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So-Called Experts

a book always in progress & free

by Stephan Michelson

Chapter 09

Education

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Wikipedia (June, 2010) has a lovely definition that deserves attention:

Education in the largest sense is any act or experience that has a formative effect on the mind, character or physical ability of an individual. In its technical sense, education is the process by which society deliberately transmits its accumulated knowledge, skills and values from one generation to another.

I agree. Education is first an activity, a process. Its “largest sense” is defined from the perspective of the receiver, just as I proposed that “design” of objects should be evaluated from the perspective of the user. Education is whatever gives you more skills, expands your ideas, your methods, your evaluations, or induces a changed attitude or behavior. Its “technical sense” is defined from the perspective of the provider. Like many such things, it has been ~~is~~ taken over by institutions with accepted authority to certify what it is, who can engage in it, who has gone how far through that process. You may learn many things in many ways, but education in this sense is only what the educators—the education “experts”—say it is. In a resume, you place formal schooling before everything else, regardless how unimportant that formal schooling may be to how you think of yourself.

Personality

In my book about statistical experts, I urged that judges pay less attention to credentials, more to the evidence being presented by a so-called expert. I have long held—as I do in this book—that personality is as important a determiner of one’s path in life, one’s “success,” as any other factor. I do not know how to define personality, or measure it, but that does not mean it is a nonsense concept. It

implies that different people acquire expertise, if they ever do so at all, in different ways.

Neither do I know how one acquires, or changes, personality; but I know that people do, and that this is part of the larger sense of their education. Writing of the tools I used, indeed, pioneered, in statistical analysis in courts: ¹

I came to this task with a Ph.D. in economics. Not one of these methods [that I have written about]—multiple-pools analysis, Mantel-Haenszel aggregation, Kaplan-Meier survival analysis or Cox’s conditional logit—was known in my field. So why was I in some instances the first person, in others nearly the first, to use them in litigation? Because I knew that the tools I started with were inadequate to solve the problems before me. I could articulate the question, look in my tool chest for the right tool, and recognize that none in there was satisfactory. Ninety percent of the problem, you can quote me on this, is not understanding that there is a problem. The secret of my success was not that I had solutions in hand, and not that I created them, but that I knew I needed them and sought them out.

By “personality,” in this particular context, I mean that some people are seekers of answers to questions; indeed, seekers of how best to articulate questions to get relevant answers. Richard Feynman said that, as a child, he asked his father why, when he jerked a cart from under a ball, the ball did not travel with the cart, but fell to the ground. Some people would have used the words “inertia” and “gravity” to explain this observation. His father said, and Richard (as an adult) thanked him for this, “No one knows.”²

Feynman’s father understood the difference between naming something and explaining it. “Education” often confuses these two concepts. The seeker of knowledge may sense that those assigned to have answers have only the language of answers, not the meaning. Although we can “explain” gravity in many ways, those ways explain what it does, not what it is. We accept inertia as part of a fundamental law of motion. We know that the velocity of light in a vacuum is approximately 186,000 miles (300,000 kilometers) a second, but we do not know *why*. It would have to have some value, but why *this* value? We say these are physical “properties.” They just are. (The word “fundamental” is science language for the gesture of shrugging one’s shoulders.) Perhaps some day we will have a deeper

1 Stephan Michelson, *The Expert: The Statistical Analyst In Litigation*, LRA Press (2006) at 125-126.

2 Apparently Feynman told this story often, in longer and shorter versions. It is here from my memory of a talk he gave. A more elaborate recounting occurs in Jim Ottaviani, *Feynman*, First Second (2011).

understanding. Until then, it is important to answer such questions distinguishing our language and our measurements from a root cause explanation, when we do not have one.

On the other hand, some people are satisfied with answers in gibberish. They just want to be able to give an explanation, whether it is one or not. Listen to almost any politician discuss economics, for example. “Fiscal responsibility” is a reason not to extend unemployment insurance? The fact is that putting money into the hands of people who need it and will spend it is more fiscally responsible in a recession than depriving them of it. An unemployment dollar is a transfer payment. It is not counted as income; it is not counted in the Gross Domestic Product. But, as that dollar is spent, and re-spent, it will induce product and create income, \$1.60 by the conventional estimate. It will generate taxes, as well as income, but less than \$1 of taxes, and so will increase the U. S. Debt.

So? See the chapter on economics, below, for more discussion of the lack of understanding of this issue among politicians, perhaps the most inept occupation on the planet. Whatever it is that prompts senators and congressmen to vote against extending unemployment benefits when there is high unemployment, it is not expertise in economics.

Some people look for a better way to achieve a larger objective. Others prefer to believe rather than to know. These are differences I ascribe to “personality,” substituting a name for a universe of my own ignorance. Not only do I not know how to measure this “personality,” I cannot even name its characteristics. If I could do all that, I would still not know where these differences came from.

Infancy

Before we send our children into institutions of “learning,” we—most of us—take care of them ourselves. Wealthy families may engage others, and poor families may have few resources to help them, but one way to conceptualize “middle class” parents is as those who take individual responsibility for child rearing, but look for expert advice. One historian surveyed “1,017 articles drawn from the popular literature directed toward parents,” articles published between 1900 and 1985.³

We chose to code magazine articles rather than books to reduce some of the problems associated with using advice

3 Julia Wrigley, “Do Young Children Need Intellectual Stimulation? Experts’ Advice to Parents, 1900-1985,” *29 History of Education Quarterly* 1 (1989). In text quotation from 43, indented quotation from 45.

literature as a historical source. . . . There is no doubt that the magazines covered were addressed to largely middle-class audiences. Such parents are also more likely than poor or working-class parents to look to expert opinion on how to raise children.

Most of the early articles were written by physicians, whose reasonable concern was in keeping children alive. Indeed, even in the 21st century, increases in life expectancy are dominated by a reduction in youth mortality.

Put most simply: in the early decades, parents had to *think* about how to keep their babies alive; they could take their intellectual development for granted. In the later decades, parents had to *think* about how to foster their young children's intellectual growth; they could take their good health for granted.⁴

Although we can understand the basis for bad so-called expert advice, the fact remains that it was bad, ignorant, non-expert.

The experts often advised that the baby spend most of its time asleep. . . . Not one of the sampled experts in this early period suggested that babies might naturally have different sleep requirements.

The best way to keep a highly scheduled baby on track was to leave it alone. Having nothing else to do, it would sleep. It is striking, in fact, how early authors present babies as sleeping almost all of the time; they argued that such long hours of sleep were essential.⁵

Now that we know everything we need to know about child-rearing—that is, now that expert advice is truly expert—let us move to where the interests of children surpass the knowledge their parents have, or even think they have.

What Should Schools Do?

School is not always where expertise is to be found. Matthew Stewart, holding a PhD in philosophy, worked as a management consultant. Writing in *The Atlantic*, he confesses (indeed, proclaims):⁶

The strange thing about my utter lack of education in management was that it didn't seem to matter. As a principal and founding partner of a consulting firm that eventually grew to 600 employees, I interviewed, hired, and worked

4 Wrigley (1989) at 65.

5 Wrigley (1989) first at 53, then at 57.

6 Matthew Stewart, "The Management Myth," 297 *The Atlantic* 5 (June, 2006) at page 80.

alongside hundreds of business-school graduates, and the impression I formed of the M.B.A. experience was that it involved taking two years out of your life and going deeply into debt, all for the sake of learning how to keep a straight face while using phrases like “out-of-the-box thinking,” “win-win situation,” and “core competencies.”

That is, in school one learns the language of a profession, not the content. In business schools, perhaps there is only language, no content at all. Stewart goes on to lambast the guru-of-the-moment, the notion that one person has cracked the code, knows the secrets—much as Thomas Frank had done before him.⁷ Stewart continues (at page 87):

As I plowed through my shelfload of bad management books, I beheld a discipline that consists mainly of unverifiable propositions and cryptic anecdotes, is rarely if ever held accountable, and produces an inordinate number of catastrophically bad writers.

“Experts,” are called in to save companies in distress. It is likely that some of them give good advice. Some can even communicate that advice in ways managers understand. Which ones are they? How would one know?

In previous chapters I indicated that one task of education should be to generate adults who can function in the real world. To do that the individual needs to acquire two skills. The first is to be able to make self-serving decisions, because the world is less and less filled with people either expert enough or designated to make decisions for you. That is, we all need the skill to be “experts” in the little part of the world we occupy.⁸

In addition, formal education should leave the student with the ability to evaluate so-called expertise when it is offered. It is charming to see Jamie Oliver, the English chef, discussing appropriate cuts of meat with his local butcher. Oliver is an expert cook, who requires meat, and wants it cut and chosen expertly for a particular use. He is not and will not be an expert butcher. So he seeks one out.

7 Thomas Frank, *One Market Under God*, Doubleday (2000).

8 E. D. Hirsch, Jr. tells us that “there’s a positive correlation between a student’s vocabulary size in grade 12, the likelihood that she will graduate from college, and her future level of income.” From that, he develops an argument for a particular kind of formal education reform. Perhaps. But perhaps the distribution of incomes is fixed, and we are discussing only who will get what. If everyone has the same vocabulary, some other factor will distinguish among us. “A Wealth of Words,” *City Journal*, winter, 2013.

Real butchers are rare, not likely found in your local grocery store. Real expertise of any sort is rare; and most of the real expertise we come across and need in our daily lives did not come from school. We want our gas dryer installed correctly, and our automobile repaired correctly. We want the TV to work, the cable or satellite company to supply the programs we are paying for. The people we meet providing these services did not learn them in school. Yet they are productive, generally polite and, I trust, reasonably paid. The first task for anyone who moves to a new town, after opening a checking account and signing up for utilities, is to establish his service providers. How does garbage get disposed of? Who can repair a faulty oven? Who will be my dentist?

No matter how expert one is in his own field, we all need experts in others. Those others, real and not, may advertise. In general I favor that. I want someone working for me who has sought me out. But that they did is not a way to evaluate them. Companies advertise that they will help you get out of credit card debt. They will negotiate a deal with the credit card company, they say. They know how to do this, and you do not. That is why you should rent their expertise, they say. We believe there is such expertise, that some people can get a deal we cannot get.

Unfortunately, the result is often more debt, no relief. How is one to know who is “expert” at dealing with excessive debt? We all know that banks fail at this assessment, granting mortgages to people who have no chance to pay them off. The skill the debtor needs is in assessing proffered expertise—the same skill a judge needs, or a corporate CEO. I can think of no attitude more important than skepticism, no skill more important than the skill of selecting who will be one’s friends, consultants, advisors—the skill of determining who, among the proclaimers, really has skills I do not have. Shouldn’t education help in these tasks?

Mythological kings put their (always beautiful) daughters’ suitors to a test. These myths imply that the king got to his position by conquest, which is some sort of merit. He wants to select the next king—the husband of his princess (who does not get to choose on her own, of course)—in his own image. How can he tell? Other than presenting unfortunate criteria, these stories pose real questions, if not providing real answers. The prince turned into a frog, awaiting a princess to come along and kiss it (surely only a princess would)—is another story that someone, some day, will explain to me. Sure, even frogs have inner beauty, but what king would let his daughter marry one? If, when a prince, he allowed himself to be transformed into a frog by a wicked witch, then he is too stupid to be *my* daughter’s husband.

Yet these are not school subjects. Our children are not, in general, taught where food comes from, and what it looks like before it is wrapped in plastic. They are not taught to ask if that wrapping is safe. They are not taught about the multitude of personalities they will encounter, and how to drop people from your life when you determine that they are doing you no good. Children are not warned that most people posing as experts—from car repair to financial advice—are no such things; nor advised that those that are may not be worth their cost. It does not seem strange to me that most kids are lost when they “enter the real world.”

