

INSTRUCTIONAL TECHNOLOGY

Department of Elementary and Secondary Education * Phone: (573) 751-8247 * E-mail: instrtech@dese.mo.gov

2008 Federal Programs Conference

Ed-Tech Standards, Programs, Resources

Breakout Session

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DESE Instructional Technology

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SESSION TOPICS

- ❖ Why districts / schools should integrate technology
 - ✓ MSIP, NCLB, METSP standards and goals
- ❖ Planning and implementing technology effectively
 - ✓ ePeGs, state approval, Missouri programs
- ❖ How to fund and support technology
 - ✓ DESE programs, grant writing/funding resources

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WHY USE TECHNOLOGY

Research shows that technology, when used appropriately, can make a positive difference.

Technology cannot make an appreciable difference in teaching and learning if districts are not providing, and teachers and students are not using, technology in any appreciable degree.

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Research says... (cont.)

- Lack of student engagement is a predictor for dropping out of school even after controlling for student background and academic achievement (Rumberger 2004)
- Engaged students learn more, retain more, and enjoy learning more than students who are not engaged (Dowson & McInerney 2001; Hancock & Betts 2002; Lumsden 1994; Voke 2002)
- According to student surveys:
 - 47% stated that a major reason for dropping out of school was that classes were not interesting (Gates Foundation 2006)
 - 50% reported being bored in at least one high school class every day and 75% stated they were bored because the material was not interesting (Yazzie-Mintz 2006)

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Research says...

- Since the 1960s, the demand for routine manual task skills has decreased, while the demand for non-routine interactive task skills has increased significantly (OECD 2007)
- Technology-enhanced, project-based student work is a staple of quality knowledge work (Schlechty 2001)
 - Students who are engaged: learn at high levels and have a profound grasp of what they learn, retain what they learn, and can transfer what they learn to new contexts (Schlechty)
- Computers and software are tools students use to create their own learning environment (Ashton, Bland, & Rogers 2001; Milken 1999)

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Technology can...

- ❖ Increase administrator, teacher, and student engagement and productivity
- ❖ Enhance curriculum, instructional strategies, and student learning
- ❖ Help close the achievement gap
- ❖ Break down socio-economic barriers and help reach and motivate reluctant and disenfranchised learners
- ❖ Promote 21st century skills of communication, collaboration, problem-solving, creativity

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WHY USE TECHNOLOGY

Students must be prepared for post-secondary education and/or employment in an increasingly technical and global society

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21st Century skills require...

- ❖ 21st century content
- ❖ Information and communications technology literacy
- ❖ Life skills: personal productivity, accountability, self-direction, personal and social responsibility, adaptability, people skills, leadership
- ❖ 21st century assessments

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WHY USE TECHNOLOGY

State and federal programs, plans, and standards mandate technology integration

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Mandates

- ❖ MSIP standards and indicators
- ❖ Show-Me curriculum standards
- ❖ No Child Left Behind program goals
 - ✓ Technology integration in curriculum, instruction, assessment and professional development
 - ✓ Technology literate students by end of eighth grade
- ❖ Missouri Education Technology Strategic Plan (METSP)
 - ✓ Technology-focus areas (TFAs)
 - ✓ National Educational Technology Standards (NETS)
<http://www.iste.org/AM/Template.cfm?Section=NETS>

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MSIP and Show-Me Standards

- ❖ Adequate access / appropriate and effective use
 - ✓ Educational technology and technology education
 - Process and content standards
 - ✓ Application of technology tools and resources
 - Grappling's "Technology and Learning Spectrum"
 - Literacy – Centers on acquiring and practicing technical skills; technology is something to learn
 - Adaptive – Automates traditional teacher and student roles; technology is optional
 - Transforming – Expands role and/or products; technology is essential

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No Child Left Behind / Title II.D Goals

- ❖ Technology integration in core content areas –
Written curriculum that incorporates content and processes (such as delivery of instruction, professional development, and assessment) related to technology resources, equity of resources, research and workplace readiness skills.
Technology supports overall goals and objectives and makes possible and/or enhances the use of multiple instructional resources and teaching strategies. Technology integration should be evident throughout the curriculum, as appropriate; however, technology integration does not have to be addressed in each unit or lesson.

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No Child Left Behind / Title II.D Goals (cont.)

- ❖ Integrated instruction –
The ability to use appropriate technology to support and enhance classroom curriculum and instructional strategies that promote authentic, inquiry- and project-based learning opportunities, problem solving, and student teamwork, collaboration, and communication skills.

- ❖ Teacher technology proficiency –
Regular and routine use of applications, software, and Internet resources for increased productivity and integrating tools to accomplish a variety of learning, instructional, and/or management functions.

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No Child Left Behind / Title II.D Goals (cont.)

