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The importance of self-regulation for learning

School resources

Self-regulation is the process by which students monitor and control their cognition, motivation, and behaviour in order to achieve certain goals. There are several interweaving theories of self-regulation, but most common models conceptualise self-regulation in terms of a series of steps involving forethought or planning, performance, and reflection.^{1,2} These steps can be explicitly taught and, while self-regulation increases to some extent with age, the research is clear that self-regulation can be improved and that the role of the teacher is crucial in supporting and promoting self-regulated learning. What is more, students' emotions and their beliefs about their own ability play a key role in the development and exercise of self-regulation, and teachers can further support self-regulation by teaching students about [growth mindset](#) and the role of [the emotions in learning](#).

The first step in self-regulated learning is to plan and **set goals**. Goals are guideposts that students use to check their own progress. Setting goals involves activating prior knowledge about the difficulty of the task and about one's own ability in that content area. Students may weigh in their mind how long an activity may take and set a time management plan in place. They may also think about particular learning strategies (such as asking themselves questions as they read) that they will use in reaching their goal/s.

Students self-regulate by focusing their energy and attention on the task at hand. This next step involves **exercising control**. Control can be exercised by implementing any of the learning strategies (such as rehearsal, elaboration, summarising or asking themselves questions) chosen in the first step. Help-seeking can also be a form of control, but only when the learner uses it to develop their own skill or understanding: help-seeking is not considered self-regulatory behaviour when it is used as a crutch to arrive at the answer without the hard work. Control can also take the form of using attention-focusing strategies such as turning off all music, sitting alone, or going to the library, and it involves postponing enjoyable activities in order to make progress towards one's goals. Simply put, control is general persistence to stick with the strategies that work.

Next, self-regulated learners **monitor progress** towards their goal. Individuals can monitor their own understanding, motivation, feelings, or behaviour towards a goal. For example, by using the metacognitive strategy they decided to use in the goal-setting stage (asking themselves questions), students can clarify for themselves what they do and do not yet know. Other ways of self-monitoring include keeping track of how much studying truly gets done with a study group, or noticing which contexts and environments allow them to focus on their work.

Finally, students use the information gathered through the previous self-evaluation to metacognitively **reflect and respond**. A student's confidence in their own abilities will shape how they reflect on their progress or lack thereof. For example, a student with a stable, high belief that they are capable will attribute a low grade on a math test to their lack of sleep the night before or their minimal study time as opposed to a lack of intelligence. Responding to a self-evaluation functions like a thermostat, either turning up the dial on effort to increase progress towards one's goals or easing back to focus on other tasks. This adjustment can manifest as help-seeking behaviour, persistence, or shifting learning strategies.

Why is self-regulation important?

It is increasingly important that students are able to proactively evaluate and improve upon their own learning. In a rapidly changing world, successful individuals must be life-long learners who are metacognitive about and able to effectively evaluate their learning. Within the education system, students without the ability to focus their attention and maintain perseverance will be constantly pulled left and right by their immediate impulses. Furthermore, students who fail to learn self-evaluation strategies will not be able to effectively direct their attention towards the areas that need it the most. While some students may find poor study conditions, confusing lessons or difficult texts to be insurmountable obstacles, self-regulation allows learners to navigate these conditions by discovering solutions that work.

In addition to developing personal responsibility about learning, self-regulation also solidifies the content of learning. Self-regulation practices improve the encoding of knowledge and skills in memory, especially in reading comprehension and writing.³ Research has also identified that self-regulation strategies are associated with increased student effort and motivation, improved scores on standardised tests and general preparedness for class.

How do we cultivate self-regulation?

As discussed above, the self-regulation process is composed of a series of steps. These steps are not rigid in their order. In actuality, self-regulated learners engage in many of these processes simultaneously or shift the steps as they become adept self-regulators. To teach and develop student self-regulation as a whole, teachers can support each of the underlying stages. It is also important to support students' self-efficacy, encourage them to adopt a growth mindset and prioritise learning over grades and marks.

Match the form of learning with appropriate strategies

In this first stage, students identify particular learning strategies that fit with their goals. Basic learning tasks such as encoding information for memory recall are best learned through rehearsal, organisation or categorisation, mnemonic devices, or paraphrasing the information. However, more elaborate strategies are used when students are asked to make information meaningful. In building connections between new concepts and a learner's existing knowledge, students may choose to list underlying causes or themes, outline the structure of the process or paper, or diagram spatial relationships to create a network of ideas. This is not a comprehensive catalogue of learning strategies but serves to illustrate the value in carefully choosing a learning strategy to align with goals. It is important for teachers to explicitly teach a range of learning strategies, and to enable and support students to determine which form of learning strategy is most appropriate for the type of work.

