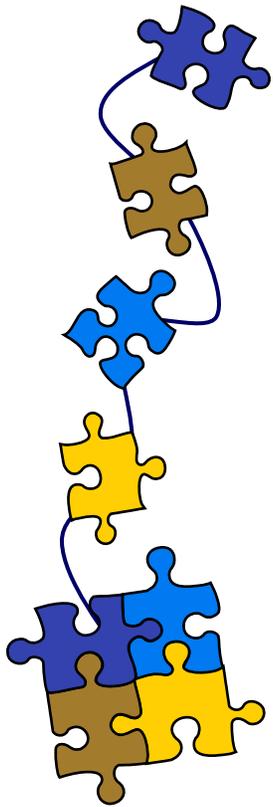
- Introduction
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- Strategies for metacognitive development
- Metacognition and the QEP
- Conclusion



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Moment of reflection



- For me, metacognition is:

- My satisfaction with my definition



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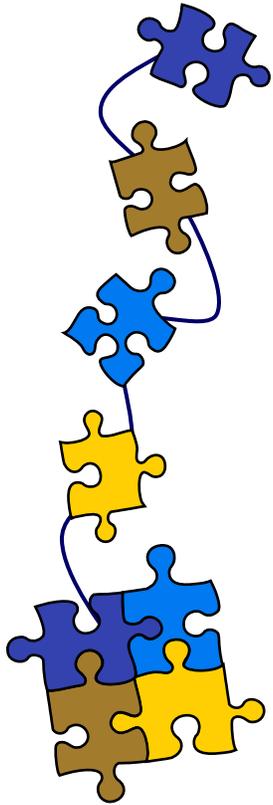
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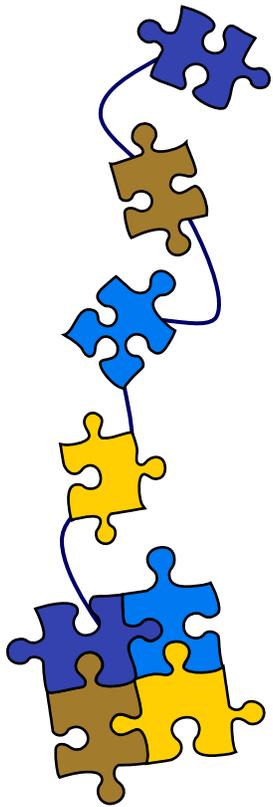


Moment of reflection

- You are in the middle of learning a brand new and fairly complex information base, when you realize that you no longer follow the thread connecting the ideas, what do you do?

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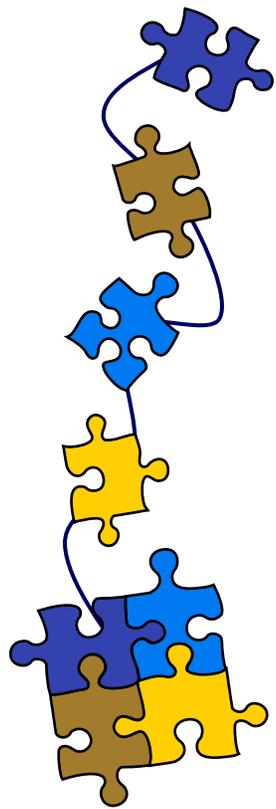
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The thoothpick activity

You are working in duos

- One member of the team is to remove 5 toothpicks in such a way as to leave 3 squares. Throughout the process this person is to verbalize everything that goes through his mind
- The second member of the team observes the first and records all verbalizations. The role of the observer is to focus intently on observing, offering only “What are you thinking?” if the other member is blocked
- You will reverse roles and solve a different problem when the first is solved



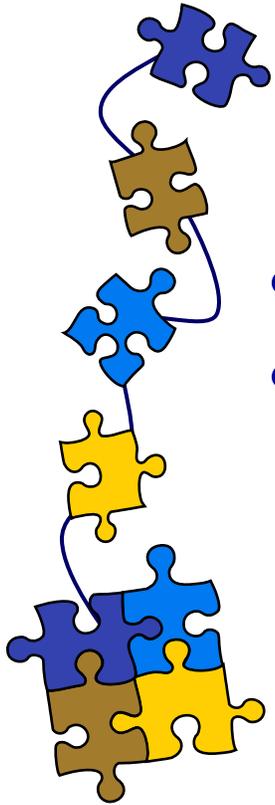
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The thoothpick activity

Reverse roles

- The other member of the team is to remove 6 toothpicks in such a way as to leave 2 squares. Throughout the process this person is to verbalize everything that goes through his mind
- The partner observes the first and records all verbalizations. The role of the observer is to focus intently on observing, offering only “What are you thinking?” if the other member is blocked



Moment on reflection

- What did you learn in the role of the observer?
- What did you learn in the role of the observed?

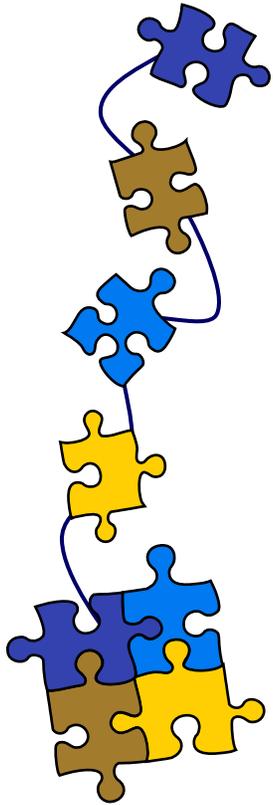
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Metacognition

The attention a person pays to their thinking in order to plan, evaluate, adjust and verify their learning process

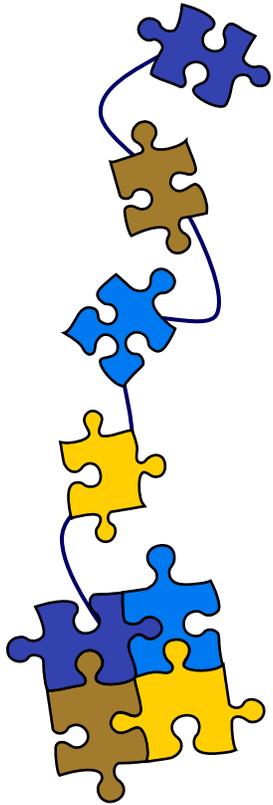
(Lafortune et St-Pierre, 1996; Lafortune, Jacob et Hébert, 2000; Lafortune et Deaudelin, 2001)



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Metacognition



Three key features:

