The self-regulated learner

A student-centric view of learning
Historical perspectives

• The educational community has historically concentrated its efforts on effective teaching - that is, how can instructors present information, skills & attitudes in the most efficacious way.
  – This is not a bad thing, and should not be abandoned (or instructional and curriculum designers would be out of a job!)

• A next wave was student-centric teaching, wherein the emphasis was teaching according to the constructs (mental processes etc.) of the students.
  – E.g, problem-based learning, collaboration and cooperative learning formation of learning communities
  – Also a good thing, provides new, useful and exciting paths towards effective teaching

• A new wave, student-centric learning
  – First, the emphasis is on learning rather than teaching. Excellent teaching is pretty useless without facilitating learning.
  – Students learn whatever teachers do. What is in the student that lets that happen? How can we take advantage of this to promote learning
What’s in learners that contributes to the dance of learning?

Constructs of “self” e.g.,
- motivation
- learning beliefs

The incubator for self-regulation

Procedures e.g.,
- critical thinking
- selection of appropriate learning strategies
- resource management

“Choose to use”

Resources e.g.,
- Time and energy
- Well-being
- Peer-support
- Helpful “others”
  “Choose to take”

Affect
- test anxiety
- math anxiety
- Self-efficacy
  “Choose to feel”
Constructs of “self” effecting self-regulation

**Motivation**
- **Intrinsic:** Intrinsic motivation is the motivation that comes from within the student. S/he participates in a learning task for reasons such as challenge, curiosity, mastery of the material.
- **Extrinsic:** Extrinsic motivation comes from within the student, but is “pushed up” by external forces, such as grades, expectations of others, competition with others, acceptance into programs, etc.…Extrinsic motivation complements intrinsic motivation, but is problematic when it is the only form of motivation the student acts from.

**Perceived task value:** Task value refers to the student’s evaluation of how important, how useful, how interesting, etc.…a learning event is.
Constructs of “self” effecting self-regulation, cont.

- **Expectancy components:** In a nutshell, how does the student expect to do on a learning event?
  - **Control beliefs:** These concern the student’s belief that the outcome of a learning event is under the his or her control, that it is the student’s effort that “makes the grade”, not luck or the teacher or the alignment of the moon and stars.
  - **Expectancy for success:** This one is pretty self-explanatory. How well does the student believe he or she will perform on a learning task?
  - **Self-efficacy:** This refers to the student’s ability to self-examine and appraise her or his ability to master a learning task. It concerns a sense of realistically judging the ability to accomplish the task, and confidence that he or she can accomplish the task - self-confidence.
Self-regulating processes

- **Critical thinking**: In this model, critical thinking refers to the degree with which the student applies previous knowledge, skills and/or understanding to make decisions, solve problems or evaluate choices and strategies for achieving learning tasks.

- **Metacognitive self-regulation**: This refers to the student’s awareness and understanding of his or her performance. It involves planning, monitoring and regulating behaviors, as well as goal setting and task analysis. Events that occur during metacognitive self-regulation are tracking of understanding, self-questioning, self-testing. It is the “fine-tuning” of learning.
Selection and use of effective learning strategies: This concerns the student’s ability to use critical thinking skills and task analysis to choose and use the most effective type of learning strategy for the job. Note that these are categories of learning strategies as much as strategies in themselves.

- **Rehearsal:** These strategies basically involve reciting items over and over again until they are in memory. This strategy encodes and so supports higher learning strategy, but in itself does not lead to more advanced forms of learning. However, it might be the strategy of choice when the task is the simple acquisition of new information.

- **Elaboration:** Elaboration strategies take information stored in memory and help students store it into long-term memory by building internal connections (“schemata”) between items to be learned. This helps the learner integrate and connect new information with prior knowledge, and gives a hand in recalling the new information. Elaboration strategies include paraphrasing, summarizing, creating analogies and metaphors, and “generative” note-taking.
Self-regulating processes, cont.

- Selection and use of effective learning strategies:
  - **Organization:** Organization strategies can look a lot like elaboration strategies. The basic difference is that “organization” allows the learner to make the best pick from what has been learned. Pretty important in answering specific questions, or figuring out where the holes are in one’s understanding.

Like elaboration, these strategies help the learner build internal connections between information. Connections are made between new information and what has been learned. Organization strategies enable the learner to select appropriate information from a schema, rather than doing a brain dump. They require the learner to closely examine the schema and choose what is relevant to the task at hand. Organizational strategies involve clustering, outlining, and selecting the main ideas from reading passages.
Resources that contribute to self-regulation

- **Resource regulation**: This is the ability for students to manage those things that are not cognitive - such as time, energy, health and well-being, and social support.
  - **Time management**: Involves scheduling and planning time for tasks, as well as accurately judging the time the task will take. Once time is planned, the student needs to make effective use of study time and set realistic goals.
  