Education Outside Of School

Matthew Crawford, who has been a worker and entrepreneur as well as a student, decries the abstractness of “schooling” in a more direct way:⁹

To regard universal knowledge as the whole of knowledge is to take no account of embodiment and purposiveness, those features of actual thinkers who are always in particular *situations*. . . . If thinking is bound up with action, then the task of getting an adequate *grasp* on the world, intellectually, depends on our doing stuff in it.

Crawford thinks little of Daniel Bell’s favorable description of the future high technology society, in which algorithms supercede expertise.¹⁰

Bell seems to regard the mechanization and centralization of thinking as progress, or at any rate as inevitable; it is the only proper response to the growing complexity of society. His readiness to do away with the intuitive judgments of expert practitioners rests on the idea that such judgments are inadequate to complex systems that may evolve.

Crawford settled on motorcycle repair for his profession, and, in this book, describes his hard earned expertise. As Crawford elsewhere notes, twenty-first century technology is mostly electronic and minuscule. A computer tells your car mechanic what part is defective. It is replaced. We no longer repair parts—nor could we. One follows an algorithm to determine what part to replace, and sometimes that algorithm finds the wrong part. Yes, that happens. But Crawford does not tell us how often or how expensive; whether we are, on balance, better or worse off because Bell’s description turned out to be correct.

9 Matthew B. Crawford, *Shop Class As Soul Craft*, Penguin Books 2010, at 163 and 164.

10 Following quote from Crawford (2010) at 167. He is referring to Daniel Bell, *The Coming of Post-Industrial Society*, Basic Books (1973) at 29-30.

There are fewer and fewer “expert practitioners,” and they are more and more difficult to find. Education as schooling does not rise to provide the tangible, *in situ* experiences Crawford wants. That is why Edwin Land (who founded Polaroid Corporation), Bill Gates, Michael Dell, Steve Jobs, Ry Cooder and many other people we admire dropped out of college to pursue their passion.¹¹ Alex Haley did not complete college. He became a writer by writing. The novelist Nell Zink

worked as a bricklayer in the Tidewater region of Virginia. “That job was more valuable for my intellectual life than my entire college career,” she says. “In college, they allow you to be entertained and let your mind wander, which is not good training to do anything difficult.”¹²

The success of Sara Blakeley, billionaire founder of Spanx, “runs counter to conventional wisdom about business training and experience,” of which she had none.¹³ It has always been true, and probably will remain so, that to grow up one needs as much non-school education as in-school education.

Michelson As Education Expert

In 1968 I accepted and started a position on the faculty of the Harvard Graduate School of Education. I held that position for several years. I co-authored two books, and wrote articles. So, I must be an expert in education.

No, I am not. In education, I exemplify the difference between credentials and expertise. Although I appreciated this most fascinating of subjects, I never learned or developed enough information to become expert in it. I thought that my tools, the tools of quantitative analysis, could at best be peripheral in answering questions about how kids learn, and what to do to help them. Surely those tools would not help determine what they *should* learn, even if, to some extent, one could measure what they *did* learn. And so I left that field.

11 David Bromwich, “The Question of Edward Snowden” (A review of the film *Citizenfour* by Laura Poitras), *New York Review of Books*, December 4, 2014 at 4:

. . . *Citizenfour* . . . [lets] Snowden’s way of thinking unfold before us. He is mostly self-taught. He learned to think, it seems, largely by using the freedom of the Internet.

Bobby Flay, the New York (and Food Network) chef, did not complete high school. Nor did the Wright brothers of airplane fame. Abraham Lincoln had neither a college degree nor a law degree, although he practiced law. Harry Truman became President without a college degree, a much better president than many who were more highly educated.

12 Kathryn Schulz, “Outside In,” *The New Yorker*, May 18, 2015 at 38.

13 Mohamed El-Erian, “Spanx Billionaire Founder Redefines Failure and Inspires Others,” *The Huffington Post*, August 25, 2013. See also <http://money.cnn.com/video/news/2013/07/26/n-spanx-sara-blakely-billionaire-profile.cnnmoney/index.html>

What did people with my background, who stayed in the field of education, do? What great achievements might I have made, had I realized the opportunity? Consider this equation, carefully (and no doubt expensively) crafted from data analysis of the kind I was engaged to teach, but opposed, at Harvard:

$$Y_{it} = \zeta + \lambda Y_{0i} + \beta' X_i + \sum_{l(\text{district})} \sum_{k(\text{school})} \sum_{j(\text{class})} \{ \alpha_{jkl}^{\text{class}} I_{Cijkl} + \alpha_{kl}^{\text{school}} I_{Sikl} + \alpha_l^{\text{district}} I_{Dil} \} + \varepsilon_i$$

I will not explain all the elements of this equation.¹⁴ It is used to evaluate teachers, to determine promotions and even retention, in New York City schools. It is based on the test scores of students, using school-wide and district-wide performance to generate expectations in every classroom. Where the statistical analysis itself finds variation, each teacher is held to an average standard which is, strictly speaking, a denial of the very methods used to drive the system. The *New York Times* writer who exposed this equation to the public found its use as distressing as I do. It was derived by the new education so-called experts, the ones who know nothing about the process of education, only the results, and then only results measured by multiple choice tests. I am happy to have left that field. I should not be considered to be, or ever to have been, an expert in it.

Part of my “teaching” was encouraging students to inquire, to search out alternative formulations of both questions and answers. I tried to give them tools both of conceptualizing and performing empirical analysis.

In one class, discussing the writings of Karl Polanyi and the rise of market capitalism, I asked where insurance came from. It seemed to me that over time, social relations are replaced by market relations.¹⁵ Insurance substitutes for family and friends. By first breaking up that circle—as family and friends move away from each other—and then by defining a legal system (that, strangely, becomes our moral system) in which no one is responsible for anyone else, markets created a problem, and then a solution. For example, we now meet people through a paid-for service, rather than through mutual interests and activities. Perhaps some of the students in that class have seen this happen in their own lives, and made non-market decisions, even anti-market decisions.

14 It appears, and is sort of explained, in Michael Winerip, “Evaluating New York Teachers, Perhaps The Numbers Do Lie,” *New York Times*, March 17, 2011 at A15.

15 “Arlie Russell Hochschild says free-market policies are undermining the family.” Photo caption in Patricia Cohen, “Among the Poor, Women Feel Inequality More Deeply,” *New York Times*, August 18, 2014. Where did she get that idea, 50 years later?

Michael Pollan was not in one of my classes. But he sees not only the point—that capitalism produces many of the problems it is then asked to solve—he sees a “movement” in reaction to it.

The cultural contradictions of capitalism—its tendency to undermine the stabilizing social forms it depends on—are on vivid display at the modern American dinner table.¹⁶

Unfortunately, but of course, that “movement” has many forces aligned against it.

It must be recognized that the current food system — characterized by monocultures of corn and soy in the field and cheap calories of fat, sugar and feedlot meat on the table — is not simply the product of the free market. Rather, it is the product of a specific set of government policies that sponsored a shift from solar (and human) energy on the farm to fossil-fuel energy.¹⁷

The road to a more aware and better organized society, organized for consumers, not producers, can be built only slowly, through education in its broad sense. One would like that education also to occur in its narrow sense, in educational institutions. That may take even longer.

Economists may talk about the economic consequences of capitalism, and even about forces affecting the “rationality” they assume in economic models. On the one hand they shy away from talking about the consequences of capitalism in other areas they have defined as the province of “sociology” or “politics.” Then, on the other hand, they suggest economic theory as a way to understand those problems, and markets as a way to solve them. Markets can sometimes solve. At other times, these “markets” create many more problems their sponsors refuse to recognize.

“Radical economics” as we taught it in the late 1960s was not (at least to me) an attempt to evaluate the economic system, as much as an attempt to ask different questions about it.¹⁸ I was quoted in *Time Magazine*:

“Which do you care more about,” asked Stephan Michelson, research fellow in economics at Harvard, at the A.E.A.

16 Michael Pollan, “The Food Movement, Rising,” (2010) as cited in Chapter 3.

17 Michael Pollan, “Farmer In Chief,” an open letter to whoever will be the next President, *New York Times Magazine*, October 12, 2008, at MM62.

18 George Stiglitz comments on the limited questions being asked in economics when he went to graduate school at that time. Most economists “were unconcerned about inequality,” he says, while also telling us that it was just this question that brought him into the field. “How Dr. King Shaped My Work in Economics,” *New York Times*, August 27, 2013.

meeting, “who is asking the right questions, or who has found answers to the wrong ones?”¹⁹

The point of those questions would be to make judgments, but the point of my teaching was to understand what questions were and were not being asked in the regular curriculum, or in the “outside” world, and to start asking different ones. What was “radical” was the questions.

Along with economists in university departments in much of the world, these [international] institutions succumbed to a quasi-religious belief that the free market was the germ of a single, universal economic system.

Not everyone swallowed this creed. It was not accepted in China, which then as now displayed a well-founded contempt for Western advice—an attitude that has had much to do with its astonishing success.²⁰

Some 40 years after it was “radical” to question the assumptions and consequences of free-market capitalism, and after every single “radical economist” had been purged from the Harvard faculty (save one who already had tenure),²¹ there is a tentative step within academia to raise the same questions. And now there is an alternative economy that, by some measures (the traditional ones!) does better than us, generating reason for these questions.

In its intra-academic varieties, at any rate, economics is insulated from the world not only by its narrow explanatory methodology but also because it rewards the mathematical modeling that resulted in nearly all of its members failing to anticipate the financial crisis [of 2009].

Indeed, as it became clear, in the 1970s, that Harvard would not grant tenure to any of the radicals in the economics department, these assistant professors asked what the criteria for tenure were. How were mathematical economists evaluated? How could these senior non-mathematical professors evaluate mathematical models, or their makers? Equivalently, how could they evaluate the radicals? Such questions were not answered, of course. The old guard professors may have been expert in their craft, but not in assessing their successors. That is one reason why universities

19 The article was titled “Stirrings From The New Left,” in *Time Magazine* January 12, 1970.

20 John Gray, “We simply do not know!,” a review of George Akerlof and Robert Shiller, *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism*, (Princeton, 2009) in 31 *London Review of Books* 22, November 19, 2009 at 14. Next indented quotation from the same source.

21 See Elias J. Groll, “Stephen A. Marglin,” *The Harvard Crimson*, June 1, 2009 (available on line), where Marglin is called “the last of a dying breed—the radical Harvard economics professor.”

so often fail to be the source for expertise, and why our economic system, relying on advice from academic so-called experts, has taken such a bad turn.

In choosing successors, university departments face the same problem the king faces. Before assessing contestants, both king and dictator (and families that control industrial stock) select by relationship, often unsuccessfully. One might consider a different succession method, or do away with kings entirely. Corporate officers, however, do need to be replaced, and we have seen some terrible succession decisions at Microsoft, Hewlett-Packard, Yahoo!, J.C. Penney and elsewhere. Education does not seem to help.

As my “radical” activities were not fundamental to my position in the School of Education, I might well have been granted tenure, had I stayed around. To accept tenure, as if I were an expert in education, would have been fraudulent. I went elsewhere, ultimately into the private sector, a move from which I, the university, and the practice of statistical analysis in law all benefitted. One might say, my individual behavior within the context of the private market did work. We learn to live with such contradictions.

Statistics

You may be unlikely to need an “expert” in statistics. Lawyers do, at least some of them. Reporters do, although they seem not to know it. They often present absurd “statistics” to make a point those figures cannot make. More generally, professionals sometimes need other professionals—in a field the first professional really does not understand—to perform a certain task. How well do they select?

I use statistics as an example, because it is the field in which I have been an “expert” in litigation for over forty-five years. An example of what? Of highly credentialed but non-expert people who not only put themselves up as experts, but convince others that they are. Lawyers may be expert in their own field, but are not expert at finding experts in another. Most “experts” they engage also may be good at doing what they do elsewhere, but are not good at this expert-in-litigation task.

