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Technology Integration

RESEARCH & BEST PRACTICES

How does the integration of technology and media improve instruction and student learning? Our collection of recent research and best practices provides answers and can help you plan the best approach for your students. The resources are divided into the following categories:

[Access & The Digital Divide](#)
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ACCESS & THE DIGITAL DIVIDE

The Digital Disconnect: The Widening Gap Between Internet-Savvy Students and Their Schools

http://www.pewinternet.org/PPF/r/67/report_display.asp

This 2002 study from the Pew Internet & American Life project compares students' interest and fluency in Internet usage to what is offered them in their schools. The study is based primarily on information gathered from 14 gender-balanced, racially diverse focus groups of 136 students, drawn from 36 different schools.

Digital Leadership Divide

<http://www.cosn.org/resources/grunwald/index.cfm>

This 2004 survey from the Consortium for School Networking (CoSN) and Grunwald Associates includes data from 455 school district decision-makers for technology. The report points to large and growing disparities in funding for school technology and questions if these differences signal a growing digital divide. A PDF file of the full report is provided at:

http://www.cosn.org/resources/grunwald/digital_leadership_divide.pdf

Internet Access in U.S. Public Schools and Classrooms: 1994-2005

<http://nces.ed.gov/pubs2007/2007020.pdf> (PDF file)

This survey from the U.S. Department of Education's National Center for Education Statistics shows the historical growth of Internet access in schools and classrooms. In 2005, nearly 100% of U.S. public schools had access to the Internet, 88-98% had classroom access and 97% of schools had broadband connections.

ACCESSIBLE/ASSISTIVE TECHNOLOGIES

Accessible Technologies for All Students

<http://www.accessibletech4all.org/>

This leadership initiative of the Consortium for School Networking (CoSN) provides research links, a free e-newsletter, policy/legal information, best practices, and more.

Articles on Assistive Technologies

<http://www.ciconline.org/thresholdwinter05>

This collection of articles from the Winter 2005 issue of *Threshold: Exploring the Future of Education* provides valuable insights about available research, policy issues and what is working in the field.

Center for Applied Special Technology (CAST)

<http://www.cast.org/>

Learn about CAST's research into Universal Design for Learning (UDL).

Critical Issue: Enhancing System Change and Academic Success Through Assistive Technologies for K-12 Students With Special Needs

<http://www.ncrel.org/sdrs/areas/issues/methods/technlgy/te700.htm>

This research review from the U.S. Department of Education's Northwest Central Regional Education Laboratory (NcREL) addresses the key issues and benefits of assistive technologies and outlines important steps for successfully implementing them.

Microsoft Accessibility Center

<http://www.microsoft.com/enable/>

Find case studies, research links, news articles and guides for adapting Microsoft products for various impairments.

DISTANCE EDUCATION

The Effects of Distance Education on K-12 Student Outcomes: A Meta-Analysis

<http://www.ncrel.org/tech/distance/k12distance.pdf> (PDF File)

This 2004 document draws evidence from a number of studies that meet the U.S. Department of Education's definition of "scientific research" in an effort to capture best practices for K-12 distance education.

Keeping Pace With K-12 Online Learning: A Review of State-Level Policy and Practice

<http://www.ncrel.org/tech/pace2/>

This 2005 report from the U.S. Department of Education's Northwest Central Regional Education Laboratory (NcREL) explores policies and practices governing state-level online education, with a particular focus on the quality of student online learning experiences.

Measuring Success: Evaluation Strategies for Distance Education

<http://www.educase.edu/ir/library/pdf/EQM0213.pdf> (PDF File)

This 2002 article discusses strategies and issues to consider when evaluating distance education programs.

A Synthesis of New Research on K-12 Online Learning

<http://www.ncrel.org/tech/synthesis/>

This 2005 synthesis summarizes the latest in a series of research efforts sponsored by North Central Regional Educational Laboratory (NcREL) to answer questions about online learning and promote the growth of effective programs and practices.

EMERGING TECHNOLOGIES

Executive Summary: A Guide to Handheld Computing in K-12 Education

http://www.cosn.org/resources/emerging_technologies/handheld.cfm

This executive summary of a June 2004 report from the Consortium for School Networking (CoSN) evaluates handheld computers and their applications in education and administration, assesses their strengths and weaknesses, offers advice about implementing handhelds in K-12 schools, and reports on lessons learned by early adopters. A complete copy of the report is available for a fee.

