Theory & Research in Metacognition and Reflective Formative Assessment

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Reflection ...

• "...the first practical activity for a teacher is not planning and projecting, but reflection."

Eva Brann

Why Doesn't Good Teaching Always Lead Good Learning?

• *Hypothesis*: Students need time in class to reflect on those things they are supposed to be learning.

Assessing Learning in a Lesson

How can we know what students actually learned in a lesson?

Looking beyond the streetlamp toward learner empowerment....

What if students were given the opportunity not only to be taught, but to see themselves as learners learning something of value?

Reflective Self-Assessment...

We could say that reflection is the mirror of the mind.

 Looking continuously and thoughtfully into the recent past.

The Role of Reflective Thought

- Thinking about thinking (metacognition) (Flavell, 1976; Brown, 1987)
- Learning depends on selfregulation and reflection (Brown, 1987; Pressley, 1998)

Goals of School Life...

- 1. Raise Academic Achievement
- > 2. Enrich the social/moral fabric

Strategies to achieve the goals...

- "I learned...."
- "Think aloud...."
- "Clear and unclear...."

Why Reflection?

 "We had the experience but missed the meaning."
 T. S. Eliot

Benefits Claimed for Reflection

- Creates conditions for higher levels of consciousness....
- Empowers students as teachers....
- Increases academic achievement....
- Improves social/moral fabric of school life....

Thoughts on Reflection...

- John Dewey: "The function of reflective thought is...to transform a situation in which there is...doubt...into a situation that is clear...."
- John Maxwell: "Reflection turns experience into insight."

Empirical Research

- Schunk (1983)

 systematic observation of one's own learning was found to enhance feelings of self-efficacy, mastery of content skill, and level of task persistence
- Schneider et al. (1986)

 students who were taught reflective strategies performed significantly higher
- Naglieri & Johnson (2000) - self-reflection and verbalization of math strategies resulted in higher achievement
- Allington (2006)

 strategies, such as "think aloud" improve reading comprehension

Dissertation Research: SPU

- ▶ 1. 10/11 year olds and Statistics/Probability
- > 2. Sr. High Biology: Osmosis Unit
- 3. Middle School Geography
- 4. Sr. High Literature: Hero's Journey Unit
- 5. Online University Class: Foundations of Education

Focus on School Learning

- To become habitual and unconscious, learning strategies must be articulated & practiced (Kirkwood 2000)
- If students are excluded from self-assessment, we are also excluded from responsibility for their learning (Boud, 1995; Taras, 2001)

School Learning...

 $\cdot \;$ Comprehension can be enhanced by reflective strategies

- $\cdot\,$ Reflective strategies: teacher-led and/or student-owned
- Periodic repetition will improve retention (Allington, 2006)

Effect Size for Reflective Assessment, 9 Studies at SPU...

- ► Cohen's d M_{exp} M_{con}
 - _____ = 0.391
- range -0.19 -- 1.04
- $\,$ Interpretation: moderate effect size. The equivalent of moving a student from the 50^{th} percentile to the 66^{th} percentile.

Implications for Classroom Practice

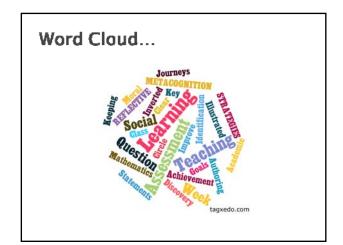
- "Capstone" for student insight
- Allows for student voice in the teaching/learning process
- Contextual applications of metacognitive knowledge, skills, and values
- On going feedback loop for teacher improvement

Education Has Many Purposes

- Ongoing reflective self-assessment will increase student achievement.
- Shared reflective thought increases the probability of an improved social/moral fabric.
- Reciprocity is achieved as teachers learn from students and students learn from teachers and each other.

Examples

- "I Learned" Statements.
- "Think Aloud" Strategy.
- "Week in Review" Discussion.



Not a panacea...

- Reflective self-assessment by students and teachers is a minimally invasive, inexpensive way to raise achievement and improve the social/moral fabric of school life.
- > It is one of a number of techniques that needs to find a niche in daily practice because it empowers students to become actively involved in assessing their own learning.

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