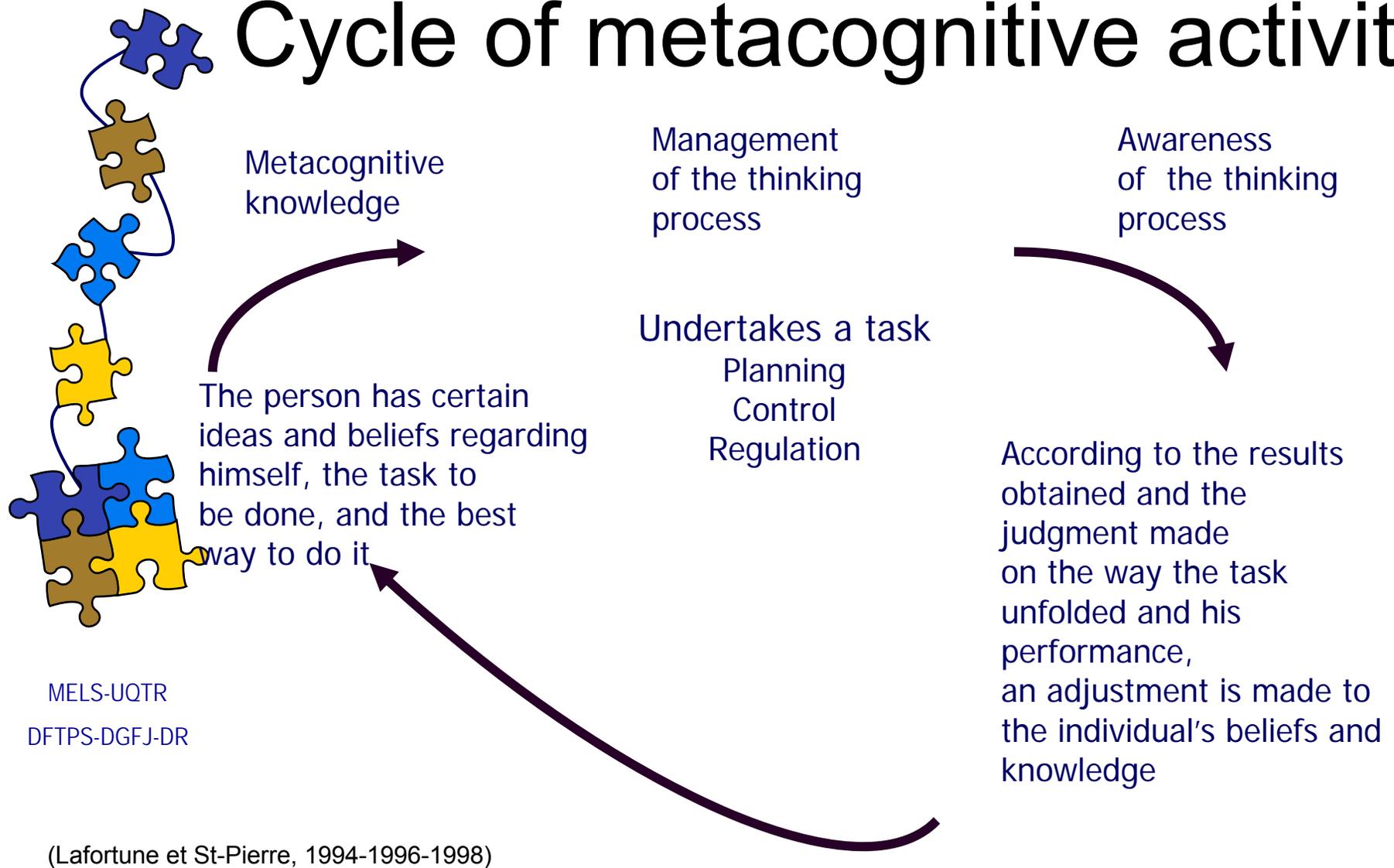
- Metacognitive knowledge
 - Of persons
 - Of the task
 - Of strategies
- Management of the thinking processes
 - Planning
 - Control – self-evaluation
 - Regulation - adjustment
- Consciousness of one's thinking processes
 - (Lafortune et Deaudelin, 2001)

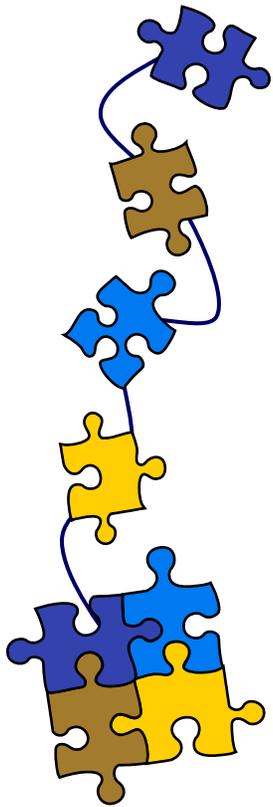
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(Flavell, 1979; Lafortune, 1998; Lafortune et St-Pierre, 1994, 1996, 1998)

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Cycle of metacognitive activity





Consciousness of thinking processes

- Encouraging awareness of thinking processes is one condition for the development of metacognitive abilities
- Facilitates the verbalization of thinking processes
- Encourages better supported discussions with others with the goal of improvement
- Provokes the emergence of metacognitive knowledge
- Influences the management of thinking processes for completion of a task as well as with an intention related to the thinking processes

(Lafortune et Deaudelin, 2001)

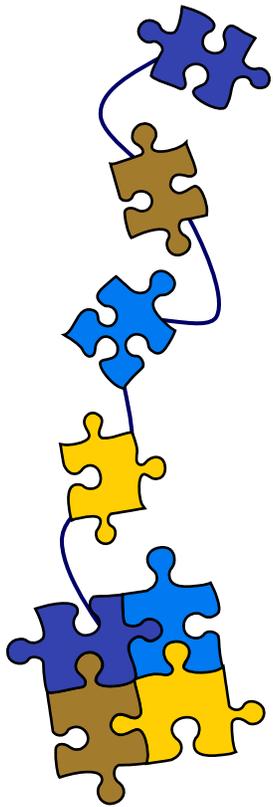
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The metacognitive individual

- The metacognitive individual examines his ways of learning, in other words the thinking processes used when in a learning situation. He does so in order to control, adjust, verify and analyze the processes used as a learner

