Teaching How to Learn

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Outcomes:

Identify key principles of Metacognition

Use these strategies for the classroom

Managing a Regret

What went wrong?
I went to the wrong classroom & building to visit an instructor.

Did you identify the problem?
I didn't include the building and room # in my calendar.
The specifics were elsewhere on a spreadsheet.

What are strategies to overcome the problem?
Get in the practice of being complete with the calendar.
Create immediate reminders: 1) Email myself 2)Add a calendar entry to check
if I've written any other incomplete calendar entries. 3) Leave a text message
to myself to update the online calendar. 4) Check the upcoming
calendar day to see that it is complete.

Have the strategies worked?
Yes, using one or more of those strategies have reminded
me to thoroughly list locations (or phone numbers)

WHAT'S WORKING?

WHAT'S NOT WORKING?

HOW CAN I CHANGE IT?

Metacognition is:
    thinking about thinking

In education it is:
    thinking about learning

Assumptions

Students are already practicing metacognition

They can develop it on their own.

The two principles of Metacognition

**What are they about? Why are they important?**

Metacognitive Knowledge

Metacognitive Regulation

Metacognitive Knowledge

Personal Resources

Prior Knowledge
Available Strategies

Task Requirements

Type of Learning
Appropriate Strategies

Metacognitive Regulation

Plan

**Goals
Beliefs
Attitudes
Motivation**

Evaluate

Monitor
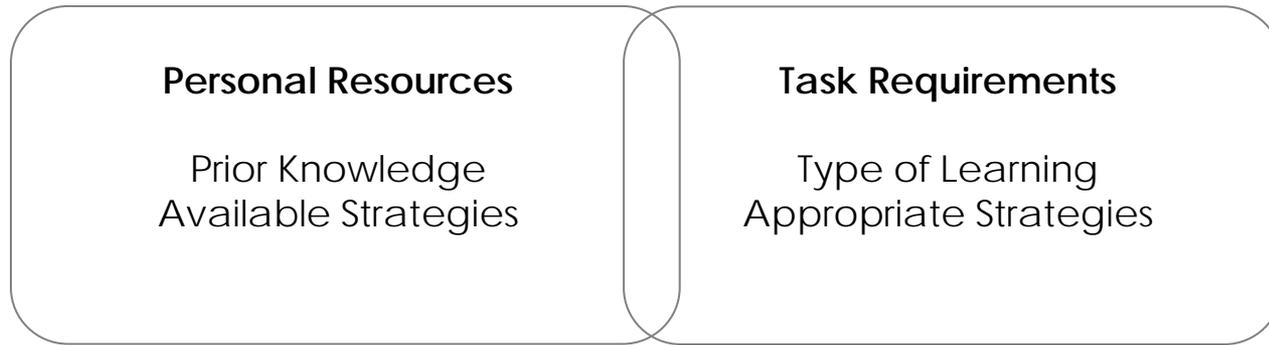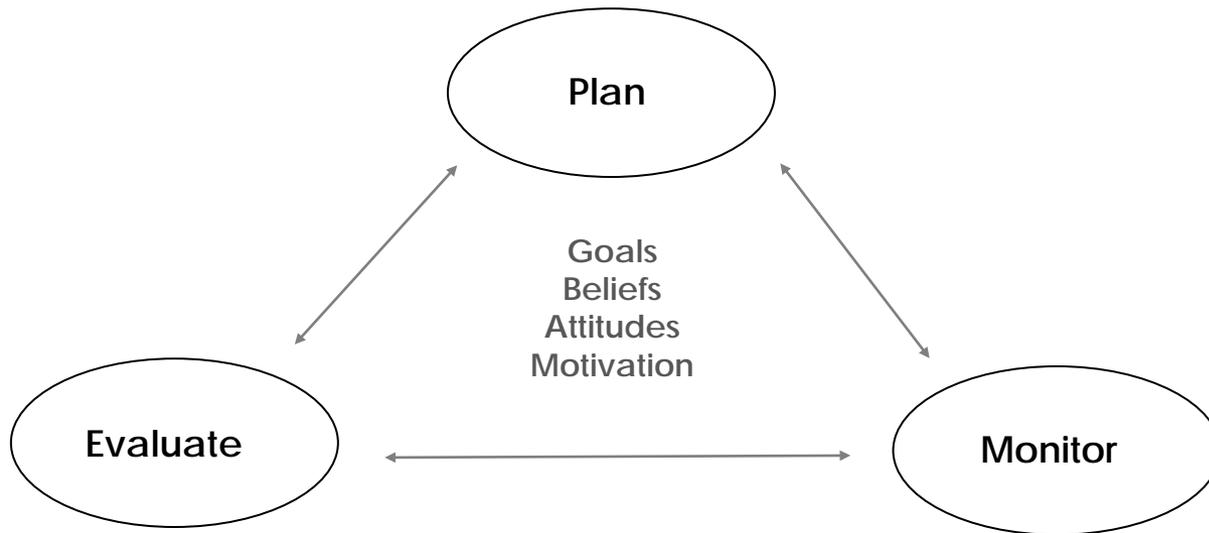
AAH! — Connections
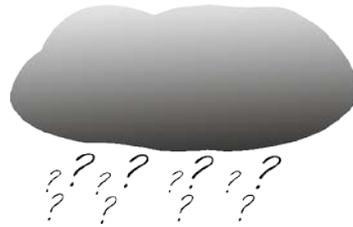
HUH? — Reactions

