Opportunities and Barriers to School Use of Adaptive Learning

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Abstract:
In principle, the science of learning has much to offer school-based education, but education and learning science have different traditions and cultures. Adaptive learning software and learning science-based curriculum have had some impact on classroom practices, but the majority of classroom instruction is still based on traditional lecture and practice in which all students receive the same instruction at the same pace. We have been focusing recently on the practical and institutional barriers to implementing personalized and adaptive instruction. One particularly promising approach is to change our perspective on adaptive systems. Instead of focusing on improving the software itself, this approach considers the software and the teacher as a tightly-linked instructional system. Using examples from mastery learning and high-stakes assessment, I will talk about how this systems approach has the potential to improve outcomes and spark widespread adoption of adaptive learning.

Biography:
Dr. Ritter is leading several research projects related to understanding and improving the way students learn mathematics, in partnership with the U.S. Department of Education, The Heinz Endowments, RAND Corporation, the National Science Foundation, Carnegie Mellon University, the University of Pittsburgh, and Southern University. Dr. Ritter is the co-author of Carnegie Learning’s Algebra I curricula, one of only two math curricula recognized by the U.S. Department of Education as scientifically proven to have significant, positive effects on student learning. He is the author of numerous papers on the design, architecture, and evaluation of educational technology and served as chairman of the IEEE Learning Technology Standards Committee working group on tool/agent communication. He is a recognized researcher and thought-leader in intelligent tutoring systems (ITSs) and data mining to improve educational effectiveness. Dr. Ritter earned a B.Sc. in Cognitive Science from Brown University in 1985 and a Ph.D. in Cognitive Psychology at Carnegie Mellon University in 1992.