

Preamble on Policy Issues: GROE Workshop¹
(Still in Progress: Do not quote or cite, but comments welcome.)

'Would you tell me, please, which way I ought to go from here?' Alice asked the Cat?.

'That depends a good deal on where you want to get to,' said the Cat.

'I don't much care where--' said Alice.

'Then it doesn't matter which way you go,' said the Cat.

'--so long as I get somewhere,' Alice added as an explanation.

'Oh, you're sure to do that,' said the Cat, 'if you only walk long enough.'

Alice's Adventures in Wonderland, Chapter IV

A quarter century ago the National Commission on Excellence in Education issued a report titled "A Nation At Risk," expressing dismay at the state of education in the United States. Many elite reports have been issued since, decrying the sorry state of education and/or discussing the glorious transformation of education through technological or process innovations. Yet little progress seems to have been made given the gravity of the concerns expressed. The country keeps walking, and as the Cheshire Cat observes, it is sure to get somewhere if only it walks long enough. But where is it going?

One might ask whether, despite the professions of concern, the people of the United States truly wish to place education at the center of national purpose. On one hand, the country spends extraordinary resources on education, suggesting that it is important. On the other, it's an open question whether this expenditure buys what is needed. As a result, it is impossible to get agreement on the simplest of political questions: would spending more money help?

We have a large accumulated investment in the educational apparatus, and we spend a great deal maintaining it. But we spend comparatively little to understand exactly how to improve the apparatus so it serves us better with respect to the goal of *learning*. Without such investment, it is impossible to learn how we might walk in directions that are both scalable and sustainable. We invest in research and in new ideas for learning, including application of technology, but without clear-headed and grounded understanding of what would work and how inside and outside the educational apparatus, these investments seldom produce meaningful and constructive change. We end up with great ideas, but we have no idea how to put them to work. This is not due to a failure of will, nor a lack of desire to improve the situation, nor a reluctance to spend money. This is a very difficult

¹ Participants in the Social and Policy Workshop were John King, Nora Sabelli, Susan Winter, Henry Kelly and Beverly Woolf. The views expressed here should not be ascribed to any individual participant, and are still emergent.

challenge in its own right because it arises from an inherently complicated ecology.

Drilling deeper, several endemic challenges to major and constructive change become clear.

Distinguishing "education" from "learning": The educational apparatus was created to facilitate formal learning, but it has other roles such as custodial care of young people. Learning, of course, takes place both within and outside that apparatus. The two things -- education and learning -- are not synonymous, and information technology plus other innovations increases opportunities for learning outside as well as inside the educational apparatus. When we talk about learning, we encompass learning that occurs within the educational apparatus as well as that which does not. We might want to consider whether the impact of information technology on learning will be greater outside the educational apparatus than within.

Stratification in the apparatus: The education system in the US is stratified, and people at each stratum talk mostly to people in the same stratum. Researchers at one stratum talk among each other and develop recommendations aimed at people in other strata, but there are few guarantees that those recommendations will ever have much effect. Stratification also reinforces the tendency of people to see their own experiences and learning as general. Findings from researchers might make complete sense at one level but no sense at another because they lack context specificity. And experiences of people at other levels are easily seen as universal, making it difficult to understand what people from other levels are talking about.

Presumptions of stratification regarding student learning capability: There are many people, including those involved in the education system, who believe that some students can learn and others cannot. This is particularly true in some fields, e.g., STEM, where for many decades the presumption was that men could do the work and women could not. Those presumptions disappear slowly, and even as vulgar presumptions (e.g., "women can't do math") fade away, comparatively polite presumptions (students who cannot master subject X by time Y will never make it) persist. The effect of this is to "label" students as "good" or "average" or "poor" long before there is sufficient experience or data to know what the students can and cannot do. Policies that grade educational institutions on how many students are, for example, "Reading at the fourth grade level," can aggravate this by encouraging the view that all students can achieve a certain level of proficiency within a certain time, without much evidence to back up the claim.

Reification of the mechanics of learning: A corollary of presumptions of stratification is the assumption that learning can be broken down into discrete and universal components that, properly assembled, will result in proficiency for everyone. The most extreme versions of this are found in efforts to "teacher-proof" learning materials on the assumption that the teacher gets in the way of learning that any child with the properly configured "inputs" will experience.

Knowledge about learning and teaching: We are rapidly learning more about how

humans learn and how to teach them, but we already know a great deal that we have yet to apply as effectively as we might. Efforts to address learning challenges based on first principles have made some headway, but much remains to be done. A lack of solidarity among scholars and educators regarding many aspects of the challenge makes it difficult to achieve political agreement on how best to proceed.

Long time-scales: It takes about 25 years from birth for an individual to become sufficiently educated to be proficient as an educator. Effects of reforms across the learning spectrum cannot be seen in the consequences of a prepared educator -- that is, the consequences on subsequent learners -- for another 20 years. Thus, the cycle-time for reforms is on the order of 45 to 50 years. Very few challenges in research or social policy cover such a long time scale. But failure to consider such time-scales cripples efforts to understand the systemic characteristics of the challenge.

