

Enhancing Education

A Producer's Guide

➤ Research & Resources

Resources

Educational Standards 2
What students should know and be able to do across all subjects from grades K-12

Making Media Accessible 7
Things to consider to make your efforts accessible to those with visual and hearing impairments

Research-Based Teaching and Learning Strategies

Cooperative Learning 12
Within small groups, each member has a specific role and is ultimately responsible for the whole group's learning.

Multiple Intelligences 13
Not everyone learns in the same way.

The 5 E's 17
A rubric for learning: Engage, Explore, Explain, Elaborate, Evaluate

Additional Teaching & Learning Strategies 19

- | | |
|--|-------------------------------|
| Civil Discourse | Integrated Curriculum |
| Complex Instruction | Mock Trial |
| Dilemmas | Presentation & Examples |
| Essential Questions | Primary Sources |
| Graphic Organizers | Role Playing & Simulations |
| Learning by Doing | Teaching a Multi-Age Class |
| Hypothetical Situations
& Analogies | Technology as a Learning Tool |
| | Testing Predictions |



Enhancing Education

A Producer's Guide

Research & Resources

Educational Standards

Overview

Producers need to pay attention to educational standards when designing educational media, be it video, Web, or print. In this era of high-stakes student testing and teacher accountability, the materials used in schools or in informal educational settings are often scrutinized for their alignment with educational standards. Just because an activity is fun or engaging is not enough to justify precious learning time. A producer who carefully reads the national and state standards and then creates a product that addresses a particular standard or set of standards will have multiple payoffs: The product will be “educationally sound” and more likely to be used by teachers and students.

History

The publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983) launched the modern standards movement. Amid growing concerns about the educational preparation of the nation's youth, President George H.W. Bush and the nation's governors called an education summit in Charlottesville in September 1989. That summit established six broad goals for education that were to be reached by the year 2000.

The nation's professional organizations in math, science, social studies, and English/language arts took the next step. They defined national standards for their disciplines: what students should know and be able to do from grades K-12. Individual states then followed suit, creating their own standards, using the national standards as their guide. According to a 2001 American Federation of Teachers report, 48 states and the District of Columbia now have academic standards in all core subjects: mathematics, science, social studies, and English/language arts.

Why Standards Matter

According to a 2000 report of the Education Commission of the States, “Of all the education reforms that have emerged over the past 15 years, none has been more powerful and enduring than the push to establish challenging academic standards for students.” Similarly, a 2000 public opinion poll by the Business Roundtable found that “81 percent of public school parents and 85 percent of the general public believe the push to raise academic standards is a ‘move in the right direction.’”

The current Bush administration is strongly behind standards-based reform. The No Child Left Behind Act, which was signed into law January 8, 2002, ties student achievement to the consequences of funding cuts. Specifically, it sets up the following timeline by which states must have



Enhancing Education

A Producer's Guide



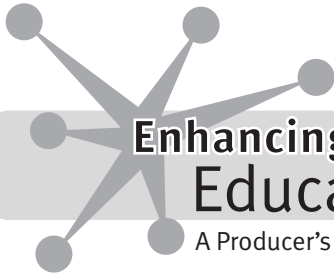
Research & Resources

Educational Standards (cont'd)

academic standards (know and able to do) in reading, math, and science for grades K-12:

- 2002-03, administer tests in each grade span, 3-5, 6-9, 10-12
- 2005-06, administer tests each year in grades 3-8
- 2007-08, science achievement tested

This act also calls for state and district report cards. Within 12 years, all students must perform at proficient level.



Enhancing Education

A Producer's Guide



Research & Resources: Educational Standards

Understanding & Finding Standards

Standards can be confusing. Standards documents often include expectations for basic skills, which are a different consideration than curriculum standards. Also, different standards are targeted to different grade ranges; for example K-4, 5-8, and 9-12 vs. K-2, 3-5, 6-8, and 9-12.

Most states have adopted the national standards in a given subject area. But many states have also added standards to cover additional topics, such as their state's history.

Achieve, Inc., and McREL (Mid-continent Research for Education and Learning) have organized K-12 content standards according to a uniform cataloging structure, much like the Dewey Decimal System. Their database of state content standards in mathematics, science, social studies, and English/language arts allows users, including teachers, parents, and researchers, to search the different formats and "benchmark" groupings in each state.

