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Using Research to Improve Outcomes

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THE GEORGE W. BUSH INSTITUTE'S MIDDLE SCHOOL MATTERS INITIATIVE SEEKS TO INCREASE THE NUMBER OF MIDDLE GRADE STUDENTS WHO ARE PREPARED FOR HIGH SCHOOL AND POSTSECONDARY SUCCESS.

Middle School Matters' mission is two-fold: to transform the middle grades by promoting research-based tools, practices, and solutions and to drive the development of policies that lead to better student outcomes. Middle School Matters has two primary elements that will help us achieve these goals: 1) Develop practical tools and supports based on solid research for middle grade reform initiatives, school districts, and middle school campuses so they can drive research into their work and 2) Promote middle grades reform through an alliance with individuals who influence decisions made for/in middle grades.

This brief is a guide to middle grade practitioners about how to use research to improve instruction and to identify effective programs, materials, and resources. Practitioners can use this brief to determine whether research supports their current practices and whether the implementation of those practices is in line with the evidence.

The field of education is asking how research and evidence can bolster the knowledge of its practitioners. Educators increasingly are asked to use research and evidence to support their choices of programs, practices, and processes. The promise of using research in this way is more effective teaching and learning.

But not all research and evidence is alike. Simply calling a paper, report, or essay “research” does not necessarily mean it conforms to standards of the research community. For example, teacher anecdotes, opinion pieces, and company claims that their own products are “research-based” do not have the same validity as research studies that use treatment and comparison groups to determine which condition or program is most effective.

Educators often hear confusing and conflicting messages about what works, what to do, or what not to do. Educators who encounter such claims—for example, a curriculum improving reading skills, a math program raising test scores, or a behavior program reducing suspensions—can perform a simple check to sort through the messages.

- **Does the study include a comparison group?** If not, the study’s claims are not valid. Studies that compare the same students before and after the program are inexpensive and common, but researchers know that these types of studies can be misleading.
- **Does the study use the terms “experimental design” or “randomized controlled trial”?** These terms are usually indicators of valid research and point to a higher caliber of care and effort. Although research studies that sound like they are valid can be conducted in a way that renders them invalid, research journals with peer reviewers do not publish these types of studies.

The Middle School Matters Field Guide distilled its practical recommendations and suggestions after sorting through research and focusing on the most valid evidence. That same quality-control process is a hallmark of the What Works Clearinghouse, the Best Evidence Encyclopedia, and the Campbell Collaboration, three other sources educators can use to learn more about what works.

Educators will continue to use programs and practices that are not based on research, and students will continue to learn. But using research-based practices—practices that have been tested and found to work—can improve instruction and learning within the constraints that schools, teachers, and students face every day.

QUESTION:

What makes a practice or strategy “research-based?”

Research-based practices are distinguished by formal investigations of their effectiveness. Scientific evidence indicates that these practices work. Self-reports are not scientific evidence, though self-reports can be useful starting points.

QUESTION:

How can I know whether my school’s practices are research-based?

The best way to determine whether practices are research based is to look at the research cited to support claims of effectiveness. If the only “research” cited is testimonials—reports of other teachers or users—the practice is not research-based. Assertions by developers or publishers that curricula or programs are “consistent with” or “aligned with” research does *not* mean these curricula or programs are research based. Critical scrutiny of these assertions may uncover no evidence backing them. If the sources appear in research journals, or if a trusted organization like the What Works Clearinghouse, Best Evidence Encyclopedia, or Coalition for Evidence-Based Policy reviews the sources, practitioners can be confident that the practices are research-based.

Publication in a research journal does not necessarily mean a program or practice is effective. Research validity is not the same as practice effectiveness. A valid study may report that a practice is not effective.

QUESTION:

How should research-based practices be implemented?

Researchers have noted that weak implementation of an effective practice can lead to an ineffective practice. Researchers have created tools (e.g., <http://implementation.fpg.unc.edu/resources/hexagon-tool-exploring-context>) to help schools and districts implement research-based practices to achieve optimal effects.

These tools help schools diagnose a need, fit a practice to a local context and determine whether the right resources are available. It also will help schools understand whether evidence supports a practice and whether schools have the capacity to replicate and implement it. These tools give schools and districts the best chance of success with implementing research-based practices.

QUESTION:

How can we assess the outcomes of research-based strategies and practices?

Implementing research-based practices is a starting point. Using data is crucial to learn whether the practices lead to improvement. Start by gathering baseline data on the key outcomes the practice is intended to improve. For example, for a reading practice, scores on benchmark tests or other standardized tests can be collected before new practices are implemented.

Outcome data also need to be gathered and reviewed. If the practice is expected to increase scores over a school year, collecting data in the spring will yield useful insights. If the practice is a specific part of a larger curriculum—for example, a unit on teaching fractions—outcome data collected at the end of the unit can also yield insights. It is important to use outcome data as one piece of evidence to determine whether the practice is a success. Other indications, like student reactions and ease of delivery, are also part of determining success but don’t tell the whole story by themselves.

Set expectations when beginning to implement the practice. If students currently experience two months of growth in three months of instruction, the goal may be for students to experience three months of growth. It is straightforward to assess whether this goal is met. More challenging goals can be set after some experience with the practice. Setting goals at the outset that are too challenging may lead to a premature sense of failure.

QUESTION:

Does our school need to adapt research-based practices for diverse or at-risk populations?

Many research-based practices are implemented and studied in the context of diverse or at-risk students, such as English language learners, students with disabilities, or students from low-socioeconomic households. The practices may have been studied in the context of general classrooms, but it is common for researchers to measure effects for diverse students as well. Adapting these practices is not needed.

If a practice has not been studied in the context of diverse learners, adapting it could undermine its effects. Much like changing the dose of a prescribed drug could lead to undesirable side effects, adapting a practice could lead to undesired effects or a lack of effect.

QUESTION:

How often should our school reflect on or change the research-based practices we use?

Using research-based practices is about continuous improvement, rather than a one-off event. A school should set regular cycles for examining outcome data and assessing whether the practices generate improvement. If the practices do not produce the desired effects, identify new ones. Acknowledging what is not working is an important aspect of using research-based practices.

SUMMARY

Extensive research has been conducted in the middle grades. Putting this research to work is the next step.

Middle School Matters worked with Dr. Dynarski and other research experts to find principles and practices supported by the best available research evidence to assist schools in reaching their goals. Areas of research have been compiled in the user-friendly Middle School Matters Field Guide (www.middleschoolinstitute.org/fieldguide). It can help school personnel assess whether their current practices align with what research has shown to be effective. Through this process of data collection and reflection, school personnel can develop a plan of action for realizing positive change within their school.

ABOUT THE AUTHORS

Dr. Mark Dynarski is president of Pemberton Research. Previously, he was vice president and director of Mathematica's Center for Improving Research Evidence in Princeton, New Jersey, and director of the What Works Clearinghouse for the Institute of Education Sciences, U.S. Department of Education. Dynarski is a veteran in conducting randomized controlled trials for education research and has more than 20 years of experience conducting and managing research studies. He previously served as principal investigator of the dropout prevention area for the Institute of Education Sciences and has directed and contributed to some of the largest and most rigorous educational evaluations to date, including studies of the School Dropout Demonstration Assistance Program, the Alternative Schools Program, Youth Fair Chance, the 21st Century Community Learning Centers program, and a national study of educational technology interventions.

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