

Research Guide

College and Career Competency: *Self-Regulation*

Definition:

Self-regulation is considered a multidimensional construct (Abar & Loken, 2010), so it can be defined in different ways. In general, however, self-regulation refers to proactively applying self-directive processes, cognitive behaviors, and emotions to attain goals and skills (Abar & Loken, 2010; Zimmerman, 2008). Self-regulated students are “metacognitively, motivationally, and behaviorally active participants in their own learning process” (Zimmerman, 1986, as cited in Zimmerman, 2008, p. 167). Self-regulation of learning consists of **goal setting** and selecting learning strategies, then remaining motivated while charting progress against goals (Zimmerman, 2000, as cited in Ramdass & Zimmerman, 2011). Self-control and self-evaluation are strategies used for self-regulation (Cleary & Zimmerman, 2004).

Essential Components for Students:

1. Plan for and articulate what you want to accomplish.
2. Immediately monitor progress and interference regarding your goal.
3. Adjust as needed when things are not going as planned.
4. Reflect on what worked and what you can do better next time.

Research:

- Self-regulation can predict academic achievement (Ursache, Blair, & Raver, 2012).
- Training students, including primary school children, in self-regulation has a positive effect on learning outcomes, strategy use, and **motivation** (Dignath, Buettner, & Langfeldt, 2008).
- Several studies have shown that teachers can successfully adapt activities and assignments to help students develop self-regulatory skills.
 - In a study involving 4th graders and math instruction in Germany, the students trained by the teacher in self-regulated learning showed significant increases in both homework effectiveness and math achievement (Zimmerman, 2008).
 - Meaningful homework (tasks assigned by a teacher and completed outside of school hours) has been found to foster self-regulation skills and is positively correlated to student achievement (Ramdass & Zimmerman, 2011).
- Self-regulated learning strategies include self-evaluation, **goal setting** and planning, keeping records (like a diary) and monitoring, student-initiated practice via rehearsing and memorizing, seeking peer assistance, seeking teacher assistance, and reviewing notes (Nota, Soresi, & Zimmerman, 2004).
- Frequency of students’ self-regulated strategy use predicted a substantial amount of variance in achievement scores (Nota et al., 2004).
- **Self-efficacy** (belief and confidence in abilities) is positively correlated to self-regulated learning, as are task value beliefs (belief that the work or task is interesting and valuable) (Pintrich, 1999).
 - Accomplishing goals requires effective planning and goal-oriented behaviors during goal-striving (i.e., working toward the goal) (Boekaerts & Corno, 2005; Duckworth, Grant, Loew, Oettingen, & Gollwitzer, 2011). Research (Duckworth et al., 2011)

conducted with 66 second-year high school students at an urban school showed that self-regulatory strategies for successful goal pursuit can be taught directly. These self-regulatory strategies consist of mental contrasting and implementation intentions, defined below.

- Mental contrasting involves imagining a desired future (e.g., graduating high school, doing well on a test) and then reflecting on the present reality and any obstacles that might stand in the way (Oettingen & Gollwitzer, 2010).
- Implementation intentions specify when, where, and how the goal will be pursued (Oettingen & Gollwitzer, 2010). They can take the form of “if-then” plans that highlight what step the student will take in different situations to stay on track during goal-striving. For example, in the study by Duckworth et al. (2011), students identified two positive outcomes of completing practice tests in a PSAT preparation workbook and two potential obstacles to completing the tests (mental contrasting). They then wrote potential solutions in the form of “if/then” statements to overcome the obstacles (implementation intentions). These students completed 60% more practice questions than students who did not use the mental contrasting/implementation intentions strategies.
- Research by Anderson, Munk, Young, Conley, and Caldarella (2008) shows that students who are taught to set goals, self-monitor their work, and sign behavioral contracts perform better academically than students who do not receive this instruction.
- While self-regulation is often studied as an individual process, research increasingly encompasses its relation to social context elements (Meyer & Turner, 2002).
 - In a qualitative study, researchers found that scaffolded instruction during a classroom math lesson provided the knowledge, skills, and support for developing students’ self-regulation. (Meyer & Turner, 2002).
 - Instructional scaffolding supports student self-regulation by helping students increase understanding and thereby building their confidence; engaging students in learning while also supporting socio-emotional needs; and helping students build and apply autonomy (Meyer & Turner, 2002).

