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THE LEARNING System

FOR A DYNAMIC COMMUNITY OF DISTRICT LEADERS ENSURING SUCCESS FOR ALL STUDENTS

THE GOOD, THE BAD, AND THE IRRELEVANT:

A brief guide to education research

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Nearly everyone agrees that the best available research evidence should inform education policy and practice. But finding and interpreting high-quality research is not as simple as one might hope. With no mechanism in place for the systematic delivery of important findings, where can busy education leaders find good research? How do they determine the relevance and practical value of the research they read? What should they be looking for? How should they interpret what they read?

GOOGLING FOR ANSWERS ISN'T THE ANSWER

Although the Internet allows easy access to a plethora of research information, a Google search doesn't always yield the best results. An example involving an NSDC member illustrates its limitations:

After reading a research brief in *Teachers Teaching Teachers* (*T3*), the NSDC member went online to search for the peer-reviewed journal article cited in the brief. He found a research paper with the same title and written by the same authors. But the paper's conclusions differed from those reported in the *T3* article. "Could you please help me with this discrepancy?" he wrote.

A quick e-mail query to the researchers revealed that the online paper was a preliminary report presented at a conference, where feedback was solicited from other researchers. The authors revised the paper and submitted it to a journal for publication. The journal's peer reviewers suggested that

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Students learn when adults learn

Earlier this year, the National Staff Development Council Board of Trustees developed and adopted six one-sentence belief statements to guide Board, staff, and members as they seek to achieve NSDC's purpose. Each month during the remainder of the 2007-08 school year, this column will describe one of the belief statements and reflect on its implications for school systems.

The first statement is: "*Every student learns when every educator engages in effective professional learning*." While this is an inversion of NSDC's statement of purpose, this places the emphasis on students rather than educators. This belief statement is a useful reminder that *every* student, not just students in general, should be the intended beneficiaries of professional learning.

NSDC believes that every student learns when every educator engages in effective professional learning.

System leaders who are wedded to the old paradigm of staff development will have difficulty understanding the "*every student*" belief statement. It does not mean, for example, that a workshop for a limited number of teachers should affect all students. That was the problem with the old model; only some teachers and some students benefited from even the most effective professional development sessions.

In contrast, NSDC believes that when a school organizes educators to participate daily in small learning teams, the learning of everyone, including students, will increase. This is not, as they say, rocket science. The more often educators are engaged with their peers in effective professional learning, the more they will learn and the more likely it is their practice will improve. This does not occur by happenstance. Schools, with the encouragement and support of their central offices, must plan carefully, devote sustained attention to quality control, and assess outcomes. The results will be worth it: a true culture of learning that benefits "*every student*."

There is also an important equity dimension to NSDC's belief statement. Because most professional development currently targets a particular group of teachers, or a particular type of student learning challenge, the professional learning has disproportionate effects. Not all of a school's English and language arts teachers may participate in a workshop focused on their subject. Other teachers may participate in professional development to improve their instruction of low-performing students while still other teachers attend training addressing only the needs of more able students. Assuming the teachers incorporate their respective learning into their instruction, and that they do so effectively, some students reap the benefits while others do not.

This is not to suggest that it is inappropriate for professional development to focus on a narrow issue, but identifying the issue and the best available professional learning to help address it should be the consensus decision of a learning team. If the team subsequently learns together, and agrees on how its members will implement what the team has learned, that will ensure that the students of all team members benefit. An additional advantage is that the learning team structure will foster accountability for follow-up. If the team meets daily, participating educators will be able to report on efforts to apply their learning, the team can analyze the educators' implementation progress and problems, and then make suggestions for further strengthening application of the team's learning. In this way, the learning process is ongoing and better results accrue for students.

"*Every student learns* " has not typically been the centerpiece of school systems' professional development, as the results have demonstrated. A new day lies ahead, but preparing for it requires new thinking and action.

Read more about NSDC's purpose statement at: www.nsdc.org/purpose.cfm

Research can build optimism about change

I've seen thoughtful and dynamic central office staff spend grueling hours reading research, examining evidence of program impact, and identifying best practices that show great promise in addressing nagging school and district problems related to student learning. The research they have read and analyzed is extensive, thorough, and undeniable. After months of work, they select a new initiative because of its grounding in research.