Executive Summary: A Guide to Wireless LANs in K-12 Schools

http://www.cosn.org/resources/emerging_technologies/wireless.cfm

This executive summary of a November 2003 report from the Consortium for School Networking (CoSN) explores the ways in which eight different K-12 districts are using wireless LAN technology. The report also identifies challenges, options and lessons learned from wireless LAN implementation. A complete copy of the report is available for a fee.

Executive Summary: Collaboration in K-12 Schools: Anywhere, Anytime, Any Way

http://www.cosn.org/resources/emerging_technologies/collaboration.cfm

This executive summary of a September 2006 report from the Consortium for School Networking (CoSN) examines the implications, technologies, costs, and current implementations of digital tools -- including instant messaging, blogs, wikis, and portals -- that make collaboration possible for groups of students, teachers, and administrators. A complete copy of the report is available for a fee.

Handhelds: Ubiquitous Computing

<http://www.concord.org/work/themes/handhelds.html>

The Concord Consortium shares its experiences using handheld computers in educational settings through articles, curriculum ideas and more.

K-12 Open Technologies

<http://www.k12opentech.org>

This initiative of the Consortium for School Networking (CoSN) is designed to support the adoption and utilization of open technologies, including open source software, open standards, and open hardware, in K-12 education around the world. The site includes articles, resources links, discussion forums, newsflashes, a newsletter, and more.

Generation M: Media in the Lives of 8-18 Year-Olds

<http://www.kff.org/entmedia/entmedia030905pkg.cfm>

This 2005 Kaiser Family Foundation study provides access and consumption data for television, radio, print, music, computers, the Internet and video games.

The Internet and Education: Findings of the Pew Internet & American Life Project

http://www.pewinternet.org/report_display.asp?r=39

This study by the Pew Internet & American Life Project surveyed 754 online youth ages 12-17, and their parents, in November and December 2000. Teens and parents reported that the Internet is vital to completing school projects and has effectively replaced the library for a large number of online youth. In addition, 71% of students reported using the Internet at their primary source for their last major project. Other findings address topics like cheating and using the Internet to communicate with teachers.

K-12 Online Learning: A Survey of U.S. School District Administrators

http://www.sloan-c.org/publications/survey/pdf/K-12_Online_Learning.pdf (PDF file)

This 2007 study explores the nature of online learning in K-12 schools and establishes base data for more extensive future studies. Much of the data collected and analyzed in the study supports existing research indicating that online learning has been growing in K-12 schools and that this growth will continue for the foreseeable future.

Learning with Technology: Evidence that technology can, and does, support learning

http://www.medialit.org/reading_room/pdf/545_CICReportLearningwithTechnology.pdf (PDF file)

This 2002 report, commissioned by Cable in the Classroom, draws conclusive evidence from a variety of studies about the impact of video and other broadcast and online technologies on learning in the schools. The author finds that technology employed purposefully for defined outcomes supports and facilitates learning.

Like Taking Candy from a Baby: How Young Children Interact with Online Environments

<http://www.consumerwebwatch.org/pdfs/kidsonline.pdf> (PDF file)

This 2008 ethnographic study for Consumer Reports WebWatch reveals that very young children are using online games and Web sites to play and learn, yet many of the games and sites are designed to manipulate children for the sake of commerce and promote the idea of commercialism. The online games observed in the study were found to vary widely in terms of quality, educational value, and their developmental match with children's abilities.

The Media Family: Electronic Media in the Lives of Infants, Toddlers, Preschoolers and Their Parents

<http://www.kff.org/entmedia/7500.cfm>

This May 2006 report from the Kaiser Family Foundation finds that "electronic media is a central focus of many very young children's lives, used by parents to help manage busy schedules, keep the peace, and facilitate family routines." According to the report, many parents express satisfaction with the educational benefits of television and its ability to foster positive behaviors.

National Study Regarding the Effectiveness of Educational Technology

<http://www.ed.gov/about/offices/list/os/technology/evaluation.html>

The No Child Left Behind Act calls for the U.S. Department of Education to carry out a national study of conditions and practices necessary for technology to be used effectively to improve teaching and learning. The legislation calls for the study to use rigorous scientifically based research methods to provide evidence of effectiveness. Background documents and updates on this effort are posted periodically.

