



RESEARCH REVIEW

Elizabeth Foster

ACCESS, KNOWLEDGE, AND CULTURE LIMIT TEACHERS' USE OF RESEARCH

► THE STUDY

Booher, L., Nadelson, L.S., & Nadelson, S.G. (2020). What about research and evidence? Teachers' perceptions and uses of education research to inform STEM teaching. *The Journal of Educational Research*, (113)3, 213-225.

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Educators at all levels are regularly asked to use research to inform their instructional choices and practices. For example, the Standards for Professional Learning advocate for understanding and using research about effective professional learning as a habit of mind and a design approach. However, the process of identifying, selecting, and using research can sometimes be a time-consuming and unclear process.

A recent study sought to better understand educators' perceptions about research to determine barriers and identify potential ways to increase the use of research in practice. Specifically, the study examined teachers' beliefs about and practices of using research in STEM teaching.

RATIONALE

Pointing to other fields that normalize the regularity of examining and relying on evidence in their practice (such as nursing or psychology), the researchers note a striking reluctance in K-12 education to view research outcomes as relevant and useful. They highlight the importance of teachers understanding and using education research to counteract misconceptions about what is effective in teaching and discontinue strategies in teaching that are popular but not evidence-based.

Moreover, the authors argue for having a process and supports in place by which educators access and review relevant research first to guide and monitor their implementation as well as set an expectation that quality-relevant evidence is informing their professional decisions.

Creating a culture of evidence informing practice is rare. While there is often an expectation that teachers examine student data to understand student progress and needs, there is less often an expectation that teachers use relevant research about which instructional strategies are most effective for meeting those needs.

There are a number of reasons that it can be challenging to establish such a culture. Research findings are often presented in technical, jargon-filled ways that do not lend themselves easily to implementation. As the authors of this study acknowledge, there may also be misalignment of research studies and classroom practice, leading to a belief that research is not relevant for teachers. Lack of access can be a challenge, too.

Further, educators sometimes perceive research-driven guidelines about instruction, such as standardized curriculum, as hindering educators' autonomy and creativity. Educators need supports and time to be successful in identifying and obtaining relevant research.

RESEARCH QUESTIONS AND METHODS

The guiding research questions of this study were:

1. To what extent do teachers actively seek, access, and engage with STEM education research?
2. To what extent do teachers apply STEM education research in their teaching activities?
3. To what extent do teachers perceive there is a culture for using STEM education research in their institutions?
4. How do teachers perceive STEM education research as a barrier to their practice?
5. How do teachers dismiss STEM education research as irrelevant?
6. What are similarities and differences among the facets of teacher perception and practices using STEM education research?
7. What factors are associated with teachers' use and perceptions of STEM education research?

To answer these questions, the researchers surveyed 450 K-12 teachers who were participating in a week of professional learning focused on increasing participants' knowledge and capacity to engage in innovative STEM teaching at six sites in a U.S. state in the Rocky Mountains region.

The researchers created their own instrument to gather teacher perceptions and attitudes related to seeking, accessing, and engaging with education research as well as teachers' ability to do so and the culture related to these activities. Items included multiple choice statements that respondents answered on a Likert scale, such as "I use education research to inform my STEM teaching," as well as open-ended response questions, such as "What is your primary reason for accessing STEM education research?"

It is worth noting that this study may be limited in its generalizability because of the lack of diversity of the educators surveyed (96% white) and the relatively small sample size.

FINDINGS

The survey revealed that educators rarely use research. Those who access research only do so once or twice a year. When asked the primary reason for accessing STEM education research, the most frequent response was to gain knowledge (29%), followed by to become a more effective teacher (22%) and to improve student learning (21%). Respondents also reported that they were unsure how to validate whether their classroom practices were, in fact, evidence-based.

The survey found that teachers rarely subscribe to journals that report education research and do not

frequently access research findings in other formats. About a third (37%) responded that they access open source materials found on the internet. Among those who do seek out research, 55% say that they use the internet to find research. Only 6% said they get research from a conference or professional organization, and 10% said they are unsure how to locate research.

The survey also delved into questions about whether schools have a culture that supports using research. The majority of respondents (95%) disagreed with the statement that principals share education research with them. Moreover, 60% disagreed that they collaboratively or collectively spend time reviewing education research, 66% disagree that they use it in their planning, and more than three-quarters (77%) disagreed with or were neutral about the statement that they are expected to apply research-based practices in their teaching.

Encouragingly, however, respondents did not indicate that they felt research was a barrier to creativity or innovation. Nor did they feel that their intuition is a better guide than research. In fact, they seemed to recognize the value of applying research to practice.

