

Agile Mind Biology: The Use of Multimedia Resources in the High School Science Classroom

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Think back 20 years—how were technology and multimedia materials used in your classroom?

- On an index card write down a few individual memories.
- Make eye contact with a person across the room and share your thoughts.

Now think about how technology and multimedia materials may be used in a classroom today.

- Working with people at your table, make a list of all the technology and/or multimedia products in our classrooms today.

What does research say about how technology is affecting student achievement?

Actually very little. We have a plethora of technologies available, but we are not necessarily seeing them have positive effects on student achievement.

What does research suggest is needed to improve student attendance, achievement, and retention?

- *Getting students involved in engaging lessons quickly*
- *Smaller classes, individualized attention, and interactive, interesting lessons*
- *Rigorous programs that prepare students for future courses*
- *Ensuring that programs and teachers establish clear standards and active, meaningful learning*
- *Technology that supports learning*
- *Building on preexisting knowledge and providing opportunities for students to develop thinking skills*
- *Having high expectations*

From *Texas Study of Students At Risk: Efficacy of Grants Supporting Academic Success from Elementary through High School*, Texas Center for Educational Research ,October 2004.

How did previous programs affect student achievement, attendance, and retention rates?

- Students who received help during the school year may have done better academically than those who attended an intercession or summer school program.
- Need to improve the overall school environment
- Most students in these programs passed their core content courses.
- Passing rates for TAAS reading and mathematics did not improve.
- Nearly one fifth of these students had four or more office referrals.
- No significant positive relationship between number of instructional days or dollars spent per student and TAAS scores.
- **Few schools undertook organizational restructuring, investment in course improvement, or teacher professional development.**

From: *Texas Study of Students At-Risk: Case Studies of Initiative Supporting Ninth Graders' Success—Optional Extended Year Program and Texas After School Initiative.*

The National Standards for Science as Inquiry

For students to develop the abilities that characterize science as inquiry, they must actively participate in scientific investigations, and they must actually use the cognitive and manipulative skills associated with the formulation of scientific explanations. This standard describes the fundamental abilities and understandings of inquiry, as well as a larger framework for conducting scientific investigations of natural phenomena.

From *National Science Education Standards*, p. 173 (1996). National Committee on Science Education Standards and Assessment, National Research Council

Schlechy emphasizes the importance of the work that teachers ask students to do in determining educational outcomes.

- *Students and teachers do not need to be “fixed”; instead, the quality of the work needs to be examined.*
- *Authentic engagement. The task, activity, or work the student is assigned or encouraged to undertake is associated with a result or outcome that has clear meaning and relatively immediate value to the student.*

From *Working on the Work*. Phillip C. Schlecty, 2002.

Marzano identifies nine instructional strategies that affect student achievement

Identifying similarities and differences	
Summarizing and note taking	
Reinforcing effort and providing recognition	
Homework and practice	
Nonlinguistic representations	
Cooperative learning	
Setting objectives and providing feedback	
Generating and testing hypotheses	
Cues, questions, and advanced Organizers	

From *Classroom Instruction That Works: Research-Based Strategies for Increasing Student Achievement*. Marzano, Pickering, & Pollock. 2001.

Agile Mind Biology

- Online service—low bandwidth so available to all schools
- Written by BSCS with assessments designed by Dana Center
- Topics aligned to National Science Education Standards
- Offers teachers investigations, support pages, and Advice for Instruction

A Review of Agile Mind Biology

http://train74.agilemind.com/login_form

Now the question is....

- How do we help preservice and current teachers feel more comfortable using this type of technology in their classroom effectively?

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