



New Data Sources for the Measurement of Learning

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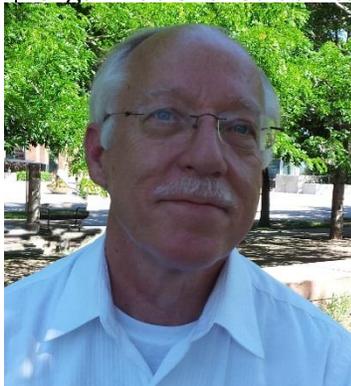
1:00 pm in Derrick 238

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Abstract: The focus of this presentation is on a coding framework sufficient to represent behavioral patterns seen in handwritten narratives about topics in a freshman mathematics class. If such a framework were to be developed and used, it may guide the use of algorithmic means as part of real time deep assessment while a student is enrolled in a college course. Some instruction might then be flipped to a learning platform where data structure sufficient to the conduct of design based research on a large scale.

A set of 68 test pairs are available for initial work on assessment leading to recommendations within the context of a freshman math class. One part of the pair is a computer generated test, printed to paper, requiring an answer only. The other part is a narrative in which the student is required to demonstrate as full an understanding as possible about each exercise. Clearly handwritten narratives about topics in mathematics is not part of the expectations of students. Writing these narratives has been part of the pedagogy in three sections of 1329 class sections. Initial results from this new data source suggests that students demonstrate a better perception into topics than is demonstrated by skills based testing only. A design-based research program is outlined in which Prueitt's theory may be further tested.

Paul received a PhD in Pure and Applied Mathematics from University of Texas at Arlington, in 1988. His early work was focused on modeling the immune system and neural system as dual complex processes. His effort was oriented towards framing questions related to why college level mathematics seems remote to most individuals. Over the years, a general theory was developed based on the notion that organizational stratification arises in natural systems due to some efficiency



constraints. In other words, a deep structure to one's image of self will reflect actual experience.

Paul's theory suggests that different outcomes are possible if educational practice is modified to allow greater self-directed learning while in school. The theory may also suggest that when individual image of self is inhibitory to learning college level mathematics, deep structure may be modified using certain methods. These methods may also provide greater validity to learning assessments.