Metacognition and Motivation

By: Sheriann Stanton, M. Ed.
What is Metacognition?

- Knowledge about one’s thinking
- Monitoring and regulating one’s thinking
- Second order cognitions
- Identifying what they already know and putting it into words
- Setting goals and keeping track of advancement
- Revise and evaluate their work
- Use learning strategies
- Use learning in more than one context
At this stage, we don’t know whether this area develops as we get better at reflecting on our thoughts, or whether people are better at introspection if their prefrontal cortex is more developed in the first place,” says Dr. Steve Fleming.
Benefits of Metacognition

- Empowers learning when a student thinks she can’t...
- Student sees herself as problem solver
- Student asks himself: “Do I understand?” and/or formulates a question
- If he does not fully understand, he can ask the right questions and work toward a higher level of understanding
Examples of When Metacognition is Not Occurring with the Student

- Students spend more time on difficult items but are not aware of which items are more easy vs. more difficult.
- When students learn concepts in a particular discipline but don’t use them in a learning situation
- When comprehension is not happening
Positive Results for Metacognition

Improved Metacognition skills are responsible for:

- Learning
- Reading Comprehension
- Placing items learned in Long-Term Memory
- Better Grades
- Improved Self-confidence
- Goal completion

Figure 1: An interactive model of cognitive processing. Adapted from Derry and Murphy (1986), and Sternberg (1985).
Learned Helplessness Hinders Success

Refer to short story Julius Kuhl

- Overwhelmed by situation and not thinking clearly (Functional Helplessness)

- Functional helplessness vs. motivational helplessness (giving up because of feeling helpless)

Question to ponder: Did the man in the story feel helpless because of being helpless or did he become helpless because of feeling helpless? (Kuhl p. 217-218)
Motivational and Functional Helplessness

- Emphasis on functional as opposed to motivational helplessness
- Three factor theory implies effect of helplessness is a function of the type of factors intervening between experiences
- Student with unpleasant experience in class might be preoccupied by “state created by the flunked test.” Student may have trouble functioning otherwise (ex. burning dinner, being clumsy, behaving awkwardly towards others, showing less assertiveness) This doesn’t seem to stem from student’s perceived inability to do these things. (p. 160)
Activities that encourage metacognition:

- Enable equal contribution (ex. student/tutor) Ask questions that lead to the student formulating an answer
- Set S.M.A.R.T. goals
- Ask questions that show you understand some or all of the material (not just asking to repeat the question)
- Summarizing (ex. index cards w/ definitions and student rewords/paraphrases)
Keep a Learning Journal

- Students can monitor their thinking and reflect on how not what they learned.
- What was the easiest for me to learn? Why?
- What was most difficult for me to learn? Why?
- What study strategies worked well as I prepared for my exam? What strategies didn't work well? What will I do differently next time?
- What study habits worked best for me? Which ones will I try or improve upon?

Adapted from: https://www.edutopia.org/blog/8-pathways-metacognition-in-classroom-marilyn-price-mitchell
Is she using Metacognition?
No. This is not Metacognition. It is Rote Learning using repetition. (But it is very impressive and adorable!)

This young girl is reciting words that she may not fully understand.
Is this an example of Metacognition?
Yes, this is an example of Metacognition. The students are planning what to talk about during book club and marking it with sticky notes.

Discussing books requires comprehension and metacognition.
motivation

noun
noun: motivation; plural noun: motivations

the reason or reasons one has for acting or behaving in a particular way.
"escape can be a strong motivation for travel"
synonyms: motive, motivating force, incentive, stimulus, stimulation, inspiration, inducement, incitement, spur reason, informal carrot
"his motivation was financial"
the general desire or willingness of someone to do something.
"keep staff up to date and maintain interest and motivation"
synonyms: enthusiasm, drive, ambition, initiative, determination, enterprise; informal get-up-and-go
"keep up the staff's motivation"

Origin
ENGLISH
motive
ENGLISH
motivation
late 19th century: from motive, reinforced by motivate.

Translate motivation to
Choose language

Use over time for: motivation

Mentions
1800 1850 1900 1950 2000
Types of Motivation

**Intrinsic**
- pride
- interest
- achievement
- curiosity

**Extrinsic**
- grades
- punishment
- praise
- money
Extrinsic Motivation

- Driven by external rewards (grades)

According to *Psychology of Motivation*:

"Extrinsic motivation refers to our tendency to perform activities for known external rewards, whether they be tangible (e.g., money) or psychological (e.g., praise) in nature."

(Brown, 2007)
Intrinsic Motivation

- Driven by internal rewards

"Intrinsic motivation occurs when we act without any obvious external rewards. We simply enjoy an activity or see it as an opportunity to explore, learn, and actualize our potentials."

(From Coon & Mitterer, 2010)
Q: Which has a bigger impact on performance, extrinsic rewards or intrinsic motivation?

A: It's not a question of either/or. To do their best, most people need both.
## Hygiene factors and motivators

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Maslow’s Hierarchy of Needs

Physiological: food, drink, sex. Freedom from pain.

Safety: security, stability, structure.

Belongingness and love.

Esteem: self-respect, and respect from others.

Self-actualization: becoming all one is capable of being.
Are these students motivated and using Metacognition?
How about this student?
How to Motivate a Student

- Identify their reason for attending college and remind them of this when they seem unmotivated
- Remind them of times when they have been successful in the past
- Set mini deadlines to avoid procrastination and undue stress
- Show them how they will use the course information in the future

***Consider that the unmotivated student may be suffering from Depression and may benefit from professional help.***
“The researchers found that when the participants’ curiosity had been sparked, there was not only increased activity in the hippocampus, which is the region of the brain involved in the creation of memories, but also in the brain circuit that is related to reward and pleasure. This circuit is the same one that lights up when we get something we really like, such as candy or money, and it relies on dopamine, a "feel-good" chemical that relays messages between neurons and gives us a sort of high.” Marianne Stenger

What does this mean in terms of learning?

“Students need to use higher level cognitive functions to achieve joy in learning which aids in motivation and ultimately goal completion.” - SFS
The Candle Problem

Figure 8-14. The candle problem used by Duncker. (Adapted from Glucksberg and Eisberg, 1966. Copyright 1966 by the American Psychological Association. Reprinted by permission.)
The Candle Problem
S. M. A. R. T Goal Setting

MAKE THINGS HAPPEN!
S. M. A. R. T Goals Defined

S.M.A.R.T. goals are defined as one that is specific, measurable, achievable, results-focused, and time-bound

Specific:
- Goals should be simplistically written and clearly define your goal
- Specific answers What, Why, and How

Measurable:
- Goals should be measurable so that you have tangible evidence that you have accomplished the goal
- There are usually several smaller measurements built into the goal

Achievable:
- Goals should stretch you slightly so you feel challenged, but defined well enough so that you can achieve them
- As you carry out the steps, you can achieve goals that may have seemed impossible when you started. *(On the other hand, if a goal is impossible to achieve, you may not even try to accomplish it.)*

Results-focused
- Goals should measure outcomes, not activities.

Time-bound:
- Goals should be linked to a timeframe

References:


Links to Websites Used:


http://www.dictionary.com/