- ❖ Student technology literacy (8th-grade) –
The ability to use appropriate technology to communicate, solve problems, and access, manage, integrate, evaluate, and create information to improve learning and acquire lifelong knowledge and skills.

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METSP TFAs

Students engage in technology-enriched curricula which promotes inquiry-based, hands-on learning, taking responsibility for their own education success.

Teachers embrace effective techniques to integrate technology throughout the curricula for use by all students, and to pursue life-long technology learning.

Administration provides foundational support for teacher integration of technology, appropriate and consistent funding for technology resources, professional development opportunities, technology-derived data and research-based decisions, and enhanced communication systems supporting instructional and administrative processes.

Resources to facilitate technology use are equitably distributed and available to all students, teachers, staff, and administrators to promote academic achievement.

Technical support and instructional technology staff are adequately funded and readily available to support all education and administration processes.

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METSP Major Recommendations / Goals

The Department will:

1. assist districts in integrating technology into the curriculum and implementing effective research- and inquiry-based instructional strategies, such as the eMINTS instructional model or equivalent, that address student achievement and 21st Century learning
2. assist and support districts in adopting or adapting the NETS*S achievement rubrics or equivalent to promote and monitor student technology literacy
3. partner with key stakeholders to assist districts in using and supporting high quality pre- and in-service professional development that furthers knowledge, skills, and abilities of educators, helping them integrate technology into curriculum and inquiry-based instructional strategies

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The Department will (METSP Recommendations continued):

4. assist and support districts in adopting or adapting the NETS*T and NET*A achievement rubrics or equivalent to promote and monitor educator technology literacy
5. assist and support districts in developing and implementing comprehensive local technology plans that support comprehensive school improvement plans
6. assist and support districts in developing policies and procedures for effective use of technology for administration, data management, and communication systems
7. assist districts in establishing and supporting equitable resources
8. assist and support districts in providing sufficient and qualified personnel to provide technical and instructional technology support

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METSP Recommendations / National Educational Technology Standards (NETS)

ISTE National standards for...

- ❖ Students (S), revised 2007
- ❖ Teachers (T), revised 2008
- ❖ Administrators (A), to be revised in 2009
- ❖ Educational Technology Leaders (TL)
- ❖ Educational Technology Facilitators (TF)

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NETS*S

Students...

1. demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology
2. use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others
3. apply digital tools to gather, evaluate, and use information
4. use critical thinking skills to plan and conduct research, manage projects, solve problems and make informed decisions using appropriate digital tools and resources
5. understand human, cultural, and societal issues related to technology and practice legal and ethical behavior
6. demonstrate a sound understanding of technology concepts, systems and operations

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NETS*T

Teachers...

1. use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments.
2. design, develop, and evaluate authentic learning experiences and assessments incorporating knowledge, skills, and attitudes identified in the NETS*S.
3. exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society.
4. understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices.
5. continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources.

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NETS*A

Administrators...

- I. inspire a shared vision for comprehensive integration of technology and foster an environment and culture conducive to the realization of that vision
- II. ensure that curricular design, instructional strategies, and learning environments integrate appropriate technologies to maximize learning and teaching
- III. apply technology to enhance their professional practice and to increase their own productivity and that of others
- IV. ensure the integration of technology to support productive systems for learning and administration
- V. use technology to plan and implement comprehensive systems of effective assessment and evaluation
- VI. understand the social, legal, and ethical issues related to technology and model responsible decision making related to these issues

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NETS*TL

Educational technology leaders...

- I. demonstrate advanced understanding of technology operations and concepts
- II. plan, design, and model effective learning environments and multiple experiences supported by technology
- III. model, design, and disseminate plans that include methods and strategies for applying technology to maximize student learning
- IV. communicate research on use of technology to implement effective assessment and evaluation strategies

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NETS*TL

Educational technology leaders...(cont.)

- V. design, develop, evaluate and model products created using technology resources to improve and enhance their productivity and professional practice
- VI. understand social, ethical, legal, and human issues surrounding the use of technology in schools & develop programs facilitating application of that understanding in practice
- VII. coordinate development and direct implementation of technology infrastructure procedures, policies, plans, and budgets
- VIII. facilitate development of a shared vision for comprehensive integration of technology and foster environment and culture conducive to realization of the vision

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NETS*TF

Educational technology facilitators...

- I. demonstrate advanced understanding of technology operations and concepts
- II. plan, design, and model effective learning environments and multiple experiences supported by technology
- III. apply and implement c
- IV. apply technology to facilitate a variety of effective assessment and evaluation strategies
- V. apply technology to enhance and improve personal productivity and professional practice

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NETS*TF

Educational technology facilitators...(cont.)