HMM. — Observations

Questions for Students:

While receiving new information (from lectures, demos, and feedback)
Aah! Huh? Hmm.

Aah! Connections I can make with other things I know.
Huh? Reactions and questions about what I'm seeing or hearing.
Hmm. Observations and insights.

    Before the work: (Plan)

    What is the assignment and criteria for it?
    What do I know already that relates to this work?
    What are my strategies and resources?

        While working: (Monitor: take mental/physical snapshots of the process)
        Periodically evaluate:

        Is the work I'm doing matching the assignment and criteria?
        What's working?
        What's not working?
        How can I change what I'm doing to make it work?
        How can I get the help/resources I need to make it work?

        After the work is completed: (Evaluate)

        What worked?
        What didn't work?
        How will I do it differently next time?
        How will what I learned here matter and relate to other work I do?

* Students can always ask, "**Why?**" questions to probe their learning and goals, often in
  follow-up questions. Example from the questions above: Why did/didn't it work?

There are three critical steps to teaching metacognition:

1. Teaching students that their ability to learn is mutable

2. Teaching planning and goal-setting

3. Giving students ample opportunities to practice monitoring their learning and adapting as necessary

Metacognitive Strategies:

Classroom Assessment Techniques (CATs) (AAU name: Learning Snapshots)
http://faculty.academyart.edu/export/sites/faculty/assets/faculty/1_LearningSnapshotsWhatWhyHow.pdf

Surveys in class or online
First Day Example: What Do Students Already Know? What Do Students Want to Know?
http://faculty.academyart.edu/export/sites/faculty/assets/faculty/6_FirstDayDiagnostic.pdf

Skill surveys such as reading strategy surveys. Examples:
http://www.cttech.org/central/curriculum/general-ed/Reading/READING%20COMPREHENSION.doc
http://guides.hcl.harvard.edu/sixreadinghabits

Questionnaires on learning, such as the VARK Questionnaire for Learning Styles
http://www.vark-learn.com/english/page.asp?p=questionnaire

Journals: goal setting, process, and reflection

Online forums where students can upload process pictures and discuss work in progress

Wrappers: questionaires Before and after projects and tests that focus on learning

Think-Alouds: talk through strategies and ways to think and during demos and lectures

Focusing (only) on metacognitive strategies during a section of:
Critiquing, Group-work, Draft-work

K-N-W-L-L (expanded from K-W-L)
What do you Know?
What do you Not know?
What do you Want to know more about?
How will you Learn what you would like to know?
What did you Learn that may be useful?

Discussion Topics on process and learning

Metacognition Online Resources:

AAU tips
Teaching How To Learn
http://faculty.academyart.edu/resource/tips/1952.html
Aha! & Huh? Moments in Student Thinking
http://faculty.academyart.edu/resource/tips/1940.html
Learning Through Transfer
http://faculty.academyart.edu/resource/tips/1989.html

Learner.org:
Metacognition part of an Annenberg-funded Teacher course (freely accessible)
http://www.learner.org/courses/learningclassroom/session_overviews/metacog_home9.html
http://www.learner.org/courses/learningclassroom/support/09_metacog.pdf

Carleton College and Karl Wirth's lectures and work:
http://serc.carleton.edu/NAGTWorkshops/metacognition/index.html
http://serc.carleton.edu/NAGTWorkshops/metacognition/wirth.html
http://serc.carleton.edu/NAGTWorkshops/metacognition/teaching_metacognition.html

Other Resources:
Student Goal Orientation, Motivation, and Learning by Marilla D. Svinicki
http://www.theideacenter.org/sites/default/files/Idea_Paper_41.pdf

Critical Thinking Questions from the Foundation for CriticalThinking
http://www.criticalthinking.org/ctmodel/logic-model1.htm