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Schools must transition to experience-based learning

By Marion Brady

Public schooling took serious hits from No Child Left Behind and Race to the Top. It's being undermined by standardized tests that can't quantify the quality of learner thought. It's been battered for years by a well-funded corporate campaign to privatize the entire institution. Now, it's being mauled by COVID-19, and the policymakers and politicians who think computers can do what teachers do, and do it at a fraction of the cost, are — at least when no one is looking — jumping for joy.

The jumpers and their allies suffer from the Dunning-Kruger Effect. They don't know enough about educating to realize how little they know.

That's true for most of us on one subject or another, but ordinarily the damage done by personal ignorance is to ourselves. Unfortunately, some who suffer from the Effect have wealth, power, respect or other sources of influence and are using it — often with good intentions — in ways that are educationally and societally destructive.

Not surprisingly, school reform attracts far more than its share of such people, no doubt because schooling is important and educating looks easy — a mere matter (to quote Bill Gates), of “delivering information.” Since technology can deliver shiploads of information almost instantly at near-zero cost, why not do the necessary infrastructure upgrading and get on with a transition to remote and distance learning?

Big mistake. Schooling's bottom-line purpose isn't stuffing kids' heads with secondhand information, but teaching them to think better than their elders. That's done not by text, teacher talk or screen time but by creating experiences — puzzles, problems, projects — that deal with intellectually demanding matters, then backing away and letting kids struggle, learning to think by being *required* to think.

Firsthand experience isn't just the *best* teacher; for ideas worth teaching, it's the *only* teacher, and remote and distance learning as ordinarily practiced push the learning process even further away from firsthand experience.

Traditional schooling's primary emphasis has always been on “covering the material,” and rituals are hard to abandon. But given the variables — the accelerating rate of change, the explosive growth of knowledge, the vast differences in the needs of America's diverse population, the complexity of the messes the young are inheriting, the easy accessibility of a near-universe of information via the internet, and an unknown and unknowable future — the “cover the material” emphasis no longer makes sense.

What does make sense is using traditional school content in non-traditional ways — not as information to remember, but as raw material for creating intellectually challenging experiences that require learners to think — to imagine, predict,

hypothesize, extrapolate, generalize, and so on — to exercise the dozens of thought processes that make humanness and civilized life possible.

Example 1: In the Middle Ages, warriors on horseback became much more powerful after they adopted stirrups, changing Europe in surprising ways.

Below, in random sequence, is a list of 14 changes that followed the invention of stirrups. Rearrange them to show as many direct cause-effect relationships as you can.

- Horse saddles with stirrups
- Improvements in metallurgy and metal-working skills
- Armor for men and horses
- Increase in need for grain
- Increased social class and wealth differences
- Increase in cost of fighting
- Greater stability on horseback
- Help in donning armor, mounting, care of horses
- Need for bigger, stronger horses, and more of them
- More land under cultivation
- Taxation of farmers and peasants
- Bridge construction
- More effective use of lance and battle axe
- Advances in animal husbandry and breeding

Example 2: [Materials needed: Three pennies.] It's 3020 A.D. Walking on a beach, you find three washed-up coins. You've never heard of America, the words and symbols mean nothing to you, and there are no records. How much can you infer about the people who made them? Defend your hypotheses. (Don't give up easily.)

Traditional schooling often seems irrelevant because school subjects break reality into pieces that have little or nothing to do with each other. The activity below recombines science, social studies, math and language arts:

Example 3: Choose an accessible building and its site — your school, home, or other structure, then select one of the following, study it, and create a presentation. Suggest specific improvements.

- Sunlight affects the building. Identify places where the sun's effect is greatest. Measure to find how the sun's angle changes from day to day (e.g. length of a flagpole's shadow at the same time each day). Explain the change with diagrams. Monitor the effects of the sun's heat and light on the building's exterior and interior.

- Rain falls on the building. How much? When? (Check local statistics.) Where, specifically, does the water go when it runs off? (Describe and map its route.) How contaminated is the runoff from the roof? From parking areas? What are the contaminants? Are they harmful? How?
- Identify the different kinds and amounts of waste produced. Where does it go? How is it processed? How much is recycled? Where will it be when you're 60 years old?

The three activities above are examples of “active” learning — learning by doing. Designed for small, three- or four-member “learning teams” that encourage “thinking out loud,” such activities could, if necessary, lend themselves to Zoom or other, similar programs useful in meeting pandemic-related problems. ***Several year's-worth of sequenced active-learning activities can be downloaded, free, from www.MarionBrady.com.***

A good place to start: <https://www.marionbrady.com/IntroductiontoSystems.asp>