Assessments:

- Self-regulation assessment instruments developed in the 1990s tended to be domain- and situation-specific and based on self-reports. Newer assessment techniques fit specific contexts and capture a student’s use of self-regulation in action (Boekaerts & Corno, 2005).
 - The [Motivated Strategies for Learning Questionnaire](#) (MSLQ) is a 44-item self-report instrument that uses a Likert-type scale to measure the student’s cognitive and metacognitive strategies as well as their **motivation** and use of specific techniques (Pintrich, Smith, Garcia, & McKeachie, 1993).
 - [Think aloud protocols](#) can be used to have students verbalize thoughts, feelings, and strategies as they work through a problem. It is most useful for older students who have a sufficient vocabulary to describe the components of self-regulation (Boekaerts & Corno, 2005).
 - The [Self-Regulated Learning Interview Schedule](#) (SRLIS) asks students to describe their study methods in a semi-structured interview by responding to prompts and hypothetical situations presented by the interviewer (Zimmerman & Martinez-Pons, 1988).

- The [Arc's Self-Determination Scale](#) (Wehmeyer & Kelchner, 1995) is a 72-item self-report measure with 148 possible total points. Higher scores indicate higher self-determination. Subscale scores are also available for four characteristics that are important for self-determination: autonomy, self-regulation, psychological empowerment, and self-realization.
- The Homework Management Scale (Xu, 2008) is a 22-item questionnaire that measures homework strategies like finding a quiet place, handling distractions, and managing time. Students select a response from never, rarely, sometimes, often, or routinely. The 22 items are listed below. Note, items 18-22 are reverse-scored.
 1. Locate the materials I need for my homework
 2. Find a quiet area
 3. Remove things from the table
 4. Make enough space for me to work
 5. Turn off the TV
 6. Set priority and plan ahead
 7. Keep track of what remains to be done
 8. Remind myself of the available remaining time
 9. Tell myself to work more quickly when I lag behind
 10. Find ways to make homework more interesting
 11. Praise myself for good effort
 12. Praise myself for good work
 13. Reassure myself that I am able to do homework when I feel it is too hard
 14. Tell myself not to be bothered with previous mistakes
 15. Tell myself to pay attention to what needs to be done
 16. Tell myself to calm down
 17. Cheer myself up by telling myself that I can do it
 18. Daydream during a homework session
 19. Start conversations unrelated to what I'm doing
 20. Play around with other things while doing my homework
 21. Stop homework repeatedly to find something to eat or drink
 22. Stop homework to send or receive "instant messages"
- The [Self-Regulation Strategy Inventory](#) (Cleary, 2006) is a 28-item self-report questionnaire that uses a 7-point Likert-type scale from 1 (never) to 7 (always) to measure students' use of specific self-regulation strategies.




Instructional Practices:

- Teachers can help students develop self-regulatory skills through homework assignments by using a checklist or log that asks students to note when they began and completed the assignment, how they kept themselves motivated and avoided distractions, and what their behaviors were during the homework assignment (Ramdass & Zimmerman, 2011). See these links for examples of logs and checklists.
 - [Homework Checklist for Parents](#) (John Greer Grade School, 2015).
 - [Homework Log](#) (WTTW, 2015).
 - [Daily Homework Log](#) (Palmer, 2015).
- Rubrics are self-assessment tools that have positive effects on self-assessment. When used in conjunction with scripts, they have been found to facilitate self-regulation and learning (Panadero, Tapia, & Huertas, 2012).

- Rubrics consist of a list of criteria for assessing the important goals of a task; a grading scale for the different levels of achievement; and a description of those levels (Panadero et al., 2012).
- Scripts are a second type of self-assessment tool. They consist of specific questions about how to approach a task from beginning to end, and are organized into steps. The questions are based on models of how an expert would complete the task (Panadero et al., 2012).
- One aspect of self-regulated learning is that the student can monitor whether learning has occurred. Researchers found that having students generate keywords when reading resulted in more accurate judgment of learning and comprehension for 6th and 7th graders. Their comprehension was both self-rated and assessed via a test (de Bruin, Thiede, Camp, & Redford, 2011).
- Curricular programs for preschoolers have been found to be effective in promoting self-regulation (Ursache et al., 2012).
 - [Head Start REDI](#) (Research-Based Developmentally Informed) program (Bierman et al., 2008, as cited in Ursache et al., 2012) uses coaching, scripted reading exercises, and social-emotional learning to improve language and literacy skills, social and emotional understanding, and engagement.
 - [PATHS](#) (Promoting Alternative Thinking Strategies) curriculum (Domitrovich, Cortes, & Greenberg, 2007; Riggs, Greenberg, Kusche, & Pentz, 2006, as cited in Ursache et al., 2012) provides the social-emotional part of the REDI curriculum. The PATHs curriculum promotes emotional and social competencies and reduces aggression and behavior problems in elementary school-aged children while enhancing the educational process in the classroom. It is designed to be used by educators and counselors in a multi-year, universal prevention model in the classroom setting with all elementary school-aged children.
 - [Chicago School Readiness Project \(CSRP\)](#) (Raver et al., 2009, as cited in Ursache et al., 2012) is an intervention that improves school readiness for low-income preschoolers. The intervention helps teachers and classroom assistants implement behavior management strategies and stress reduction techniques.
 - [Tools of the Mind](#) (Bodrova & Leong, 2007, as cited by Ursache et al., 2012) is an early childhood program that focuses on building self-regulation skills in young children by having them develop a Play Plan that describes the role and the actions the child will engage in during the first few minutes of play. The children can then update the plan once play begins.
- A self-regulated strategy development approach has been used to teach writing to children with ASD (Asaro-Saddler & Bak, 2013).
 - Using a peer component together with the mnemonics POW (Pick ideas, Organize notes, Write and say more) and TREE (Topic sentence, Reasons, Explain, strong Ending) proved effective in improving persuasive essays for children with ASD in the study.
- A small-group counseling intervention called [Student Success Skills \(SSS\)](#) was successful at promoting skills like connectedness and self-regulation, which are important to success in school and life (Lemberger & Clemens, 2012).
 - The standard program consists of five weekly classroom sessions with all students and eight small-group counseling sessions. All sessions are 45 minutes long. In this research, the sessions were conducted by counseling graduate students who participated in a one-day training. The program can also be conducted by counselors and teachers.

