

Creating stealth assessments



Val Shute

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Val Shute is the Mack and Effie Campbell Tyner Endowed Professor in Education in the Department of Educational Psychology and Learning Systems at Florida State University. Before coming to FSU in 2007, she was a principal research scientist at Educational Testing Service, where she was involved with basic and applied research projects related to assessment, cognitive diagnosis, and learning from advanced instructional systems. Her general research interests hover around the design, development and evaluation of advanced systems to support learning, particularly related to 21st-century competencies. Her current research involves using games with stealth assessment to support learning of cognitive and non-cognitive knowledge, skills and dispositions. Her research has resulted in numerous grants, journal articles, books, chapters in edited books, a patent, and a couple of recent books, including *Measuring and Supporting Learning in Games: Stealth Assessment* (Shute & Ventura, The MIT Press, 2013) and *Innovative assessment for the 21st century: Supporting educational needs* (Shute & Becker, Springer-Verlag, 2010).



Michael Timms

Australian Council for Educational Research

Dr Michael Timms directs the Assessment and Psychometric Research Division at ACER, which develops high-quality assessments and conducts cutting-edge research in educational measurement. He is Chief Investigator in the Science of Learning Research Centre, in which ACER is a lead institution. He is a recognised leader in the development of innovative ways to assess students in electronic learning environments. His research is widely published in peer-reviewed journals and he was awarded the 2013 Journal for Research on Science Teaching Award by the National Association for Research on Science Teaching.

Prior to joining ACER, Dr Timms was Associate Director of the Science, Technology, Engineering and Mathematics (STEM) Program at WestEd, a pre-eminent educational research and development organisation in the United States. He led large-scale research studies in STEM education, with special focus on computer-based assessment projects, especially through the SimScientists research program (www.simsScientists.org). He has been involved in the development of two assessment frameworks for the US National Assessment of Educational Progress for which he received the Paul Hood award for excellence in educational research at WestEd.

Dr Timms has experience in leading evaluation research projects for other educational research grant recipients, such as universities, and has managed large-scale item development projects across many content areas. He is knowledgeable about the education systems of Australia, the United States and the United Kingdom.

Dr Timms is an Associate Editor for the *Australian Journal of Education*.

Workshop

In this workshop, participants will learn how to create stealth assessments to measure student performance during interactions within computer-based learning environments, like digital games or intelligent tutoring systems. These measures are then used to estimate various competencies, including hard-to-measure constructs like creativity, persistence, problem-solving and systems thinking. First, we will explain how evidence-centred design can be used as a theoretical approach to designing such assessments. Next, we'll illustrate how evidence-centred design was applied

in the development of stealth assessment within a particular game (using the example of *Plants vs. Zombies 2*). Participants will have a chance to create their own evidence-centred design models (exploring competency, evidence and task), which can serve as an outline for an assessment related to any construct of interest. We'll show how assessment of learning is implemented in the system using a particular method, Bayesian networks, or Bayes nets. Participants will learn how Bayes nets have been used to assess and support learning in different learning environments.