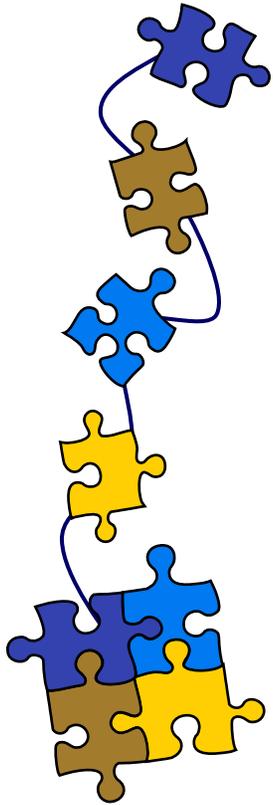
(Lafortune and Deaudelin, 2001, p. 203)



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Characteristics of the metacognitive individual



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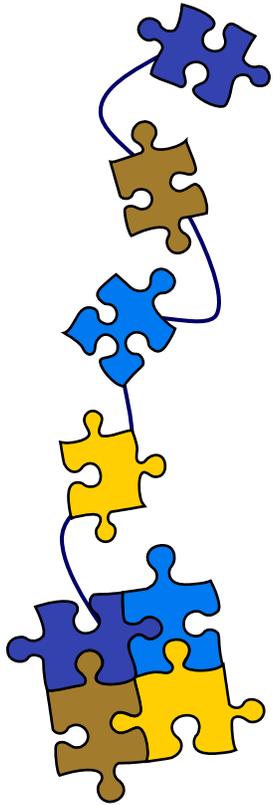
- The ability to recognize and articulate metacognitive knowledge
- The ability to explain the difficulty or the simplicity of a task, to articulate previous experiences that contribute to the difficulty and to explain the reasons for this
- The ability to analyze one's learning processes, to identify what helps one to learn, to adjust learning strategies and to evaluate the entire process. This ability allows an individual to be conscious of the process when facing a new situation

(Lafortune et Deaudelin, 2001)

An approach with a metacognitive perspective

In an approach that encourages the development of metacognition, the accompanist:

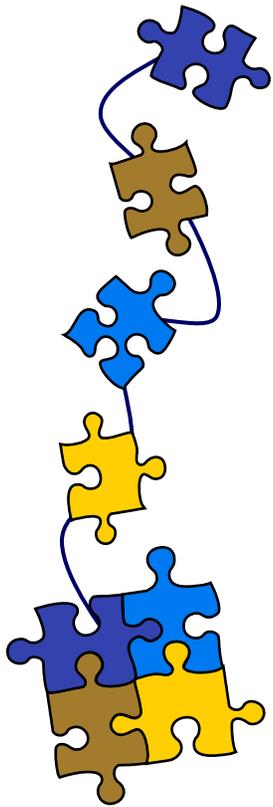
- Encourages the person accompanied to ask himself questions instead of being the one to pose the questions
- Uses methods to encourage the person accompanied to structure his learning and to actively develop his competencies
- Suggests methods to lead the person accompanied to develop his own strategies, interventions, activities
- Encourages moments of self-evaluation
- Leads the person accompanied to discover what it means to understand, integrate, deepen, adapt....



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(These characteristics have been adapted from Lafortune, 1998)



Interventions that develop metacognitive abilities

- Discuss the reasoning and justifications of another person
- Explain to someone who knows nothing about the subject
- Discuss a difficult experience
- Prepare questions (supportive) and anticipate the answers
- Evaluate the level of difficulty of an intervention that is part of an accompaniment process (before/after)
- ...

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The proposed interventions are taken from Lafortune (1998)

Metacognition in connection with competency development (Part II)

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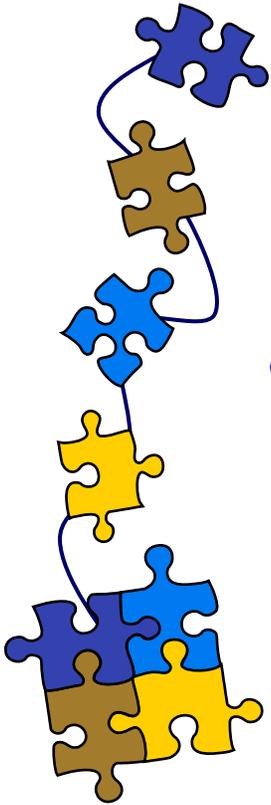


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Strategies related to the development of metacognition

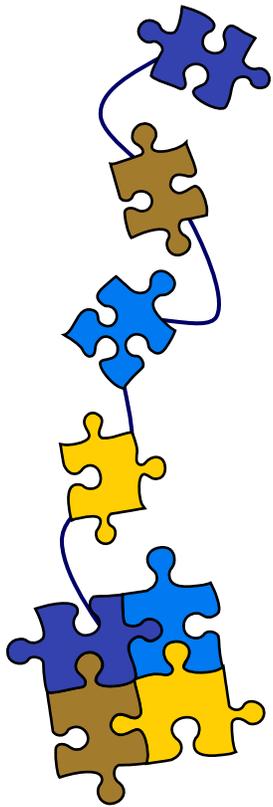
- Name the strategies we have used so far today?



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General suggestions: How to support the development of metacognition



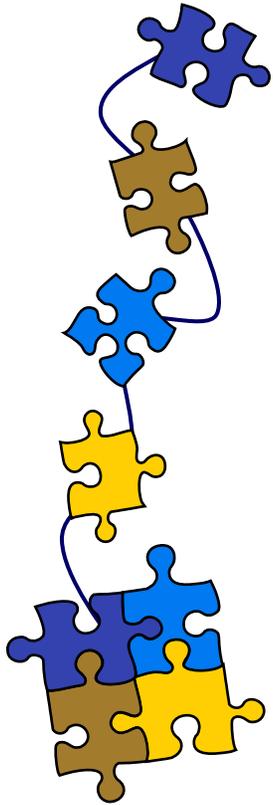
- Questioning
- Self-evaluation
- Interactions
- Moments of reflection

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(Lafortune et Deaudelin, 2001)

Methods that encourage metacognition



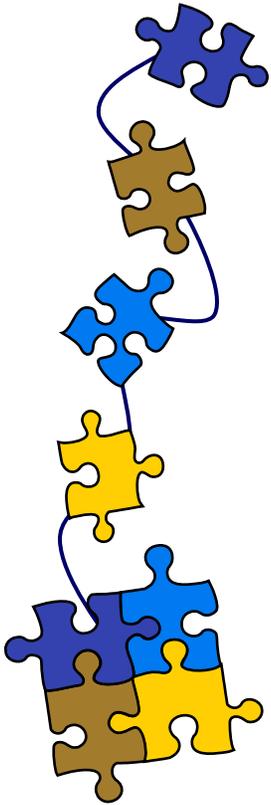
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- Questioning
 - Both alone or with others
 - Both internal or external
 - Linked to the process
 - Specific to certain types of questions
- Interactions
 - Context
 - Moments of exchange, confrontation, argument
 - The type of interaction