National Standards by Subject

Arts (dance, music, theatre, visual arts):

http://artsedge.kennedy-center.org/professional_resources/standards/natstandards

Civics:

<http://www.civiced.org/stds.html>

Economics:

<http://www.economicsamerica.org/standards/contents.html>

English/Language Arts:

<http://www.ncte.org/standards>

Foreign Language:

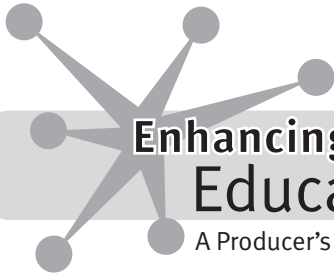
<http://www.actfl.org/index.cfm?weburl=/public/articles/details.cfm?id=33>

Geography:

<http://www.nationalgeographic.com/resources/ngo/education/standardslist.html>

History:

<http://www.sscnet.ucla.edu/nchs/standards>



Enhancing Education

A Producer's Guide



Research & Resources: Educational Standards

Understanding and Finding Standards (cont'd)

Mathematics:

<http://standards.nctm.org/>

Science:

<http://www.nap.edu/html/nse/html/>

<http://www.nap.edu/readingroom/books/nse/>

Technology:

cnets.iste.org/ncate/index.html

State Standards

To learn more about the Achieve and McREL state standards database, go to <http://frodo.mindseye.com/achieve/achieved.nsf/7dd426103607873e852568410033af3f/f4d2f64441f812d485256841003a9299?OpenDocument>

To search the Achieve and McREL standards database by state, go to <http://frodo.mindseye.com/achieve/achievestart.nsf/OutsideSearchOpenForm>

The Department of Education in each state is another good place to learn about state standards. For links to all state Department of Education Web sites, go to <http://www.census.gov/mso/www/educate/agencies.htm>

Additional Standards Resources

Achieve, Inc.:

<http://www.achieve.org/achieve.nsf/home?openform>

Achieve, Inc., is an independent, bipartisan, nonprofit organization that helps states raise academic standards, measure performance against those standards, establish clear accountability for results, and strengthen public confidence in our education system.

U.S. Bureau of the Census:

<http://www.census.gov/mso/www/educate/agencies.htm>

List of links to individual states' Departments of Education



Enhancing Education

A Producer's Guide

➤ *Research & Resources: Educational Standards*

Understanding and Finding Standards (cont'd)

Business Roundtable:

<http://www.brtable.org/issue.cfm/3/0/0/81>

The Business Roundtable is an association of chief executive officers of leading U.S. corporations. The chief executives are committed to advocating public policies that foster vigorous economic growth, a dynamic global economy, and a well-trained and productive U.S. workforce essential to future competitiveness. As part of its mission, the Business Roundtable has an Education Task Force that works to improve student achievement in the U.S. and ensure that high school graduates are prepared to succeed in today's changing world.

Center for Research on Evaluation, Standards, and Student Testing:

<http://www.cse.ucla.edu/>

Funded by the U.S. Dept. of Education's Office of Educational Research and Improvement, the National Center for Research on Evaluation, Standards, and Student Testing (CRESST) is a unique partnership of UCLA's Graduate School of Education and Information Studies and its Center for the Study of Evaluation. CRESST focuses on the assessment of educational quality, addressing persistent problems in the design and use of assessment systems to serve multiple purposes.

EDWORLD:

<http://www.educationworld.com/standards/>

In the spring of 1996, the founders of Education World recognized the need for a Web site that would make the Internet easier for educators to use. They wanted to create a home for educators on the Internet, a place where teachers could gather and share ideas. This is a complete online resource where educators can find the lesson plans and research materials they need.

McREL (Mid-continent Research for Education and Learning):

<http://www.mcrel.org/standards-benchmarks/>

McREL is a private, nonprofit organization whose purpose is to improve education through applied research and development. McREL provides products and services, primarily for K-12 educators, to promote the best instructional practices in the classroom.

