



Using Technology to Enhance Teaching and Learning

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Starting Assumptions

- Technology is changing our world
- The core of education remains unchanged
- Good teaching will always be the key to successful K-12 education
- Technology is changing what our students need to learn
- Technology can have significant impact on how we teach and how we learn

Overall goal of my sessions

- Help you think productively about using technology effectively in your schools
- Focus on classroom instruction, not administrative uses

More specific goals are to help you:

- Ask the right questions
- Define processes for answering them for your school
- Use research-based frameworks and lessons
- Share ideas with colleagues
- Begin interactions that will be continued online

Four key questions about technology in the classroom

- Why use technology in the classroom?
- What does effective use look like?
- How can we know?
- How do we get there?

Starting exercise, part 1

Envision a great lesson

- What are the students doing?
- What is the teacher doing?
- What materials are being used?
- What are students learning?

Starting exercise, part 2

- *Small group discussions:*
- What are the attributes or qualities that make that lesson great?
 - The way it is presented by the teacher?
 - The interactions of the teacher and the students?
 - The interactions of the students with each other?
 - The materials?
 - The work students do?
 - The classroom atmosphere?

Some attributes of great lessons

- Students actively engaged in the reflective practice
- Students make decisions about expanding learning
- Teacher as facilitator, students interacting
- Student cooperation and collaboration
- Higher level thinking
- Hands-on learning
- Student enjoyment
- Teacher has high energy
- Evaluation and reflection
- Congruent
- Interdisciplinary

Starting exercise, part 3

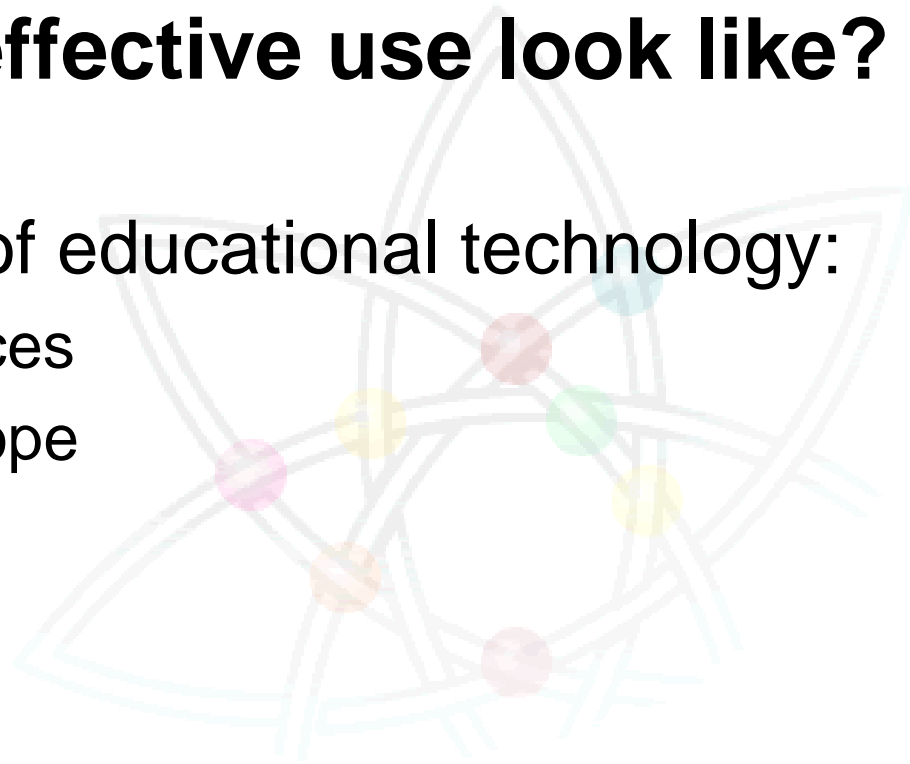
- *Whole group discussion:*
- Can technology help make those attributes of great lessons more common?

Why use technology?

- Creates a level playing field
- Provides immediate feedback
- Expands resources
- Shows students that computers are integrated tools
- Helps children enjoy learning
- Enables teacher to facilitate rather than direct
- Used at different developmental level
- Connecting to home and real-world learning

What does effective use look like?