(Lafortune et Deaudelin, 2001; Lafortune et Robertson, 2004)

Methods that encourage metacognition (continued)



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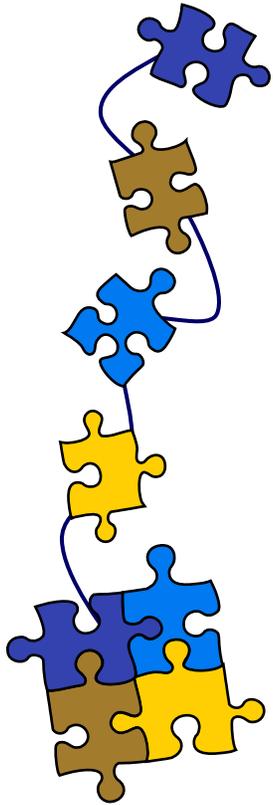
- Self-evaluation

- Analysis of the steps taken
- Evaluation of the steps taken
- Judgment of the steps taken

- Moments of reflection

- Standing back to consider the steps taken
- Awareness
- A metacognitive perspective

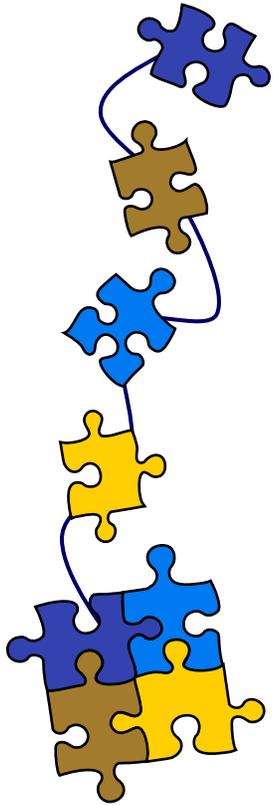
Metacognition and cross-curricular competencies



- Questioning
 - Solving a problem
 - Using information
- Interactions
 - Communicating appropriately
 - Cooperating
 - Using information and communication technologies
- Self-evaluation
 - Exercising critical judgment regarding one's learning
 - Developing effective work methods
- Moments of reflection
 - Achieving one's potential
 - Thinking creatively (Lafortune, 2000)

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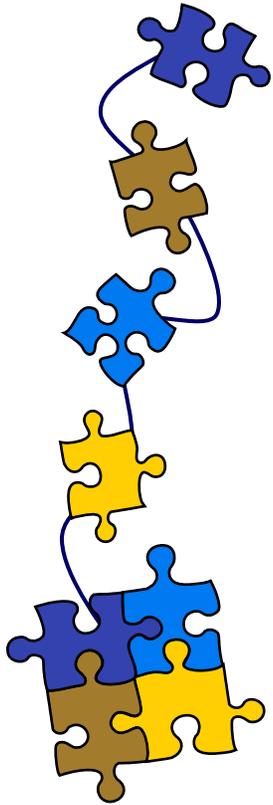
Moment of reflection

- In what way can questioning encourage the development of metacognitive abilities?

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Questioning



A process that consists of asking a series of questions:

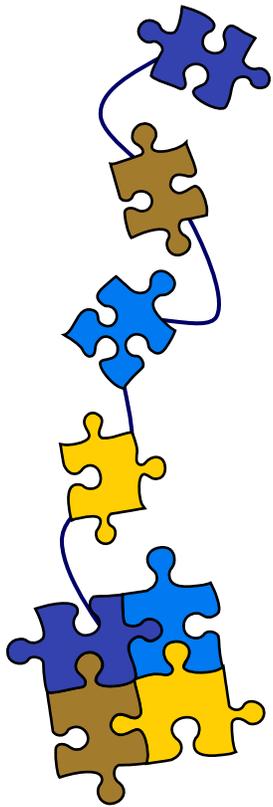
- They are reflective if they lead those accompanied (can be students) to reflect on their pedagogical practices, their learning or teaching strategies or the process by which they carry out a task
- They are socioconstructivist if they lead to the construction of knowledge and competencies, if they lead to interactions and if they provoke sociocognitive conflicts

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(Lafortune, Martin et Doudin, 2004)

Types of questions

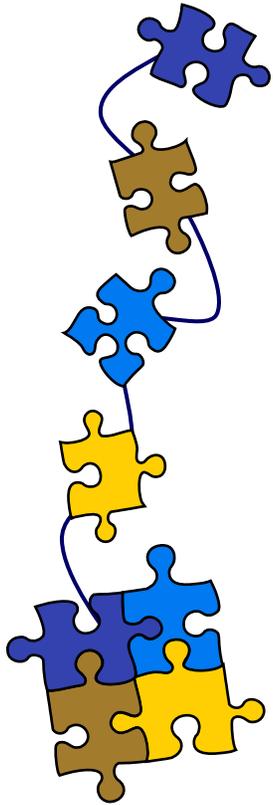


- Questions that are selected in connection with a discussion
- Questions that are based on anticipation
- Questions that go beyond a given description
- Questions that lead to doubt
- Questions that lead to actions

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Questioning

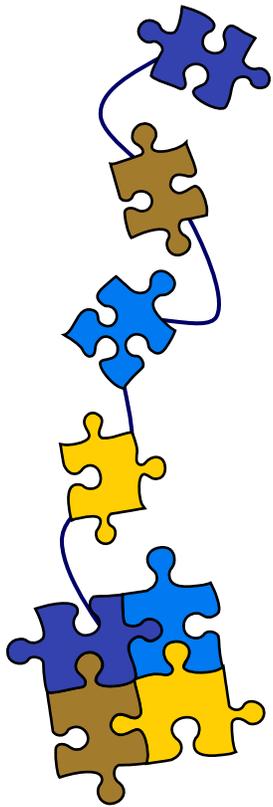


- Alone or with others
- Internal or external
- Linked to learning, to the process, to the steps taken
- Corresponding to certain types of questions

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Moment of reflection

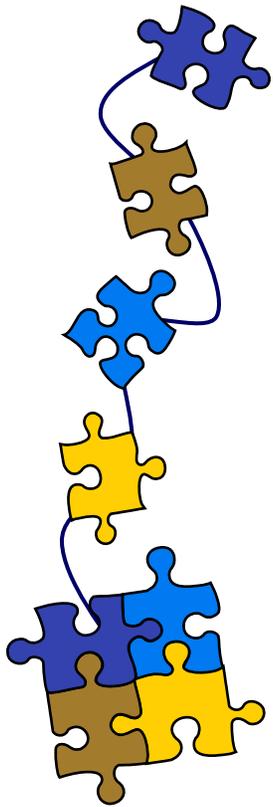


- What is the usefulness of questioning?
- What abilities must be developed to be able to question in such a way that it leads others to reflect?