Social Networking Websites and Teens: An Overview

http://www.pewinternet.org/PPF/r/198/report_display.asp

This January 2007 Pew Internet & American Life Project survey finds that 55% of all online American youths ages 12-17 use online social networking sites. The survey also finds that, for girls, social networking sites are primarily places to reinforce pre-existing friendships, while, for boys, the networks also provide opportunities for flirting and making new friends.

The Sustainability Challenge: Taking EdTech to the Next Level

http://www.benton.org/publibrary/sustainability/sus_challenge.html

This 2003 study from the Benton Foundation and the Center for Children & Technology uses case studies to illustrate challenges to sustaining educational technology achievements, and then provides recommendations for taking educational technology to the next level. Findings were based on research, fieldwork in three Midwestern cities and a series of grantmaker roundtables held in New York, Chicago and Washington, D.C.

Technology Counts 2003: Pencils Down: Technology's Answer to Testing

<http://counts.edweek.org/sreports/tc03/>

This May 2003 report from Education Week examines a myriad of issues related to computer-based testing. A collection of charts on technology trends present national data on decreasing student to computer ratios, wiring schools and classrooms, PDA and laptop penetration in schools, Internet use by subject area and more. (Note: Access to the complete data from this study requires a fee.)

Technology Counts 2004: Global Links: Lessons From the World

<http://counts.edweek.org/sreports/tc04/>

This May 2004 report from Education Week presents an overview of technology data, lessons and trends in schools around the world and compares worldwide progress to the United States. This report also includes data tables illustrating national trends in the use of educational technology, as well as state-by-state snapshots of the steps states have taken to use educational technology more effectively. (Note: Access to the complete data from this study requires a fee.)

Technology Counts 2005: Electronic Transfer: Moving Technology Dollars in New Directions

<http://www.edweek.org/ew/toc/2005/05/05/index.html>

This May 2005 report from Education Week tracks the economic and policy forces that are converging to alter the financial landscape of educational technology. The report includes in-depth articles on issues surrounding technology spending, state profiles, and the first-ever ranking of state technology leaders. (Note: Access to the complete data from this study requires a fee.)

Technology Counts 2006: The Information Edge: Using Data to Accelerate Achievement

<http://www.edweek.org/ew/toc/2006/05/04/index.html>

This May 2006 report from Education Week examines the ways in which technology and education policy are evolving to support the use of data to improve student achievement. It reveals that, while the U.S. has made progress in developing computerized data systems that can guide education decision-making, more steps must be taken before those systems can fulfill their potential to accelerate student achievement. (Note: Access to the complete data from this study requires a fee.)

Technology Counts 2007: A Digital Decade

<http://www.edweek.org/ew/toc/2007/03/29/index.html>

This 10th edition of Technology Counts examines trends in Education Technology over the last decade and looks to the future. The report reveals that while roughly 95% of schools have high-speed Internet access, the digital divide remains large when it comes to home use of computers. While students are taking more tests on computers and teachers are making greater use of digital data on student achievement, few states are actively measuring students' abilities to meet technology standards. Technology is making self-expression and publication easier than ever for students and teachers, and teachers are increasingly turning to the Web for professional development. Yet, evidence suggests that teachers' integration of technology in instruction remains sporadic. These trends are raising serious concerns about U.S. prospects in the global economy and our education system's ability to provide students with critical 21st-century skills.

Technology Counts 2008: The Push to Improve STEM Education

<http://www.edweek.org/ew/toc/2008/03/27/index.html>

The 11th edition of Technology Counts examines the call from business leaders, policy makers and others to strengthen U.S. Science, Technology, Engineering and Mathematics Education as well as efforts being undertaken to answer that call. Strategies that states are pursuing include: offering economic incentives to increase the number of students and teachers in these areas; increasing high school graduation requirements in these areas; expanding online instruction; and enhancing career and technical education; among others. At the grassroots level, educators are taking advantage of a growing number of competitions that incorporate STEM-related content and skills within interdisciplinary, real-world approaches.

Technology Evaluation Sourcebook

<http://rcgd.isr.umich.edu/tlt/TechSbk.pdf> (PDF file)

"Assessing the Impact of Technology in Teaching and Learning: A Sourcebook for Evaluators" provides an overview of measurement issues in seven areas, from learner outcomes to technology integration. It was published in April 2002 by the Institute for Social Research at the University of Michigan and funded by the U.S. Department of Education.