But when they introduce this new initiative to principals, staff, and stakeholders, a hue and cry arises from these groups. These groups criticize the decision, argue the usefulness, and the question the validity of the choice. This often happens because the critics have not benefited from reading the same research, conducting the same analysis, and arguing the pros and cons of different approaches. They see only the results and have not developed their own rationale for the choice. One solution to this frequent dilemma is for central office staff to **provide experiences for teachers and administrators to learn to use educational research effectively** (Roy & Hord, 2003, p. 136). Central office staff need to build the capacity of all educators to use educational research effectively — especially in connection with identifying and implementing improvement efforts. The research provides the rationale for selecting new practices and procedures that are needed in order to promote high levels of learning for all students. When teacher and administrator involvement is skipped, improvement efforts can be viewed as random and capricious rather than reasoned and essential.

Research-Based: Staff development that improves the learning of all students prepares educators to apply research to decision making.

Teachers, administrators, school and district professional development committees, and school improvement committee members all need to develop the skills for collecting, analyzing, and evaluating appropriate research. Each of these groups is involved in making a variety of decisions involved in improvement efforts.

Helping educators use research for educational decisions has resulted in the development of many web-based, research clearinghouses. These clearinghouses help provide educators with information to make instructional choices guided by the best available scientific research. For example, the What Works Clearinghouse collects, screens, and identifies studies of educational interventions for programs such as beginning reading, dropout prevention, elementary school math, and English language learners (www.whatworks.ed.gov). These clearinghouses take much of the drudgery out of collecting research and allow staff to use research rather than search for it.

In an assessment about the quality of improvement efforts, Kanter suggests that there will be more commitment to improvement efforts when:

- Plans for change have been thoroughly discussed and reviewed by those who will be involved in the change process, and
- People are optimistic that this change will make things better for themselves and for the organization (2002).

I believe that these conditions can be attained by building teacher and administrator capacity to use research to make decisions concerning school and district improvement efforts.

Pat Roy is co-author of *Moving NSDC's Staff Development Standards Into Practice: Innovation Configurations* (NSDC, 2003)

Read more about NSDC's standards at www.nsdc.org/standards/index.cfm.

REFERENCES

Kanter, R.M. (2002). Are we making it easy for people to accept this change? *Change tool kit.* www.reinventing education.org.

Roy, P. & Hord, S. (2003). *Moving NSDC's staff development standards into practice: Innovation configurations, Volume I.* Oxford, OH: NSDC.

What Works Clearinghouse. www.whatworks.ed.gov.

NSDC **TOOL**

WHAT A DISTRICT LEADER NEEDS TO KNOW ABOUT ...

READING RESEARCH

DIRECTIONS
Make copies of this worksheet and use as a guide to collect information about each piece of research that you read. Keeping these journal entries organized in a binder with relevant headings will make it easier for you to locate notes for future needs.

Name of study/article: _____

Name of journal or web site where the article was published: _____

Date of publication/date of access: _____

Synopsis: *In your own words, describe the researcher's findings.*

_____

_____

_____

Is this quality research?

Does the evidence address a question that is important to your needs?

☐ **YES** ☐ **NO**

Do the researchers provide evidence that their research links to and flows from relevant theory and theory-based research?

☐ **YES** ☐ **NO**

Do the research procedures, analyses, and findings support the researcher's claims?

☐ **YES** ☐ **NO**

If the researchers claim a causal relationship between the intervention (product, service, program) and an outcome measure (e.g. student achievement), did they include a control or comparison group in the study?

☐ **YES** ☐ **NO**

Were the study participants (usually students, teachers, or schools) selected randomly or assigned randomly to experimental vs. control/comparison groups?

☐ **YES** ☐ **NO**

Do the researchers provide sufficient information to determine whether the research design, instruments, and procedures are appropriate for answering the research questions posed by the researchers?

☐ **YES** ☐ **NO**

Were the research instruments and procedures applied with consistency, accuracy, and for the purpose intended?

☐ **YES** ☐ **NO**

Did the researchers use carefully planned, logical steps?

☐ YES ☐ NO

Did someone besides the publisher or developer conduct the research?

☐ YES ☐ NO

With the information provided, is it likely that the same researchers could repeat the study and obtain the same or highly similar results?

☐ YES ☐ NO

With the information provided, is it likely that other researchers could replicate the study's methodology and obtain the same or highly similar results?

☐ YES ☐ NO

Does the research evidence include data or data summaries?

☐ YES ☐ NO

Are significance levels and effect sizes reported?