(Lafortune et Deaudelin, 2001)

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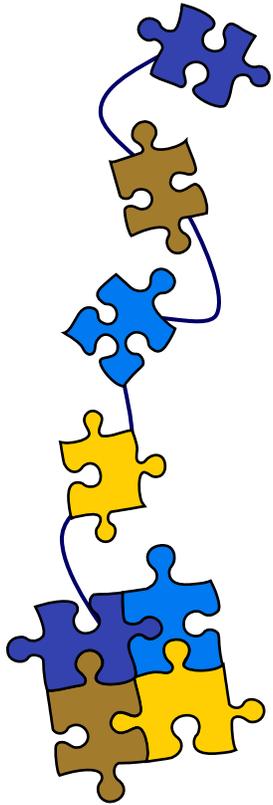
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Questioning: Its usefulness

THREE LEVELS: toward greater reflection

- To give rise to interactions and provide information that helps those accompanied as they take certain steps
- To provoke reflection, and cognitive and sociocognitive conflicts which, in turn, help those accompanied to question, to make adjustments, to live with doubt and ambiguity
- To lead to deepened engagement and increasing awareness, leading to a practice (or way of being) that integrates reflection anchored in action.

Self-Evaluation

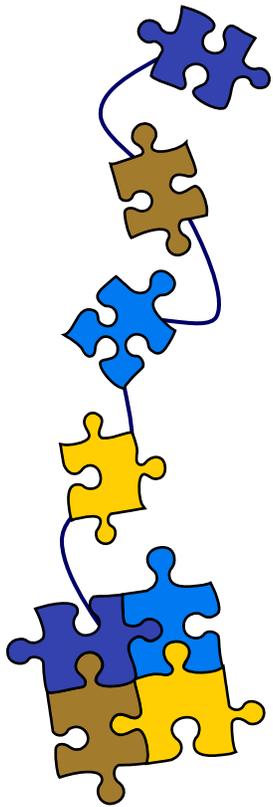


- Evaluation
- Coevaluation
- Interevaluation (mutual evaluation)
- Self evaluation

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The contribution of self-evaluation



- Activation of prior knowledge, ability and attitude
- Self knowledge relative to knowledge, ability and attitude
- Evaluation of strengths and difficulties
- Evaluation of the capacity to explain to others
- Evaluation of the ability to support others
- Evaluation of the ability to question
- Prediction of success or failure

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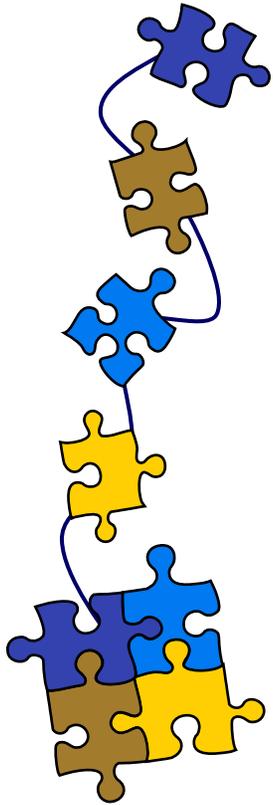
Toward

Adaptation

Autonomy

Integration

The contribution of self-evaluation in connection with metacognition and reflective practice



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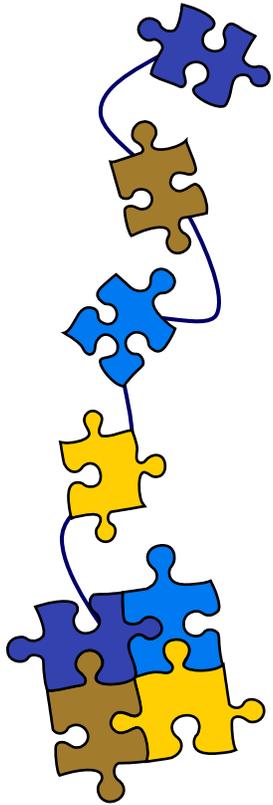
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- To know oneself
- To understand the task or action to be carried out
- To know strategies
- To plan better
- To self evaluation the steps one takes while in action:
 - Evaluate
 - Analyse
 - Adjust
 - Choose
 - verify
 - Adapt

In evaluation

Self-evaluation:

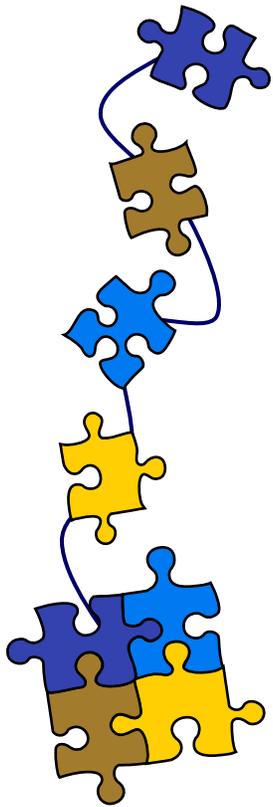
- Is essential to a metacognitive approach
- Is important to understand affective reactions
- Provides an appraisal, a critical reflection in qualitative terms
- Develops the individual capacity to make a judgment
- Permits the individual to look at the way he works
- Before: evaluation of knowledge ability and attitudes
- During: provokes awareness of errors and strategies used
- After: permits a judgment of the his own effectiveness



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Interactions

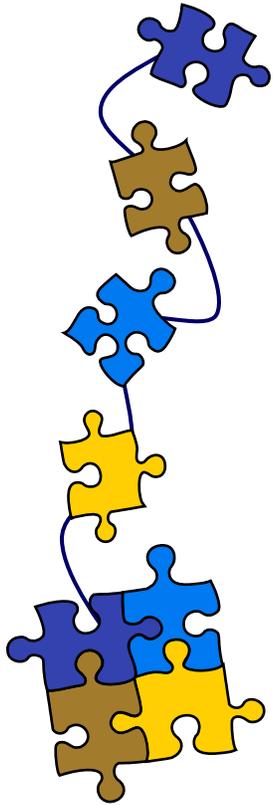


- Interaction is a method that encourages exchanges, discussion, confrontation...between students or those accompanied in order to provoke individual and collective questioning, doubts, adjustments, regulation, feedback, analysis, evaluation...