Thomas B. Fordham Foundation:

<http://www.edexcellence.net/topics/standards.html>

The Thomas B. Fordham Foundation supports research, publications, and action projects of national significance in elementary/secondary education reform, as well as significant education reform projects in Dayton, Ohio, and its vicinity.



Enhancing Education

A Producer's Guide



Research & Resources

Making Media Accessible

While new technologies promise to expand learning and entertainment opportunities, they can also present significant obstacles to people with disabilities. Traditional broadcast and cable television, as well as movies in theaters, offer closed captions and audio descriptions to make program material available to viewers who are hearing- or visually impaired. Newer technologies, however, such as the Internet, Web, DVD, and DTV, may not include accessibility features, thus denying access by users with disabilities.

Accessible technology benefits everyone, not just users with disabilities. Accessible Web sites, for example, enable blind users to access all information using only the keyboard in conjunction with screen-reading software or a talking browser—but sighted users who prefer not to use a mouse will also benefit from these accessibility features. Deaf users benefit from closed-captioned television or digital multimedia presentations, but so do hearing people who view these presentations in noisy environments or teachers who use the closed captioning as reading practice for young learners.

In schools, accessibility has taken on greater importance. Students with disabilities are more frequently placed in inclusive classrooms, where they learn alongside students who have always been in “mainstream” classrooms. This poses a challenge to teachers and students, because instructional materials may not always be available in forms that are accessible to students with disabilities. Inaccessible materials stigmatize students with disabilities by preventing them from using the same materials as their peers, which can limit their educational opportunities. Educators are finding that accessible design grants a wider range of learners more options and greater flexibility in learning. Presenting educational material in a variety of formats will provide benefits to those with differing learning styles and will allow individuals to learn in their preferred learning style.

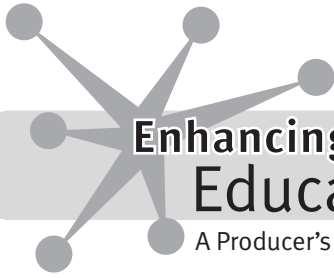
- Creating Accessible Web Sites 8**
- Creating Accessible Digital Multimedia 10**
- Creating Accessible Analog Media 11**
- Creating Accessible Print Media 11**

Research & Resources: Making Media Accessible

Creating Accessible Web Sites

Creating accessible Web sites need not be complicated as long as you keep some basic principles in mind from the earliest design stages. Here are five basic points to remember. A longer list of “quick tips” is available from the World Wide Web Consortium’s Web Accessibility Initiative at <http://www.w3.org/WAI/References/QuickTips/>.

1. Provide text equivalents for all images. Assistive technology, such as screen readers and talking browsers, recognizes only text, not graphics. Therefore, always use an <alt> tag to briefly identify or describe the function of each visual element.
2. Make sure all links are understandable when read out of context. Screen readers and talking browsers provide users with a list of all links on a Web page. For maximum comprehension, make sure all link text makes sense when read alone. For example, never use “click here” as link text.
3. Label all form elements and controls so they can be recognized by assistive technology. Label all text fields, text areas, drop-down menus, checkboxes, and radio buttons so users of assistive technology can navigate all parts of a form.
4. Mark up data tables so they can be navigated by assistive technology. To ensure that users who are blind or visually impaired can navigate data tables, there are HTML tools that can help you make them more accessible.
5. Provide captions, transcripts, and audio descriptions for all multimedia presentations. Captions make it possible for users who are deaf or hard-of-hearing to understand all audio information. Transcripts can be read by braille users or by anyone who wants to scan the contents of a presentation prior to viewing it. Audio descriptions (or “descriptive video”) allow users who are blind or visually impaired to understand the visual elements of a presentation.



Enhancing Education

A Producer's Guide



Research & Resources: Making Media Accessible

Creating Accessible Web Sites (cont'd)

The following online resources outline general principles and detail methods for making Web sites accessible to users with sensory disabilities:

The Web Content Accessibility Guidelines 1.0

www.w3.org/TR/WCAG10/

Produced by the World Wide Web Consortium's Web Accessibility Initiative (W3C/WAI), these guidelines also contain limited information about mobility impairments and cognitive disabilities. The next version of these guidelines will contain more complete information about cognitive disabilities; see <http://www.w3.org/wai/gl> for information about future releases.

