

# Lots of Bull — Not Much Beef

*Most popular educational practices are not research-based.*

By Bonnie Grossen

The following metaphor was crafted by Lovely Billups, co-ordinator of the American Federation of Teachers' Educational Research and Dissemination Program, to describe the forces that influence modern education.

Students, teachers, administrators and school district officials live at the base of Mount Olympus. On the top of the mountain, separated by a layer of clouds, are the university teacher trainers, publishers, education consultants, researchers and national curriculum organizations. The activities of the gods on the top of Mount Olympus often set off new fads in education which strike the professional lives of the school personnel below like bolts of lightning. With each new strike, a burst of dollars flows from the schools into the pockets of those who provide the products and services for implementing the fad.

The Mount Olympus metaphor illustrates the fact that the education system provides more incentives for faddism than for practices that get results. The mechanisms for distinguishing expensive fads that fail from practices that produce good results are weak and ineffective.

Scientific research is the best method for predicting the results that different practices are likely to produce. Such research allows predictions for a larger group of children based on how something works with smaller samples of children. Those procedures that get better results across a number of teachers and across students are the ones that belong in the shared professional knowledge base of teaching. A knowledge base developed any other way is known as quackery.

Many reform gods do not acknowledge contributions from "old" research. If medicine functioned as education does, we would see large numbers of people suffering the debilitating effects of polio again, because the

Salk vaccine, a discovery of the 1950's, is old research.

Research is timeless. The nature of children's learning has probably not changed much in hundreds of years. We can look back at old studies, look at the instruction, the measures and the results, and integrate these results with new research. In this way, our professional knowledge base grows over time and becomes more refined.

Ellis and Fouts provide a classification system that is helpful in evaluating the strength of research. According to Ellis and Fouts, there are three levels of research.

Level 1	Basic research
Level 2	Test of the theory in real classrooms
Level 3	Program evaluation on a school- or district-wide basis

**Level 1 research** includes correlations, descriptive data and qualitative case studies. Level 1 research is abundant. However, no theory regarding teaching procedures is testable with only descriptive and correlation research, no matter how abundant it is.

For example, from the correlation between high achievement and high levels of self-esteem, some have concluded that self-esteem causes achievement and that by offering warmth and sympathy to children who fail will build self-esteem and higher achievement will result.

This is not necessarily true. Take, for example, another correlation that shows that people with higher achievement have larger shoe sizes. The correlation is explained by a third variable: as children grow older, they achieve more and their feet grow.

Correlation data can, however, be used to disprove a theory. If there is no correlation between two variables, then one may be sure that one variable certainly does not predict the occurrence

of the other. It is foolish to hold on to an hypothesis that is contradicted by level 1 research.

An example of a popular educational theory that is ruled out by level 1 research is the belief that reading to preschool children improves or accelerates their reading acquisition. There is, in fact, no correlation between the two. Therefore, there can be no causal relationship.

**Level 2 research** tests a theory by applying it in the classroom to see if it gets better results than the practice it replaces. Different teaching interventions are compared at level 2 in controlled research studies in which students are randomly assigned to two or more instructional groups. One group learns one way, the other group(s) learns other ways. The results are compared to determine whether any differences in the results were accidental or would be likely to re-occur.

In the event, level 2 tests found that expressing warmth and sympathy toward students who fail actually leads to a deterioration in self-esteem. Practices with strong level 2 support, on the other hand, are mastery learning and cooperative learning.

**Level 3 research** evaluates the effects of the recommended teaching intervention in school-wide or district-wide implementation. Level 3 is important because at this level the new intervention is integrated into all the other things that teachers must accomplish in a day.

The danger of having only level 2 research support is that we may find that something is very good for reading, but when we get to level 3 we see that it may interfere with another subject, such as math. Cooperative learning, for example, gets good results at level 2, but level 3 research might reveal that it requires so much time to get these results that fewer overall learning goals are attained.

This is not to say that theories that are only at level 1 have no merit and will never work. It does mean that new teachers should not be trained in theories with only level 1 support and that districts should not mandate practices or spend large amounts of money promoting teaching practices with only level 1 support.

