

Systemic Mentoring for Educational Competitiveness: *The Model of the Timbuktu Academy*

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We present the power¹ law of human performance and its extension, the law¹ of human performance. We apply these ubiquitous laws to the process of promoting and maintaining excellence in education and in research in all disciplines, including those in science, technology, engineering, and mathematics (STEM). These laws lead to a ten-strand paradigm for ensuring competitive education and research in almost any environment. The content of this paradigm can be summarized in three super-strands that are (a) a contemporary, competitive, and standard-based contents of the curriculum and of every course, (b) a standard-based teaching of the above contents by well trained instructors who remain immersed in their fields, and (c) standard-based learning, in and outside the classroom, as partly mediated by assignments congruent with course contents in their scope and depth. The above ABC of learning and the cited laws scientifically lead to the conclusion that *STEM education and research are within the intellectual reach of female and male students alike, irrespective of socioeconomic status, ethnicity, or the educational level of the parents*. Following the above clarification of the process of creating educational value-added, we present the Paradigm of the Timbuktu Academy, a K-16, systemic mentoring program at Southern University and A&M College. This paradigm is followed by the Academy's Ten-Strand model of Systemic Mentoring, its programs, activities, and results. It emerges of the last 15 years of success of the Academy that systemic mentoring is the coupling between competitive teaching and superior learning and the mechanism for integrating research and education for competitiveness – not just for the mentees, but also for the mentors! Electronic files accompanying this presentation offer a roadmap for replicating the work of the Timbuktu Academy at the individual, departmental, and other levels. Acknowledgments: The work reported here was funded in part by the National Science Foundation (NSF, Award No. HRD 0229080), through the 2002 US Presidential Award for Excellence to the Timbuktu Academy, the Department of the Navy, Office of Naval Research (ONR Award Nos. N00014-98-1-0748 and N00014-04-1-0587), NASA, through Iowa State University (ISU, Award No. NNG 05G146G), the NSF and Louisiana Board of Regents funded Louis Stokes Louisiana Alliance for Minority Participation (LS-LAMP, Award No. HRD 0503362), and by ExxonMobil Foundation through the Bernard Harris Foundation (Award No. 6346883). Dr. Ella L. Kelley, Professor of Chemistry, is the co-director of the Timbuktu Academy. We thank Dr. Rahman Tashakkori (and family), his colleagues, and Appalachian State University for the invitation to make this presentation.

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