- Two examples of educational technology:
 - Primary resources
 - Digital microscope



Primary resources

- NY Times article on how the Internet changes coverage of the election
 - http://www.nytimes.com/learning/general/featured_articles/00720thursday.html
- NY Times Learning Network lesson plan
 - <http://www.nytimes.com/learning/teachers/lessons/000720thursday.html>
- Library of Congress,
 - <http://memory.loc.gov/ammem/ndlpedu/timeline/postwar/election/election.html>
- Freedom Channel
<http://www.freedomchannel.com/>

Digital Microscope



Technology can help students

- explore
- access information
- record
- organize
- analyze
- produce
- communicate
- practice
- individualize
- collaborate

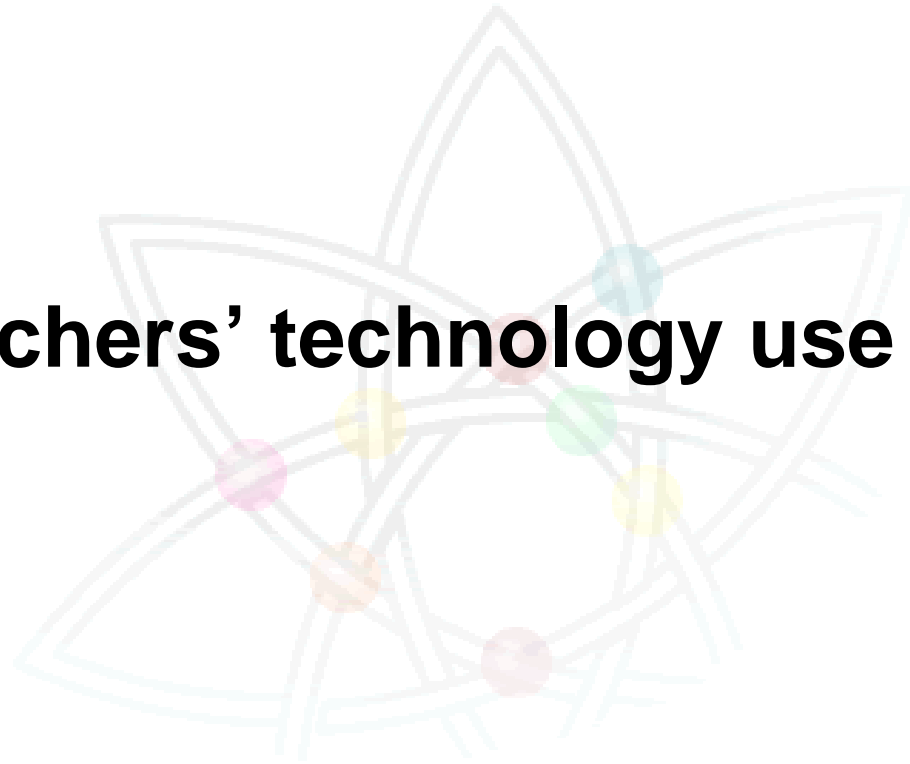
The challenge: Putting these capabilities to effective use



Some common problems with technology use

- Computers as page-turning and drill machines
- Technology on the sidelines
- Technology isolating students
- Inequitable uses of technology
- Technology as motivators only

Stages of teachers' technology use



1. Entry stage

- teachers learning new tools themselves
- beginning to plan classroom use
- *Will the effort be worth the results?*

2. Adoption stage

- begin to blend technology into existing classroom practices
- but don't significantly change their practices
- *How can technology help me teach more effectively?*

3. Adaptation stage

- technology well integrated into existing classroom practices
- begin to see real benefits in students engagement and work
- *How can I incorporate technology more fully?*

4. Appropriation stage

- technology used by teacher and students as a natural element of all work
- classroom practices begin to change somewhat (e.g., more project based learning, use of primary resources)
- *How could I ever do my job without technology?*

5. Invention stage

- technology used in exploring new ways of teaching and learning
- students show high levels of skill in using technology
- students show abilities to work independently and collaborative, problem-solve, find and evaluate information...
- *What should we explore next?*

Discussion Question:

- How can you assess whether technology is used effectively to enhance teaching and learning in your school?
- Use the primary resources or digital microscope as examples
- How can you, as leaders, encourage and support the effective use of technology and develop leadership in technology in others on your staff?