IMS Guidelines for Developing Accessible Learning Applications

ncam.wgbh.org/salt/guidelines/

As part of its Specifications for Accessible Learning Technologies (SALT) project, the CPB/WGBH National Center for Accessible Media (NCAM) and the IMS Global Learning Consortium have published these guidelines specifically for online learning resources.

Making Educational Software Accessible:

Design Guidelines, Including Math and Science Solutions

ncam.wgbh.org/cdrom/guideline/

NCAM has also published guidelines for creating accessible software applications as well as Web sites. These guidelines will be expanded in December 2002 to include specific information about multimedia and textbook accessibility.

➤ *Research & Resources: Making Media Accessible*

Creating Accessible Digital Multimedia

An accessible digital multimedia presentation should always contain the following features:

- Captions, which provide a textual equivalent for all audio
- Audio descriptions, which describe important visual elements of the presentation
- A transcript, so braille users can read the contents of the presentation, and so anyone can scan the contents of a presentation prior to viewing it

There are two digital multimedia formats that support the inclusion of audio descriptions and closed captions in digital multimedia presentations: Synchronized Multimedia Integration Language (SMIL) and Synchronized Accessible Media Interchange (SAMI).

SMIL (www.w3.org/AudioVideo/) is played by the QuickTime Player (www.apple.com/quicktime) versions 4.1.2 and later, RealPlayer (www.real.com) versions G2 and later, and the Oratrix GRiNS Player (www.oratrix.com).

SAMI (msdn.microsoft.com/library/default.asp?url=/library/enus/dnacc/html/atg_samiarticle.asp) is played by only Windows Media Player (www.microsoft.com/windows/windowsmedia/default.asp) only and supports closed captions but not audio descriptions.

For examples of accessible multimedia in several different formats, visit the Rich Media Resource Center at the CPB/WGBH National Center for Accessible Media (NCAM) (ncam.wgbh.org/richmedia/).

Captions and audio descriptions can be added to digital multimedia using the Media Access Generator (MAGpie), a free utility provided by NCAM. Copies for the PC or Macintosh (OS X and higher) may be downloaded from ncam.wgbh.org/webaccess/magpie/. Transcripts, which are an inherent part of the captioning process, can also be created with MAGpie. MAGpie cannot be used for analog media.

Finally, the convergence of television, computer, and Internet technologies is presenting its own unique accessibility challenges. Industry is currently developing methods to address these problems; more information can be found at NCAM's Access to Convergent Media project at ncam.wgbh.org/convergence/. General information about barriers to convergent media for individuals who are blind or have low vision can also be found at ncam.wgbh.org/convergence/barriers.html. Additionally, NCAM will publish guidelines relating to creating accessible convergent media, including DVDs with talking menus, in early 2003.



Enhancing Education

A Producer's Guide



Research & Resources: Making Media Accessible

Creating Accessible Analog Media

Traditional broadcast analog media can be made accessible through the use of closed captions and audio descriptions. Off-line, or pre-produced, captions can be created with specialized software and hardware available from vendors such as Computer Prompting and Captioning (CPC) (www.cpcweb.com/). Basic caption style guidelines are available from the WGBH Media Access Group at main.wgbh.org/wgbh/pages/mag/services/captioning/faq/sugg-styles-conv-faq.html.

A more practical method for providing off-line as well as real-time captions, however, may be to hire a professional captioning agency. Similarly, audio descriptions for analog media can be professionally mixed into the program's soundtrack.

Creating Accessible Print Media

The following Web sites provide guidelines for making print materials more accessible to people who are visually impaired:

Making Text Legible (from Lighthouse International)

www.lighthouse.org/print_leg.htm

Lighthouse International also has guidelines on using appropriate color choices, Effective Color Contrast, at www.lighthouse.org/color_contrast.htm.

Arthur's Communication Adventure

pbskids.org/arthur/grownups/teacherguides/communication/index.html.

This teacher's guide explores accessibility and communication solutions for people who are blind, visually impaired, deaf, or hard-of-hearing and their hearing and sighted peers. Based on characters from the popular PBS program *Arthur*, this guide is aimed at children but contains information of benefit to all users.