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Interactions



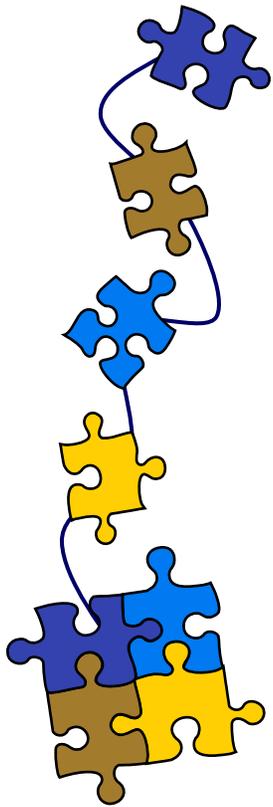
- Interactions:

- Context
- Situation for confrontation, exchange and discussion
- Dependant on the type of interaction

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Moment of reflection



- Taking some distance in connection with steps taken
- Being consciously aware
- Taking a metacognitive look

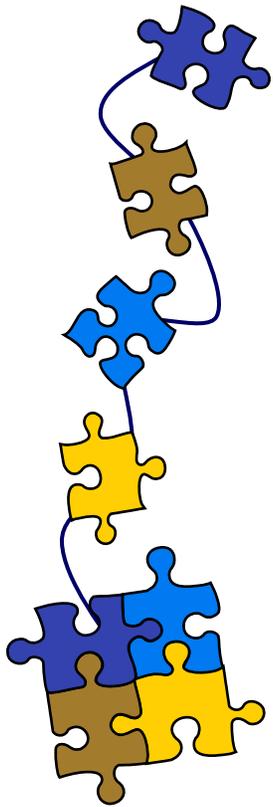
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Moment of reflection

Moments of reflection are pauses given to those who are accompanied in order to permit them to activate prior knowledge, experience or competencies, to integrate learning, to question themselves on different subjects...

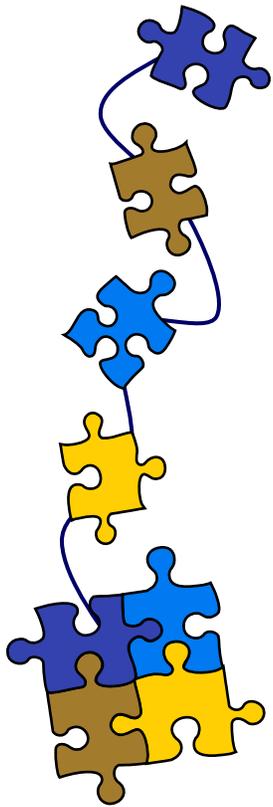
They are essential to the development of competencies, in that they provoke conscious awareness as well as encourage the process of integration



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Toward the development of metacognition



- Have the explicit intention of developing metacognitive ability
- Incorporate interventions in a continuous way
- Create frequent opportunities for awareness
- Vary the contexts and learning situations in which development is taking place

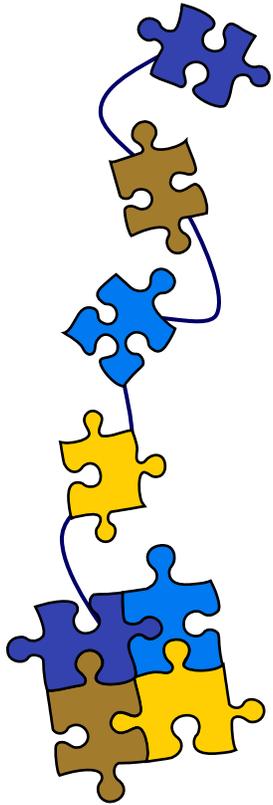
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Conclusion

To encourage the development of metacognitive abilities:

- Recognize, support, and take advantage of moments of awareness of the development of metacognition
- Recognize, encourage and make use of moments when metacognition is active (meta moments)



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Metacognition in connection with competency development (Part III)

Strategies to Develop Metacognition

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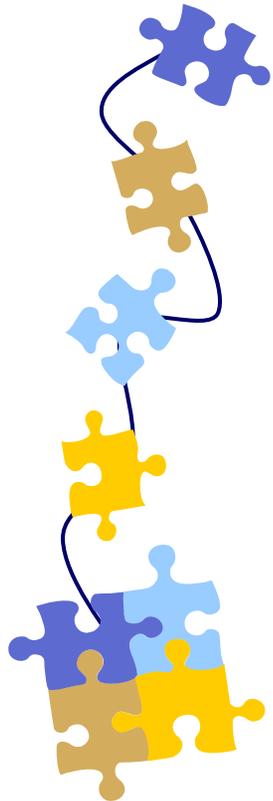
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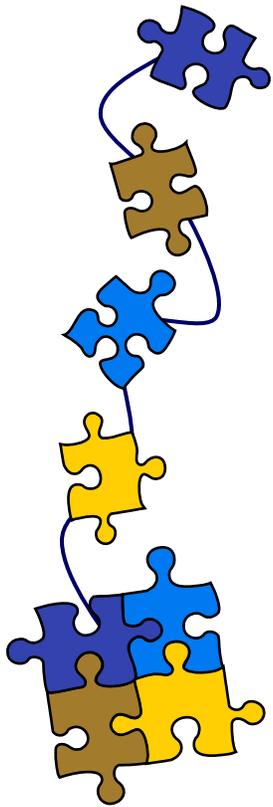
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Moment of reflection

How do the following types of interventions encourage the development of competency?