Statistics is an impressive field. The goal, I think, is to derive useful information from data. Difficult problems are discussed and investigated in depth. Not all questions have “yes/no” answers, and statistics is clear that its answers, even if the question is asked that way, are weights toward one side or the other. Competing statisticians devise new tests. Competing software developers push at the

boundaries to deliver the first, the most easily used, the most comprehensive, the fastest software on all computer platforms.

At least, they try to. There is mediocre software, but it may be better than no software at all. There are many mediocre practitioners, but there are many capable ones, also. It is as easy to explain as it is distressing to find that the ones that appear in court are so often so bad. The explanation lies not in the field that supplies them, statistics (or economics, or sociology, or medicine, for example) but in the field that engages them—law.

Lawyers do not really want expertise, which is why law does not get expertise. It is why “experts” appearing in court seem so inept. They are. They are meant to be.

Melvin Belli—you’ve heard of him, the famous lawyer—laid it out clearly:²²

If I got myself an impartial witness I’d think I was wasting
my money.

If you were his client, paying the bills, you would agree. The attorney wants his expert committed to his—his client’s—point of view, which precludes being honest and objective. So the judge is to determine “fact” from the debate between two dishonest experts. Our legal system is based on the concept that truth emerges from competing lies.

Being biased is one thing, being incompetent is another. In the 1940s and 1950s some academics questioned whether psychology could be considered a science. One reason there was skepticism was that psychological measurements were less than rigorous. One way they were not rigorous was the use of ordinal data (first, second, third etc., where we do not measure the interval between places) in statistical procedures that called for “cardinal” data (1, 2, 3, etc., where the intervals between numbers are measured). A committee of the British Association for the Advancement of Science, formed in 1932 to formalize such distinctions, failed to do so in its final report in 1940.

Fed up, S. S. Stevens, a psychology professor at Harvard, published an article in *Science* admonishing his fellow psychologists for their arithmetic manipulations on ordinal data. He devised the taxonomy we accept today as describing fundamental differences among number scales.

22 Quoted in Adam Liptak, “In U.S., Expert Witnesses Are Partisan,” *The New York Times* (on line), August 11, 2008.

. . . the statistical manipulations that can legitimately be applied to empirical data depend upon the type of scale against which the data are ordered.²³

A summary of Stevens' classification, and its implications for what arithmetic procedures can be utilized on them, was devised by graphpad.com, and appears below.

OK to compute	Nominal	Ordinal	Interval	Ratio
frequency distribution	yes	yes	yes	yes
median and percentiles	no	yes	yes	yes
add or subtract	no	no	yes	yes
mean, standard deviation, standard error	no	no	yes	yes
ratio, or coefficient of variation	no	no	no	yes

The word “cardinal” does not appear in this graphic which makes a finer distinction between interval and ratio data. However, the chart does tell us how limited ordinal data are in terms of utilizing arithmetic functions on them. Clearly arithmetic functions like means (averages) require more information in one's scale than occurs with ranked data.²⁴

Economists came to an understanding of the limitations in scaling subjective qualities in the 1930s, studying consumer behavior. Prior to this time, economists assumed that there was a cardinal concept of “utility,” with units called “utils.” But there was no way to measure such things. The concept of subjective “utility” gave way to the concept of “revealed preference,” a behavior. The locus of prices at which a quantity of A was not preferred to a quantity of B, nor the other way around, was called an “indifference curve.” Theories of consumer behavior would have to be rebuilt on this new, ordinal basis. They were.

Thus it was distressing to find, in 2007, put forward as an “expert” in litigation, a PhD economist who did not know that rank orders (preference for A over B and B over C) were ordinal, and ordinal data could not be averaged.²⁵ It made me wonder

23 S. S. Stevens, “On the Theory of Scales of Measurement,” 103 *Science* 2684 (1946) at 677.

24 We think of temperatures in Fahrenheit or Celsius as cardinal, because, in each scale, a degree is a degree. However, they are not “ratio” data. You cannot say that 100°F is “25 percent hotter” than 80°F, for example, for in Celsius the hotter temperature is 41.7 percent higher than the lower temperature. In either metric you can calculate an average among observations, something you cannot do with ordinal data. What would it mean to say that a runner averaged 1.8th, if over five races she came in first in two, second in two and third in one? The description I just gave is a “frequency distribution,” which is how one would correctly describe this runner's history.

25 That “expert” was John J. Donohue, III. The judge, a mathematics major in college, did not believe him. See *In Re: Claims of Racial Disparity*, 2013 WL 5879422 (Conn. Super, 2013).

if Stevens' articulation of data types is no longer taught in schools—either *to* this “expert,” or, for sure, *by* him. Friends tell me that the nature of numbers—at least the difference between ordinal and cardinal—is taught in elementary school, and revisited in high school. I hope so, not only because people should know this content, but because these are great intellectual strides. We should be proud of them. What we used to believe, and how we have come to know what we know, teaches us how to move ahead, to become more skeptical about what we are told, and ultimately to become more knowledgeable and more creative.

The level of arithmetic incompetence displayed by this PhD litigation “expert” is extreme, but not unique. All too many “experts” perform impossible, impermissible or meaningless mathematical manipulations. That these fakeries are not caught by lawyers or judges is one measure of how uneducated we are. Neither lawyers nor judges can evaluate the expertise of the statistical experts they rely on. How will a judge determine who is “expert” enough to do what he says he is doing? Lawyers have no such need, because they do not care. Lawyers do not want real experts, and so the judges, unless they hire their own, seldom have access to one. But then, is the person the judge hires really an expert?²⁶

Furthermore, judges are loath to believe that a highly credentialed expert is as bad as the other expert claims him to be. After all, the judge got to be where he is by the same route, college and then graduate school. Not only does the putative expert not know eighth grade arithmetic principles, he does not know that he does not know them. So he scoffs at his opposing expert, parades his credentials, his recognition in the academic world. It is a sign of political success, not merit, that holding an academic position is considered a credential for solving a real-world problem. Academic credentials describe only success in academia. Expertise in many things, data analysis among them, comes from other than schooling, and is often best known and practiced by non-academics.

Art Forgery

As usual, let's start with a definition: A forgery is a work of art created by one person but attributed to another. This may sound like an easy distinction, but it is not sufficient as stated. Consider the art—or craft, it does not matter—of Dale Chihuly, probably the world's most well-known creator in glass. Except that he has

26 As the United States Attorney did not engage an expert, although plaintiffs did, Judge Gertner engaged Jeffrey Abramson to advise her about jury formation. Although Abramson does know the history of juries, he shows no analytic ability in *We, The Jury*, Basic Books, 1994. He misled Judge Gertner into a disastrously bad decision: *United States v. Green*, 389 F.Supp. 2d 29, (E.D. Mass. 2005).

not, physically, worked with glass since 1979, as the result of several non-glass related accidents. He hires others to do this work for him. This fact is somewhat disguised on Chihuly's web site, where the concept of "team" creation is extolled.

Renaissance artists often used apprentices to fill in background details in their paintings. "Experts" tell us—correctly or not, I would not know—which apprentice painted what parts of a master's painting, and whether that apprentice went on to some semblance of fame himself. The apprentice, however, did not get to sign the work.

Artists are encouraged to copy "the masters," to learn their techniques. That copy must have slightly different dimensions, so it will not be considered a forgery. Doing one's copying, and obtaining an art degree, hardly qualify one to be a detector of art forgeries. Nonetheless, we are told that there is such expertise, that certain people have it:

Detecting art forgery is not something that the average art collector can do with any degree of success. The science of catching the art forgerers is getting better, but the art of forgery is not far behind. Sometimes it seems they are usually ahead of the curve. For this reason, it is very important that you depend on those that are experts in the field.²⁷

"Experts in the field" eh? Like those in "an \$80 million art forgery scheme that duped dozens of experts" in New York? Paintings attributed to Mark Rothko, Jackson Pollock and Robert Motherwell "were, in fact, fakes created by an individual in Queens," confessed the woman who arranged the sales.²⁸ Maybe, as they were duped, we should not call them experts.

How do we determine who is an expert in this field? And who is writing this unsigned commentary on a web site that seems to be about many things, but not especially art? One thing for sure, forgery detectors got to be recognized as experts (whether they really are or not) through some means other than formal education. There is no such college major.

So art forgery is the false attribution of a work of "art" to someone other than the person (people) who actually made that art, excluding situations where the named "artist" approved—perhaps even sponsored—the work. Art forgery is not related to the quality of the art, even though it is related to the valuation of that work

27 <http://www.romow.com/art-blog/art-forgery-basics-how-to-tell-a-fake>.

28 William K. Rashbaum and Patricia Cohen, "Art Dealer Admits to Role in Fraud," *New York Times* September 16, 2013 at C1.

on the market. A true Leonardo, if deemed to be a forgery, would have little value compared to a fake Leonardo deemed to be real. Thus the question: What are “markets” valuing, and how? But that is not my topic. Here, what we need to know is that this “expertise” in detection is valuable because it affects market prices.

The forger can acquire the same expertise as the forgery detector. Ken Perenyi, an admitted (and successful) forger, prides himself “on my forensic expertise.” Two fake paintings of his, attributed to Martin Johnson Heade, were exposed, but two others were falsely authenticated by “experts.” Freed from silence by the statute of limitations, Perenyi is revealing all in a memoir, the film rights to which have been purchased by Ron Howard.²⁹ Can a forger become a film hero?

I am not sure what the opposite of a forgery is, but the case of Andy Warhol’s 1965 “Red Self Portrait” raises that question. The artist acknowledged the work as his own. It was included in a 1970 catalog that Warhol signed. Nonetheless, The Andy Warhol Art Authentication Board—so-called experts in his art—has denied its “authenticity.” So is it a forgery? Although Warhol made the silk screen, he was not present when it was printed, they say.³⁰ Where did that criterion come from? Were the masters always present when their apprentices filled in the backgrounds of “great” paintings?

Here is one description of how this so-called expertise is applied to art works:

This study applies laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) to the analysis of artist paints from different manufacturers to identify variation between the elemental association patterns of these materials. The technique facilitates comparison of the paints used by an artist with produced works of art to assist provenancing initiatives of questioned materials.³¹

Let’s pretend that we understand. The point is that detecting forgeries, through this method, is not about the quality of the art. It is about the characteristics of the materials used.

29 Ken Perenyi, *Caveat Emptor*, Pegasus Books (2012). See Dalya Alberge, “Master forger comes clean about the tricks that fooled the art world for four decades,” *The Observer* (London), July 8, 2012.

30 This nonsense, which has indeed greatly undermined the “value” of Warhol’s piece, is described with more patience than I could ever muster in two articles by Richard Dormant in *The New York Review of Books*: “What Is An Andy Warhol” (October 22, 2009) and “What Andy Warhol Did” (April 7, 2011).

31 Kari Smitha, Kristin Hortona, R. John Watlinga and Natalie Scoullarb, “Detecting art forgeries using LA-ICP-MS incorporating the in situ application of laser-based collection technology,” 67 *Talanta* 2 (August 15, 2005), quotation from the abstract.

No one goes about detecting forgeries caring only about the work of art itself, the art *as art*, as a viewer responds to it. Concern is about the price the art piece will fetch. The material on which the art is made must be dated to include the lifetime of the artist, as must the paints or other material used. That is, some science must indicate that he *could have* made the work. That is why chemical engineers investigate properties of paints

Another clue that the named artist really did have a hand in making the work would be a fingerprint. It is not hard to believe that some artists left fingerprints on the back of a painting, or even on the front, while smoothing in and blurring some paint. Even if so, is fingerprint analysis itself “science” such that one can establish this relationship between the named artist and the art?

As fingerprint evidence, proffered by “experts,” has been used to convict people of crimes, it has been investigated by academics interested in concepts of proof. Most—or at least most who write about it—have concluded that fingerprints, handwriting and other forensic “sciences” are not science at all.³² Nonetheless, fingerprints have a long history of successful identification, as well as some history of misidentification.