Enhancing Education

A Producer's Guide

Research & Resources

Cooperative Learning

Cooperative learning occurs when small groups of students work together to maximize learning. Since the first research study in 1898, hundreds of cooperative learning studies have been conducted. Research clearly indicates that cooperation, compared with competitive and individual learning, results in:

- Higher achievement and greater productivity
- More caring, supportive, and committed relationships
- Greater psychological health, social competence, and self-esteem

One of the strongest research findings is that cooperative learning increases positive relationships among different ethnic groups, as well as among students with learning disabilities and their peers. The essential components of cooperative learning are the following:

- Positive interdependence (each student's success is tied to the success of the group)
- Face-to-face interaction (student interactions promote each other's success)
- Individual and group accountability
- Interpersonal and small group skills
- Group processing
- Regular introduction and review of cooperative learning's essential elements



Enhancing Education

A Producer's Guide

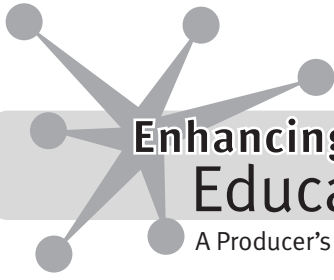
Research & Resources

Multiple Intelligences

Dr. Howard Gardner, a professor of education at Harvard University, has developed a theory of Multiple Intelligences (MI), which asserts that all people possess several types of intelligence: linguistic, logical-mathematical, musical, bodily-kinesthetic, interpersonal, intrapersonal, spatial, and naturalist (see definitions and examples on following pages). He is currently reviewing a ninth intelligence: existential intelligence. Most classroom educators focus on linguistic and logical-mathematical intelligence, which, according to Dr. Gardner, leaves students gifted in other areas out of the teaching equation. IQ testing as a measure of intelligence is very limited when compared to MI theory.

MI theory expands the ways educators reach students. For example, economics students studying the law of supply and demand might read about supply and demand (linguistic), study mathematical formulas (logical-mathematical), examine a graphic chart (spatial), observe the law in the natural world (naturalist) or in the world of commerce (interpersonal), or examine the law personally (when you supply your body with lots of food, the hunger demand goes down, etc.).

While hundreds of schools around the country have adopted MI teaching practices, thousands continue to educate students using the traditional logical-mathematical and linguistic methods. Project SUMIT (Project on Schools Using Multiple Intelligences Theory) investigated schools using Dr. Gardner's theory of MI. Among the schools observed by SUMIT staff, MI contributed to improved test scores, discipline, parent participation, and success for students with learning disabilities.



Enhancing Education

A Producer's Guide



Research & Resources: Multiple Intelligences

Definitions & Examples

Linguistic

- To think in words and to use language to express and understand complex meanings
- Sensitivity to the meaning of words as well as the order of words, their sounds, rhythms, and inflections
- To reflect on the use of language in everyday life

- Linguistic Sensitivity: Skill in the use of words for expressive and practical purposes
- Reading: Skill in reading
- Writing: Ability and interest in writing projects such as poems, stories, books, or letters
- Speaking: Skill in oral communication for persuasion, memorization, and description

Logical-Mathematical

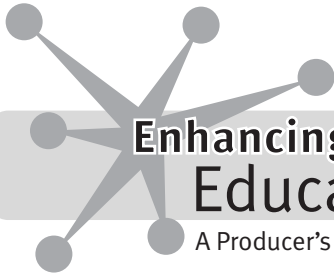
- To think of cause and effect and to understand relationships among actions, objects, or ideas
- To be able to calculate, quantify, consider propositions, and perform complex mathematical or logical operations
- Inductive and deductive reasoning skills, as well as critical and creative problem-solving

- Problem Solving: Skill in organization, problem solving, and logical reasoning; curiosity and investigation
- Calculations: Ability to work with numbers for mathematical operations such as addition and division

Musical

- To think in sounds, rhythms, melodies, and rhymes
- To be sensitive to pitch, rhythm, timbre, and tone
- To be able to recognize, create, and reproduce music by using an instrument or the voice
- To listen actively

- Musical Ability: Awareness of and sensitivity to music, rhythms, tunes, and melody
- Instrument: Skill and experience in playing a musical instrument
- Vocal: A good voice for singing in tune and along with other people
- Appreciation: Actively enjoys listening to music