Technology in Schools. Suggestions, Tools and Guidelines for Assessing Technology in Elementary and Secondary Education

<http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2003313>

This November 2002 guide was written by the National Forum on Education Statistics. Directed toward state and local education agencies, it describes how to measure technology use by examining planning and policies; finance; equipment and infrastructure; technology applications; maintenance and support; professional development; and technology integration.

Technology in Schools: What the Research Says

<http://www.cisco.com/web/strategy/docs/education/TechnologyinSchoolsReport.pdf> (PDF file)

This 2006 report commissioned by Cisco Systems highlights general trends in the use and effect of a range of current technologies used in schools. The research indicates that technology has a significant positive impact on student learning across all areas of the curriculum. However, the authors conclude that more attention to research, implementation, and professional development is needed for technology to realize its full educational potential.

The Teen Media Juggling Act: The Implications of Media Multitasking Among American Youth

<http://www.kff.org/entmedia/entmedia121206pkg.cfm>

This December 2006 report from the Kaiser Family Foundation explores how pervasive media multitasking is among young people, potential cognitive and social development implications, and which teens are most likely to multitask.

Teens and Social Media

http://www.pewinternet.org/PPF/r/230/report_display.asp

This December 2007 Pew Internet & American Life Project survey found that teens are increasingly embracing the conversational nature of online social media. According to survey results, 64% of online teenagers ages 12-17 are engaging in at least one type of content creation, which involves both sharing creative output and participating in conversations fueled by that content. However, many teens limit access to content that they share.

Teens, Video Games and Civics

http://www.pewinternet.org/pdfs/PIP_Teens_Games_and_Civics_Report_FINAL.pdf (PDF file)

This September 2008 report from the Pew Internet & American Life Project indicates that 97% percent of young Americans ages 12 to 17 play video games, including 99% of boys and 94% of girls. The first national survey of its kind finds that American teens' gaming experience is diverse and involves a significant amount of social interaction and potential for civic engagement.

Transforming Learning with Technology: Strategies for the Urban High School

<http://schooltechnologystrategies.sri.com/index.html>

This Web site, launched in 2001, reports the results of a study of six Chicago and Detroit high schools by the Center for Technology and Learning at SRI International. The study focused on schools that were trying to combine strong educational agendas with the use of technology tools; the report identifies what worked and what didn't at the classroom, school and district levels.

INTERNET SAFETY

10 Questions for Parents about Technology + Their Kids

http://www.ciconline.org/cicmagazine-july_aug07

This article from the July/August 2007 issue of Cable in the Classroom Magazine provides answers to common questions about social networking, bullying, file sharing, and more.

bNetS@vvy

<http://www.bnetsavvy.org/>

This is a bimonthly e-newsletter from the National Education Association Health Information Network (NEA HIN), the National Center for Missing & Exploited Children, and Sprint that offers teachers, parents and guardians tools to help children ages 9-14 stay safer online.

Cyber Security for the Digital District

<http://www.securedistrict.org/>

This site, co-sponsored by the Consortium for School Networking (CoSN) and Mass Networks Education Partnership, provides tools and information designed to enable technology leaders, superintendents, and policy makers to assess and improve the security of their technology systems in order to protect students and staff members and contribute to the educational missions of their schools.

Cyberbullying

http://www.harrisinteractive.com/news/newsletters/k12news/HI_TrendsTudes_2007_v06_i04.pdf (PDF file)

This issue of Trends & Tudes, a Harris Interactive newsletter focusing on today's youth, explores the prevalence and impacts of cyberbullying among teens. Cyberbullying is defined as "use of the Internet, cell phones, or other technology to send or post text or images intended to hurt or embarrass another person." Harris' research indicates that more than four in ten teens report having experienced some form of cyberbullying in the past year.

PointSmartClickSafe.org

<http://www.pointsmartclicksafe.org/>

This comprehensive new initiative from the cable industry addresses Internet safety, digital ethics, and media literacy.

A Parent's Guide to 'Virtual' Popularity

http://www.ciconline.org/cicmagazine-july_aug07

This article from the July/August 2007 issue of Cable in the Classroom Magazine suggests basic rules to help parents effectively manage children's use of social-networking Web sites.