To ask that “science” be 100 percent accurate seems like a stretch.³³ I do not think the so-called “experts” who ask that courts systematically reject fingerprint analysis are any more “scientific,” or “expert,” than the forensic “experts” who come to court, identifications in hand. Unfortunately, the craft of forensic science *claims* 100 percent accuracy (known mis-identifications are that craft not done right, they say). If every practitioner of science and forensic analysis would come to court with a verifiable error rating, telling judge and jury how accurate he/she has been in the past, justice would be better served.

In the area of detecting art forgeries, however, the possibility that the artist has left traces of himself in his work, and that such traces can be used to identify him, has attracted considerable attention. So much so that one has to ask whether the

32 See, for example, D. Michael Risinger and Michael J. Saks, “Science and Nonscience in the Courts: *Daubert* Meets Handwriting Identification Expertise,” 82 *Iowa Law Review* 21 (1996). Robert Epstein, “Fingerprints Meet *Daubert*: The Myth of Fingerprint ‘Science’ Is Revealed,” 75 *Southern California Law Review* 605 (March 2002).

33 The most well-known misidentification by fingerprint was of Brandon Mayfield, an Oregon attorney, whose print was claimed to have been found in Madrid, Spain, in 2004, at the site of a terrorist bombing. See David A. Harris, *Failed Evidence*, NYU Press (2012). There have been others, also. See Moises Mendoza and James Pinkerton, “Botched fingerprint analysis raises questions,” *The Houston Chronicle*, June 15, 2010. Go to <http://www.chron.com/disp/story.mpl/metropolitan/7055397.html>.

“expert” who has verified many pieces of art by finding fingerprints thereon really did. Perhaps he placed the fingerprint there in the first place.

An “expert” was asked to verify that a work of art was painted by Jackson Pollack. He concluded that it was, because he “found” fingerprints on the back of the painting that matched one found on a paint can in Pollack’s studio. However, another fingerprint “expert”—if there can be such a thing—determined that the fingerprints themselves were forged (placed on the art work from a cast of the paint can print). One might conclude that the work of art was a forgery, but the owner does not want to draw that conclusion, because it would make the piece less of a treasure.³⁴ Nor would the absence of a real print indicate that Jackson Pollack did *not* paint it. However, the lack of evidence casts doubt on the art work’s provenance, and thereby lowers its value. Another strike, I would say, against markets. It says nothing about who painted the work, or how good a work of art it is.

The inevitable result of the failure of “experts” to authenticate art works is to take the rascals to court.³⁵ And the inevitable result of not wanting to be sued, is to refuse further to authenticate.³⁶ Prices are determined by the pronouncements of “experts,” rather than by the likes and dislikes of art consumers.

This all shows the foolishness of buying art, as buying a house, for its “investment” value. The consumer should be his own expert, purchasing that which makes him feel better than would having the money. If we focus on the consumer, then “education” should be about appreciating a work of art, not about estimating its market value. Either the “expert” can do what he says, and is an expert, or he cannot, and is not. As in law, the expert whose conclusions do not favor his client will find himself without any. The market systematically deprives us of true, honest expert judgments. If that judgment has no relationship to our enjoyment of art, then perhaps there is no reason why anyone should be doing it.

Art Restoration

The same knowledge base required for a forgery is required to restore a genuine work of art. And art restorers, apparently, think that is *all* the information

34 David Grann, “The Mark of A Masterpiece,” *The New Yorker*, July 12, 2010.

35 Which rascals? Apparently the forger of over \$80 million in “fine art” sales is not being prosecuted or sued. The dealer who authenticated the obviously false paintings, is. See “One Queens Painter Created Forgeries That Sold For Millions, U.S. Says,” *New York Times*, August 16, 2013 at A26.

36 Patricia Cohen, “Lawsuits Deter Experts From Authenticating Art,” *The New York Times*, June 7, 2012. I would have used the phrase “So-Called Experts” in the headline, as their very action indicates their self-doubt.

they need, the technical information about the composition of paints, how the artist held the brush, indeed, specific details about the brush, etc. They learn some of this in school, and the rest as an apprentice in a museum's restoration facility. What they can learn in neither place is to be curious what the painting is about, so the restoration will be faithful to the artist's intent.



The example above was brought to my attention by Joy Boutrup, a remarkable Danish textile chemist who has developed an interest in braids: how they were made, what they have been used for.³⁷ She notes, for example, that the wax seals that were attached to middle ages contracts were attached first to a braid (embedded in the wax), which then passed through a hole punched in the side of the contract. Today, we would attach such a seal to a contract with a braid or string we would purchase at the local office supply store. Hundreds of years ago, though, anyone of a station to have a seal also had his own hand made braids. The braids that attach the seals are as special as the seals themselves.

Anyone who has seen such items has noted that the seals are different, even taking on special shapes according to the standing of the person whose seal it was. Joy, who is truly an expert, has also noted that the braids are different, unique to the

³⁷ See, for example, Noémi Speiser and Joy Boutrup, *European Loop Braiding*, published by Jennie Parry, 21 Phillip's Road, Leicester. LE5 5TR, UK.

owner of the seal. She has determined how they were made, and has rejuvenated the craft of hand-braiding.

Joy has also researched the documentation of making braids by hand, finding some in paintings. For example, consider part of a fresco from the Fifteenth Century in Italy, above. What is the lady on the right doing? Why are her hands in such a rigid position? For that matter, what is the lady in the middle doing? Why is she holding a shears and looking so intently at the lady on the right? It does not matter that you do not know, but it matters greatly that the “expert” art restorer did not know.

The lady on the right is hand-braiding. She is creating a braid out of threads, just as the lady on the left is creating a needle-point work out of threads. The threads may well have been spun from wool (shears such as these are used today to separate wool from sheep), and at least some were dyed red. In hand-braiding, or “loop-braiding,” many loops of yarn are tied at a fixed point (no doubt where the lady on the right is looking), looped around up to nine fingers, and then exchanged, moved from one hand to the other, by grasping either the upper or lower part of the loop. Both which part of the loop is pulled, and which loop is moved where, act to make the specific braid design. The crooked little finger on the lady’s left hand is a particular give-away that this is the activity in which she was engaged. If you do not bend your fingers, the loop will slide off.

If you look with magnification, you can see some red lines going from the lady’s hands to a leg of the left-lady’s chair. That is the fixed point of the braid, just where the right lady is looking. When the braid is completed, and a knot is tied to keep it from unraveling, the loops and the bottom part attached to the fixed point are cut off—as the woman with the shears is prepared to do. In short, all three ladies are engaged in productive work, producing useful items from yarn.

The art conservator who touched up this painting, however, had no idea that was what these ladies were doing. You must wonder, did he even try to find out? Was he so “expert” in art restoration that he thought he did not need to know what the painting was describing? He painted out the braid yarn! He creates a puzzle—what are these women doing?—where the original artist intended to transmit information, to show us that they were engaged in skilled activities. The owner of the fresco, who engaged the art restorer, obviously had no better an idea what the painting was about. And so the “expert” art restorer painted out lines of yarn carefully placed there by the artist, converging to a point itself not in the painting,

but understood by all contemporaries as the required stationary point from which loop braiding occurs.³⁸

We see, again, how “education” is not the answer to the question “where does expertise come from?” That is, education in the largest sense is indeed the answer, but educational institutions may not be. Whether trained in a school or, more likely, through apprenticeship, this art restorer did not have the expertise he claimed to have, and as much destroyed as restored the painting.³⁹

Literature and Music

Whatever goes on in “art” goes on in “the arts.” Fritz Kreisler, the violinist, “exposed” pieces he at first credited to other composers, even as well known as Antonio Vivaldi. As Wikipedia tells us,

When Kreisler revealed in 1935 that they were actually by him and critics complained, Kreisler answered that critics had already deemed the compositions worthy: “The name changes, the value remains” he said.

Kreisler is speaking about “intrinsic” value. The monetary value of a piece of music is very connected to the name of the composer.⁴⁰ Thus, for example, in the summer of 2013 there was some commotion about finding the sheet music for Benjamin Britten’s orchestration of Chopin pieces, for the ballet.⁴¹ If the Britten arrangement is superior to the more common arrangement by Roy Douglas, why did it fall out of favor? But now only one of these composers is known, so finding his score is a value.

In terms of monetary value, Kreisler was wrong, or there never would be forgeries. Literary forgeries, that is, attribution to others of self-created works, go back at least to the Ossian poems of James McPherson in 1760. James McAuley and Harold Stewart foisted a similar hoax on the public—similar in that the “author” was a made up name. Ernest Lalor “Ern” Malley was supposed to have written the poems

38 This fixed point can be one’s big toe. Some Japanese paintings show the whole process, including use of the toe to stabilize the braid. The identification I have for this painting is that it is a detail from “The Triumph of Minerva,” a fresco at Palazzo Schifanoia in Italy. It is reproduced here with permission from *Art Resource*.

39 Nor do people today understand this fresco. Painted by Francesco Cossa around 1476-84, it can be found at http://www.wga.hu/frames-e.html?html/c/cossa/schifano/1march/1march_1.html, where the women are described as “doing needlework (the symbol of woman work).”

40 Ariel Sabar writes: “Not a few forgers over the decades have been driven by a desire to show up the experts.” “The Unbelievable Tale of Jesus’s Wife,” *The Atlantic*, July/August, 2016.

41 Michael Cooper, “Mystery of The Missing Music,” *New York Times* August 28, 2013, at C1.

that McAuley and Stewart penned in one day in 1944, successfully setting back the cause of modern poetry in Australia. Clifford Irving's fake *Autobiography of Howard Hughes*, and *The Hitler Diaries* by Konrad Kujau were famous—and profitable—because they were put forward as written by those whose names are on them. So there is a point to authentication of authorship, but the Hitler diaries *were* authenticated by the so-called expert Hugh Trevor-Roper. Oops, his bad.

Then we have the issue of authentication of facts. The most notable illustration is James Frey's *A Million Little Pieces*, a supposed autobiography published in 2003 which, it turned out, was largely fiction. Alex Haley's *Roots* revisited. People, apparently, are not even expert at themselves, at being who they are. Or they are not expert at telling others who they are. Surely we have all experienced that self-inflation, someone turning out to be different from his self-advertisements. We see people placing degrees they did not have on their resume, for example. Interestingly, we use the word "forgery" only when the author hides behind other names, as did Kreisler, Clifford and Kujau. A more general term would be "fraud." So many so-called experts fit under that term!

Are either the renaissance paintings or Chihuly's glass pieces "forgeries?" If Chihuly's work is considered authentic, why is Warhol's not? Can the fact that the artist whose name appears on a work *knows* who made it—and that it was not him—affect our view of it? That fact would not distinguish between Chihuly and Warhol. Perhaps there is one standard for painting and glass, another, looser standard for music, where it is not a forgery if it has been *approved* by the named artist, regardless who made it. Thus, the famous Millie Vanilli lip synching of music made for them, by others, should not be disparaged. They approved the singing, although they were not the singers.

You may gag at that thought, but what is the principle here? Milli Vanilli (a 1980s group) had no talent, so one would not say that others "forged" *their* music.⁴² The first records of The Monkees (in the 1960s) have the same characteristic: The people we saw on television contributed vocals, but did not play the instruments. Like Milli Vanilli, they were accused of fraud. I do not think that either set of recordings, made with the artists' full cooperation, can be called "forgeries," although

42 Milli Vanilli appeared to be Fabrice Morvan and Rob Pilatus, who lip-synched while others actually sang. Morvan "surveys today's often-synthetic music scene and poses a simple question: 'Authenticity — what is it?'" Jerry Shriver, "Milli Vanilli frontman says duo were musical 'scapegoats'," *USA Today* January 28, 2010. Morvan's question is relevant to his life, but I would not rely on him for expertise to answer it.

neither should they be called the creations solely of those whose names appear on them.