Enhancing Education

A Producer's Guide



Research & Resources: Multiple Intelligences

Definitions and Examples (cont'd)

Bodily-Kinesthetic

- To think in movements and to use the body in skilled and complicated ways for expressive as well as goal-directed activities
- Sense of timing and coordination

- **Physical Skill:** Ability to move the whole body for physical activities such as balancing, coordination, and sports
- **Dancing, Acting:** To use the body in expressive, rhythmic, and imitative ways
- **Working with Hands:** To use the hands with dexterity and skill for detailed activities and small work

Interpersonal

- To think about and understand another person
- To have empathy and recognize distinctions among people and to appreciate their perspectives with a sensitivity to their motives, moods, and intentions
- Includes interacting effectively with one or more people among family, friends, or working relationships

- **Understanding People:** Sensitivity to and understanding of other people's moods, feelings, and point of view
- **Getting Along with Others:** Able to maintain good relationships with other people, especially friends and siblings
- **Leadership:** To take a leadership role among people through problem solving and influence

Intrapersonal

- To think about and understand one's self
- To be aware of one's strengths/weaknesses and to plan effectively to achieve personal goals
- Includes reflecting on and monitoring one's thoughts and feelings and regulating them effectively

- **Knowing Myself:** Awareness of one's own ideas, abilities; personal decision-making skills



Enhancing Education

A Producer's Guide



Research & Resources: Multiple Intelligences

Definitions and Examples (cont'd)

- Goal Awareness: Awareness of goals and self-correction and monitoring in light of a goal
- Managing Feelings: Ability to regulate one's feelings, moods and emotional responses
- Managing Behavior: Ability to regulate one's mental activities and behavior

Spatial

- To think in pictures and to perceive the visual world accurately
- To be able to think in three dimensions and to transform one's perceptions and recreate aspects of one's visual experience via imagination
- To work with objects

- Imagery: Use of mental imagery for observation, artistic, creative, and other visual activities
- Artistic Design: To create artistic designs, drawings, paintings, or other crafts
- Construction: To be able to make, build, or assemble things

Naturalist

- To understand the natural world including plants, animals, and scientific studies
- To be able to recognize and classify individuals, species, and ecological relationships
- To interact effectively with living creatures and discern patterns of life and natural forces

- Animal Care: Skill for understanding animal behavior, needs, characteristics
- Plant Care: Ability to work with plants, (i.e., gardening, farming, and horticulture)
- Science: Knowledge of natural living energy forces, including cooking, weather, and physics



Enhancing Education

A Producer's Guide

Research & Resources

The 5 E's

The 5 E's is an instructional model based on the constructivist approach to learning (see following page), which says that learners build or construct new ideas on top of their old ideas. The 5 E's can be used with students of all ages, including adults.

Each of the 5 E's describes a phase of learning, and each phase begins with the letter "E": Engage, Explore, Explain, Elaborate, and Evaluate. The 5 E's allows students and teachers to experience common activities, to use and build on prior knowledge and experience, to construct meaning, and to continually assess their understanding of a concept.

Engage

This phase of the 5 E's starts the process. An "engage" activity should do the following:

1. Make connections between past and present learning experiences
2. Anticipate activities and focus students' thinking on the learning outcomes of current activities. Students should become mentally engaged in the concept, process, or skill to be learned.

Explore

This phase of the 5 E's provides students with a common base of experiences. They identify and develop concepts, processes, and skills. During this phase, students actively explore their environment or manipulate materials.

Explain

This phase of the 5 E's helps students explain the concepts they have been exploring. They have opportunities to verbalize their conceptual understanding or to demonstrate new skills or behaviors. This phase also provides opportunities for teachers to introduce formal terms, definitions, and explanations for concepts, processes, skills, or behaviors.

Elaborate

This phase of the 5 E's extends students' conceptual understanding and allows them to practice skills and behaviors. Through new experiences, the learners develop deeper and broader understanding of major concepts, obtain more information about areas of interest, and refine their skills.

Evaluate

This phase of the 5 E's encourages learners to assess their understanding and abilities and lets teachers evaluate students' understanding of key concepts and skill development.