Teens, Privacy and Online Social Networks

http://www.pewinternet.org/PPF/r/211/report_display.asp

This April 2007 Pew Internet & American Life project report indicates that the majority of teens actively manage their online profiles to prohibit strangers, parents and other adults from accessing sensitive information. Among the 55% of online teens with profiles, 66% say their profile is not visible to all internet users.

Weaving a Web of Responsibilities

<http://www.ciconline.org/thresholdsummer07>

This graphic from the Summer 2007 issue of Threshold Magazine is designed to stimulate thinking and discussion about media literacy, digital ethics, and Internet safety.

Youth Internet Safety Research

http://www.unh.edu/ccrc/youth_internet_safety_survey_publications.html

This collection of research studies from the University of New Hampshire includes research on topics such as the use of filtering and blocking software, why and how youth are victimized on the Internet, characteristics of youth who form close online relationships and more.

LEADERSHIP & TECHNOLOGY

2006 National Trends Report

<http://www.setda.org/web/guest/2006NationalTrendsReport>

This report documents the results of the No Child Left Behind, Title II, Part D Enhancing Education Through Technology program that asks states and schools to focus their use of technology on increasing literacy and mathematics achievement and closing the achievement gap.

The Consortium for School Networking (CoSN)

<http://www.cosn.org/>

This organization seeks to advance K-12 technology leadership through research, advocacy and more.

The IBM Reinventing Education Initiative from an Evaluation Perspective: The Role of Innovative Technology Partnerships in Addressing Significant Challenges to Education Improvement (April 2004)

http://www.ibm.com/ibm/ibmgives/downloads/IBMRE_evalsum_04.pdf (PDF file)

This document by the Center for Children & Technology describes how the IBM Reinventing Education Initiative worked in partnership with urban school districts and state education departments to adapt new technologies to key education challenges. Listed accomplishments include best practice models for school reform initiatives, documented significant and positive improvements in student achievement, and effective and ongoing programs for teacher professional development. A related document examines common challenges and success factors across project sites over a three year period: IBM's Reinventing Education Grant Partnership Initiative: Individual Site Reports (March 2001):

http://www2.edc.org/CCT/publications_report_summary.asp?numPubId=51

The National Education Technology Plan

<http://www.nationaledtechplan.org>

View the full text of the U.S. Department of Education's education technology plan.

Visions 2020: Transforming Education and Training Through Advance Technologies

<http://www.technology.gov/reports/TechPolicy/2020Visions.pdf> (PDF File)

This 2002 document from the U.S. Department of Commerce includes the views of visionaries who imagined what the learning experience could be like with next-generation learning technologies.

RESEARCH CLEARINGHOUSES & PUBLICATIONS

CARET

<http://caret.iste.org/>

The Center for Applied Research in Educational Technology bridges education technology research to practice by offering research-based answers to critical questions. The site allows users to browse questions and answers, search for studies and receive notification of new research related to their interests.

Center for Children & Technology (CCT)

<http://cct.edc.org/>

Education Development Center's Center for Children and Technology investigates the roles that technology can play in improving teaching and learning within classrooms, schools and

communities. CCT also designs and develops technology applications that support engaged, active learning and student-centered teaching practices.

Critical Issues: Technology in Education

<http://www.ncrel.org/sdrs/areas/te0cont.htm>

This directory of reports from the U.S. Department of Education's Northwest Central Regional Education Laboratory (NCREL) presents research-based papers on a variety of issues in educational technology, including the use of technology with students with special needs, providing professional development for effective technology use and more.

The Educational Resources Information Center (ERIC)

<http://www.eric.ed.gov/>

This searchable database, funded by the U.S. Department of Education, allows users to access abstracts summarizing research in educational technology. Thousands of full-text documents are available for no charge.

eSchool News Online

<http://www.eschoolnews.com/>

This monthly newspaper provides up-to-date news and reliable information to help K-12 decision-makers use technology and the Internet to transform schools.

ISTE's Journal of Research on Technology in Education

<http://www.iste.org/jrte/>

Read abstracts from some of the latest studies in educational technology, including those addressing wireless technologies, online collaboration, pedagogical issues and more. Abstracts include details on methodology and contact information. JRCE is published quarterly.

