Educative Curriculum Materials: Uptake, Impact, and Implications for Research Design

A synopsis by David M. Irby, PhD

This article helped me to understand how curriculum materials can influence teaching and learning in the context of curriculum reform. The article synthesizes multiple national studies that sought to understand how teachers in public education (K-12) use curriculum materials for the new common core, which ideas they use, and what impact those ideas have on teacher and learner knowledge. Teachers adapted the educative curriculum materials as they enacted them, and demonstrated extensive uptake of the ideas and recommendations. There was limited evidence of impact on outcomes found in the studies.

The authors identified six design principles for creating educative curriculum materials to enhance teaching and learning:

1. Since teachers will adapt curriculum materials, include a range of principled and productive adaptations aligned with the reform.
2. Educative features should be grounded in teachers’ practice. These could include teaching tools such as the use of descriptions of teachers’ enactment of lessons in ways that demonstrate key ideas of reform/key scientific ideas and student-friendly definitions of terms; and examples of high performing student work and rubrics for assessing it.
3. Teacher subject matter knowledge is challenged as knowledge grows. Subject matter knowledge needs to be deepened. Identify “big ideas” to highlight in lessons that scaffold teaching and learning, and help teachers select high value content to cover.
4. Teacher uptake of educative materials will be idiosyncratic and based on their perceived needs in themselves and in their learners. Thus, providing multiple features to meet a variety of needs is important: focus on subject matter knowledge, and pedagogical content knowledge; and highlight how the new practice differs from current practice.
5. Teachers take up the practice of scientific explanation in a very limited way. Thus, educative materials should help teachers appreciate and value the construction of scientific explanations, and demonstrate how to support students in constructing such explanations.
6. Most teachers take up core scientific practices, including making and recording observations and making and justifying predictions. Designers should support these practices and point the way toward higher levels of learner performance.

What is novel or noteworthy?

The key concepts in this research are the importance of conveying “big ideas” or conceptual scaffolding of core concepts to the faculty; and combining pedagogical strategies with subject matter knowledge. Examples of high performing student products (exams, tasks) can show faculty members what good performance looks like; and rubrics for assessment can help faculty members to more accurately assess student learning.

How does this article relate to medical education practice?

In a time of curriculum transformation with the Bridges Curriculum, education leaders can help faculty members and learners understand reform principles and expected pedagogical practices through the use of educative curriculum materials. The six principles can guide the development of teacher subject matter knowledge, pedagogical practices, and educative curriculum resources.