☐ YES ☐ NO

Are the conclusions drawn by the researchers clearly supported by the data?

☐ YES ☐ NO

What implications does this research have for your school or system?

_____

_____

Do you want to consider implementing these recommendations?

☐ YES ☐ NO

What modifications might you have to make in order to implement in your school or system?

_____

_____

What questions were raised for you? What other research do you want to explore before making a decision for your school or system?

_____

_____

Adapted from *Scientifically Based Research: A Planning Look for Educators*, by Doris Redfield. This six-page guide is available at www.edvantia.org/products/pdf/SBROnlineGuide.pdf

A brief guide to education research

▶ **See the web version of this article for a glossary of common research terms.**

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the authors analyze the data differently. When they did, the authors drew substantially different conclusions. However, the early unrevised paper remained online as part of the conference proceedings.

Tip: *Just because something is online doesn't mean it's up-to-date or has met professional standards.*

LET PROFESSIONALS SCREEN THE RESEARCH FOR YOU

One way to find research that has met minimal professional standards is to read peer-reviewed journals. Articles published in these journals have been reviewed by professional researchers who have scrutinized the author's assumptions, methods, and conclusions. Although peer review doesn't guarantee that research findings will hold up under further scrutiny, the process does weed out poorly designed studies and those with unsupported conclusions.

Of course, you probably don't have time to read all the research you'd like. A practical approach is to read research syntheses, meta-analyses, and literature reviews on topics relevant to your work. These are often published by professional organizations such as the National School Boards Association, by research centers, and by the U.S. Department of Education and its federally funded programs. Research syntheses can provide an overview of what's known on a particular topic, and you can use the reference list to track down research reports that you want to read in full.

Tip: *Look for research that has been peer reviewed and/or published by a trusted source. Use research syntheses to help you get "up to speed" on research in a particular topic area.*

USE THE WEB WISELY

Where do you go to find research you can trust? As long as you steer clear of its pitfalls, the Internet is a good place to start. The Education Resources Information Center (ERIC), for example, provides free access to more than a million bibliographic records of journal articles and other materials, sometimes including links to full text. Respected online subscription databases for social science research and evaluation are PsychINFO, Academic Search Premier, JSTOR, ProQuest Education Journals, and Wilson Education Abstracts. If you have library privileges at a university, you may have access to some of these databases from your home computer. Most university libraries allow the public to use computers and online databases located in their facility. Check with the librarian.

The Internet can also help you stay up-to-date on education research. Several organizations (for example, American Educational Research Association, American Evaluation Association, American Education Studies Association, Phi Delta Kappa, and *Education Week*) offer research information and updates via web sites or electronic newsletters. Some organizations publish research reviews online or invite educators to "ask-an-expert."

Tip: *Build a list of trustworthy web sources on topics of interest. Know your sources and beware of bias. Advocacy groups, for example, may selectively report on research that promotes their point of view. When research is reported in the popular press, read past the headlines; news reports sometimes oversimplify issues or overstate study results.*

LEARN TO READ AND INTERPRET RESEARCH

The now-familiar term *scientifically based research* describes research that bases its conclusions on scientific methods of observations, hypotheses, and data collection. In 2002, the Committee on Scientific Principles for Education Research concluded that education research should (1) pose significant questions, (2) link to relevant theory, (3) use valid tools, (4) rule out alternative explanations, (5) produce findings that can be replicated, and (6) survive scrutiny.

The "gold standard" of scientifically based research is experimental research, in which students, classrooms, or schools may be randomly assigned to either an experimental or control group. Experimental studies control for vari-

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Where to start

American Educational Research Association
http://aera.net

Education Resources Information Center
www.eric.ed.gov

Education Week
www.edweek.org

U.S. Department of Education, Institute of Education Sciences (IES)
http://ies.ed.gov

Comprehensive Centers
- *Assessment and Accountability Comprehensive Center*
  www.aacompcenter.org
- *National High School Center*
  www.betterhigh schools.org
- *Center on Innovation and Improvement*
  www.centerii.org
- *Center on Instruction*
  www.centeron instruction.org
- *National Comprehensive Center for Teacher Quality*
  www.ncctq.org

National Center for Education Statistics
www.nces.ed.gov

National Center for Research on Evaluation, Standards, and Student Testing
www.cse.ucla.edu

Regional Educational Laboratories
http://ies.ed.gov/ncee/edlabs

What Works Clearinghouse
www.whatworks.ed.gov

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ables. This helps researchers rule out alternative explanations and determine cause-and-effect relationships. But such studies aren't always feasible. Can you imagine, for example, randomly withholding reading instruction from 1st graders to test what happens?

