



**State Educational Technology Directors Association
Leadership Summit's Toolkit 2006
"Showing Evidence" of Educational Technology's Effectiveness**

Background, Process & Overall Outcomes

Background

Although states, districts, and schools implement educational technology programs that appear to improve teaching and learning, education stakeholders struggle to provide data and research that demonstrate the effectiveness and impact of the programs. In many cases, research or data exists to support the program effectiveness; but it is not communicated or identified effectively because the research is not readily consumable or understandable. SETDA identified a need to provide education stakeholders with assistance in identifying and analyzing research and results that demonstrate the rigor and proof to make the case for continued funding for educational technology programs and to facilitate policy and program decisions.

Process

Through a grant from the Intel Foundation, the "Showing Evidence of Educational Technology's Effectiveness" project was designed to engage SETDA members in a year-long collaborative effort to assemble and communicate research data.

SETDA members attended the "Becoming a Better Consumer and Communicator of Research" session lead by Jason Osborne, PhD, of North Carolina State University at the 2005 Leadership Summit. The group utilized this and other resources to develop rubrics which provide criteria for ranking research. The rubrics are provided as tools, as they help in the evaluation of research. The first rubric looks at the type of research, and the second provides ratings based upon peer review. Finally, the online "Showing Evidence" thinking tool (www.intel.com/education/showingevidence) was used to allow individuals to work together with others in a team-like setting to evaluate evidence which supports or refutes a claim.

Overall Outcomes

Participants in the Showing Evidence project noted that the discussions about research methodology and results enhanced their knowledge about research. Having the opportunities to discuss the research design and utilize the language learned through the rubric development and "Becoming a Better Consumer and Communicator of Research" session increased comfort levels with research. A primary challenge was finding the time to devote to a thorough analysis of research, its design, or an evaluation of either. With this in mind, participants chose to develop tools which allow other SETDA members to learn from their experience and provide templates and examples that all SETDA members can readily use to communicate research, program, and evaluation findings.

The Toolkit:

1. Quick Hints on Research for Busy Educators
2. Recommended Rubrics for Evaluating Research



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- a. By Type of Research
- b. By Peer Review
3. Communicating Research Findings Effectively
 - a. 1-Page Press Release
 - b. 1-Page Description

Quick Hints on Research for Busy Educators

Although critical for educators, research can be extremely complex and time-consuming. Based upon the work of this tool group, we would like to provide some things to look for which provide a starting point for assessing the quality of research. This information is intended to be a complement to the extensive information, definitions, and examples in the Scientifically-Based Research module of *SETDA Connects* (www.setdaconnects.org). The members of the tool group have provided their reflections on the key pieces of knowledge that will help to decrease the intimidation of reviewing research and also allow non-experts to make decisions on the rigor of research.

1. **Support** – You can find research to support any case. The key is recognizing rigorous research that pertains to your situation.
2. **Methodologies** – Understanding the range of methodologies is a good starting-point for analyzing research (formal definitions can be found at <http://www.setdaconnects.org/content.cfm?sectionid=10>):
 - a. Experimental
 - b. Quasi-Experimental
 - c. Correlational
 - d. Case Studies
 - e. Anecdotal or Narrative
3. **Number of Subjects** – Experimental or quasi-experimental research does not have to be conducted with thousands of students. A small study with a well thought out and implemented design with matched control and experimental groups sets the groundwork. However, it is important that the study justifies the number of subjects and shares whether or not the sample size (number of subjects) is great enough to allow for results to be generalized.
4. **Date Research Conducted** – Find the date research was conducted (not just date of publishing). An absolute rule in terms of how recent a study must be conducted to be applicable does not exist; however, it is important to note how things have changed (i.e. high stakes testing) since a study was completed if it is not within the last five years. Additionally, a study may be considered seminal research which stands the test of time.
5. **Length of Study** – Determine the number of years over which the study was conducted. Is the study a longitudinal study? Does it follow the same subjects over time? Longitudinal studies often provide more in-depth data and information.



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6. **Interventions and Components** – Verify whether or not the intervention or components of the study are based in best practices or previous research. Are full descriptions of the components and interventions included?
7. **Significant Findings** – Statistically-significant is the key term in experimental, quasi-experimental, or correlational studies. A rather small % change may be statistically significant in some studies, but not at all in others.
8. **Data Generalizeable** - Only experimental or quasi-experimental design can technically be generalized to the extended public; however, other studies may provide background and/or key facts to support your efforts or to help you understand how a particular intervention may work in your school, district, or state.
9. **Researcher** – Consider who the researcher is and whether or not the research is intended to promote something in particular. A strong methodology, however, may indicate that, although a researcher hoped to find a specific outcome, the outcome is still useful based upon the team of researchers and/or methodology.