Judicial Affairs

In court, only people “certified” as “experts” can give their opinions about facts they infer from data. The ordinary citizen cannot do so. The ordinary citizen is restricted to recounting information he or she “knows,” say by having been at an incident as it was unfolding. Both technical conclusions (is this document a forgery, for example) and larger concepts of fact—generalizations about the world—are reserved for experts.

Eye witnesses, also, testify about fact. Unfortunately, eye-witness testimony is unreliable. It is more unreliable the further is the testimony from the act. When a defendant has been accused of having done a particular act, the accusation itself may influence how witnesses recall the facts:

Dozens of studies have shown that witnesses’ memories of events often change when they are supplied with new contextual information. Itiel Dror, a cognitive psychologist who has done extensive research on eyewitness and expert testimony in criminal investigations, told me, “The mind is not a passive machine. Once you believe in something—once you expect something—it changes the way you perceive information and the way your memory recalls it.”⁴³

But arson—now there’s a topic that can use some expertise. How a fire started and progressed can often indicate who set it or, more importantly, who did not.

Many arson investigators, it turned out, had only a high-school education. In most states, in order to be certified, investigators had to take a forty-hour course on fire investigation, and pass a written exam. Often, the bulk of an investigator’s training came on the job, learning from “old-timers” in the field, who passed down a body of wisdom about the telltale signs of arson, even though a study in 1977 warned that there was nothing in “the scientific literature to substantiate their validity.”

I extol learning-by-doing throughout this book. That is how most of us have learned most of what we know, or think we know. For “doing it,” to be meaningful, must mean doing it well. Finding out how old-timers investigate fires is not a credential for a new-comer, if the old-timers did it badly.

43 David Grann, “Trial By Fire,” *The New Yorker*, September 7, 2009. Next quotation, same source.

They did. Arson investigators have traditionally learned, used, and taught notions that were provably untrue, such as that an accelerant (gasoline, lighter fluid, etc.) would leave a brown spot on concrete, or that “cracked glass” came only from rapid heating caused by such an accelerant. Neither is correct. In experiments, heating glass in a fire never caused the “crazing” that was supposed to indicate the presence of an accelerant.

Crazing is caused by the rapid cooling of window glass, as when water from a fire hose strikes a hot window.⁴⁴

Following the Texas execution of Cameron Todd Willingham, and a review by The Innocence Project finding no scientific evidence pointing to his having started the fire in which his children died, a commission was established to review cases that ended in death sentences from “expert” testimony by arson investigators. Rather than find that the state’s witnesses had been in error, it acted like most commissions, which is to say, it did not act at all. It

concluded that the evidence in Willingham’s case was deeply flawed but failed to address whether the original fire inspector had been negligent.⁴⁵

We cannot even appoint expert commissioners, or at least those willing to come to a conclusion that would displease higher authorities! Although a judge did accept that the fire evidence was not conclusive, Willingham was executed anyway.

In another Texas trial, we are told, the following happened:⁴⁶

During the presentation of evidence at the penalty phase of Mr. Buck's trial — when the jury was required to decide between the death penalty and a life sentence — the trial prosecutor elicited testimony from a psychologist for the defense indicating that Mr. Buck's race made him more likely to be violent in the future.

The prosecutor asked, “You have determined that the sex factor, that a male is more violent than a female because that's just the way it is, and that the race factor, black,

44 “Seven Myths About Arson,” side-bar in Douglas Starr, “Up In Smoke,” *Discover Magazine*, November, 2011 article at 36, side-bar at 39.

45 Starr, “Up In Smoke” at 41.

46 Charles J. Ogletree, Jr., “Condemned To Die Because He Is Black,” *New York Times*, August 1, 2013, at A1. The story does indicate inexpert testimony that should have been excluded. But the title of the article suggests a cause and effect ignoring that Mr. Buck was, in fact, a murderer.

increases the future dangerousness for various complicated reasons; is that correct?”

“Yes,” the psychologist, Walter Quijano, answered.

Because a finding of future dangerousness is a prerequisite for a death sentence in Texas, the prosecutor then argued in closing that the jury should rely on that race-based expert testimony to find that Mr. Buck would pose a future danger. The jury accepted the prosecutor's recommendation, and Mr. Buck was sentenced to death.

Despite all the litigation reforms people have suggested that Texas adopt, I know of no serious attempt to prevent such clearly non-expert testimony from occurring.

Federal Support For Education

As formal education, at least through high school, is controlled by a political bureaucracy, we might ask what we know about the best way to organize it. Through high school, and from state colleges and universities into college and graduate study, some large part of the funding comes from us, the taxpayers. Should we have some control?

It seems so reasonable. Aren't we the experts in what we want our children to be taught? We are. But are we experts in what our children *should* be taught? That is a different and altogether more difficult question.

Education in The United States has not achieved great success, by standard measures. Indeed, worse than our “rating,” our standing among other countries, is the fact that we have paid enormous sums for which we have gotten little.

The table below provides 2009 rankings of samples of high school students, by country:⁴⁷ From science scores, the United States is ranked 21st in the world. In math, we are ranked 29th, next to the bottom. At least in reading English we are noticeably above the average, at 16th. Traditional jingoistic attitudes—“we are the greatest,” etc.—serve no useful purpose. If one accepts these standards, we are not close to the greatest. We do not serve our children well, whether by test score or the more real learning I have been discussing.

This general picture is well-known. Yet there is no political intelligence to deal with it. The prevailing mood seems to be “get government out of our schools,” which

47 Table accompanies this article: Sam Dillon, “Top Test Scores From Shanghai Stun Educators,” *New York Times*, December 7, 2010 at A1.

is absurd. That the usual target is the federal government does not save the logic. Where would we rank in the world if the federal government provided no support for education?

Prior to 2009, China did not participate in this testing. Here, we can believe that Chinese students were specially selected to take this exam. Although China's scores are not comparable to those of other countries, still, they are impressive.

With China's debut in international standardized testing, students in Shanghai have surprised experts by outscoring their counterparts in dozens of other countries, in reading as well as in math and science, according to the results of a respected exam.⁴⁸

Despite the sampling issues, the non-random selection of Chinese students, referring to "the culture of education," this article continues in admiration of the system that produced such capable students. There is an understanding by Chinese administrators of how to teach, and an understanding—and desire—by students of how to learn.

Tom Friedman reports:

[I]nternational education experts were stunned by the fact that students in Shanghai outscored their counterparts in dozens of other countries, in reading as well as in math and science, according to the results of the widely respected Program for International Student Assessment, or PISA, tests, which measure learning by 15-year-old students in 65 countries. . . . [T]he best of China is now scoring better than anywhere else in the world. America's 15-year-olds ranked 14th in reading skills, 17th in science and 25th in math, below the average.⁴⁹

I do not know why he or others were surprised. If they were, I do not know why they are called "experts." We know that China can get things done, where we cannot. We know that China does not want its industry to depend on making plastic toys for western children. We know that China sees the education of its youth as a major solution, along with building urban centers to which those youth will migrate. Apparently making plastic toys will be left to us.

48 Sam Dillon, "Top Test Scores . . ." cited above. An alternative source for the scores is http://www.geographic.org/country_ranks/educational_score_performance_country_ranks_2009_oecd.html.

49 Thomas L. Friedman, "Still Digging," *The New York Times*, December 8, 2010 at A35.

An International Education Test

The Organization for Economic Cooperation and Development has released the results of its 2009 PISA (Program for International Student Assessment) test of 15-year-old students in 65 countries. In the Math and Science tests, all participating regions of China outperformed the United States.

SCIENCE	PISA SCORE	READING	PISA SCORE	MATH	PISA SCORE
Shanghai, China*	575	Shanghai, China	556	Shanghai, China	600
Finland	554	Korea	539	Singapore	562
Hong Kong, China	549	Finland	536	Hong Kong, China	555
Singapore	542	Hong Kong, China	533	Korea	546
Japan	539	Singapore	526	Taiwan	543
Korea	538	Canada	524	Finland	541
New Zealand	532	New Zealand	521	Liechtenstein	536
Canada	529	Japan	520	Switzerland	534
Estonia	528	Australia	515	Japan	529
Australia	527	Netherlands	508	Canada	527
Netherlands	522	Belgium	506	Netherlands	526
Taiwan	520	Norway	503	Macao, China	525
Germany	520	Estonia	501	New Zealand	519
Liechtenstein	520	Switzerland	501	Belgium	515
Switzerland	517	Poland	500	Australia	514
Britain	514	Iceland	500	Germany	513
Slovenia	512	United States	500	Estonia	512
Macao, China	511	Liechtenstein	499	Iceland	507
Poland	508	Sweden	497	Denmark	503
Ireland	508	Germany	497	Slovenia	501
Belgium	507	Ireland	496	Norway	498
Hungary	503	France	496	France	497
United States	502	Taiwan	495	Slovakia	497
AVERAGE SCORE	501	Denmark	495	AVERAGE SCORE	497
Czech Republic	500	Britain	494	Austria	496
Norway	500	Hungary	494	Poland	495
Denmark	499	AVERAGE SCORE	494	Sweden	494
France	498	Portugal	489	Czech Republic	493
Iceland	496	Macao, China	487	Britain	492
Sweden	495	Italy	486	Hungary	490
Austria	494	Latvia	484	Luxembourg	489
Latvia	494	Slovenia	483	United States	487
Portugal	493	Greece	483	Ireland	487

*In the study, China was represented by the city Shanghai and by the administrative regions Hong Kong and Macao.

Source: Organization for Economic Cooperation and Development

This is not just a funding matter. Of course people will take money from external sources. It is the federal “control” they do not want. Parents, apparently, think they have rights to my money, but I have no right to a say in how it is spent. However, all of us have an interest in every child’s education, whether parents like it or not. It is like zoning or anti-pollution or clean-up rules: Everyone who breathes has a legitimate interest in what comes out of your vehicle’s exhaust. Everyone in the neighborhood does have an interest in what you do with your property. Where that interest is trumped by the rights of property ownership is a matter for debate, but the principle that others have legitimate interests—therefore “rights”—concerning what you do with your property, or your children, should be the foundation for such debates. Thus we need to ask first what are our (the general population’s) interests in education; and second, how can we get those interests realized?

Standardized nation-wide testing, with federal funds following scores, has led to cheating at all levels. Particularly by teachers, who are evaluated by their charges’ scores. In Georgia, the governor investigated.

“The amount of cheating is staggering,” said Ben Scafidi, the director of the Center for an Educated Georgia, which promotes education reform. Dr. Scafidi said he was concerned that the state did not flag enough schools, and that the districts were being asked to investigate themselves.⁵⁰

There had been an “unusual” amount of erasures, changing wrong answers to correct answers, on standardized test forms. What did the governor’s investigators do that might have led to an under-count of the cheating?

In the analysis, CTB psychometricians scanned answer documents to identify total erasures per classroom, flagging those classrooms in which the number of wrong-to-right changes proved to be three standard deviations (SDs) or more above the state average. Less than 0.15% of test takers would be expected to fall in that range naturally.

Based on the analysis, schools were placed in varying categories according to their percentage of flagged classrooms. 80% of Georgia’s elementary and middle schools fell into the “Clear of Concern” category, meaning less than 6% of the classes within a given school were

50 Shalia Dewan, “Georgia Schools Inquiry Finds Signs of Cheating,” *New York Times*, February 11, 2010.

flagged; 10% fell into the “Minimal Concern” category with 6%-10% of classes flagged; 6% were determined to be in the “Moderate Concern” category with 11%-24% of classes flagged; and only 4% were termed “Severe Concern” as defined by a school having 25% or more of its classes flagged for wrong-to-right changes.⁵¹

The state average is set as a standard? How can we know what the true state average is, if some of the scores have been fabricated? Let me suggest an alternative. As “everyone” taking the test includes the truly smart and educated kids (there must be some) who do not require *ex post* correction to score well, why not set the number of erasures on *their* exams as a standard? Is it that hard in Georgia to get a commission that actually can do what it is mandated to do? Just as in Texas, apparently so.

