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Educating for an unknown future

By Marion Brady

The younger of my two daughters lives near the Gulf of Mexico on Florida's "Panhandle." Reading in the morning paper that the 80+ temperature of the Gulf's water might make the approaching hurricane Michael the "worst ever, with a probable 12-foot storm surge," I picked up the phone.

"No problem," she said, "even if it comes up 14 feet, which it's done before, it won't reach me."

I told her I hoped she was right, and that I'd call again in a couple of hours. (She was right.)

Science says climate change will trigger more and more "worst ever" hurricanes, rains, fires, tornadoes, mudslides, droughts, genocides, fascist trends, ethnic cleansings, and other difficult problems.

Follow me, please, as I try to call attention to what I believe is a fundamental, unaddressed problem with schooling in America.

What lies ahead for kids are major messes—global warming, non-stop wars, disposing of radioactive waste, reversing wealth concentration, and dozens of other problems they didn't create but have to try to clean up or figure out how to live with them.

To do that, they'll need to generate *new* knowledge, but they aren't being taught how, are instead spending most of the school day cramming *existing* information into short-term memory. The ability to recall secondhand information rewards everybody from test-taking kids to near-by property owners to holders of stock in manufacturers of tests, but it's of very limited usefulness when technological, environmental, demographic and cognitive change are interacting to create problems of ever-increasing, mind-boggling complexity.

The situation calls for a continuous stream of new knowledge—lots of it—knowledge that can't be taught because nobody yet knows what needs to be known.

For the young to have a fighting chance of coping with what lies ahead, schooling's emphasis needs to switch from *recalling* information to *relating* information for the obvious reason that information becomes knowledge as new relationships (↔) are discovered.

infant fusses ↔ gets fed
sharp objects ↔ pain
microbes ↔ disease
feelings of insecurity ↔ opposition to immigration
greenhouse gases ↔ global warming
differing worldviews ↔ war
space ↔ time

Traditional core curriculum-based schooling compartmentalizes knowledge, blocking the knowledge-creating relating process.

About eighteen years ago, in a newspaper column distributed by Knight-Ridder/Tribune, I was doing what I'm doing now—trying to convince people in general and education policymakers in particular that the core curriculum is the main reason for decade after decade of basically flat academic performance and reforms make little or no difference. The bottom-line purpose of schooling is expanding understanding of how the world works, and the real-world doesn't compartmentalize knowledge by academic discipline or school subject. I wrote:

> "In the real world, the world we're trying to help the young understand, everything connects to everything. We want a pair of socks. Those available have been knitted in a Third World country. Power to run the knitting machines is supplied by burning fossil fuels. Burning fossil fuels contributes to global warming. Global warming alters weather patterns. Altered weather patterns trigger environmental catastrophes. Environmental catastrophes destroy infrastructure. Money spent for infrastructure replacement isn't available for health care. Declines in the quality of health care affect mortality rates. Mortality is a matter of life and death. Buying socks, then, is a matter of life and death.

> "Making sense of this simple cause-effect sequence requires not only some understanding of marketing, physics, chemistry, meteorology, economics, engineering, psychology, sociology, political science and a couple of other fields not usually taught in school, it requires an understanding of how all the fields fit together.

> "Preparing to put a jigsaw puzzle together, we study the picture on the lid of the box. It's the grasp of the big picture—the whole—that helps us make sense of the individual pieces. Formal education doesn't give kids the big picture. It gives them instead a little biology, a little poetry, a little history, a little of this, a little of that, but nothing about how the bits and pieces are connected and reinforce each other."

To those ends—moving education toward systems thinking—the links below access a short explanatory E- Book, a course of study that introduces systems thinking via firsthand, real-world experience, and three courses that repurpose traditional social studies content in ways consistent with systems theory. All lessons were written for adolescents of middle school age and older, and may be downloaded without cost or other obligation.

Week after week of downloads averaging more than 2,500, without a penny spent on advertising, in an environment hostile to schooling not focused on raising standardized test scores, suggests the potential of systems-based curricula to drive consequential, continuously evolving education reform.

(a)   EBook, *What's Worth Learning?*
http://www.marionbrady.com/documents/WWL.pdf
(b)   Systems-based course of study:
http://www.marionbrady.com/IntroductiontoSystems.asp
(c)   American history: http://www.marionbrady.com/AHH.asp
(d)   World history: http://www.marionbrady.com/WorldHistory.asp
(e)   World cultures:
http://www.marionbrady.com/InvestigatingWorldCultures.asp

Below is one page from (b) above. As is true of all the lessons in (b), (c), (d) and (e), it assumes that complex ideas can't be taught in the usual sense of the word—transferred intact to learners from text or teacher talk. Useful levels of understanding must be constructed from active, direct, firsthand experience. To counter the enforced passivity of traditional instruction, the four instructional program make extensive use of small-group activities, dialogue, puzzles, projects, and other activities requiring learners to engage in a full range of thought processes—inferring, hypothesizing, integrating, generalizing, abstracting, synthesizing, imagining, extrapolating, and a couple of dozen more.

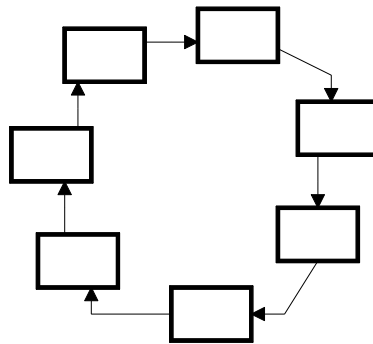## Investigation: Identifying Cumulative Causal Sequences

Cumulative causation affects the lives of almost everyone. After World War II, a series of changes over the next 40 years or so affected major cities all over North America.

1:   ***The list of city conditions below is in random order. Copy each condition on a separate slip of paper or Post-It Note®, then arrange***

them in a circle, with "causes" preceding "effects."

- Poorer downtown municipal services
- Decline in downtown business profits
- Movement of population to suburbs
- Less downtown shopping
- Lower municipal property tax receipts
- Lower downtown property values
- Decline in downtown security and attractiveness

2: ***In your journal, copy your "cumulative causal circle" in diagram form:***

3: Many cities have been successful in stopping downtown decline. ***Use your diagram and the Model* to help you identify changes that cities could have made (or did make) to help fix the downtown decline problem.***

Introduction to Systems, Part 5, "The Dynamics of Change," p. 8
https://www.marionbrady.com/IntroSystems/5DynamicsChange.pdf

*Model. The activities in course of study (b) above are sequenced to help adolescents construct a simple, permanent, coherent, comprehensive, holistic, systemically integrated conceptual or mental model to guide descriptions and analyses of all realities.

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