Extensive details and rich examples are available at www.setdaconnects.org, and we encourage you to utilize the scientifically-based research module as you delve more into research or have specific questions.

Recommended Rubrics for Evaluating Research

The "Showing Evidence of Educational Technology's Effectiveness" participants developed rubrics which provide criteria for ranking research. As participants discussed the type of rubric(s) that would assist in ranking and evaluating research, they determined that two rubrics would provide helpful guidance. These rubrics are intended to serve as tools for analyzing research and represent the thinking and discussions of many SETDA members:

1. **Evaluating Research by Type of Research** – This rubric identifies a range of criteria for ranking research depending upon the type of research conducted, i.e. case study or experimental design.
2. **Evaluating Research by Peer Review** – This rubric describes the quality of research based upon the level of review by and the assessment of research by peers.

Communicating Research Findings Effectively

The "Showing Evidence of Educational Technology's Effectiveness" participants recognize the importance of communicating research findings effectively. However, participants also noted the difficulty and challenge of documenting program descriptions and research findings in a concise and coherent manner. To assist all SETDA members



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in writing brief descriptions and press releases, participants developed the following templates with specific examples to guide or at least provide a starting point for communicating research findings:

1. Press Release
2. One-Page Description

Press Release Template

This template is intended to provide a guide when writing a press release to share information and results on a particular program. This format will help to ensure that you include the pertinent information to share with the public on your program.

TEMPLATE:

Headline: Gets Your Attention
Tagline: Gets to the Meat of Your Story

Date (Location)

Paragraph 1: Statement regarding reason for release and general statement about why this is important in education and to the broader community.

Paragraph 2: Three key details about program or announcement, including any data, preliminary results, or validation of significance.

Paragraph 3: Quote from organization, valued source, or heavy-hitter supporting importance of program or announcement.

Paragraph 4: Three additional details or upcoming additions to program implementation or event.

About Organization: Brief description of your organization.

Contact:

EXAMPLE:

Math Scores Soar at Anywhere Middle School
Technology Immersion Pilot Program Leads to Double Digit Gains in Math

June 11, 2006 (Anywhere, State) Anywhere School District participates in the Immersion of Technology program which provides teachers and students with technology resources to allow dramatic changes in instruction and learning. The immersion includes laptops for students and teachers, curriculum and web-based resources, and other instruction



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tools. Additionally, and perhaps the most importantly, teachers receive on-going teacher training to assist in changing how the teach utilizing the new tools and resources.

After two years of participating in the program, the school has identified many changes resulting from the immersion. For example, parental and community involvement has increased significantly, students are much more engaged, and discipline referrals have decreased by over 50%. Math scores have increased by 10% among 6th graders, 34% among 7th graders, and 22% among 8th graders.

"The change in attitude and time on task has improved dramatically. After seeing how engaged the teachers and students are in the learning process of learning, I understand how the achievement is increasing so dramatically. The increase in parental involvement only continues this engagement at home," said Principal, Anywhere Middle School.

The program is funded through the Enhancing Education through Technology (EETT) federal NCLB program. Anywhere School District has worked with the state department of education and other partners to ensure successful implementation of the program. Twenty-five percent of the grant must be used for teacher professional development, which has been a key to the transformation of teaching and learning in the school.

About Anywhere School District: Anywhere School District has an elementary, middle, and high school. More information can be found at <http://AnywhereSchoolDistrict.gov>.

Contact: Principal, email, phone

EXAMPLE:

**The Connection between Reading and Technology
At Oak Tree Elementary, Reading Scores More than Double**

June 11, 2006 (Small City, OH) Oak Tree Elementary School in Small City, Ohio – previously one of Ohio's lowest-performing elementary schools – raised its third-grade reading test scores by a whopping 124 percent due in large part to the infusion of technology, leadership and professional development that was funded solely through the EETT grant.

In the two years, teachers and students have received extensive resources to change teaching and learning in their classrooms. This program, funded through the Enhancing Education through Technology (EETT) program, provided curriculum products and critical teacher training to help in the implementation of the resources in the classroom. Teachers in the school found that they were able to meet the needs of individual students more readily through the technology resources.