As I do not have access to these data, let’s see what we can do without them. We will set as a standard some average amount of both pupil correction and teacher cheating, and figure that randomly there is a distribution of erasures around that standard. You aren’t stupid to cheat, only to cheat *too much*. So how do we define “too much”?

Even though a Normal distribution of variation around the mean would imply that fifteen hundredths of one-percent of the exams randomly would have many (more than three standard deviations above the mean) erasures, schools with 40 times that rate (6 percent divided by .15 percent) were flat-out exonerated, “clear of concern.” A school had to have 167 times the expected erasure rate (25 percent divided by .15 percent) to generate “severe concern.” So it is not stupid to cheat more than the average, even a lot more than the average, just not *gigantically* more than the average. That is the standard in Georgia.

It would be easy enough to generate scores before erasures, by assuming that all erasures corrected incorrect answers. Re-score every exam (this can be done on a sample), and graph the pre-re-score grade with the number of erasures. My prediction: The erasures will be clustered near what would have been the lowest scores. The point of the cheating was to reduce the number of failures (which would also raise the average) not to create the appearance of star pupils.

If I am right, then the kids most in need were told that they are not. The kids who are educationally disadvantaged, who have not done well on our tests, are

51 (Georgia) Governor’s Office of Student Achievement, “Spring CRCT Analysis Results,” February 10, 2010. See also Shalia Dewan (February 11, 2010) cited above.

abandoned rather than helped. They will go on to be uninformed voters and unemployed “workers.” As a citizen, I have a great interest in raising the skills of those who have few, quite as much as I care about letting students with high skill sets find ways to utilize them.

Teachers who made these corrections opposed rating children on these tests. They think their schools were improving, but that improvement was mis-measured by national “objective” tests.⁵² Not being an education expert, I do not have an answer, but neither do those who claim to be such experts. The most important questions are a) should we test all students on the same curriculum (apparently not valuing “diversity” in this area); and b) if so, to what use should those test scores be put? Somehow, the ability to measure has dominated questions about what to measure and what to do with the measurements. The measures that tell us that the children are failing are themselves proof that the adults are failing.⁵³

Incentives lead to actions, and not only in Georgia. Pennsylvania, we are told “became the latest in a growing list of states facing a cheating scandal.”⁵⁴ A growing list of states! Teacher cheating is rampant.

Cheating teachers do not confess to their students. And probably not to parents, either. So, when the graduates fail to perform well in low-paying jobs, it is seen as the kids’ fault, not that of their teachers, not of their schools, not of the administrators. In Atlanta, some parents asked that their children be held back, understanding that they did not really qualify for promotion. But they were promoted.

This is nasty business. It could make you think that local control of education is the way to go, that any federal interference distorts everything. So let’s look at local control.

Local Control of Education

At its extreme, local control of education means that parents want teachers to espouse their values, not even entertaining the idea that there can be other legitimate value systems. That has led some parents to elect school boards that instructed their

52 See Rachel Aviv, “Wrong Answer,” *The New Yorker*, July 21, 2014 at 54.

53 In Atlanta, 178 educators—but not the administrators who may have pressured them into this cheating—were indicted on racketeering charges. Twelve went to trial, the others having admitted guilt in a plea bargain or died before the trial date. Eleven were convicted. See Alan Blinder, “Atlanta Educators Convicted in School Cheating Scandal,” *New York Times* April 2, 2015 at A12.

54 Michael Winerip, “Pa. Joins States Facing a School Cheating Scandal,” *New York Times*, July 31, 2011. Winerip calls the Atlanta study “the gold standard.” My, how little expertise there is!

schools to teach that “evolution” is an ideology of infidels, that “creationism” is science. Mark Twain’s *Huckleberry Finn* has been banned from many a public school library. Using it in a classroom remains controversial.⁵⁵ Most attempts to “teach” the book end in failing to explain why it is important to retain its language, why it was a major contribution to American literature, and why the character Jim is not as fully developed as we would like to see him, today. It should be added that only now, more than 100 years later, are we allowed to read Mark Twain’s autobiography as he wrote it. Even that work was censored (albeit by Samuel Clemens himself) in his time.

I think it is important to combat the jingoism referred to above, and to confront our own history. I do not know if the phrase “ontogeny recapitulates phylogeny” is as used today as it was in my youth, but although not true in fine detail, it contains an important concept. Also called “the biogenetic law” or the “theory of recapitulation,” it arose in the nineteenth century contending that an embryo develops in the same stages that the creature went through in evolution.⁵⁶ An analogy—not perfect, but not irrelevant—is that children go through stages of development not unlike those that societies have gone through. We now hear “the N-word” so much that I wonder how many people know what the “N-word” is. If they do, why are we trying to hide it from them in the books in which it was written? That the word “nigger” appears often in *Huckleberry Finn*, a book that tries to portray an ex-slave as a dignified human, should be part of the lesson. That it is used often in black popular culture, but forbidden to whites, should at least be discussed. Part of that discussion might include words that are bleeped on television, while there is visible evidence what word has been spoken, and children old enough to be watching surely know that word.

The bleep is often anticipated, replaced by a euphemism. You never hear the word “fucking” on television, but often hear “frigging,” or “freaking.” Why is “bullcrap” acceptable but “bullshit” is not? Children know hypocrisy before they know the word for it. Schools are missing their ability to teach nuance, to teach how a well-placed word—no matter what word—can convey more meaning than a badly written paragraph. If we want children not to hear or use words they know perfectly well, we

55 Wikipedia’s entry for *Huckleberry Finn* describes some of the controversy surrounding this book, including the fact that it was banned, at one time, from the Brooklyn Public Library.

56 The articulation of this law is attributed to Ernst Haeckel, whose 1868 graphic portrayal of stages of growth, from embryo to animal, is now known to have been somewhat falsified. See Nick Hopwood, *Haeckel’s Embryos: Images, Evolution and Fraud*, University of Chicago Press (2015).

should not magnify the importance of those words, and deny the importance of the freedom to use them. What are we teaching our children?

In a class, I would discuss other words used to denigrate other classifications of people: Spick, Heinie, Polack, Kraut, etc. This is tough stuff, but the fact is that children should know about the poor behavior of their parents, or their grandparents, including segregation, employment discrimination, red-lining and lynchings. They should learn that words have literal and implied meanings, and therefore that context and tone are important. They should learn to respect all kinds of people to the point, some day, when their slang epithets will sound humorous, absurd. We keep those words alive in our silence about them.

The point is to be better than previous generations, not to replicate them. I thought we set up educational institutions to do just that, to be broader than we are, so our children do not learn what we know, but much more. And that is the fundamental problem with local control.

In the south, Civil War “heroes” are glorified without discussing what they were fighting for. The whole racist past of the south is, pardon the expression, white-washed in schools, the very place in which it should be taught.⁵⁷ Local control of education leads to a blindness of the past, a denial of progress. It leads to replication of degenerate ideas.

This occurs not only in literature, but in mathematics and science. The impact of northerners on my small town is apparent in stores, in bakeries and restaurants. From my point of view, that is all to the good. Three Thai restaurants may be too many, but when I moved here more than twenty years ago there was none, as there was no crisp-crust sourdough bread, and one could not find kim chee in any grocery store. Northerners immigrated here to retire, looking for variety in their purchases, patronizing restaurants (even one serving raw fish!), but paying little attention to the schools.

Local control is firmly in the hands of long-time residents who are universally well-meaning and legitimately concerned for the future of the children. But are they expert in choosing their educators, or even the topics they want their schools to address? Is their goal to open their children to information they themselves do not

57 One result is that the Civil War is *celebrated* in the south, especially concentrating on southern “heroes,” and ignoring slavery. See Katherine Q. Seelye, “Celebrating Secession Without the Slaves”, *New York Times*, November 30, 2010 at A20. I trust Germans do not celebrate the onset of World War II, while ignoring pogroms, Kristalnacht, and the holocaust. How is that war taught there? Or in Japan?

have, or to so blind their children that they will be closed to receiving that information later?

Education is perhaps the most difficult field in which to ask this question. I do not know who is expert in teaching or in school administration. I do know the best way to be sure we are denied expertise: Maintain local control, hire locals, and teach what the parents already know and/or believe. Expertise is inherently corrupting of the certainties that guide our lives. Like lawyers selecting experts, I do not think any local school board actually wants it.

Schools For The Future

One of the largest and most difficult of tasks facing a school committee is planning for the future. Who knows what the demography will be in ten or twenty years? Or, for that matter, what the laws will be. I listen to public radio from Charlotte, with its famous (for a strong desegregation order) Charlotte-Mecklenburg School District (called CMS, without explanation, such that it can take a while to realize what a news story is about). They are opening schools, closing schools, changing the grades a school will house, or the curriculum it will feature. The CMS school committee does not seem to do it very well. Their not being expert at their jobs does not mitigate the fact that their jobs are extremely difficult. Perhaps how badly they do will be a lesson to the students to be wary of false expertise.

What strikes me as surprising is not the uncertain future, but the lack of incorporating that uncertainty into school system plans. As a *Charlotte Post* reporter observed,

The only certainty about Charlotte-Mecklenburg Schools' overhaul plan is uncertainty.⁵⁸

She continued:

Final recommendations were presented by staff less than two weeks ago but have since changed and may change again before the school board's Nov. 9 vote, which could impact 50,000 students and 70 campuses.

One of the new changes was a recommendation to close Harding University High School, pictured here, its name being an indication of its intent when built in 1992.⁵⁹ Besides a college preparation bent, it also featured science and

58 Michaela L. Duckett, "We have made a mess of things," *Charlotte Post*, November 4, 2010.

59 The term "university college" connotes a college that prepared its students for graduate school. See Christopher Jencks and David Riesman, *The Academic Revolution*, Doubleday (1968) at 24.

mathematics, containing hard-built science labs that cannot economically be moved. One can learn from those past mistakes. First, laboratories can be built in modules that *can* be moved. A little more cost down front, a lot less later. Second, being modular, those units could be replaced. Who knows what “science” in high school will be in twenty years? Or whether Harding should specialize in that field? Past planners, we can conclude, were not expert at this planning task. And current planners seem to be no better.



One of the characteristics of Harding is its college look—multiple separate buildings surrounding a quadrangle. This causes concern to parents at other schools who might be sending young students to Harding. This school board seems to be starting with parental wishes and worries, rather than starting with the properties they have and the need to consolidate. Like their predecessors, they have been

elected to exercise a skill they do not have.

What would “expertise” in facilities planning be? How would a local school committee get it? They would hire experts, of course. These so-called experts could be asked to make suggestions, not decisions. It is the school committee’s job to set out the criteria under which the “experts” will try to devise an “optimum” plan. Taking many criteria into account, weighing them, utilizing external information (such as traffic patterns) to evaluate them, and ultimately coming out with one or several plans—that is a skill. Skill is not enough. Skill must serve larger interests. What the school board needs to be expert in is not actual planning, but the articulation of criteria, and the ability to determine when its criteria have been met.

Now imagine a candidate for school board saying that is why she should be elected. “I can evaluate and articulate criteria for planning, and monitor the experts so their plans meet those criteria.” A sure way to lose an election. The more clearly a prospective school committee member sees her task, the less likely she is to be

elected to do it. She may understand her task, but the electing public does not. We ask people to be expert in tasks, but do not select those that are. And we wonder why elected decision-makers do not work well!