- Elements of the SSS program include cognitive and metacognitive skills such as **goal setting**; self-management skills such as managing attention, **motivation**, anxiety, and anger; social skills such as **communication** and social **problem solving**; and attitudes.
- One model of self-regulated learning includes cognitive learning strategies, self-regulatory strategies to control cognition, and resource management strategies (Pintrich, 1999).
 - Cognitive learning strategies consist of memory or rehearsal tasks. “Rehearsal strategies involve the recitation of items to be learned or the saying of words aloud as one reads a piece of text. Highlighting or underlining text in a rather passive and unreflective manner also can be more like a rehearsal strategy than an elaborative strategy” (p. 460).
 - Self-regulation of cognition includes planning (setting goals), monitoring progress against goals, and regulating behavior to get back on track to meeting goals. An example of planning is “setting goals for studying, skimming a text before reading, generating questions before reading a text, and doing a task analysis of the problem” (p. 461). Monitoring can include “tracking of attention while reading a text or listening to a lecture, self-testing through the use of questions about the text material to check for understanding, monitoring comprehension of a lecture, and using test-taking strategies” (p. 461). Self-regulating behavior in reading could occur “when a student slows the pace of their reading when confronted with more difficult or less familiar text” (p. 461).
 - Resource management strategies help the student manage and control his or her environment. Specific strategies include managing and controlling time, managing and controlling effort, managing the study environment, and applying help-seeking strategies to peers and teachers (Pintrich, 1999).
- For children with ADHD, using interventions that feature if-then statements with **goal setting** followed by a support plan was shown to increase self-regulatory competencies (Guderjahn, Gold, Stadler, & Gawrilow, 2013). For example, “If I complete this assignment during my seminar class, then my grade in class will go up and I won’t get grounded by my parents for having a missing assignment.”
- Some other resources for strategies that can be applied in the classroom are:
 - A list of [Common Self-Regulation Strategies](#) (Greene & Reis, 2002).
 - [Tips and Strategies](#) for self-regulation and self-control in young children (University of New Mexico, 2007).
 - An explanation of [how a child’s behavior can be linked to self-regulation problems](#), and how do deal with them (Do2Learn).
 - This [self-management plan](#) (Autism Speaks, 2012, p. 53):

My Self-Management Plan

	The behaviors I exhibit when I feel this way	What I need to do-
 I AM HIGH	<ul style="list-style-type: none"> ■ I grab others ■ I hit and bite ■ I yell loud ■ I cry loudly 	<ul style="list-style-type: none"> ■ Sit and breath- deep breaths ■ I need to be in a safe place ■ go to the beanbag and stay there! ■ Get to yellow
 I AM LOW	<ul style="list-style-type: none"> ■ I look tense, my shoulders and body are tense ■ I bite my tongue ■ I click my neck and fingers ■ I look red and sad ■ I need everything to be in its place 	<ul style="list-style-type: none"> ■ Take a sensory break ■ Ask for help ■ I need someone to write and explain what’s going on! ■ I need to take DEEP breaths
 I AM CALM	<ul style="list-style-type: none"> ■ I can sit and focus ■ I can follow my schedule ■ I can answer with my voice ■ I do respond to others and I look relaxed! 	<ul style="list-style-type: none"> ■ I can earn my points and get preferred breaks

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