Ms. Friend, a first grade teacher at Oak Tree Park Elementary School said, "Our EETT funds provided teachers with new ways to teach skills they were already teaching, but in a more



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effective manner. The students were more engaged because the lessons were relevant to the students and allowed teachers to help students in the specific areas they needed."

Teachers and administrators at Oak Tree Elementary emphasize the importance of having the range of resources available to systemically change instruction. The ability of teachers to work together with this new program played an important role in the successful implementation. The teachers have ownership, and the students are engaged in lessons and schoolwork. "Our EETT grant has revolutionized the way our teachers teach and how our students learn," said Ms. Gray, Principal at Oak Tree Park Elementary School in Small City, Ohio.

About Organization: Oak Tree Elementary School is located in the Small City School District in Small City, OH.

Contact: Principal, email, phone

Program Description One-Pager

This template is intended to serve as a guide in writing and to assist in determining what information to share in a brief program description. The examples that follow demonstrate different ways to use this template in order to convey information in situations where you want to ensure a broad understanding of the program with some key data points. As you will notice, this template provides an opportunity to connect readers with additional information via other resources or specific contacts.

First Paragraph:

3. 2 sentence description of program in layman terms
4. 1 sentence on where program has been implemented
5. 1-2 sentences on overall data findings

Second Paragraph

3. Details about how program is changing or affecting education

Third Paragraph

4. Key findings about program
5. Possibilities for replication
6. Where to find more detailed information
7. Who to contact

North Carolina's IMPACT Program

Clearmont Elementary School in Yancey County North Carolina implemented the IMPACT Model Grant through which Clearmont Elementary was able to obtain comprehensive technology resources, including personnel, access, software, and hardware, for teachers and students. In addition to computers, SMART Boards, and high speed access, teachers and administrators in the school receive extensive and on-going



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professional development to assist teachers in implementing technology into their instruction. The IMPACT model has been implemented in several schools across North Carolina. Since implementation of the IMPACT Model, student achievement scores at Clearmont Elementary have increased dramatically.

In the seven years prior to the infusion of educational technology, our school's End of Grade test score average was 77.9% of students on or above grade level. After implementing the IMPACT Model Grant, our test scores now average above 95% of students on or above grade level.

Technology integration has transformed this average performing, small rural school, into an outstanding school, recognized nationally for high student achievement. Clearmont is a 2005 NCLB Blue Ribbon School and North Carolina's Title One School of Distinction.

For more information on the IMPACT model and contacts for specific schools, please go to <http://www.newiseowl.org/Impact/igrant/default.htm>.

Ohio's EETT Grant Program

eTech Ohio and the Ohio Department of Education (ODE) are partners in implementing the Enhancing Education through Technology (EETT) program. Through EETT competitive grants, schools develop and implement lessons aligned to the academic content standards for math and English/language arts, pilot a set of web-based curriculum management and instructional design tools that allow for online content/course development and management, or an "off-the-shelf" course/learning management system, and employ scientifically-based research and evaluation strategies to understand impact on teaching and learning for results on student achievement. This program was implemented in Maple Leaf Intermediate School and Winston Hills Academy in Cincinnati, OH.

At Maple Leaf Intermediate School, student achievement in mathematics has dramatically increased. The school's participation in the EETT grant program has allowed the school to increase the use of technology in daily classroom instruction. The program also allowed students and teachers to increase their technology literacy and use that technology to improve student achievement as indicated by the following findings:

10. Of two classes taught by the same teacher, the class that utilized the Compass Learning online tool has a 14% higher passage rate on the Ohio Math Proficiency Test than that of the class that did not use the tool.
11. While the school average for the fourth grade Math Proficiency was 85%, the three fourth-grade classes utilizing Compass Learning scored higher, with scores of 89%, 87% and 90%.
12. Analysis of student scores indicates that the greatest areas of student weakness on the Ohio Math Proficiency Test were algebra (variables), patterns, and measurement.



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Winston Hills Academy has seen similar results. "I would like to re-emphasize how beneficial I believe that the EETT grant has been for Winton Hills Academy. Prior to receiving the grant our school was not using technology on a regular basis. Few teachers were comfortable using computers and our students were only exposed to pre-packaged drill type programs. The EETT grant has truly taken our students and staff to the 21st Century. Teachers are comfortable and proficient now and are regularly using technology in multiple formats. Our students are learning and using technology on a regular basis" (Christina M. Russo, Ed.D., Principal, Winton Hills Academy, Cincinnati, OH). For more information, contact eTech Ohio at <http://www.etech.ohio.gov/>.

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