The reason not to elect a general to be president, in war time, is that generals are planners. The generals work for the president, whose job is to set policy goals. The president then “hires” others to devise ways to meet those goals. Similarly, we know what our home is supposed to do for us, but few of us would have (or need to have) the skill to design, let alone build it. Presidents can fail because they set the wrong goals (the Iraq war, for example) or because they select the wrong people to effectuate them (Donald Rumsfeld as Secretary of Defense, for example). President Kennedy let the invasion of Cuba go forth, a policy mistake. President Clinton let the invasion of the home of David Koresh and the Branch Dividians go forward, a similar mistake. They were not responsible for *how* either invasion transpired. They were responsible for allowing the people who made those on-the-ground decisions to be in positions of authority. They were responsible not for the stupidity of the plans, but for letting such stupid plans go forward. Then, later, why were those who advocated such actions not fired?

People are elected to public office because they have the skill to get elected. Whether that skill is correlated with the skill required to perform *in* that office is unknown. It seems not to be. Expertise for getting into a position, but not for being in that position, is discussed further in the concluding chapter of this book.

Help Is Coming—Or Is It?

We look to courts for many things, even to educational policy. Except in a few extreme cases, courts will not help us.

It is the role of teachers, and not federal judges, to define
a school’s educational curriculum . . .⁶⁰

School boards will disagree—curriculum *is* their responsibility. But, as they acknowledge, they are not curriculum experts, and so they look to so-called experts. It is a real need, but filled by text book publishers, whose expertise is in catering to those school boards’ preconceptions.

Diane Ravitch was long considered an expert in educational policy, especially in curriculum. Not thought of as “right wing,” she joined the George H. W. Bush

60 *Heenan v. Rhodes et al.*, 757 F.Supp.2d 1229 (M.D. Alabama, 2010) at 1240. This case concerned the School of Nursing at Auburn University, not public schools, but the quotation was too good to pass up.

administration in 1991 and, a decade later—no longer connected to the government—applauded the “No Child Left Behind” (NCLB) legislation passed under the second President Bush. A few years later she began to change her mind, ultimately repudiating her support for “choice” and “accountability”—key words of the right, in education.

Many people have told me that I should have known better, and they are right: I should have. But I didn't . . .⁶¹

Being a convert, her derision of the law she formerly praised is unbounded:

NCLB has turned out to be the worst federal education legislation ever passed.

[It] is a public policy disaster of epic proportions.⁶²

Ravitch says that, when she was assistant secretary of education for research—when her *job* was to know what the “best” policy would be—she was not an expert. She now is?⁶³

If you want people to be creative and entrepreneurial, forget the test scores. It's character that makes success.⁶⁴

Sara Mosle notes that “Ravitch helped conceive the movement she now condemns.” Being a zealous convert, “Ravitch doesn't address competing priorities or painful trade-offs.”⁶⁵ As I noted above in this chapter, since doing research in the components of “success,” in the 1960s, I have contended that “personality” counts as much as opportunity in an individual's life story. Fifty years later, Diane Ravitch has come to agree with me, using the word “character.” That I do not know what “personality” is, how to characterize or measure it or aspects of it, nor how to

61 Diane Ravitch, “Why I Changed My Mind,” 290 *The Nation* 23 (June 24, 2010) at 20.

62 Diane Ravitch, “School 'Reform': A Failing Grade,” 53 *New York Review of Books* 14 (September 29, 2011) at 32.

63 Another reversal was her opinion of Joel Klein's administration of the New York City schools. Here is Klein's version:

Early on, Ravitch pushed me to hire her partner to run a training program. When I didn't, she wrote a bitter e-mail concluding, “I despair for your initiatives.” Soon thereafter, Ravitch described herself as our “most caustic critic.” . . . Ravitch's attacks continued unabated, even as we adopted policies that she had espoused. Yet in all her writings, she never mentioned the hiring decision.

Joel Klein, letter to *New York Review of Books*, April 2, 2015 (at 85), responding to Jonathan Zimmerman's review of his book, *Lessons of Hope*, Harper Collins (2014).

64 Quoted in David Denby, “Public Defender,” *The New Yorker*, November 19, 2012 at 66.

65 Sara Mosle, “The Counterrevolutionary,” 312 *The Atlantic* 2 (September, 2013) at 38 and then at 41. This article is a review of Ravitch's book *Reign of Error*, Knopf (2013).

inculcate it, are reasons I left this “education” field. Does Ravitch know things I do not? Does she know how what “character” is, and to induce it in children? How to measure it? Just which “character” is that? I think we want people to develop to their potential, whether they are creative, entrepreneurial, task oriented or just not very bright. Kindness, thoughtfulness, consideration of others are all endearing traits, albeit unrewarded by the “market.” Do schools do anything to induce these traits in children?

If we cannot determine who is an expert in educational policy, perhaps federal sponsorship of local programs is not a good solution to the stagnancy inevitable from local control. So in education through high school, as in other places in this book, I leave the question of who are the experts, how can we find them, without offering any solution. I think knowing what you are not an expert in is a good beginning, but assuming that your elected school board members are, or at least know how to find educational experts, is as defeating as not knowing where your own expertise ends. Wherever educational expertise may be, it seems not to be in places with “Education” or “School” in their title.

Higher Education: Colleges and Universities

Making suggestions about educational reform is a lucrative business. I have no doubt that someone out there is right, has made a correct analysis of the problems, and has formulated viable and valuable suggestions for a reform. But how would we know?

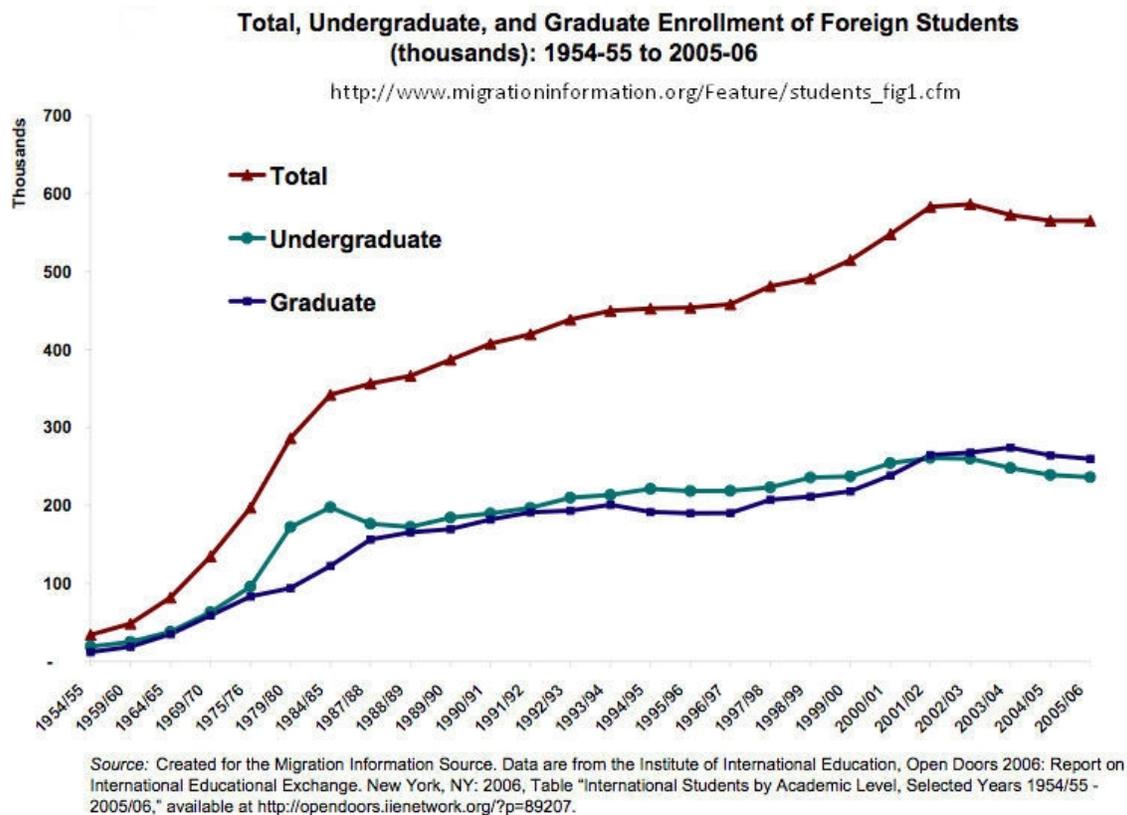
Taylor thinks that the president of the United States should give the “highest national priority” to a national teaching academy, housed in Chicago and presided over, I presume, by Taylor.⁶⁶

Such an academy assumes that we know what to teach, and how. And that colleges, interested in teaching, would employ graduates of such an academy. In fact, it would not be a bad idea to ask professors to “teach” less, substituting competent instructors in their place.

A large proportion of U.S. college graduates, and an even higher proportion of those getting advanced degrees, were not educated through high school in the United

66 Stanley Fish, “The Woe-Is-Us Books,” *The New York Times*, November 8, 2010 (on line). Fish is referring to Mark C. Taylor, *Crisis On Campus*, Knopf (2010). Knopf styles this book as “A provocative look at the troubled present state of American higher education and a passionately argued and learned manifesto for its future.” That is what a publisher is paid to do: Cast the best light on each publication, in one sentence. Do people believe these squibs?

States. As we have seen, the average student schooled in other countries (as indicated by the math and science ratings, shown above) is superior to the average United States student. But, when we discuss higher education, the “average” student is not relevant. In 2009, thirty-seven percent of the U.S. population between age 30 and age 64 (selected so they have had time to attain their highest degree level) is said to have an academic associate degree or higher.⁶⁷ Sixty-nine percent of them had a Masters degree or higher, and only about 3¼ percent held professional or PhD degrees. Yet, while the number of persons holding a degree declines the higher the degree, the relative number of foreign students increases. Do not confuse education of persons in The United States with the educational attainment or attaining of United States citizens.



Although there seem to be no direct data on this, it is obvious (see the graphic above) that foreign students are *increasing* as a percentage of students at our highest

67 I write “is said to” because it has been noted that there is a drift in reported education. Older people report more education than they had when they were younger to an extent belied by statistics on completion by older people of advanced degree or extension courses. I have excluded occupational associate degrees and reports of “some college.” Source: U.S. Census Bureau, Current Population Survey, 2009 Annual Social and Economic Supplement.

education levels—professional and PhD tracks. Either we find a way to keep these people in the United States after they obtain their degrees, or we will see a domestic decline of highly educated workers. And either they become U.S. citizens, or we will see a decline in the already small percentage of citizens holding high degrees.

Below (next page) are some international data on skills supposedly learned in college, analogous to those presented above for high school. If you take this chart seriously, it indicates that United States college graduates fare as badly, compared to those from other countries, as our high school students. We may have excellent universities, judged by internal criteria (number of Nobel laureates, for example), but if the point of these institutions is to create well educated citizens, it may be that they are inferior to those in other countries.

Or not. Comments on the article from which I took this chart point out either fallacies of the study or a failure of the reporter to clarify what is being measured.⁶⁸ For example, is there any control for college major? This is a mathematics test, after all. Was each country's sample restricted to persons who had completed secondary school in that country? As we saw above, many people come to this country for "higher" education. Whose scores are we looking at here? Are these all recent graduates, or is there uncontrolled age variation? Does a larger proportion of U.S. high school graduates get higher education than in other countries? If so, and if these other countries screen for merit, then wouldn't you expect the "average" score in the U.S. to be lower, while at the same time we can say we are generating more people with advanced skills?