Social change and social movements: Given the enormity of the educational apparatus and the degree to which it is embedded in the society, it is naive to think that policy reforms as customarily understood will result in the needed changes. It makes more sense to think of these systemic, broadly-based changes as social movements. If the society is to embrace the scope and scale of needed changes, social movements must be launched and sustained over protracted periods of time. A useful example of a highly successful social movement producing change on a society-wide scale is found in the rights of disabled people. The Americans with Disabilities Act was passed in 1990, but the movement necessary to create the ADA began years earlier, and provided the momentum to enforce the ADA's implementation. The change in the past 40 years has been dramatic. This success is largely because the issue became a matter of civil rights. A somewhat more difficult struggle has been to reduce use of tobacco. At the time of the 1964 Surgeon General's report approximately 2/3 of adult US males smoked. A sequence of scientific and health findings and corollary public policies have followed, aimed at suppression of smoking in particular. But the social movement went far beyond such efforts, and most importantly changed the image of smoking from "cool" to "uncool," particularly by turning "second hand smoke" into a civil rights issue. Will a time come when the ability to think critically or do algebra are civil rights, and citizenship bears the sign over the gate of Plato's Academy, "Let no one ignorant of geometry enter"? What would it take to make learning cool, and how can information technology help?

These endemic challenges must be incorporated into any further efforts to improve learning. Without incorporation, we can never reconcile any vision of a learning society with the practical challenges of implementation. The nation will keep walking and will certainly end up somewhere. But we still will not know where we ought to go.

Specific suggestions:

This section will eventually contain discussion of policy issues related to recommendations from the other groups. Since we do not have input from the other groups yet, we couldn't include anything yet. This section will continue to evolve.

- Prepare a synthetic "meta-study" of the many reports produced over the past several decades in order to provide guidance for what has been covered and what has not, and to act as a baseline for subsequent research and policy efforts.
- Encourage collaboration between communities (e.g., disciplines, strata) and insist on bringing diverse perspectives to complicated problems. Make successful incorporation of perspectives as important in judging the outcomes of funding as is progress in disciplinary learning.
- Increase study of social change processes and social movements relevant to transformation of learning, and develop mechanisms to ensure that the insights from such study are incorporated in all subsequent projects that are expected to affect learning within or outside of the educational apparatus. Specifically -- investigate the effects of supplemental awards -- undergraduate research opportunity, research opportunity awards, research experiences for teachers, etc. - - and how those effects might be improved.
- Consider that many projects that are successful over the long run started as proposals in competitions for funding. In some cases the proposals were not funded but went ahead anyway. In other cases the projects received funding that ended but the project continued. Study how these projects became successful enterprises, and the role that the competitions played in the success. Build this into leveraging competitions to achieve effects that go beyond the "winners" of the competitions. (IES allows proposers who came in earlier but didn't get funded to resubmit with additional information on what they've done. Also, find ways to discriminate among the reviewers to make it more likely that reviewers who "don't get it" don't kill projects that are actually good.)
- Expand the concept of capacity building beyond students who are headed for academic careers to include others, including students headed for teaching careers, community leaders, and others who can build overall learning capability.
- Increase support for research and demonstration projects that take a systemic view the challenges and that propose and test strategies for affecting change over the long term. This might require using longer time-lines for research and demonstration projects, and requires attention to sustained effort over time. This might require longer funding time frames of seven to ten years or longer. Incorporate the length of time it takes for such projects to achieve the effects sought.
- Require development of implementation strategy as part of projects, and incorporate the outcomes of implementation efforts into the assessment of project success, moving beyond just dissemination through publication. Do not merely require proposals to express concerns and suggest one-off efforts to address such needs, which are easily suggested and just as easily ignored after funding. Build expectation of consequences for education into all relevant program efforts.

- Incorporate expertise on education capable of affecting the educational apparatus in all projects intended to have an effect on education, in order to increase the likelihood that actual educational impacts will be attempted.
- Facilitate demand-based research, the use-oriented model along the lines of Donald Scopes' *Pasteur's Quadrant*. Convert the challenges faced by major components of the education apparatus into researchable projects using a demand-pull strategy.
- Push for a socio-technical perspective over a purely technical perspective, encouraging creation of complementary assets required to gain the payoffs from the technology.
- Create a testbed that stands between blue-sky scenarios that don't go anywhere on their own and the impenetrably complicated educational apparatus that resists change aggressively. Such a testbed could allow serious examination of ideas for changing practice without having to disrupt actual educational work. The test bed would evolve rather than arise from explicit design, so the next steps would be to parameterize the characteristics of the testbed and begin developing strategies for creating an effective set of components that could be used in various combinations to address particular questions.