Date: Wed, 02 Dec 2009 11:40:22 -0500
To: "Dr. Baruch Fischhoff - Chair, National Academy of Sciences Study on Social & Behavioral Science and Improving Intelligence for National Security" <baruch@cmu.edu>, "Dr. Myron Gutmann - NSF Assistant Director, SBE" <mgutmann@nsf.gov>
From: Lloyd Etheredge <lloyd.etheredge@policyscience.net>

Subject: Neuroscience, the DNI, Fast Discovery R&D for Foreign Language Competence

Dear Dr. Fischhoff and Colleagues and Assistant Director Gutmann:

You might want to recommend that the DNI view investments in the social and behavioral sciences as the Pentagon/DARPA view investments in the physical sciences and engineering.

For example, Bamford (The Shadow Factory, 2008) notes that the DNI system (the National Security Agency and other intelligence community agencies) operates the largest system for foreign language instruction in the world. Yet it does not make R&D investments to achieve rapid breakthroughs.

A Political Opportunity & Global Benefits

Foreign language instruction (including English as a foreign language) is a major expenditure in K-12 and post-secondary school systems worldwide. Thus, the worldwide benefits of increased productivity of students' and teachers' time could be extraordinary. But - globally - there is what economists call a "collective goods" problem and a comfortable bureaucratic lock-in. A year of college French is likely to take a year, in perpetuity, unless there are institutions and (collective good) investment strategies by someone. Which - for its own self-interest and as a political opportunity - could be the US government w/ DNI leadership.

[Joel Moses, when he was Provost at MIT, was noted for his investments in R&D to improve teaching in the basic core courses - e.g., calculus. Instructors developed pools of test items and could compare performance across different sections and methods, and begin to develop and test psychological theories of different learning/teaching methods that worked better for different students. Even with 5 refinements that each gave 3% - 4% improvements, an MIT core science course could be, today, a better investment for students than at many other

institutions.]

[Part of the challenge for the DNI system is that the higher levels of language competence - i.e., understanding contexts and references and what is being said in real-world conversations - are beyond what can normally be learned from textbooks. Even at the Department of State (and the Foreign Service Institute, which shares instruction responsibilities for Ambassadors and career professionals), the Level 5 capabilities (to function as a native speaker, as judged by native speakers) is rare.

Neuroscience of Learning?

One interesting opportunity might be the faster application of neuroscience to educational psychology. The remarkable British linguist, Richard Burton, wrote that when he learned another foreign language he used 20-minute cycles - i.e., he stopped as soon as he began to feel his energy and concentration begin to lapse. [The contrast to 50-minute classroom hours will be apparent!] If we think of foreign language learning as building new brain physiology/pathways, and use the analogy of building muscle and skill for the Olympics, the analogy suggests that DNI funded R&D could develop optimum and varied training schedules - and breakthroughs - by equivalent research programs.

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