Metacognition

FOUNDATIONS

DESCRIPTION

Metacognition is "...thinking about the contents and processes of one's mind." (Winne & Azevedo, 2014, p. 126). Metacognitive awareness as a function of metacognitive regulation is a strong predictor of academic performance and achievement as it increases students' ability to transfer their learning to new contexts and tasks and continually become more strategic learners (Bransford, Brown, & Cocking, 2000; Azevedo, R. & Cromley, J. G., 2004; Schraw, 2008; Tobias & Everson, 2009).

Design recommendations focus on supporting and scaffolding metacognitive awareness and self regulation to help students be strategic learners as they become more aware of the status of their knowing, understanding, and executing, as well as increase in self-regulated learning skill and will by accepting greater accountability for their learning processes and outcomes (Lee, Lim, & Grabowski, 2010; Pintrich, 2004; Pintrich & Groot, 1990; Zimmerman, 1990).

LEARNER IMPACTS

- Behavior
- Self-regulation
- Motivation

CAPABILITIES

- Assessment: Short answer constructed response
- Cognitive Tools: Peer review
- Cognitive Tools: Planning/outlining

SAMPLE DESIGN IMPLEMENTATIONS

- Robust Technology: Adaptive scaffolds
- Simple Technology: Notifications/prompts
- Content Support: Instruction/practice monitoring learning

Pearson

Metacognition

SELF-ASSESSMENT INSTRUMENT

Principle Criteria	Integration (4-5 points)	Exploration (2-3 points)	Consideration (1 point)	Not Applicable (0 Points)	Total Points
Definition	Supports all of: self-awareness of learning, active use of learning strategies, accountability for learning	Supports two of: self-awareness of learning, active use of learning strategies, accountability for learning	Supports one of: self-awareness of learning, active use of learning strategies, accountability for learning	Supports none of: self-awareness of learning, active use of study strategies, accountability for learning	= _____
Model	Supports knowledge development in all of these forms: declarative, procedural, conditional Supports thinking development in all of these forms: monitoring, control, self-regulated learning (SRL)	Supports knowledge development in two of these forms: declarative, procedural, conditional Supports thinking development in two of these forms: monitoring, control, SRL	Supports knowledge development in one of these forms: declarative, procedural, conditional Supports thinking development in one of these forms: monitoring, control, SRL	Supports knowledge development in none of these forms: declarative, procedural, conditional Supports thinking development in none of these forms: monitoring, control, SRL	= _____
Design	Supports and scaffolds metacognition by means of four or more of: realistic feedback, constructive feedback, suitable task difficulty, task autonomy, outcome attribution Supports SRL by all of: minimizing cognitive load, providing adaptive scaffolding, training, practice and reflection on SRL skills	Supports metacognition by means of three or more of: realistic feedback, constructive feedback, suitable task difficulty, task autonomy, outcome attribution Supports SRL by two of: minimizing cognitive load, providing adaptive scaffolding, training, practice and reflection on SRL skills	Supports metacognition by means of two or more of: realistic feedback, constructive feedback, suitable task difficulty, task autonomy, outcome attribution Supports SRL by one of: minimizing cognitive load, providing adaptive scaffolding, training, practice and reflection on SRL skills	Supports metacognition by means of one or fewer of: realistic feedback, constructive feedback, suitable task difficulty, task autonomy, outcome attribution Does not support SRL by any of: minimizing cognitive load, providing adaptive scaffolding, training on SRL skills	= _____
Validation	Triangulates data among at least three sources Validates data by all of the following means: ensuring behaviors match conditions, evaluating how well strategies were executed, determining if/why strategies/features were not used	Relies upon at least two different data sources Validates data by two of the following means: ensuring behaviors match conditions, evaluating how well strategies were executed, determining if/why strategies/features were not used	Relies upon a single data source Validates data by one of the following means: ensuring behaviors match conditions, evaluating how well strategies were executed, determining if/why strategies/features were not used	Metacognition is not measured	= _____