Enhancing Education

A Producer's Guide

Research & Resources: The 5 E's

Constructivism

Constructivism is a learning strategy that draws on students' existing knowledge, beliefs, and skills. With a constructivist approach, students synthesize new understanding from prior learning and new information.

The constructivist teacher sets up problems and monitors student exploration, guides student inquiry, and promotes new patterns of thinking. Working mostly with raw data, primary sources, and interactive material, constructivist teaching asks students to work with their own data and learn to direct their own explorations. Ultimately, students begin to think of learning as accumulated, evolving knowledge. Constructivist approaches work well with learners of all ages, including adults.



Enhancing Education

A Producer's Guide

Research & Resources

Additional Teaching & Learning Strategies

Civil Discourse

Controversial issues provide opportunities to promote and practice civil discourse in the classroom. Established guidelines for civil discourse help structure and neutralize students' interactions during discussions about controversial topics. The following guidelines are offered:

- Everyone should participate and offer ideas.
- Seek to understand before being understood.
- Ask clarifying questions.
- Separate yourself from your ideas.
- Challenge ideas, but respect each other's views.

Complex Instruction

Complex instruction is a teaching method in which students work together in small groups to enhance their learning experience and to ensure full participation by every member of the group. Each student in the group is assigned one of the following roles:

- A group facilitator who keeps the group on task
- A harmonizer who ensures participation and civility
- A materials manager who gathers materials needed for the group product
- A reporter who explains the group process during the presentation
- A resource manager who gathers any additional resources or content materials needed

Dilemmas

Problem-based learning uses dilemmas and scenarios, either real or fictional. Used to stimulate interest, highlight conflicts, and feature abstract ideas in a more concrete setting, these devices pose a problem, such as ethnic strife, and encourage students to construct a course of action. Students learn to think critically as they question their own assumptions, their classmates' assertions, and the references they consult. The actions they propose are based on facts, evidence, and the weighing of alternatives and consequences.

Essential Questions

Essential questions are an instructional strategy teachers use to engage students and encourage in-depth study. Essential questions are often used to make connections between units of study and can lead to the integration of disciplines. They sometimes are linked to other essential questions, and can also help focus assessment efforts.

Research & Resources

Additional Teaching & Learning Strategies (cont'd)

Essential questions have the following characteristics:

- They are broad in nature.
- They are central to the content of the unit or subject.
- They have no single correct or obvious answer.
- They invite higher-order thinking, including analyzing, synthesizing, and evaluating.
- They provoke student interest and allow students to draw from experience.

Graphic Organizers

Graphic organizers give students a concrete, hands-on activity in which to identify and compare otherwise abstract concepts.

A graphic organizer is a visual representation of information that shows at a glance how key concepts are related. Graphic organizers illustrate the chronological order of events over time (timelines), compare and contrast (Venn diagrams), or serve as useful tools for brainstorming (concept maps). Recording information in a graphic organizer helps students focus on important points and clarify relationships. It also helps students retain what they learn.

Hypothetical Situations & Analogies

Hypothetical situations and analogies are not meant to be used as a direct representation or an oversimplification of a larger, more complex issue. Rather, they are a way to get students to identify competing claims, consider the validity of different points of view, and practice the fine art of conflict resolution.

Integrated Curriculum

An integrated curriculum can include elements of science, art, and English language arts. An integrated curriculum is more reflective of the real world, in which subjects are not always defined and categorized by separate disciplines. Integrating subjects in the classroom allows students to make natural connections between content areas without being limited by artificial boundaries. In doing so, students construct their own meaning and develop skills they will need in the workplace.

An integrated curriculum may involve one or all of the following:

- Examining a topic from different points of view (disciplines)
- Placing greater emphasis on projects
- Using a variety of sources and materials in addition to the class textbook
- Encouraging students to recognize the relationships among and between concepts

Research & Resources

Additional Teaching & Learning Strategies (cont'd)

- Using thematic units as organizing principles
- Flexible schedules
- Flexible student groupings

When teachers develop integrated curriculum units, they often begin with a list of major concepts and processes they expect to teach. They then endeavor to make learning meaningful by asking students a series of essential guiding questions that connect content across curricula. These questions, usually two to five per topic, reflect the individual teacher's learning outcomes and conceptual priorities.

