You probably chose the second. Who would doubt that there are unsolved problems in education and that new ways must be found to solve them? But in fact the tide is running toward the first statement. The phrases “best practice” and “evidence-based” are much in the air, and they imply that the answers are already out there. We just have to choose the right ones.

Educational research in this connection is a kind of product testing. The U.S. Office of Education has made it a policy that rigorous product testing is the only kind of educational research they will support. “What Works” is an ongoing project of collecting data on the effects of different educational interventions.

Research of this kind has often been criticized as simplistic and out of touch with the realities and broader purposes of schooling. Recently, however, a new line of criticism has developed. It has to do with the inherently backward-looking nature of traditional educational research. Such research only deals with what already exists. It cannot generate new solutions or assess new ideas. It may help to define “best practice,” but it provides little suggestion of how to improve on “best practice.” This isn’t a problem if you believe that “best practice” already contains everything we need to know to solve perennial problems in education and to address new challenges. But if you don’t accept this conservative dictum, if you believe that invention and discovery are still needed in education, then you may be interested in a quite different kind of research.

**RESEARCH THAT GENERATES PROGRESS**

Medical research has been held up as a model of product-testing and variable-testing research. It has quality features often lacking – in fact, almost impossible to achieve – in educational research: random assignment of people to groups, use of placebos so that subjects do not know whether they are getting the experimental treatment or not, double-blinds in which even the researchers do not know which subjects are which. All of this is very important when it comes to testing a treatment that may have serious health implications. We do well to worry if a new drug has not been tested on a sufficiently large and varied sample or if there have not been sufficient controls against biased observation and reporting.

Educational research is often measured against the standard of medical research, and found wanting; but it is measured against only one type of medical research, the clinical trials that determine the effectiveness and possible side-effects of a new treatment. This is the kind of medical research that makes it into the news, but behind it lies another whole kind of research that is responsible for creating the new treatment in the first place.

When AIDS was first recognized as a new and lethal disease, there was a public outcry demanding a cure and, if possible, a vaccine. Millions of dollars were invested in research, but this was not research seeking to identify “best practice.” “Best practice” was palliative treatment for those dying of the disease. Instead, research focused...
first on discovering the nature of the micro-organism responsible for the disease, then using this knowledge to devise possible ways of controlling the virus, which came to be known as HIV. There were small-scale clinical trials carried out, not to obtain definitive information about results, but to identify drugs that showed promise. Evidence from these trials was fed back into further cycles of experimentation, leading eventually to a cocktail of drugs that was effective in controlling the disease. Larger, better-controlled clinical trials were used to measure effects and to determine the best treatment regimens. But this research came at the end of a decade of research whose purpose was to generate solutions to the problem. This solution-generating research is what is now being referred to in education as design research.

Design research is a driving force in medicine and in all kinds of engineering. It is so common that it doesn’t have a special name in those fields. Progress is what research in those fields is about, and research programs would be considered failures if they did not generate progress. Yet design research is a novelty in education. In the 1960s, the U.S. National Academy of Education initiated a project on the relevance of research to education. The resulting report, by Cronbach and Suppes,2 recognized only two kinds of research: "decision-oriented" research, concerned with making informed choices, and "conclusion-oriented" research, concerned with testing hypotheses and developing theory. For many people connected with education, both "consumers" and producers of research, this is still what research means to them. There have been changes in educational research in the ensuing decades. Qualitative, ethnographic, and narrative research have risen in prominence; but these are different forms of "conclusion-oriented research." Like more traditional types of quantitative research, they are concerned with observing, understanding, and evaluating what already exists, not with invention and innovation.

EN BREF Les expressions « pratiques exemplaires » et « fondé sur des preuves » utilisées dans bien des discussions sur la recherche en éducation suggèrent que les réponses à nos questions existent déjà ; qu’il ne s’agit que de choisir les bonnes. Or, ce genre de recherche, qui s’apparente plutôt à des tests de produit, ne permet pas de générer de nouvelles solutions ni d’évaluer de nouvelles idées. Par contre, la « recherche de modèles » qui se fait en médecine et en ingénierie met avant tout l’accent sur le progrès. C’est une méthode qui consiste habituellement à réaliser des essais en laboratoire et en salle de classe. Mais, il peut aussi s’agir d’expériences réalisées sur place dans divers contextes pédagogiques. Pour que le secteur de l’éducation devienne aussi dynamique que d’autres champs d’activités, il doit abandonner le lent processus évolutif fondé sur les « pratiques exemplaires ». Il doit plutôt s’appuyer sur des travaux de recherche qui génèrent de nouvelles solutions et de nouvelles possibilités de progrès pédagogique.

HOW RELEVANT IS DESIGN RESEARCH TO EDUCATION?

Education is different from medicine and engineering. Although it is sometimes said that education’s job is to “cure” ignorance, this is a poor metaphor. Education’s job isn’t to cure anything or to produce a product. It has a much more diffuse and complex responsibility. In fact, deciding what education’s objectives should be is itself a major problem, one on which educational philosophies are divided. So there is reason to be skeptical about adopting research models from medicine or engineering.

We might agree, however, that in education, as in medicine and engineering, the state of the art ought to progress. This year’s methods should be better than last year’s, and next year’s should be better yet. There is reason to question whether education is progressive in this way. Pendulum swings have been much more evident than advances in educational knowledge. If education is to achieve the dynamism of many other fields, it cannot rely on the slow evolution of “best practice.” It will need research that generates new solutions and creates new possibilities for educational advancement. It will need design research.

CHARACTERISTICS OF DESIGN RESEARCH

Design research does not have a fixed methodology. It can incorporate all sorts of quantitative and qualitative research, as well as simulations. It is any kind of research producing findings that are fed back into further cycles of innovative design. Educational design research does, however, have some distinctive characteristics:

• It requires close collaboration between designers and practitioners.
• It makes things happen. Traditional quantitative researchers were careful not to interfere with what was going on in the classroom, lest it “contaminate” results. Qualitative researchers changed this, introducing “participant observation,” where the researcher becomes part of the process being studied. Design research carries this a giant step further. Researcher, teacher, and administrator work together to make something new happen.
• It is devoted to remedying perceived shortcomings, overcoming perceived obstacles, and realizing perceived potentialities.
• It is an emergent process. As design research proceeds, new shortcomings, obstacles, and potentialities emerge. The end result is often quite different from what was originally intended.
Although it is questionable whether any kind of research is entirely value-neutral, design research is inevitably value-laden... we have increasingly focused our design efforts on democratizing and increasing the innovative capacity of societies.
problem: There are no tested ways for education to significantly enhance innovative capacity; “best practice,” in the form of various strategies for fostering creativity, does not begin to address the need. Invention is required.

Increasing innovative capacity is a recognized objective throughout the industrialized world, but in only a few places is it a top educational priority. We and our collaborators are concentrating our efforts in those places where educators are ready to make education for sustained innovation a top priority. Our hope is that when others are ready, design research will be there with the necessary know-how. Sustained idea improvement, we believe, is a key. Children are great at generating ideas and they delight in playing with them, but working to improve them does not come naturally. Fostering, facilitating, and building the necessary competencies for idea improvement has thus become the guiding goal for our design research. And, of course, idea improvement is the name of the game for design research itself.

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**Notes**