But experiments are not the only route to solid findings. In 2007, the American Educational Research Association issued a report from a panel of scholars explaining that new, sophisticated statistical techniques and improved quasi-experimental approaches allow researchers to analyze relationships among variables rigorously and to reach conclusions that can be generalized to various settings.

Other types of research cannot be used to prove cause and effect but can provide an in-depth look at how a program or practice operates within a particular context. Case studies, for example, can incorporate a variety of research strategies — including interviews, focus groups, document reviews, structured observation, and data analysis — to provide a comprehensive description of a program or issue under study. Well-designed surveys can help researchers answer important questions by collecting information from a representative sample of a defined population.

Tip: *To find research that is most relevant to schools in your system, look for research that is experimental or conducted in a context similar to your own.*

INTEGRATE RESEARCH KNOWLEDGE INTO ORGANIZATIONAL CULTURE

Don't feel like you need to read it all and know it all. Educators (and ultimately, students) are more likely to benefit from research when leaders share the responsibility for using it when making decisions about policy and instruction. Leaders can use the following tactics to integrate research knowledge into organizational culture:

1. Help others improve their ability to find and interpret research (for example, by sharing this article).
2. Support and encourage educators at all levels to use research findings in their work and to share findings with others.
3. Talk about research and cite it yourself when working with staff, explaining what type of research design was used so that staff become comfortable with the terminology.
4. Participate in research projects.

PUT RESEARCH KNOWLEDGE INTO PERSPECTIVE

Keep in mind that all research knowledge — especially from social and education research — is tentative because no method can control for every variable, nor account for change. Research suggests what may work in certain instances, but it will never be able to say definitively that this or that program or strategy will be universally effective. In addition, there are always other factors to take into account — even if you use research — when making decisions: local context, affordability, sustainability, alignment with current efforts, ethics, politics, and so forth.

In short, research alone may not provide "the answer," but it does offer good, solid evidence for decision makers' consideration. ■

FOR MORE INFORMATION

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Countdown to Dallas!

There's still time to register for NSDC's 39th Annual Conference in Dallas on Dec. 1-5.

You can register online. Start that process at: **www.nsdc.org/conference07/welcome/hostletter.cfm**

Check the web site for the latest information about hotels — **www.nsdc.org/connect/events.cfm**

As you think ahead to the conference, remember to talk with colleagues about the sessions they're planning to attend so you can coordinate your learning.

AND START THINKING ABOUT WASHINGTON IN '08

Proposals to present at NSDC's Annual Conference in the Washington, D.C., area in December 2008 are available now on the web site — **www.nsdc.org/conference08/proposals/**

The deadline to submit proposals is Feb. 1, 2008.

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Research jargon demystified

Quantitative research strives for objectivity by relying on numerical measures ("quantities"), to describe effects or outcomes. Usually, experimental and quasi-experimental studies are heavily quantitative.

Qualitative research analyzes descriptive data ("qualities") collected from people through interviews, surveys, observations, and so forth. Case studies are often qualitative research.

Experimental research involves an experimental (or treatment) group, which gets an intervention, and a control group that does not get the intervention. In a true experiment, the researcher randomly assigns participants to one group or another.

Quasi-experiments compare treatment and control groups; however, research participants are not randomly assigned to one group or another.

Longitudinal studies examine changes over time.

Multilevel studies examine results at multiple levels of analysis (e.g. students, classrooms, schools).

Correlational research examines the relationship between variables. Correlation is not causation — if a study finds that nail-biters do better on tests, it does not mean nail-biting caused higher test scores.

Random assignment happens when researchers use a lottery-like procedure to assign research participants to either an experimental or control group.

Random selection happens when researchers use a lottery-like procedure to select individuals or a group of people from a larger population to serve as a representative sample of that population.

Causal validity is evidence that X causes Y.

Effect size is a statistical measure of a treatment's strength. The meaning of an effect size statistic depends on what is being measured and the scale being used. Generally, an effect size of +0.50 is moderate and anything greater than +0.80 is strong.

Generalizabilty is the extent to which the results of a study are likely to hold true for a different or larger population than that involved in the study.