Always include positive feedback

Maintaining attention throughout a task takes practice. However, teachers can support students' focus through positive feedback. Students often adopt their teacher's evaluations of their work as their own, which means that teachers can highly influence a student's persistence in engaging with a task or giving up. In addition, developing a culture around celebrating mistakes as opportunities to learn is crucial. Authentically discussing areas of improvement allows room for growth, and an inclusion of positive feedback should not be interpreted as giving exclusively positive feedback. Teachers can also use their expertise to differentiate their level of positive and negative feedback according to student self-efficacy in a particular task.

Maintain an environment conducive to focus

Teachers can ensure that the study environment is conducive to focus, as a relatively quiet space for individual work is invaluable. Beyond this, students learn how to regulate their own attention and

impulses best through sustained and regular practice, increasing in duration each session. While collaboration and discussion are an important part of learning, self-regulation becomes much more challenging in a noisy environment. In secondary education this is particularly important, as the higher critical thinking skills required by adolescents are severely inhibited by distractions. Teachers can further support the development of self-regulation by providing complex, open-ended tasks that give students the opportunity to practise managing distractions and maintaining focus while tackling increasingly challenging academic work.

Guide students to track their progress

At the heart of monitoring understanding lies the question: 'what do I know, and how can I improve?' Students can push themselves to become aware of the limits of their own knowledge through recall, practice and extension, depending on the nature of the goal. One monitoring strategy might be summarising the main points of a lesson following direct instruction. A student trying to increase her reading comprehension may pause to ask herself questions about the text (at varying levels of complexity).

Some students may wish to improve their time management skills. These students would benefit from keeping a record of how they spend their time and then comparing it with their task goals. For example, I may believe that two hours of studying with a study group each week is a strong plan in preparing for a test at the end of the term. However, I may in fact find that one of the two hours is generally spent socialising. This new information can then be used to shift my behaviour moving forward.

Practise evaluating 'like a detective'

In the reflection and response stage, students utilise feedback from the monitoring stage to inform their shift in learning strategies or effort moving forward. This requires a high level of resilience in order to bounce back from the inevitable highs and lows in learning. Similarly, it also necessitates metacognition to dig into why certain strategies may not work, and why others might be more effective moving forward. These metacognitive strategies can be taught explicitly through talking with students about how to be a detective in reflecting on their areas of strength or growth. In addition, resilience can be fostered through conversations surrounding growth mindset, and context- rather than person-specific attribution of failure. Encouraging students to attribute poor performance on a test to lack of preparation rather than unintelligence, and supporting students to respond to feedback with an understanding that achievement is variable based on effort rather than stable personality traits, are highly predictive of the development of positive self-regulation in students.

For example, a student who has failed a maths test may feel like giving up completely in maths. However, she demonstrates emotional resilience and decides to reflect on which particular problems gave her trouble in order to shift her learning strategies. On reflection, she realises that during the previous term she never went to the library by herself, summarised the material to herself following a lesson, or asked the teacher for help. She considers the merit of these changes, how she will implement them, and makes a plan to manage her time accordingly.

Measuring self-regulation

Periodically evaluating students' social-emotional learning serves the dual purpose of informing the teacher of their students' progress and wellbeing, and prompting students to practise self-awareness. While formal school-wide social-emotional assessments are valuable for collecting comprehensive data, these measures are time-consuming and cannot practically be implemented more than once or twice each year. For these formal assessments, one reliable measure with strong evidence of validity is the

[Panorama Social-Emotional Learning Survey](#). However, on a fortnightly or monthly basis, teachers can informally gauge student self-regulation by asking the following questions:

- When you get stuck while learning something new, how likely are you to try a different strategy? (Not at all likely/Quite likely/Likely/Highly likely)
- Before you start on a challenging project, how often do you think about the best way to approach the project? (Almost never/Sometimes/Fairly often/Almost always)
- Overall, how well do your learning strategies help you learn and focus more effectively? (Not at all well/Quite well/Well/Very well)
- How often do you stay focused on the same goal for several months at a time? (Almost never/Sometimes/Fairly often/Almost always)
- When you are working on a project that matters a lot to you, how focused can you stay when there are lots of distractions? (Not at all focused/Quite focused/Focused/Very focused)
- If you have a problem while working towards an important goal, how well can you keep working? (Not at all well/Quite well/Well/Very well)
- How consistently do you pay attention and resist distractions? (Not at all consistently/Quite consistently/Consistently/Very consistently)
- When you work independently, how often do you stay focused? (Almost never/Sometimes/Fairly often/Almost always)
- How often do you follow through in completing the goals you set for yourself? (Almost never/Sometimes/Fairly often/Almost always)
- How do you keep yourself motivated when a concept or lesson is not inherently interesting to you?

- When you feel yourself becoming distracted, do you try to counteract this effect? How?

- The last time you experienced a setback in school, how did you respond?

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Endnotes

¹ Pintrich (2000).

² Zimmerman (2002).

³ Zimmerman (2002).

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