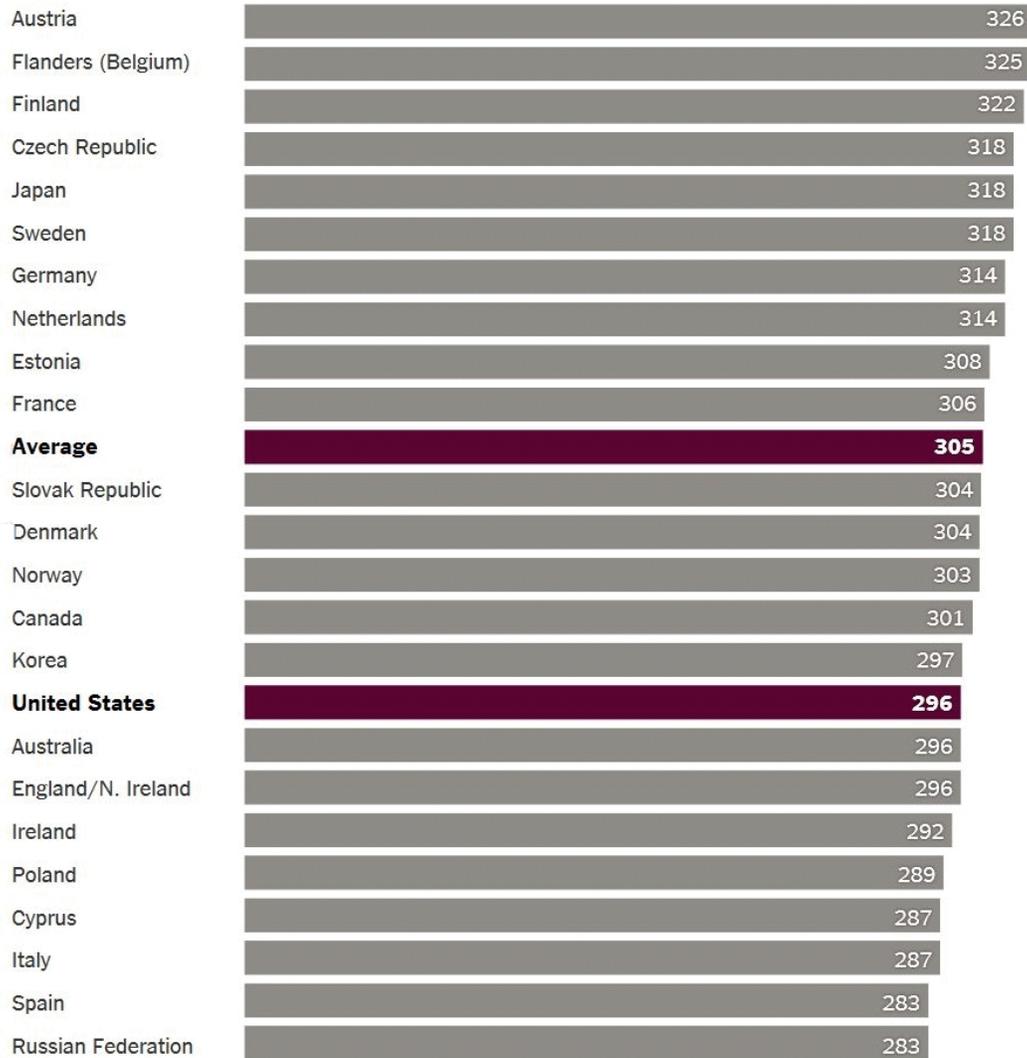
Are we served well by our higher education institutions? I think not, although international ranking of test scores is barely evidence on the point. Others think not, also. There is also internal evidence. Many college graduates, schooled in this country throughout, do poorly on standardized tests such as the Collegiate Learning Assessment. Furthermore, those who score badly on such a test do badly after college.⁶⁹ If the purpose of college was to gain the sorts of skills tested for, colleges do not do well. Whether those skills enhance work performance, or employers just think that they do, not having them has bad economic consequences.

68 Kevin Carey, "Americans May Think We Have The World's Best Colleges. We Don't." *New York Times* June 28, 2014, under "The Upshot.."

69 For the former proposition, that college graduates are uneducated, see Richard Arum and Josipa Roksa, *Academically Adrift*, University of Chicago Press (2011). These authors then followed the same people into the post-college market, finding the correlation in text in *Aspiring Adults Adrift*, University of Chicago Press (2014).

American College Graduates, Trailing in Math Skills

Average score on numeracy test, among 16- to 29-year-olds with bachelor's degree



Source: Organization for Economic Cooperation and Development

To many, the point of higher education is not higher learning, but higher income. It is not clear that a college degree accomplishes this. Peter Capelli asks, *Will College Pay Off?*⁷⁰ The answer seems to be yes, if one graduates from a top tier school. But being admitted to such a school separates some from others. Therefore we do not know whether it is the pre-college skill set, the education, or the credential that matters.

70 Peter Capelli, *Will College Pay Off?: A Guide to the Most Important Financial Decision You'll Ever Make*, Public Affairs (Perseus), (2015). See also John Cassidy, "College Calsulus," *The New Yorker*, September 7, 2014 at 80.

Some educators have devised Massive Open Online Courses (MOOC) to take advantage of the internet and digital video technology.⁷¹ Some have devised other alternatives to traditional higher education.⁷² The spirit of innovation and experimentation remains alive. I find it discouraging that this innovation takes place within the context of an institution, let's call it "college," which itself may be the problem. Do we want to turn high school graduates into experts, or into myrmidons—functionaries, bodies to fill MBA spreadsheet cells? If we want to generate experts, I am not convinced that institutions of "higher education," regardless how different from those we now have, can do it.

I have been skeptical of the expertise housed in the halls where they are supposed to be, but my experience is limited, my anecdotes perhaps not generalizable. Let me give one from the other side.

Sometimes we are asked to type in the letters or numbers presented to us, on the computer screen, in a difficult-to-read text. We understand that no computer matches the human brain—or even comes close—in pattern recognition. Our brain not only can extract from what we see to what it might mean, a complicated process itself, but contains memories that assist such recognition. A word deciphering test, usually to register for something on the internet, is meant to verify that a human being is on the other end of the line.

This seems clever enough, but then Google decided to photo-copy and decipher through optical character recognition (OCR) all the books it could get its hands on. And here we are again in an area where the computer is not as good as a human. How could Google recruit the thousands of person-hours it would take to get unclear words straight in the computer?

Sometimes you are asked to decipher *two* "words." In such an instance, the second word has been declared undecipherable by machine. If you correctly type in the first word, you have passed a test that makes you eligible to assist Google, for free, by key entering the second word. Your key entry is then substituted for that word in Google's OCR transcription.⁷³ This brilliant system—the test followed by the

71 See www.MOOC-list.com.

72 See, for example, Graeme Wood, "The Future of College?" *The Atlantic*, September, 2014 at 50.

73 You might ask how the computer knows, without human intervention, which words have been incorrectly deciphered. I am not an expert in this field, but an approach comes readily to mind. We know that certain character combinations are essentially impossible, except in comic strips. If OCR transcribes a word as %&8B, we can be pretty sure that is not correct. The computer needs some rules, such as that \$ and % cannot be in a word with any other character (only numbers), that neither can be in a word containing more than one decimal point, to ferret out mis-translations.

human help—was devised at Carnegie Mellon University by people who surely would have left academia had they not been offered opportunities to work on problems such as this.⁷⁴ It is fair to say that universities have difficulty knowing who are the best people in a field, and additionally find recruiting and keeping them difficult, if they can make this identification. But it is not fair to deny that, at times, some institutions can make that identification and compete to keep the talent. Even if, faced with a choice of employment at Apple or Google on the one hand, and a university on the other, most people will choose the former over the latter, here they got to do both.

Recruiting outside help to decipher badly formed letters has taken another step, in the Jeremy Bentham project.

Since University College London began transcribing the papers of the Enlightenment philosopher Jeremy Bentham more than 50 years ago, it has published 27 volumes of his writings — less than half of the 70 or so ultimately expected.⁷⁵

This is too slow. How about letting anyone try to transcribe the original text, and reserve the professionals for editing? And so it shall be.

In the roughly four months since this Wikipedia-style experiment began, 350 registered users have produced 435 transcripts.

The Dead Sea Scrolls provide yet another example. For decades after they were found (in the 1940s and 1950s), those scrolls were held tight, only “scholars” could see them, only “experts” could participate in translating them. And so the process crawled along. Ultimately, despite the opposition of these “scholars” and “experts,” high resolution photographs were placed on line, along with appropriate software. Yes, there does have to be some body to determine the “official” text; but there are many un-credentialed people who have real expertise in this, and have volunteered it. The lesson: Get the so-called experts out of the way.

74 I trust that the same undecipherables are given to several consumers, and accepted as correct only under some rule (say, nine out of ten) of agreement.

75 Patricia Cohen, “Scholars Recruit Public for Project,” *New York Times*, December 28, 2010 at C1.

The Failure of So-Called Experts

Is there any evidence that academic institutions fail? Can I provide an example where, by selecting the wrong people to be “educators,” higher education turned out “experts” who failed? Individuals make mistakes. Perhaps more skilled professionals make *fewer* mistakes, but error itself is not what I am talking about. I am looking for failure, for improper so-called expertise with an expert’s imprimatur.

Unfortunately, finding such a failure is all too easy. Consider the financial disasters of 2008-2009.

In the search for the “guilty men” responsible for the near-destruction of the world economy and financial system after the subprime crisis, one obvious crowd initially escaped responsibility: academic economists.⁷⁶

While academic institutions were hiring mathematical economists, but not “radical” economists, they were (in fact, if not in intent) endorsing “rational expectations” theories, the only kind easily amenable to mathematical analysis.⁷⁷ These theories led to notions such as that markets would regulate themselves.

The economic orthodoxy was particularly dangerous in finance, since it allowed Nobel laureates to calculate that upheavals of the kind triggered by Lehman Brothers would not occur even once in a billion years. The impact on macro-economic policy was equally pernicious. . . . In short, the post-crisis experience has comprehensively refuted the predictions of macro-economic theory based on the rational-expectations hypothesis.

Just as in many areas of technology the smartest nerds are eschewing the university for the go-get-‘em corporation, historians may be doing the same thing. At least Gordon S. Wood thinks so. He describes a new sort of historian, the non-academic who tries to provide a large picture, while academics debate the details.

Academic historians now write almost exclusively for one another and focus on the issues and debates within the discipline. . . . [T]he academics have generally left narrative

76 From a special edition of *The Economist*, “The World in 2011,” December, 2010, at 154. Next indented quotation from the same source.

77 One could introduce error into rational expectation theories, but those who did so figured that “error” was the overshooting of prices before they stabilized where they were expected to, and other variations in outcome reached prior to equilibrium. They did not introduce the possibility of error into their fundamental parameters, not only because they thought they were right, but because the academic community offered little objection to their hypotheses. George Stiglitz and Paul Krugman were two voices of sanity, but two were not enough.

history-writing⁷⁸ to nonacademic writers and independent scholars . . .

Wood does not evaluate this division, this creation of a new locale of history writers. The academic work has value, but may be unintelligible to the more general writer. Alternative institutions are competing with universities, whether they know it or not. That the academy is not necessarily where one finds the most expert among experts is strikingly true in statistical analysis in litigation and in most university economics departments. Can these be the only fields in which experts are finding more comfortable homes outside of academia?

I doubt it. Wood's description of academic historians specializing in fields so narrow that these professors are not capable of writing broad, general histories—the kinds people read—is similar to the remarks I make throughout this book about academic “experts” with whom I am more familiar. I respect the knowledge they have, and their role as gatherers of information in a particular field. But they are often incapable of doing that which they study. The academic statistician cannot inform the judge what story the data are telling. The academic historian cannot inform the public what to make of some broad historical trend. The academic economist has no advice to give about regulation of any industry, believing (apparently, and in obvious contradiction to the real world) that no industry needs any.

We know that the GDP of the future depends on a learned work force. Yet we seem to have no way to produce that work force. I think there is a clear need for some federal interest in education at all levels, and we have a Department of Education which is staffed with, and listens to, so-called experts. But perhaps, if the federal government cannot induce true experts to help it—indeed, if the government does not even know who those experts are—we might be better off without such a cabinet position. I can think of no good it has ever done since being spun out of the larger Department of Health, Education and Welfare.

78 Gordon S. Wood, “The Real Washington at Last (a review of two books about George Washington),” 57 *New York Review of Books* 19 (December 9, 2010), at 38 and then 39.