A huge problem in education is that most innovations jump from level 1 straight into the shared professional knowledge base without being tested. Most of the educational practices that have become widely disseminated in our university teacher-training programs and across the nation do not have even level 2 research support, never mind level 3.

Other professions have well-established gate-keepers that monitor the information that enters the shared professional knowledge base. For example, the Food and Drug Administration is a gate-keeper for the medical profession.

In education, though, the trend is to test each new hypothesis on a nationwide scale. And when the result is a national failure, who gets blamed? Not the promoters, not the consultants providing staff development, not the university professors. The teachers are blamed for the failure.

Let's look at a few educational ideas.

#### **Piaget: Developmental Psychology**

Piaget's work is level 1 research because Piaget's work involved only observation. The extensive research in developmental psychology simply describes what children seem to do at different ages. No teaching procedures are compared.

#### **Theory of Multiple Intelligences**

Howard Gardner's theory of multiple intelligences is another example of level 1 research. Some ideas for using the theory of multiple intelligences in instruction have been suggested, but few, if any, level 2 comparative studies have evaluated the effectiveness of these suggestions. Gardner himself has said that the enthusiasm for the theory has gotten a bit out of hand.

#### **Interdisciplinary Curriculum**

There is little or no level 2 research on this topic. Its ostensible benefits should be treated as hypotheses for level 2 research. Semestering, often part of an integrated curriculum, also has no empirical basis.

#### **Cooperative Learning**

Cooperative learning has an extensive level 2 research base and is one of the most widely-used innovations of our time. It would seem that cooperative learning is one example of research that has successfully moved into practice; however, this is not the case. The level 2 research shows that two elements are crucial to the success of cooperative learning: group goals and individual accountability. Unfortunately, teachers often use cooperative learning as simply group work on projects, without any individual accountability. As well, although cooperative learning was designed to complement teacher-directed instruction by providing further opportunity for students to work together using what they have learned, in most schools cooperative learning is used to replace teacher-directed instruction and students are expected to construct their own knowledge working in groups. In this way, cooperative learning is reduced to just another fad.

#### **Direct Instruction**

Though level 3 research is rare, it has occurred. Project Follow Through, the largest, most expensive research study in the history of education, involved level 3 research. The results were quite controversial, since a preschool teacher's model, Direct Instruction, won the race against models developed by the gods on Mount Olympus.

#### **What Can Teachers Do?**

As E. D. Hirsch, Jr. points out, the recommendations of the national curriculum organizations for teachers are better characterized as "worst practice" than as "best practice." The teaching practices taught in colleges of education are generally no different. The professional support system for teachers that resides above the clouds on Mount Olympus is dysfunctional. By ignoring scientific research and

promoting prejudices, it often serves as an obstacle rather than a resource in the dissemination of the knowledge that is so crucial to the success of public education.

One of the gods' most destructive ideas is their emphasis on individual teacher autonomy and creativity. Adam Urbanski, American Federation of Teachers, says: "Everyone seems to think that all you need to do to be a good teacher is to love to teach. But no one thinks that all you need to do to be a good surgeon is to love to cut." Having teachers pick and choose instructional procedures according to personal preference, without scientific information regarding the effectiveness of these procedures, is not likely to lead to significant improvements in the effectiveness of public education.

What we know in the 90's is that reform will not work until it gets down to the details of engineering specific teaching procedures for teaching specific topics, such as *King Lear* or fractions.

To be a profession is to have a professional knowledge base comprised of shared procedures that work. This is a new idea for teachers, though it is quite old for other professions. Good teachers using well-engineered tools and detailed procedures can achieve remarkable results with their students and, this is the good news, teachers can get these results and also have a life.

Professional support systems should allow the sharing of "polished stones," instructional procedures and lesson plans that work. The emphasis, though, cannot be just on sharing — it has to be on sharing only those teaching procedures that get better results.

*(Dr. Grossen is a research associate at the University of Oregon. This article has been adapted with permission from a much-longer article which can be accessed at <http://darkwing.uoregon.edu/~bgrossen.resprf.htm>)*