

# Self-regulated learning: why is it important compared to traditional learning in medical education?

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**Abstract:** Self-regulated learning has played an increasingly significant role in medical education over the last one to two decades. Medical educators have endeavored to ensure that the students are equipped to face the challenges of continued growth of medical knowledge. Here we enquire and reflect on various aspects of self-regulated learning including its strengths and weaknesses. We investigate how it could be incorporated with traditional teaching to bring the best out of the students and what students think about it.

**Keywords:** self-regulated learning, self-instructing, traditional teaching and medical education

## Introduction

Self-regulated learning (SRL) emphasizes the autonomy and control by the individuals who direct, monitor, and regulate learning to achieve their goals and expertise. It has become increasingly a common theme in medical education over the last decade. It plays a vital role not only during university years, but also when the students qualify and start practicing as doctors in the real world.

## Body

SRL has been defined in many ways by many authors. Zimmerman, who describes SRL as one's ability to control thoughts, feelings, and actions for attaining academic goals, proposed one of the earliest and most commonly accepted definitions.<sup>1</sup> Borkowski later defined self-regulated learners in a more detailed manner as those who are metacognitively, motivationally, and behaviorally active in their own learning.<sup>2</sup> He refers to metacognitively active learners as those who are self-aware, knowledgeable, and decisive about learning. Behaviorally self-regulated learners are motivated, seek out information and advice, and are capable of self-instructing. The motivation is predominantly intrinsic, derived from one's own desires and drive for success.

Since the introduction of SRL model in medical schools about a decade and a half ago, it has gained popularity among most of the students and teachers. Our complex and rapidly changing world increasingly requires self-initiated and self-managed learning not simply during formal schooling for academic achievements but also across the lifespan. Self-regulated learners irrespective of their levels, whether they are adults, youth learners, or disabled, are more likely to succeed academically and view their futures optimistically. On the other hand, it gives teachers a choice of various methods in delivery of knowledge, taking a learner centered to bring out the best in individuals.

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There are various models of SRL that are currently in use in the education industry. Some of the commonly used models include Problem-Based Learning (PBL), Distant Learning Courses, Open Access Scenario-Based Learning, Incidental Self-Directed Learning, and Self-Planned learning. There is not a significant difference between various models, and in fact they could all be perceived to be part of a spectrum. Although there are numerous models of SRL, they all share some key features, which form the fundamental pillars of SRL. These include self-motivating, possessing and utilizing knowledge, personal learning responsibilities, reflective thinking, and evaluating one's performance.

Rehearsing, elaborating, and summarizing using written or visual aids form an integral part of possessing and utilizing knowledge. These techniques help students correlate their learning with existing knowledge enhancing long-term memory and recall.<sup>3</sup> They also serve as vital cues for recall. Some of the different techniques that have been proven to be effective in improving on recall are by Cepeda. He suggests that studying different subjects or carrying out different tasks in different sessions rather than the same subject in all sessions till the syllabus has been completed brings about better outcome.<sup>4</sup> Changing environmental context in studying aids memory recall and retention. It encourages individuals to take responsibility by not only controlling their physical, social, and psychological environment but also avoiding procrastination. SRL enables one to strive to become a rational thinker rather than demonstrating irrational traits such as those of a worrier and perfectionist. Traditional learning utilizes fewer teaching aids, and teaching is carried out in a set fashion with no encouragement for developing one's own ways of learning, and it almost forces the students to follow a strict pathway whether it suits them or not with lack of reflective thinking capabilities.

Zimmerman describes SRL in three stages as a part of learning cycle.<sup>1</sup> Stage of forethought, also known as stage of planning, makes use of largely metacognitive strategies. It involves setting goal and success criteria, and planning strategies to achieve the set goals. Goals could be simple or complex, but they need to be smart, measurable, realistic, and timely so that they could be converted into successful outcomes. Strategies work well if they are based on both internal and external sources. Goals that consist of both academic and behavioral elements tend to have more successful outcome as they work in unison.

Stage of performance, also known as stage of monitoring or volitional control, focuses on implementing the plan, monitoring and managing performance, and self-instructing,

providing learners with a feeling of autonomy. Various techniques could be adopted to monitor progress and they do not have to be complex. They could be as simple as using task check sheets, timeout capsules, carrels, and personal compact discs.

Stage of self-reflection, also known as stage of evaluation, is a stage where the students are able to not only assess their own performance on that particular task but also develop learning steps for future projects. The learners gain an opportunity to adapt as they learn and manage their emotions that is vital for future success. For example, some students report that the presence of other students in the group threatens their learning opportunities, while some others take it as a challenge for their progress. Feedback from teachers and peers serve as a vital source for change or improvement.

Learning and motivation are interdependent. SRL encourages students to seek out knowledge proactively rather than merely reacting to situations that provide them with the opportunity to learn. On the other hand, traditional learning, which involves direct instruction-based strategies, has many advantages as reported by the students. It guides them appropriately, ensuring that they cover the breadth of the syllabus in detail. In a recent interview conducted, by our institution, of medical students posted to our general surgical department, they report better engagement, encouraging environment that allows them to set intrinsic goals, and teaching offered in various environments using different strategies that stimulate better learning and is highly modifiable depending on the way the teaching is received by the learners making it a more learner-centered model. The students, particularly mature students, find it exciting although challenging to adapt SRL as it offers them with a freedom to express their thoughts, ideas, and beliefs.

