“Research Findings from ASSISTments: A collaboration of multiple universities to make learning research easier”

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Abstract
In this talk, I will describe a shared scientific instrument being used by multiple universities to do cognitive science research on human learning in K-12 schools. The web-based platform is called ASSISTments and is used by teachers and their students for 1) nightly homework support and 2) in-class formative assessment and differentiated instruction. Our schools think of ASSISTments as a valuable free public service and I will address the different types of ways we use ASSISTments to measure knowledge, and the different randomized controlled experiment being conducted: (1) First, we are longitudinally tracking students in cooperation with Professor Ryan Baker at Teachers College. (2) Along with Jim Pellegrino and Susan Goldman at UIC, we are applying cognitive science principles to improve the Connected Math Project textbook. (3) We use data mining to show ASSISTments yields more accurate predictions of student knowledge. (4) Along with SRI, we are looking to see if ASSISTments can be used to raise Smarter Balance test scores. (5) In collaboration with my former student, Zach Pardos, we are using Bayes Nets to track knowledge and report on student knowledge. (6) Finally, I will talk about the online professional development work funded by the Gates Foundation to scale-up to 1 million students and the PD work.

Biographical Note
After graduating, Dr. Neil Heffernan taught mathematics to students in Baltimore City as part of Teach for America. Neil then decided to do something easier and get a PhD at Carnegie Mellon University. Building on his teaching experiences, he did multi-disciplinary research to create educational software that leads to higher student achievement. Neil is now at Worcester Polytechnic Institute where he is working on ASSISTments, the next generation of web-based platforms to support teachers and students. He has received awards from the Worcester Public Schools system, and the Massachusetts Association of School Committees for his work helping schools. Neil has written over 60 strictly peer-reviewed publications. Since coming to WPI, Neil has received over $13 million in grant funding. Recently, Neil’s work was cited in the National Educational Technology Plan and featured in the NY Times Magazine. Neil helped start the Learning Sciences and Technologies PhD program and has seen it grow to include 3 more faculty members.