  - **Energy management**: People tend to be “larks” or “owls” and almost everyone turns into a zombie an hour after lunch. Energy management refers to the self-knowledge of energy peaks and valleys, and planning activities around times when the student’s energy level is appropriate for what needs to be done.
Resources that contribute to self-regulation

- **Resource regulation:** This is the ability for students to manage those things that are not cognitive - such as time, energy, health and well-being, and social support.
  - **Study environment management:** This refers to the student’s ability to choose environments that “work” for how his or her brain processes information, and/or what contributes to stimulation or relaxes the mind enough to learn. Common examples: The student who needs absolute silence to study vs. the student who needs to listen to music.

- **Effort regulation:** This component, also called “volition” refers to the learner’s ability to control the effort and attention they put into a task in the face of distraction and uninteresting tasks. This is another form of self-management and reflects a commitment to completing goals. It also regulates the continued use of learning strategies.
Resources that contribute to self-regulation, cont.

Regarding resource regulation

- **Warning:** Both time management and effort regulation can be very sensitive to AD/HD. Guess what the medical community has just figured out! About 75% of AD/HD children do not outgrow the condition, and that girls can get it too - if more likely to show the inattentive rather than hyperactive symptoms.

  - Talk to Penny Marshall about this if you have a self-identified student, or one that you think might have a problem that might be AD/HD.
Resources that contribute to self-regulation, cont.

And here we have two of Western education’s greatest foul-ups

- **Peer-learning**: This refers to the likelihood that a student will seek out the opportunity to learn with peers (as in a study group or sharing and critiquing notes) or to seek out peers for help. Also, to seek out peers for collaborative and cooperative learning.
  
  - Many students from traditional Western educational traditions will consider this “cheating”. **Beware**: so might their traditional Western professors!

- **Help-seeking**: This is self-management in that the student must learn to manage the support of others -- peers, instructors, university staff, etc -- when they do not know something. Self-regulating students know when they don’t know something, and know how or from whom to find out.
  
  - However, some students may be suffering an overdose of “individualism” and not feel comfortable asking for help. **Again, beware.**
Affect and emotion that contributes to self-regulation

- Anxiety - one of the greatest sources of poor performance
  - **The “cognitive” or “worry” component:** This component of anxiety refers to negative thoughts the learner has about her or his ability to do well on whatever learning task is at hand. These thoughts disrupt performance, as they use up cognitive energy and time that could be used to learn.

  - **The “arousal” or physiological component:** This is the rest of the body’s reaction to anxiety, such as muscle tension (leading to tension headaches), hormone dumps, upset stomachs, sweaty palms, rapid pulse, rapid and shallow breathing and other fun things.

  - While these two components tend to occur together, they often respond best to different forms of treatment.
A big ol’ flow chart of the self-regulated learning process

- **Success** - continue on with “informal” metacognition effort management, etc.
- **Uh oh!** - learning outcome not up to expectations or requirements
A simplified model a l'á Zimmerman, Bonner and Kovack

Self-evaluating and monitoring

Goal setting and strategic planing

Strategic outcome monitoring

Strategy implementation and monitoring
A simplified model a lá Zimmerman, Bonner and Kovack

**Self-evaluating and monitoring** occur when students judge their personal effectiveness, often from formal or informal observations and recordings of prior performances and outcomes:

- **Metacognition**
- **Self-efficacy**
- **Control of learning beliefs**
- **Effort control**
A simplified model a lá Zimmerman, Bonner and Kovack

**Goal setting and strategic planning**

occur when students judge their analyze the learning task, set specific learning goals or refine the strategy to attain the goal:

- Motivation
- Task value
- Critical thinking
- Selection of appropriate learning strategies”
  - Rehearsal
  - Elaboration
  - Organization
- Resource management
  - Time & energy
  - Environment
A simplified model à la Zimmerman, Bonner and Kovack

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**Strategy-implementation monitoring** occurs when students try to execute a strategy in structured contexts and to monitor their accuracy in implementing it:

- Metacognition
- Critical thinking
- Effort regulation
- Affect - e.g. test anxiety
- Application of appropriate learning strategies”
  - Rehearsal
  - Elaboration
  - Organization
- Resource management
  - Time & energy
  - Environment
- Peer-learning
- Help seeking
A simplified model a lá Zimmerman, Bonner and Kovack

**Strategic Outcome Monitoring**
occurs when students focus their attention on links between learning outcomes and strategic processes to determine effectiveness:

- Metacognition
- Critical thinking
- Control beliefs
- Self-efficacy
- Help seeking

Revision state: back to self-evaluation and monitoring to construct a more effective strategy