

*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 self-regulation 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
- ▶ Naglieri & Johnson (2000)
 - self-reflection and verbalization of math strategies resulted in higher achievement
- ▶ Allington (2006)
 - strategies, such as "think aloud" improve reading comprehension
- ▶ Schneider et al. (1986)
 - students who were taught reflective strategies performed significantly higher

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

- ▶ Students should not be abandoned to discover reflective practices on their own
(Andrade, 1999; Earl & LeMahieu, 1997)
- ▶ 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...

- Comprehension can be enhanced by reflective strategies
- 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 $\frac{M_{exp} - M_{con}}{\text{pooled SD}} = 0.391$
- ▶ range -0.19 -- 1.04
- ▶ Interpretation: moderate effect size. The equivalent of moving a student from the 50th percentile to the 66th 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.

Word Cloud...



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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