Center on Innovations in Learning

Wise Ways®

Core Function: Personalized Learning: Metacognitive Competency

Effective Practice: Providing instruction and modeling of metacognitive processes and strategies to enhance student self-management of learning

Indicator: All teachers build students' metacognitive skills by providing students with processes for determining their own mastery of learning tasks. (D11)

Explanation: Student self-regulation of mastery has been shown to increase student achievement. For self-regulation of mastery the learner must (a) possess a concept of the standard, (b) compare the current level of performance with the standard, and (c) engage in appropriate action that leads to some closure of the gap (Sadler, 1989). The goal of many instructional systems is to facilitate the transition from teacher feedback to self-monitoring.

Questions: What processes should students use to determine their own mastery of learning tasks? What are the best practices for these processes?

What processes should students use to determine their own mastery of tasks?

Student learning, or any learning, requires a set of skills. These skills are outlined in Redding (2014) as including "task definition, goal-setting, active listening, note-taking, strategic reading, organization of content, access to resources, research, questioning, memorization (mnemonics), outlining, practice, analytical thinking, self-monitoring, and test preparation" (p. 9). These skills can be boiled down to what is commonly referred to as study skills. For educators, teaching these skills needs to be embedded in the daily routine as well as intentionally taught.

Goal Setting: Goals are critical for enhancing performance. There is a direct linear relationship between the degree of goal difficulty and performance (Chidester & Grigsby, 1984; Mento, Steel & Karren, 1987; Tubbs, 1986; Worfford, Goodwin & Premack,1982; Wood, Mento & Locke 1987).

Using Rubrics & Exemplars: Instructional rubrics are standards-referenced tools that provide students with detailed information about what is expected of their work (Andrade, 2000; Andrade & Boulay, 2003). An approach that has proved particularly powerful in clarifying goals and standards has been to provide students with 'exemplars' of performance (Orsmond, Merry & Reiling, 2002). Exemplars are effective because they make explicit what is required, and they define a valid standard against which students can compare their work.

Formative Assessment: Formative assessment (FA) includes those activities that are intended to impact teaching and learning by the feedback that they produce. Unlike summative assessment, which is intended to monitor and provide evaluation for student grades, FA is low-stakes testing that provides information to teachers about how to tailor their instruction based on student needs. In addition, FA helps students recognize the gaps between their performances and the targeted goals. The feedback in FA is derived from a comparison of current progress against desired goals. It is these comparisons that help the student determine whether current modes of engagement should continue as is, or if some type of change is necessary (Nicol & Macfarlane-Dick, 2006). Assessment needs to meet the specific and immediate goals of a course as well as establishing a basis for students to undertake their own assessment activities in the future.

Self-Recording: Learners can be taught to evaluate their performances through self-recording, which provides individuals with systematic, often visual, data regarding their performance, which they collect themselves. With those data, learners can evaluate the effects of any instruction or intervention on their own performance. In self-evaluation, the self-monitoring process is followed by an evaluation of the performance, usually with an externally provided criterion, such as a rubric or examplar (Rosenbaum & Drabman, 1979).

It is well known that self-observation can have a reactive effect on the target behavior being self-observed, whereby the behavior changes as a function of the self-observational process itself. This is known as the reactivity of self-monitoring (Barlow, Hayes & Nelson, 1984).

What are the best practices for these processes?

Goal Setting: Achievement is enhanced to the degree that students and teachers set challenging rather than "do your best" goals, relative to the students' present competencies (Chidester & Grigsby, 1984; Guzzo, Jette & Katzell, 1985; Hunter & Schmidt, 1983; Locke & Latham, 1990; Mento, Steel & Karren, 1987; Tubbs, 1986; Wood, Mento & Locke, 1987). Wood, Mento & Locke (1997) found that the performance of students who have the most challenging goals are over 250% higher than the performance of the students with the easiest goals.

Using Rubrics & Exemplars:

Rubrics that are used for student self-assessment should include clear definitions of performance levels and describe varying levels of quality, from excellent to poor. All rubrics should include a list of criteria for a task (i.e., how the task will be judged) and gradations of quality, "with descriptions of strong, middling, and problematic student work" (Andrade, 2000). An exemplar is a completed instance of the task on which the student is working. It should emphasize the most challenging aspects of the task, illustrating work that meets the standard described by the rubric.

Formative Assessment: Three features are critical to establishing self-regulation through FA. First is good feedback. According to Nicol & Macfarlane-Dick (2006), good feedback practice:

- helps clarify what good performance is (goals, criteria, expected standards);
- facilitates the development of self-assessment (reflection) in learning;
- delivers high-quality information to students about their learning;
- encourages teacher and peer dialogue around learning;
- encourages positive motivational beliefs and self-esteem;
- provides opportunities to close the gap between current and desired performance;
- provides information to teachers that can be used to help shape teaching.

Second, in FA, a criterion- or standards-based framework is necessary. Without a standards-based framework, learners cannot know whether their achievements are a result of meeting an acceptable standard or simply doing better than other students in the same cohort.

Finally, students should be allowed to use feedback to produce improved work. This gives them, and their teachers, the opportunity to know whether or not the feedback has been effective. (Boud, 2000)

Self-Recording: Students' self-recording of performance in real time is a convenient and effective way to provide immediate feedback to learners (O'Leary & Dubey, 1979). Recording progress toward a goal may be particularly effective when the symbolic marks entered on the records are seen, by the learner, as marks of achievement (Morgan, 1984). Further, self-graphing is one common and effective method of self-monitoring for students. According to Moxley, Lutz, Ahlborn, Boley, & Armstrong (1995) and Kasper-Ferguson & Moxley (2002) frequent self-graphing provides learners with regular opportunities for positive evaluation of their progress. One of the strengths of graphing is the visual clarification of learning objectives. The graph tells the students how well they have understood what they need to do and what more they need to do to achieve their goals. Visual

displays in graphic form make patterns conspicuous and allow inferences to be drawn more easily than a table allows. “Graphs prompt relationships to be seen which would never be noticed in lists or tables” (Moxley, 2007, p. 123). In addition, self-graphing provides a means by which children can learn valuable math skills through graphing itself. Time spent in graphing is not time out from the curriculum, but time spent in specific curriculum skills.

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