

Office of the President

Rearranging Our Mental Furniture

Frank E. Davis, *President*



“Instruct, and illuminate, and rearrange our mental furniture.” I have been drawn to these words since I first heard them several months ago. A colleague of mine used them to describe the transforming purpose of exceptional research in mathematics education. She too had been moved by the powerful metaphor when she came across it in a columnist’s critique of Barack Obama’s now famous speech on race in America, “On A More Perfect Union.” *

While the metaphor may seem more powerful in the context of breaking seemingly impenetrable social barriers in American politics, for me—and my colleague—it is also applicable to the domain of science and mathematics education, where we must give all learners a way to inquire about and transcend the perceived boundaries of the social and natural world.

To illuminate and instruct and ultimately to rearrange our mental furniture is the work of places like TERC — organizations that help make up this country’s educational infrastructure. These organizations are charged with researching the processes of teaching and learning so that ideas, theories, and practices are constantly reexamined and improved.

TERC has long championed research and development initiatives that stretch beyond the prevailing vision of science and mathematics as subjects for a select talented few. We recognize that knowledge of science and mathematics is essential for being a literate citizen in the 21st century and for participation in the scientific enterprises that both challenge and extend our world. We believe that these citizens should be representative of the diversity in our society — our mission states that we imagine and are working toward a future “in which learners from diverse communities engage in

creative, rigorous and reflective inquiry as an integral part of their lives.” When we imagine this future, we understand that removing the inequities surrounding engagement in scientific enterprises is not only a matter of social justice, but also the way to a more robust and creative enterprise capable of serving a common humanity.

With more than 65 active projects, TERC has many examples of how it is working to change what is possible in education. Staff are designing materials to help students engage in new interdisciplinary subjects such as astrophysics and biocomplexity. We continue to explore the educational applications of technology by creating tools for observing earth, making science concepts more accessible to students who are deaf through a signing avatar, and bringing together learners through customized cybernetworks. We are carrying out research on the cognitive development of algebra, examining the connections between artistic and scientific literacies, and studying ways to encourage more women and minorities to pursue scientific careers.

As always, we do this work in partnership with teachers, school districts, universities afterschool providers, scientists, mathematicians and researchers. We, along with our partners, know that we must continue to push boundaries and expand our vision of science and mathematics for all learners.

*The Obama Dividend by Jonathan Alter, Newsweek March 31, 2008

Frank E. Davis is TERC’s President. Before joining TERC, Davis headed Lesley University’s Doctoral program. Prior to his appointment at Lesley in 1985, Davis was a professor at the University of Massachusetts, where he helped develop a mathematics program for adult learners interested in careers in public service. Before that, he was the mathematics curriculum coordinator for a Boston Model Cities project designed to ensure that post-secondary students could make a successful transition into undergraduate programs. Davis holds a doctorate from Harvard University Graduate School of Education and a master’s in physics from the University of Massachusetts, Amherst. He has been a visiting scholar at Stanford University, an American Educational Research Association Fellow at the National Science Foundation, and the recipient of a Danforth Graduate Fellowship while at Harvard University.