- VI. understand social, ethical, legal, and human issues surrounding the use of technology in schools & develop programs facilitating application of that understanding in practice
- VII. promote development and implementation of technology infrastructure, procedures, policies, plans, and budgets for PK-12 schools
- VIII. contribute to shared vision for campus integration of technology and foster an environment and culture conducive to realization of the vision

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HOW TO IMPLEMENT TECHNOLOGY

Integrate technology into comprehensive school improvement plans, set standards and indicators, secure funding, and monitor and evaluate progress regularly

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Seize the day...

Students spend 27 hours a week online at home and an average of 15 minutes a week at school. (2008 Pew Internet & American Life Project study, "The Digital Disconnect: The Widening Gap between Internet-savvy Students and Their Schools")

59% of online students say they talk about education-related topics; 50% talk specifically about schoolwork. (2008 Grunwald Associates and National School Boards Report, "Creating and Connecting: Research and Guidelines on Online Social – and – Educational Networking")

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The Challenge: Total Cost of Ownership and
Scalable, flexible, and reliable solutions for all learners

Planning, funding, acquiring,
site preparation/retrofitting,
professional development/training,
implementing, monitoring, supporting,
maintaining/updating,
and evaluating
technology efforts and programs

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Planning, evaluating, updating...

- ❖ Align technology efforts to support district and school-wide educational goals and school improvement plans
- ❖ Hire, recruit and train highly-qualified staffs
- ❖ Establish standards, policies, and procedures, related to state plan's TFAs
- ❖ Set measurable objectives and evaluation progress regularly *
- ❖ Develop and maintain adequate budget and fiscal resources

* See Capacity for Applying Project Evaluation: <http://www.serve.org/Evaluation/Capacity/>

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HOW TO IMPLEMENT TECHNOLOGY

Integrate standards-based, research-based technology interventions

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Researching the research

What Works Clearinghouse: <http://ies.ed.gov/ncee/wwc/>

Technology Solutions That Work: <http://www.metiri.com/techsolutions/>

Research-based programs

eMINTS National Center: <http://www.emints.org/>

E-Learning for Educators: <http://www.elearningmo.org/>

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SUPPORTING TECHNOLOGY

Secure and maintain adequate technology budget through federal and state grant programs and internal and external funds

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Funding resources

- ❖ Federal and State grant programs and initiatives
 - ✓ Title Programs and Transferability
 - ✓ State Foundation
 - ✓ METS and Safe Schools grants
 - ✓ A+, Technology Enhancement, High Schools and Technology Centers that Work initiatives

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Funding resources (cont.)

❖ District fund-raising

- ✓ District bonds, levies, foundations
- ✓ Managing district technology funds: *TechLEARNING*
How-To Guide:
<http://www.techlearning.com/story/showArticle.php?articleID=196604546>
- ✓ Making the case for technology: ISTE Advocacy
toolkit: <http://www.iste.org/AM/Template.cfm?Section=Advocacy>

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Funding resources (cont.)

❖ Foundations, grants, service organizations:

- ✓ *eSchool News*: Funding (Deb Ward articles) & K-20 Technology Solutions Center

<http://www.eschoolnews.com/funding/> & <http://www.eschoolnews.com/tsc/>

- ✓ *TechLEARNING*: Funding Tips and Resources & July 08 Funding Special Issue

http://www.techlearning.com/grants_res.php &
<http://www.techlearning.com/content/about/archives/volume28/jul.php>

- ✓ *THE Journal*: Funding: <http://www.thejournal.com/the/topics/funding/>

- ✓ School Grants : <http://www.schoolgrants.org/>

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Funding resources (cont.)

- ❖ Foundations, grants, service organizations:
 - ✓ Technogrants.com (multiple listings of grant resources, reviews)
<http://www.technogrants.com/>
 - ✓ GrantsAlert.com (newsletter, directory to find a grant or grant writer)
<http://www.grantsalert.com/>
 - ✓ ISTE: Educator Resources: Funding: <http://www.iste.org/>
 - ✓ *Edutopia*: Grant Information: <http://www.edutopia.org/grantinfo>
 - ✓ *Converge* online: Grant Secrets:
<http://www.convergemag.com/summary.php?catid=233>
 - ✓ Fundsnet Online Resources (select Computers & Technology)
http://www.fundsnet services.com/searchresult.php?sbcats_id=6

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Grant Writing Tips

- ❖ TechLEARNING Grant Guru (weekly tips, grant-writing for beginners)

<http://www.techlearning.com/blog/grantguru/>

- ❖ eSchool News (Deborah Ward 's Column)

<http://www.eschoolnews.com/funding/deb-wards-column/>

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Questions?

DESE Education Technology website:

<http://dese.mo.gov/divimprove/instrtech/>

DESE Safe Schools website:

<http://dese.mo.gov/divimprove/safeschools/>