Alternatively, teachers may begin by presenting students with a specific topic (e.g., holidays). Upon deconstructing that topic with the teacher, students will likely discover its component parts are derived from separate disciplines (e.g., social studies and science). Teachers can point out the cross-curricular connections and use the integrated curriculum as a jumping-off point for further discussions about how topics and subjects are related.

Using content and skills from a variety of subjects to enhance your curriculum not only encourages students to explore a topic from different angles; it helps reinforce what they have already learned.

Learning by Doing

Young children learn best when they have direct, hands-on experiences and when they can relate what they learn to what they already know.

Mock Trial

In the course of preparing and conducting a mock trial, students study the facts of the case, prepare opening statements, present evidence, cite relevant laws and information, examine and cross-examine witnesses, conduct redirect examination, present closing arguments, arrive at a verdict, and state the reasoning behind the decision. Students are asked to summarize the facts, reflect on their roles, relate the experience to other course content and broader issues, and compare the reenactment to the real trial.

Presentation & Examples

Presentations, also called direct instruction, can be used to introduce new topics, build background knowledge about an unfamiliar topic, orient students to complete an activity, or review content. When presenting information, teachers can organize their presentations into a logical

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Additional Teaching & Learning Strategies (cont'd)

sequence, ask a variety of types of questions, use rich examples such as metaphors and analogies that link to the lives of students, and respond to students' questions and comments.

Examples can help students link new learning with what they already know. Teachers can recall personal experiences or use analogies, metaphors, and similes to help students create vivid pictures of what they are learning, clarify complex topics, or think about content in unique and memorable ways.

Primary Sources

Students can work together to organize and translate primary sources. Students work in small groups to find information related to categories supplied by the teacher. Working together helps students decode the often archaic language in primary sources, discover the multiple, sometimes changing meanings of words, and in the process, improve their reading comprehension skills.

Role Playing & Simulations

Interactive teaching strategies like role playing and simulations work best when they're presented spontaneously to students. Effective use of role playing, however, requires preparation, a well-defined format, clearly defined goals and outcomes, and time to debrief after the simulation. Role playing and simulations require students to improvise using the information available to them. In the process, they encourage critical thinking and cooperative learning. These teaching tools can also be effective in helping students clarify attitudes and ideologies and make connections between abstract concepts and real-world events.

Teaching a Multi-Age Class

In a multi-age class, learning is promoted by taking advantage of the diversity of the learners. Units are organized thematically, and students at each grade level work on different assignments within the unit. Students are encouraged to help each other in a nurturing environment and to value differences between students of different ages and ability levels. In cooperative work, older students become role models and mentors to the younger learners.

Teachers in multi-age classrooms are encouraged to use a range of teaching and assessment strategies to address the different ages of their students, implement flexible patterns of grouping, accommodate specific learning goals, engage all students in active participation, and promote a climate of respect for oneself and others.



Enhancing Education

A Producer's Guide

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Additional Teaching & Learning Strategies (cont'd)

Technology as a Learning Tool

Technology can contribute to any learning environment. Students may use the Internet, digital cameras, and computers for editing student-produced movies, to demonstrate how technology is changing the way today's students research, organize, and present their findings. Technology provides opportunities to make a learning environment more student-centered, collaborative, multi-sensory, inquiry-based, and reflective. More important, technology is making information more accessible to students and teachers.

Testing Predictions Against Different Sources

High school students are ready and often eager to express their opinions and participate in discussions about provocative topics. Asking students to make a prediction at the beginning of a lesson can draw them into the content. Predictions are generally one of the most effective kinds of classroom "activators" because they instantly give students an investment in the outcome of the lesson. Students want to know "how they did" with their predictions. Using a variety of sources to test students' predictions enables teachers to teach history through a variety of viewpoints and helps students identify cultural biases in historical accounts.

The following sources and teaching devices are some of the many available:

- Data cards to explain key events
- Opinion spectrums (students line up along a continuum to illustrate the range of opinions)
- Video clips of news footage
- Music that reflects the political climate
- Interviews with people who remember the war
- Opinion poll results