While SRL has its advantages, it is not devoid of issues. Students face a variety of hurdles when they embark on their journey of learning with self-regulated approach. They face frustration and anxiety, especially if the learners are young and/or have no experience of SRL. The students may lack motivation and ability to devise learning strategies and fail to set realistic goals or seek help when needed. Procrastination is, worryingly, a significant issue if it is encountered and can make progress and monitoring the progress difficult.

Although SRL has its disadvantages, they could be overcome, and students still prefer adapting SRL in their curriculum. However, learners in our institutional interview preferred a combination of SRL and traditional learning, almost on a 70/30 percent basis, so that guidance and direction are offered when needed and in a timely fashion, especially for

those who may not have had any prior experience of SRL. In spite of the notion that many have, SRL could only be successfully implemented and outcomes enjoyed, if it is a team approach with the learner in the center as the focus. That would mean working in a group, may it be a student study group or hospital-based team where the learning takes place. Broad reading and summarizing at the end, making use of past experience, and changing behavior of hospital staff on communication matters make learning easier and more welcoming.

PBL model of SRL may encourage students to shy away from deep and strategic learning, and adopt superficial learning approaches,<sup>5</sup> meaning the students may focus on application of a concept without understanding the meaning or the basis of the same. This may diminish self-efficacy and raise a question about the capabilities of SRL. This reinforces the importance of study habits, workload and assessment, and determining individual approaches, where traditional teaching may have a good role.

Furthermore, in hospital-based learning, students may face various difficulties in adapting SRL model during acquisition of surgical skills.<sup>6</sup> Hospital-based learning entails acquisition of theoretical and practical knowledge by the learners with an opportunity to practice the skills in a hospital environment, while they are posted in a clinical placement. As much as the learners would like to make use of their metacognitive skills and engage in the task, there is lack of flexibility. This may be due to set theater protocols, reduced learner–patient interaction because of privacy issues and availability of appropriate patients, and apprehension from the student perspective to admit that surgery is not their chosen career pathway.

Whatever the adversities, some achieve better standards than others while making use of SRL. They tend to be self-efficacious, remain problem focused, and persevere for longer.<sup>7</sup> Female students display better goal setting and plan strategies better than male students, while male students display almost overconfident characters sometimes. It is almost an expectation with current structure of education that learners perform better as the years go by, but that may not be always true. Although self-efficacy increases, which also increases motivation, as students become seniors, lack of self-directedness continued unless they were given proper guidance.<sup>8,9</sup>

Butler describes SRL as a process as recursive, dynamic, multidirectional, and complex, which inherently needs leadership and direction.<sup>10</sup> Therefore, a combination of lectures, which is a significant part of traditional teaching

and student-centered sessions, would have a better success rate. Lastly, with belief and experience students are able to reap the benefits of SRL. In terms of belief, those with overconfidence tend to do worse than those who are underconfident.<sup>11</sup> Learners who are overconfident do not account for forgetting and assume that they shall remember things once studied and that learning is easy unlike those who are slightly underconfident.

## Conclusion

SRL is something that is vital over the entire lifespan in the current era. Learning how to learn is very critical. It is under the influence of intuitions and belief, which may rather impair the process and increase efficacy. Becoming a sophisticated learner requires basic understanding of the learning process, identification and interpretation of errors, and avoiding the mindset that one's learning ability is fixed, thereby encouraging the mind to think freely and appreciate the incredible capacity of humans.

## Disclosure

The authors report no conflicts of interest in this work.

## References

- Zimmerman, BJ. Academic Studying and the development of personal skill: a self-regulatory perspective. *Educ Psychol.* 1998;33:73–86.
- Borkowski JG, Thorp PK. Self-regulation and motivation: a life-span perspective on underachievement. *Self-regulation of learning and performance.* Hillsdale, NJ, US: Lawrence Erlbaum Associates; 1999:45–74.
- Roediger HL, Karpicke JD. The power of testing memory: basic research and implications for educational practice. *Perspect Psychol Sci.* 2006;1(3):181–210.
- Cepeda NJ, Pashler H, Vul E, Wixted JT, Rohrer D. Distributed practice in verbal recall tasks: a review and quantitative synthesis. *Psychol Bull.* 2006;132(3):354–380.
- Papinczak T, Young L, Groves M, Haynes M. Effects of a Metacognitive Intervention on Students' Approaches to Learning and Self-Efficacy in a First Year Medical Course. *Adv Health Sci Educ Theory Pract.* 2008;13(2):213–232.
- Gardner AK, Jabbour IJ, Williams BH, Huerta S. Different goals, different pathways: the role of metacognition and task engagement in surgical skill acquisition. *J Surg Educ.* 2016;73(1):61–65.
- Zimmerman BJ. Self-efficacy: an essential motive to learn. *Contemp Educ Psychol.* 2000;25(1):82–91.
- Van Den Hurk MM, Dolmans DHJM, Wolfhagen IHAP, vMuijtjens AMM, Van Der Vleuten CPM. Impact of individual study on tutorial group discussion. *Teach Learn Med.* 1999;11(4):196–201.
- Lee YM, Mann KV, Frank BW. What drives students' self-directed learning in a hybrid PBL curriculum. *Adv Health Sci Educ Theory Pract.* 2010;15(3):425–437.
- Butler DL, Cartier SC, Schnellert L, Gagnon F, Giammarino M. Secondary students' self-regulated engagement in reading: researching self-regulation as situated in context. *Psychol Test.* 2011;53(1):73–105.
- Kornell N, Rhodes MG, Castel AD, Tauber SK. The ease-of-processing heuristic and the stability bias: dissociating memory, memory beliefs, and memory judgments. *Psychol Sci.* 2011;22(6):787–794.

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