IMPLICATIONS

The results of this study suggest that the biggest barriers to teachers' use of research are not in teacher attitudes but in access, knowledge, and professional culture. (Although not noted by the authors, cost is likely a factor as well — for example, in teachers' lack of access to professional journals.) Given educators' already full plates, an expectation of using research must be

HOW RESEARCH IS EMBEDDED IN THE STANDARDS FOR PROFESSIONAL LEARNING

Using research is a thread that runs throughout the **Standards for Professional Learning**, not just the **Data standard**. It is especially evident in the **Learning Designs standard**, which calls for educators to be intentional about increasing educator effectiveness and results by integrating theories and research in the design of professional learning.

The concepts in the **Learning Communities standard** — including a culture of inquiry and continuous improvement for adult and student learning — are elements that support and lead to maximizing the effective use of research for improved teacher and student outcomes.

There are clear implications that **Leadership** must be actively engaged in modeling a culture of using research and sharing relevant studies and findings with educators. And **Resources**, including time and funding, could enable and encourage increased access and therefore use of research by more educators, more frequently.

accompanied by a supportive, systemic response from leaders at multiple levels.

The responses suggest that there is a need for greater leadership around

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What works? Research probes a complicated question

found it to be an effective way to change instruction. One silver lining of this pandemic is that online coaches won't need to ship cameras to teachers this fall — they can easily peek in on instruction that occurs over Zoom or Google Hangouts. MQI Coaching offers a set of guiding principles for online coaching.

Q: What have you learned from the response to your *Education Week* column? Has it changed how you think about the way educators use research and what they need from research?

A: I have studied research use by practitioners, so nothing surprises me. I guess my learning this year has been that teachers and school leaders are faced with an impossible job — trying to reconcile what research says with more local evidence about what works and doesn't in their own practice.

A colleague, Lauren Yoshizawa, observed as teachers and coaches tried to process research recommendations, for instance, for reciprocal teaching all the while knowing that it had been tried and hadn't worked in their classrooms due to problems with implementation.

There are also certainly schools for which the study of student data has worked to improve outcomes. These findings raise interesting questions about whether research or local knowledge should be prioritized in funding programs and federal legislation.

REFERENCE

Hill, H.C. (2020, February 21). Teacher PD gets a bad rap. But two approaches do work. *Education Week*. www.edweek.org/ew/articles/2020/02/24/teacher-pd-gets-a-bad-rap-but.html ■

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using research in schools. In the schools and districts represented in this study — and likely many others — there is significant room for improvement in leaders' sharing of relevant studies, guiding implementation, and setting expectations for the use of research.

The finding that a very small number of respondents learn about research from a conference or professional organization signals that organizations like Learning Forward have an important responsibility to model the use of research, share relevant research with educators in an accessible format, and advocate for free user-friendly tools drawn from new studies.

Learning Forward strives to provide these kinds of supports in multiple ways. For example, in many Learning Forward networks, teams of educators regularly and collaboratively discuss research that is relevant to improving their practice and their students' outcomes. Participation in a network can provide the structure, time, and facilitation support that makes this kind of discussion possible.

Learning Forward has also been advocating for researchers who are engaged in and publishing studies related to improving teaching and learning to be clear and specific about the professional learning that is

DIG DEEPER

One of the important tenets of applying research to practice is consulting multiple studies or reviews of research, as one study on its own is not definitive. Although this column often takes a close look at a single study or article, we know that no one paper is enough to guide decisions and practices, and we always encourage you to read further on the topics we cover. In that spirit, we encourage you to take a look at these other references and resources about using research evidence in educational practice.

EdNext Podcast: Using Evidence in Education

Nora Gordon and Carrie Conaway, the authors of *Common-Sense Evidence: The Education Leader's Guide to Using Data and Research*, join Education Next to discuss how leaders and educators can bridge the divide between academic research and real-time classroom application. www.educationnext.org/ednext-podcast-using-evidence-in-education

Research Use in School District Central Office Decision Making: A Case Study

Elizabeth N. Farley-Ripple's findings "suggest a need for strategies to improve instrumental use, including reconsidering the production and dissemination of research, facilitating the flow of knowledge within the central office, and further examination of conceptual uses of research."

journals.sagepub.com/doi/abs/10.1177/1741143212456912

Great Teaching Toolkit: Evidence Review

Cambridge International and Evidence Based Education (a UK-based research organization) have developed this resource to help educators identify priority actions and the research related to the key strategies likely to improve student outcomes.

www.cambridgeinternational.org/support-and-training-for-schools/teaching-cambridge-at-your-school/great-teaching-toolkit

required to implement the findings of their research. Several organizations are leading this charge, including the Usable Knowledge website at the Harvard Graduate School of Education

(www.gse.harvard.edu/uk) and the Digital Promise Research Map tools (researchmap.digitalpromise.org/research-resources). ■