The Journal of Interactive Online Learning

<http://www.ncolr.org/jiol/>

This journal of theory, research, and practice in interactive online learning is a quarterly publication of the National Center for Online Learning Research. It contains critical essays, manuscripts, and reviews that provide disciplinary and interdisciplinary perspectives related to higher-level learning outcomes.

The Journal of Technology, Learning, and Assessment (JTLA)

<http://escholarship.bc.edu/jtla/>

This peer-reviewed, scholarly online journal addresses issues at the intersection of computer-based technology, learning, and assessment. The JTLA is housed jointly in the Technology and Assessment Study Collaborative (inTASC) and the Center for the Study of Testing, Evaluation and Educational Policy (CSTEPP) at Boston College.

The North American Council for Online Learning (NACOL)

<http://www.nacol.org/>

This organization tracks K-12 distance education research and provides resources and networking opportunities for related professionals.

Research Center for Educational Technology (RCET)

<http://www.rcet.org>

The RCET at Kent State University was founded to provide a network for university researchers and K-16 educators committed to studying the impact of technology on teaching and learning. The Web site contains links to research, publications, including the Journal of the Research Center for Educational Technology, and more.

T.H.E. Journal

<http://www.thejournal.com/>

T.H.E. Journal is dedicated to informing and educating K-12 senior-level district and school administrators, technologists, and tech-savvy educators to improve and advance the learning process through the use of technology. The Web site provides links to online issues of the magazine, e-newsletters, a searchable database of education technology resources, and more.

What Works Clearinghouse

<http://www.whatworks.ed.gov/>

This resource from the U.S. Department of Education reviews studies on educational programs, products, practices and policies. The Clearinghouse then issues reports with a rating system that provides guidance on how reliable findings from selected research studies are.

STUDENT LEARNING

A Meta-Analysis of the Effectiveness of Teaching and Learning with Technology on Student Outcomes

<http://www.ncrel.org/tech/effects2/waxman.pdf> (PDF file)

This December 2003 report, commissioned by the U.S. Department of Education's Northwest Central Regional Education Laboratory, provides a quantitative synthesis of 42 research studies focused on the impact of educational technology on student outcomes. The results indicate

that teaching and learning with technology has a small, positive, significant impact on student outcomes when compared to traditional instruction. The authors emphasize that more and better research needs to be funded and conducted by researchers in this area.

Confronting the Challenges of Participatory Culture: Media Education for the 21st Century

http://www.digitallearning.macfound.org/atf/cf/%7B7E45C7E0-A3E0-4B89-AC9C-E807E1B0AE4E%7D/JENKINS_WHITE_PAPER.PDF (PDF file)

In this MacArthur Foundation White Paper, MIT professor Henry Jenkins identifies eleven skills that young people will need -- and schools and parents will need to spend more time fostering -- if they are to be what he considers "full, active, creative, and ethical participants" in an emerging participatory culture.

Early Childhood Computer Experience and Cognitive and Motor Development

<http://pediatrics.aappublications.org/cgi/content/abstract/113/6/1715>

This research summary in the June 2004 edition of Pediatrics presents a study of 122 preschool children enrolled in a rural county Head Start program in the United States during 2001-2002. Findings suggest that early computer exposure before or during the preschool years is associated with development of preschool concepts and cognition among young children.

Effects of Using Instructional Technology in Elementary and Secondary Schools: What Controlled Evaluation Studies Say

<http://caret.iste.org/index.cfm?fuseaction=studySummary&studyid=1044>

This 2003 research meta-analysis by SRI International draws findings of effective use of instructional technology for student learning from a review and analysis of 396 carefully-selected studies conducted over several decades.

The Impact of Maine's One-to-One Laptop Program on Middle School Teachers and Students (2002-2004)

<http://www.usm.maine.edu/cepare/pdf/mlti/MLTI%20Phase%20One%20Evaluation%20Report%201.pdf> (PDF File)

Find out what happened when the state of Maine provided all 7th and 8th grade students and their teachers with laptops, technical support and professional development.

