

## Why and how should we teach learners to be self regulated?

### What is self-regulated learning and why is it important?

About the authors:

**Carrie Chen, MD, MEd**, is a professor of clinical pediatrics and a PhD candidate in the UCSF/UMC Utrecht Doctoral Program in Health Professions Education

**Brian Schwartz, MD** is an assistant professor of clinical medicine

A self-directed learner takes responsibility for, directs, and regulates their own learning. The terms self-directed learning, self-regulated learning, independent learning and life-long learning tend to be used interchangeably in the literature with subtle differences based on who is determining what and how to learn. Technically, the medical school curriculum determines what and how, so it is more appropriate to use the term self-regulated learning (SRL) in relation to medical students. Self-regulated

students control and regulate their learning to best achieve their learning goals.

Physicians have a responsibility for ongoing maintenance and updating of their knowledge and skills. This process includes: 1) deciding what and how to learn, 2) whether they have learned the material/skill, and 3) how to conduct self-remediation if they have not achieved the intended learning. Thus the effectiveness of life-long learning depends on habits of self-regulated learning (SRL), which has been shown to be related to the quality of care provided by physicians. Many medical schools and residency programs have explicit goals for life-long learning and list graduation competencies in the problem-based learning and improvement domain.

### What evidence supports teaching students self-regulated learning?

- SRL is often seen as a quality learners possess, with its execution related to will, rather than as a skill learners develop. However, studies show that entering medical students often have underdeveloped SRL skills. All learners self-regulate to some degree; the difference between effective and ineffective self-regulation is the quantity and quality of SRL processes.
- SRL ability is a characteristic that distinguishes between high and low academic performance in college and complex psychomotor skill performance in medical students.
- The literature suggests SRL skills can be taught and that specific training to develop these SRL processes can improve academic performance.
- The teaching of SRL skills must be intentional so that there is appropriate mentoring, monitoring, and feedback of learner skill development. Current medical education curricula include elements such as problem-based learning, reflections, and portfolios that encourage some SRL processes, but these are not always intentionally implemented for the development of SRL skills.
- Studies show that SRL skills teaching can be effective either embedded into a curriculum/course or added as an independent curriculum/course.

### What are the educational underpinnings of self-regulated learning?

SRL is based in Bandura's social-cognitive theory and involves **iterative cycles of forethought, performance, and self-reflection**. Feedback from each cycle is used to continually adjust goals,

strategies and efforts.

SRL also incorporates metacognition, which is the awareness of one's own knowledge and the ability to understand and regulate one's cognitive processes to achieve goals, including



knowing when, where, and why to use specific learning strategies and planning for, monitoring, and adjusting their use as needed. Example: When I notice I am having difficulty with "x," it occurs to me that I should double check "y" before moving forward.

## How can I include self-regulated learning in my educational practice?

- Incorporate into the curriculum ways for learners to develop and promote their use of SRL.
- Be more explicit with learners that we are teaching SRL skills and show how the elements (e.g., reflection) or individual SRL processes are part of an iterative cycle.
- Offer opportunities for practice of SRL skills:
  - Set expectations for goal-setting, strategies for goal-attainment, self-monitoring, and reflection.
  - Provide feedback that is linked with student self-assessment, their achievement of personal goals, and adaptation of strategies if goals were not met.
- Build in repeated mentored cycles of planning-performance-feedback-adjustment with faculty who have received the appropriate faculty development.
- Develop faculty to promote SRL so that they:
  - Help learners set process goals;
  - provide feedback on process, not just performance outcomes;
  - help learners adjust learning strategies based on outcomes.

## What are some specific examples and steps?

- **PBL:** Ask students to articulate what they want to learn and what strategies they will use to complete their learning issue. Have students check their understanding during writing (to discourage simple cut and pasting from resources).
- **EC Small Group:** Students research multiple resources to answer clinical case questions prior to session. In small group discussion, ask students to share their research strategy in addition to their answers and have group summarize best practices which can be applied to future assignments.
- **Reflections in Portfolio:** Have students consider whether they have reached a specific learning goal, e.g., IV placement. If yes, what strategies allowed them to do so and how might they apply these successful strategies in the future? If no, how might they change their strategies for the next time?

## Questions for consideration.

- What is the best way to link various elements in the curriculum so that SRL is consistently reinforced and students develop good SRL habits versus just going through the motions?
- Should remediation be designed to go beyond merely increased opportunities for practice to include improvement of learner SRL skills?

## References

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### LEARNER CHECKLIST

#### Forethought/Planning Phase

- What is nature of task?
- What is my goal?
- What information/strategies are needed?
- How much time/resources are needed?
- What is my motivation?
- Any modification of environment needed?

#### Performance/Learning Phase

- Do I understand what I am doing?
- Does task make sense?
- Are my goals being reached?
- Any need to modify my thoughts/emotions?
- Any need to modify environment?

#### Reflection Phase

- Have I reached goal?
- What worked?
- What did not work?
- Would I do things differently next time?
- What is the impact on my motivation?