

Strategies for Using Instructional Technology to Support Classroom Education

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Technology in the Classroom Topics for Today

- Why Use Technology in the Classroom?
- Pedagogy, Technology & Instructional Design
- Best Practices for Technology in the Classroom
- Technology Used in NTID Classrooms



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Why Use Technology in the Classroom?

- Improve Access by Deaf Students
- Examples
 - Materials Specially Designed for Deaf Students
 - Captioning
 - Notetaking
 - Listening Technology



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Why Use Technology in the Classroom?

- Address an Existing Deficiency or Problem
- Examples
 - Organization
 - Visual
 - Time
 - Communication



From: "Enhancing the Craft of Teaching with Technology: The Instructional Design Factor" PowerPoint Presentation,
Accessed from the Internet January 25, 2006,
by Les Howies, Academic Technology Solutions, DoIT, University of Wisconsin-Madison
<http://academictech.doit.wisc.edu/ORF/lpts/support%20files/teaching.ppt>

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Why Use Technology in the Classroom?

- Alternative Medium
 - Transfer Activities to Another Medium
- Examples
 - Show Video
 - Access the Web
 - Share Examples
 - Facilitate Collaboration



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Why Use Technology in the Classroom?

- Improve Effectiveness & Efficiency
 - Better Able to Follow Instructional Design
- Examples
 - Better Implement Best Practices
 - Increased Structure
 - Improve Content Presentation
 - Alternative Presentation of Content



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Why Use Technology in the Classroom?

- Only When There is a Reason
 - Educational Solution Before Technology Solution
- Examples
 - Educational Problem
 - Impact on Classroom Management
 - Improve Content Presentation
 - Alternative Presentation of Content



From: "Enhancing the Craft of Teaching with Technology: The Instructional Design Factor" PowerPoint Presentation, Accessed from the Internet January 25, 2006, by Les Howles, Academic Technology Solutions, DoIT, University of Wisconsin-Madison <http://academictech.doit.wisc.edu/ORF/tpst/support/2006teaching.ppt>

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Pedagogy, Technology & Instructional Design

- Pedagogy
 - 1: the principles and methods of instruction [syn: teaching method,]
 - 2: the profession of a teacher



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Pedagogy, Technology & Instructional Design

- Technology
 - 1 : the science of the application of knowledge to practical purposes
 - 2 : Electronic or digital products and systems considered as a group



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Pedagogy, Technology & Instructional Design

- Instructional Design
 - Instructional Design is the systematic development of instructional specifications using learning and instructional theory to ensure the quality of instruction.
 - It is the entire process of analysis of learning needs and goals and the development of a delivery system to meet those needs.
 - It includes development of instructional materials and activities; and tryout and evaluation of all instruction and learner activities



From: "Instructional Strategies for Online Courses" Web page by Accessed from the Internet January 25, 2006, Illinois Online Network, University of Illinois. <http://www.iion.illinois.edu/resources/tutorials/pedagogy/instructionalstrategies.asp#LECTURE>

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Pedagogy & Classroom Presentation

- Classroom Presentation Generally Means a Lecture
- Lectures: an Efficient Way for an Expert to Share Knowledge
- Most Effective When Linked to Other Activities



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Structuring a Lecture

- Consider Audience
- Goals and Learning Outcomes
- Logical Progression for Material
- Structure to Help Students....
 - Take Notes
 - Retain Important Information
- Strong Opening and Closing
- Interaction




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Pedagogy, Technology & Instructional Design


- Instructional Design (ID)
 - Recall Definition?
 - ...learning theory...goals....delivery system....development of materials....tryout & evaluation....revision
- ID Can Be Employed to Improve Pedagogy for Classroom Presentations



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Pedagogy, Technology & Instructional Design

- Instructional Design*
 - Analysis/Objectives
 - Instructional Strategy/Materials
 - Formative/Summative Evaluation
- Educational Technology and Teaching
 - <http://www.rit.edu/~pen2>
 - <http://mycourses.rit.edu>




* Gagne, Briggs & Wager 1992, Principles of Instructional Design.

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Pedagogy, Technology & Instructional Design

- Events of Instruction and Processes of Learning*
 - Get Attention/Share Objectives
 - Present Material/Guide Learning
 - Performance/Feedback
 - Assess Performance/Retention & Transfer




* Gagne, Briggs & Wager 1992, Principles of Instructional Design.

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Pedagogy, Technology & Instructional Design

- What do you want students to do?
- Not how they will spend their time or what you will cover in class;
 - What evidence do you want to see that proves students have met the learning outcome you specified?



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Pedagogy, Technology & Instructional Design



- Integrating Technology & Your Teaching
- What is the Most Appropriate Technology?
 - What is Available!!!
- Design Presentation Based on Good Instructional Design and Processes



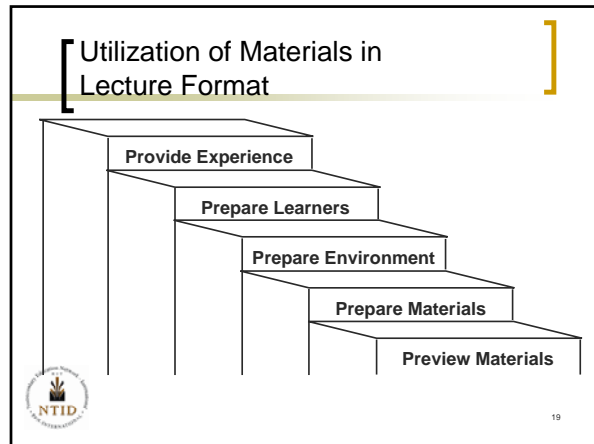
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Presentation Format Selection Process



- Choose a Method of Instruction
- Choose a Media Format
- Obtain Materials
 - Obtain Available Materials
 - or
 - Modify Available Materials
 - or
 - Design New Materials

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Best Practices for Technology in Classroom ...