The Learning Return on Our Educational Technology Investment: A Review of Findings from Research

http://www.wested.org/online_pubs/learning_return.pdf (PDF file)

This 2002 WestEd summary provides an in-depth look at studies that address the question, "Does the investment in technology make a difference in student learning?" For an at-a-glance WestEd document on this subject, see the PDF file, "Investing in Technology: The Learning Return" at: http://www.wested.org/online_pubs/po-02-01.pdf (PDF file)

Learning To Read in the Computer Age

<http://www.cast.org/publications/books/ltr/index.html>

This online book presents knowledge about computers and the process of learning to read, relating computer use to theories about the brain and the teaching of reading skills and strategies. It also shows how computers can enhance student motivation and engagement.

NetDay Speak Up Day 2005: Our Voices, Our Future

http://www.netday.org/SPEAKUP/pdfs/SpeakUpReport_05.pdf (PDF file)

NetDay collects educational technology survey responses from students and teachers on an annual basis as part of its Speak Up event. While only schools that participate in the events get access to the most recent data, NetDay's analysis of the data from previous years reveal that today's students are very technologically savvy, feel strongly about the positive value of technology and rely upon technology as an essential and preferred component of every aspect of their lives.

PC-Savvy Toddlers Leap Ahead in Learning

<http://www.ajc.com/health/content/shared-auto/healthnews/cmpu/519355.html>

This article describes a study from the June 2004 issue of Pediatrics, which found that children with exposure to computers, either in the family home or elsewhere, scored an average seven to 10 points higher on estimated IQ tests and significantly higher on school readiness tests, compared with toddlers with no access to computers.

Visions 2020.2: Student Views on Transforming Education and Training Through Advanced Technologies

<http://www.nctet.org/Visions2020-2.pdf> (PDF File)

Find out how thousands of students responded to a survey question asking what they'd like to see invented to help students learn in the future.

What Impact Does the Use of Technology Have on Middle Level Education, Specifically Student Achievement?

<http://www.nmsa.org/Research/ResearchSummaries/Summary19/tabid/275/Default.aspx>

This 2001 research summary published by the National Middle Schools Association specifically addresses the impact of technology in the middle grades. The summary asserts that technology improves middle school student performance when it is incorporated into a curriculum that is challenging, integrative and exploratory, as well as one that includes varied teaching and learning approaches.

TEACHER PRACTICE & PROFESSIONAL DEVELOPMENT

2006 National Trends Report

<http://www.setda.org/web/guest/2006NationalTrendsReport>

This report documents the results of the No Child Left Behind, Title II, Part D Enhancing Education Through Technology program that asks states and schools to focus their use of technology on increasing literacy and mathematics achievement and closing the achievement gap. Teacher professional development plays a key role in meeting that requirement.

Findings from the 2003 End of School Year Survey - Intel Teach to the Future U.S. Classic Implementation

http://cct.edc.org/admin/publications/report/ITTF_CLASS_EoSY03.pdf (PDF file)

This study from the Center for Children & Technology reviews survey data gathered in 2002-2003 from more than four thousand teachers who participated in the Intel Teach to the Future professional development program. The report includes a description of the Teach to the Future training method as well as data on how the program affected teaching methods and the use of technology in the classroom. Please also see an addendum to the report: [What Factors Influence Teachers' Level of Follow Up on Their Training? Further Findings from the 2003 End of School Year Survey -- Intel Teach to the Future U.S. Classic Implementation.](#) (PDF file)

NetDay Speak Up Day 2005: Our Voices, Our Future

http://www.netday.org/SPEAKUP/pdfs/SpeakUpReport_05.pdf (PDF file)

NetDay collects educational technology survey responses from students and teachers on an annual basis as part of its Speak Up event. Survey topics include teachers' personal and professional use of technologies.

New Mexico's Regional Educational Technology Assistance (RETA) Initiative: Year 5 Evaluation Report (2003)

http://cct.edc.org/report_summary.asp?numPublicationId=165

This Center for Children & Technology report reviews survey, interview and observational data collected during the fifth and final year of a state-wide professional development program designed to provide a constructivist, hands-on, learner-centered approach to the integration of technology into academic content. The report also details the project's distributed training model of six regional resource centers across the state that provided workshops and targeted regional professional development needs.

VISUAL MEDIA

Television Goes to School: The Impact of Video on Student Learning in Formal Education

<http://www.cpb.org/stations/reports/tvgoestoschool/>

This Center for Children & Technology report, created for the Corporation for Public Broadcasting, focuses on key questions concerning the relationship of visual media to learning, and provides examples drawn from current television research to demonstrate television's effect on student achievement.

This page was last updated in September 2007.

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