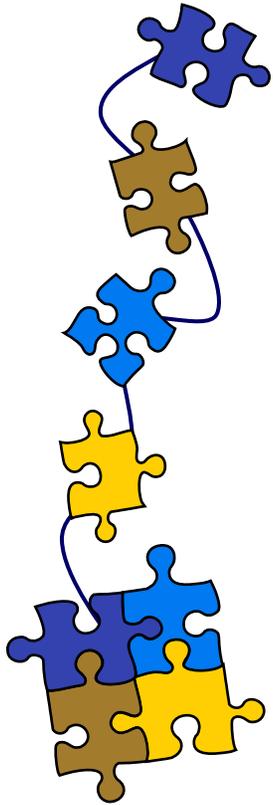
- Questioning
- Self-evaluation
- Interactions
- Moments of reflection



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For the development of metacognition

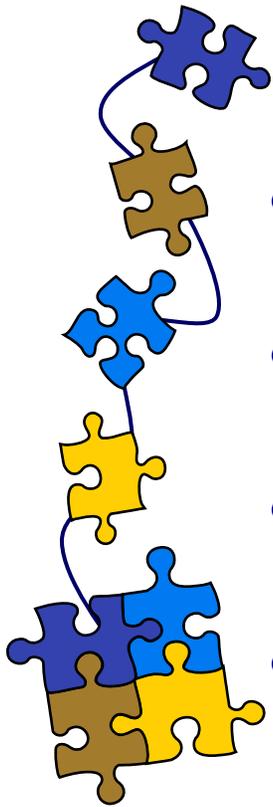


- Have the explicit intention of developing metacognitive ability
- Incorporate interventions in a continuous way
- Create frequent opportunities for awareness
- Vary the contexts and learning situations in which development is taking place

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Questioning: Examples of questions

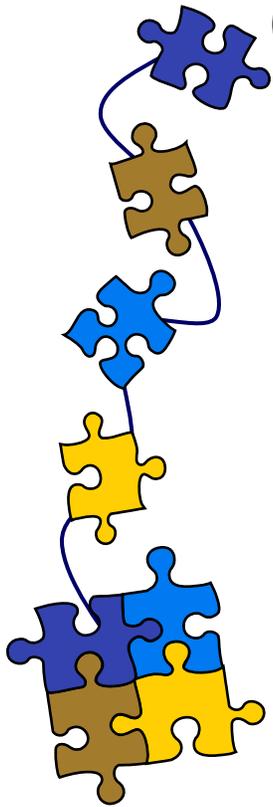


- What do you believe you have understood to this point? What makes you say so?
- What do you think the others have understood? What criteria are you using to make the comparison ?
- What do you think will be presented in the next hour? What leads you to make this prediction?
- What would help you better understand what is being presented?
- What was your level of concentration? Explain your answer?
- What could you do to improve your level of concentration? What makes you choose this strategy?

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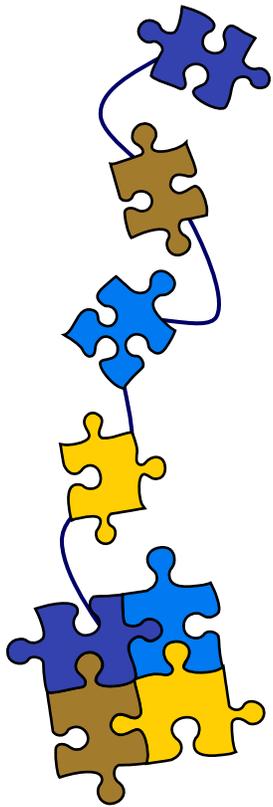
Questioning: Examples of questions



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- What it is that helped you to learn? What could be done to help you learn?
- Why do you believe that such methods would help you to learn?
- What could you do on another occasion to help you to learn?
- How would you evaluate your level of learning? of understanding?
- What have you learned during this interaction?
- What it is that permitted you to learn?
- How do you think you can make use of what you have learned?

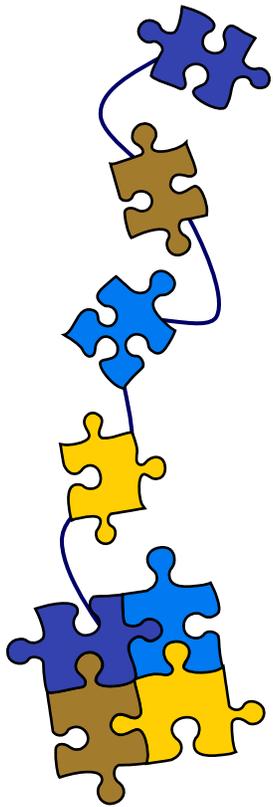


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Some types of self-evaluation

- Activation of prior knowledge
- Evaluation of knowledge or ability
- Reflection on thinking processes
- Evaluation of his preparation in a problem solving situation
- Becoming aware of attitudes
- Evaluation of strengths or difficulties
- Prediction of success or failure, with a review of the prediction following the process
- Evaluation of his ability to explain something to others



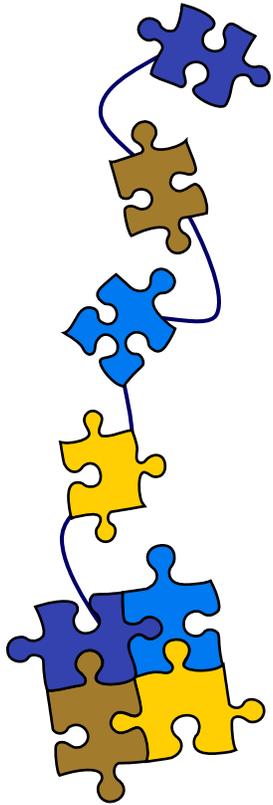
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Some types of self-evaluation

- Increasing the level of difficulty and naming how to reach success
- Indicating his ability to explain something to others, and discussing the advantages of explaining
- To question himself on his perceptions of the process and the content
- To reflect on the changes made in way he does something
- Evaluation the degree of his preparation to take action

Self-evaluation

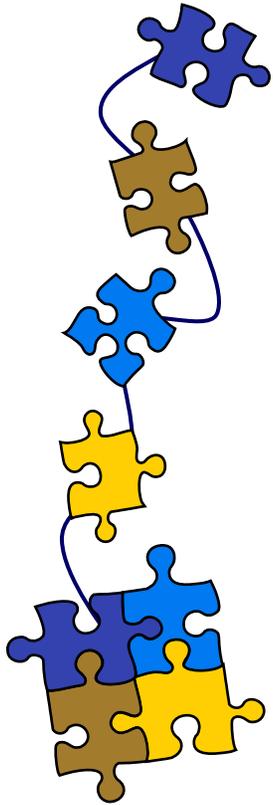


Self evaluation can focus on different aspects, such as:

- The degree of satisfaction with his answer
- The degree of accuracy of his answer
- The indicators that permit him to name the degree of certainty
- The reasons for which he thinks he has developed certain knowledge or competencies
- What it is that leads him to say he has developed certain abilities or attitudes
- A comparison between an evaluation of his competencies and those that he believes others have developed
- What can be done to improve