<ul style="list-style-type: none"> ■ <i>Technology Tips</i> ■ Kathleen Eilers crandall, Ph.D. ■ www.rit.edu/~kecnpc/ 	<ul style="list-style-type: none"> ■ <i>Best Practices</i> ■ Douglas MacKenzie, Au.D. ■ www.geneseo.edu/~mackenzi/ 
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How to Prepare for Class

- More time when first using technology; less time once technology is in place.
- Allow lots of set up time.
- Go to room the day before class & practice.
- Keep notes of set up steps.
- Have alternative plans if technology fails.

From: "Technology Tips for the Classroom" by Kathleen Eilers crandall, June 1999 NTID/rit.
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Technology Should Enhance..

- Use technology when it serves a specific purpose.
- If technology gets in the way of teaching, don't use it!
- Technology does not make teaching better or even easier.

From: "Technology Tips for the Classroom" by Kathleen Eilers crandall, June 1999 NTID/rit.
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Communication Issues

- Establish a Communication Plan
- Equipment can Reduce Visibility
- Have a Plan to Regain Student Attention
- Keep Switching Between Computer Displays to Minimum

From: "Technology Tips for the Classroom" by Kathleen Eilers crandall, June 1999 NTID/rit.
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Logistical Concerns

- Scheduling a "Smart" Classroom
- Learning to Use and Troubleshoot Equipment
- Time for Equipment Set-up and Break-down
- Equipment Obstacle Course

From: "Deal Students and Technology: Best Teaching Practices" PowerPoint Presentation, November 9, 2001
by Sam Holcomb and Doug MacKenzie, NTID/rit

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Logistical Concerns

- Will Technical Help be Available?
- Need for a Back-up Plan
- Installing New Software
- Different Software Versions in Office vs. Classroom
- *"Okay... Who has Been Messing with the Equipment?"*



From: "Deaf Students and Technology: Best Teaching Practices" PowerPoint Presentation, November 9, 2001
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Classroom Management Issues

- Where do I Stand for Best Communication?
- What Lighting is Best for Communication?
- Lack of Writing (Whiteboard) Space
- Projecting More than One Source
- What Effect is Technology Having on Faculty Sign Skills?



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Three Popular Classroom Technologies

- Visualizer
- PowerPoint
- Web



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Document Camera "Visualizer"



- Used to display...
 - Articles
 - Objects
 - Slides
 - Video



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Document Camera "Visualizer"



- Advantages...
 - Great for showing objects (pagens, TTY display)
 - "Zoom" function for small print and fine detail



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Document Camera "Visualizer"




- Limitations...
 - Poor resolution for text
 - Glare
 - Barrier to communication



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PowerPoint®




- Strengths...
 - No overhead transparencies!
 - Visual
 - Outline format useful for preparing lectures
 - Insert video and hot links
 - Quick revisions

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PowerPoint®




- Strengths...
 - Easy to post on the web
 - Handouts
 - High-tech look
 - Keeps students focused on topic
 - Can send as an e-mail attachment

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PowerPoint®




- Weaknesses...
 - Overused!
 - Too much text
 - Selecting good color schemes
 - Typography issues
 - Overuse of animation
 - Not flexible
 - Requires more preparation time

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Web




- Strengths...
 - Visual
 - Current
 - Interesting
 - Interactive
 - Good for organization of course materials

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Web




- Weaknesses...
 - Problems with roaming IP addresses
 - What's there today may look different or be gone tomorrow
 - Can be visually distracting

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Web



- Weaknesses...
 - Some students have difficulty evaluating web content:
 - Credibility
 - Bias
 - Fact vs. opinion
 - Parody sites

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Students with Vision Problems

- Room Lighting
- Seating
- LCD Projector
- Individual Computer Workstations
- Color Choices (text and background)
- Glare from Projector and Visualizer



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Technology Used in NTID Classrooms

- Standard NTID Classroom Based on Years of Experience
- Incorporates Latest Technology
- Access Emphasis



Video Overview at:
http://www.ntid.rit.edu/co/TSS/NTID_Smart_Classroom.cfm

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Typical Configuration



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Smart Cart with Smart Board



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Equipment Cabinet & Display for Low Vision Students



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Close-up of Smart Cart



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Equipment Cabinet



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Features of an NTID Classroom

- Help System
- Control Room Lights
- Whiteboards
- Smart Board
- Resident Computer
- VHS/DVD
- Visualizer
- Connect Laptop
- Connect Video Phone
- FM System
- Freeze Image



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Conclusion

- Use Technology When it Helps
- Consider Applying Instructional Design Systems to Your Teaching
- Follow the "Best Practices" Offered by Experienced Teachers of the Deaf
- Design Classrooms Based Upon Your Experience, Needs & Budget



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Web Resources

- <http://www.pen.ntid.rit.edu/ewc/csb/tech/index.htm>



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References

- "Technology Tips for the Classroom" by Kathleen Eilers crandall, June 1999 NTID/RIT.
- "Deaf Students and Technology: Best Teaching Practices" PowerPoint Presentation , November 9, 2001 by Sam Holcomb and Doug MacKenzie. NTID/RIT.



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