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Self-evaluation



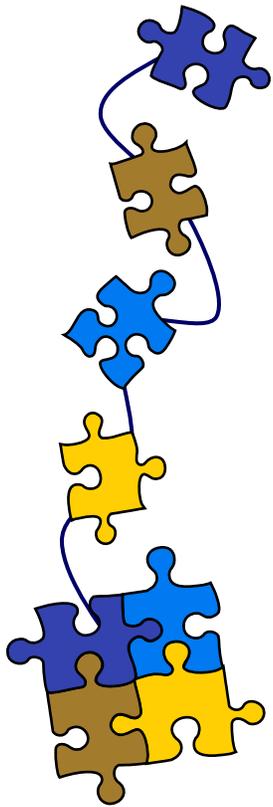
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For self-evaluation to be metacognitive, it is important that the individual reflects on the steps he went through in the self-evaluation:

- What is it that leads you to express this degree of satisfaction?
- What is it that allows you to evaluate your answers with such certainty?
- How did you proceed in order to be able to express the degree of certainty?
- Why do you believe you have developed this knowledge?
- What is it that leads you to say you have developed certain abilities or attitudes?
- Do you believe that others have better answers than you do? Why?
- What can you do to improve your answers?

Ways of using self-evaluation



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At the start:

- To activate prior knowledge
- To bring about awareness of attitudes

After part of the process – to evaluate:

- Knowledge constructed
- Abilities developed

Before a specific action

- To make predictions
- To evaluate preparation
- To express tension

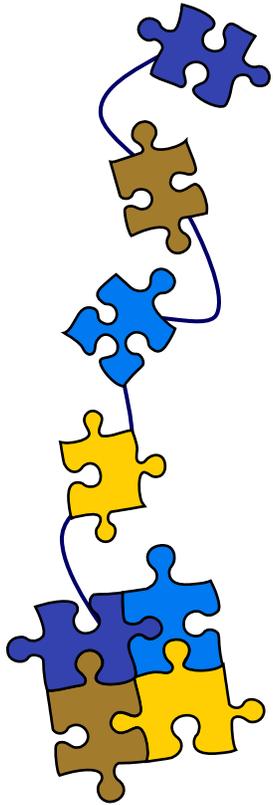
After the specific action

- To review the predictions
- To evaluation preparation
- To explore reasons for tension and ways of managing the tension

After:

- To evaluation difficulties and ease
- To analyse reactions
- To explore future actions

Interactions

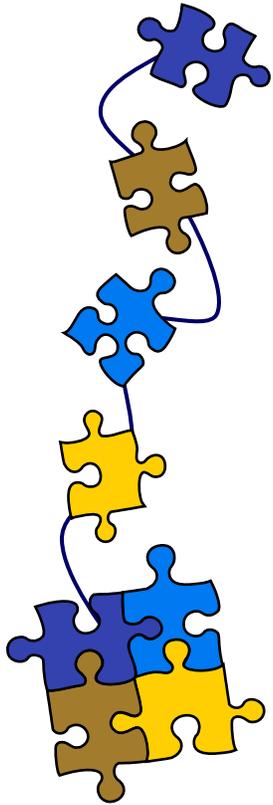


- Explain to you neighbour
- Exchange a one sentence summary
- Examine other's notes taken during the course
- Explain your reasoning to another person
- Answer the questions of another person
- Summarize as a team, exchange, contribute, discuss, explain
- Write two words that summarize what has been learned and compare it with another's words
- Draw out, compare, explain what you found to be the most difficult (or the easiest)
- Explain to others the process through which you accomplished a task
- Self-evaluate, and critique your process in front of others
- Evaluate each other's thinking processes.

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Interactions

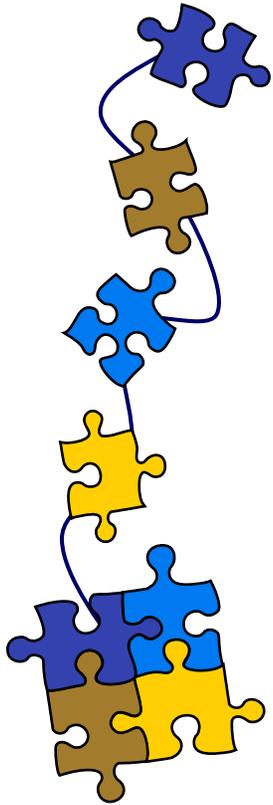


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- Indicate what we find most difficult and compare with another
- Identify strategies we consider effective and explain why
- Evaluate the clarity of an explanation given to another and discuss how to make improvements in clarity
- Compare work and discuss differences
- Self-evaluate by critiquing the steps taken in front of others, and coevaluate the self-evaluation process
- Have a team answer the questions of another team
- Summarize as a team, exchange, contribute, discuss, explain
- Compose and select questions with team mates
- Exchange on the methods used
- Identify your difficulties and explain them to others
- Self-evaluate, and critique your process in front of others
- Evaluate each other's answers and justify the evaluation

Moment of reflection

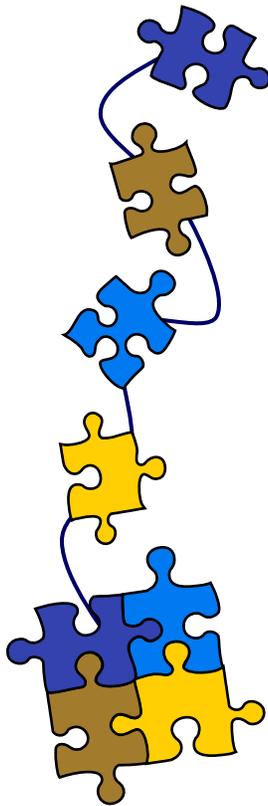


- Moments of reflection are pauses given to those who are accompanied in order to permit them to activate prior knowledge, experience or competencies, to integrate learning, to question themselves on different subjects...
- They are essential to the development of competencies, in that they provoke conscious awareness as well as encourage the process of integration

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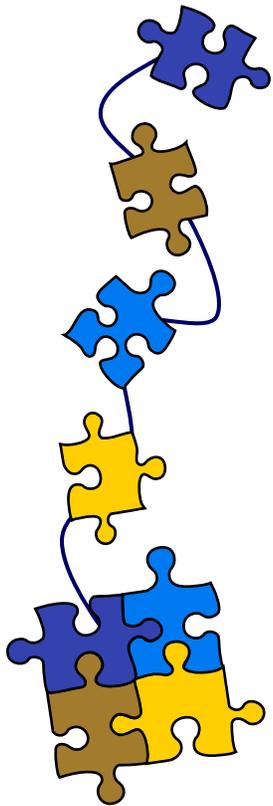


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