Assessing young children’s literacy and mathematics understandings

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Professor Collette Tayler will act as moderator for this symposium.

Professor Collette Tayler has held the Chair in Early Childhood Education and Care in the Melbourne Graduate School of Education since 2007. Professor Tayler is an educationalist; she conducts local and cross-national studies of the ways that social, family and educational policies and practices affect early childhood education and care outcomes. Her work addresses program access and engagement; public and private investments; program standards and quality; the curriculum and pedagogy applied in different services; leadership and staff development; child and family involvement and program outcomes. Her research seeks to explain both universal principles and contextual variations needed to provide exemplary care and education for young children. Professor Tayler holds a PhD in education from the University of Western Australia.
Abstract

Current research indicates that young children are capable of developing mathematical concepts and reasoning much earlier than previously considered. The development of mathematical concepts emerges out of children’s understandings about pattern and structure from interaction with the real world. An early mathematical assessment interview, the Pattern and Structure Assessment (PASA) focuses on a range of concepts and processes and is linked with mathematical attainment in the ACER Progressive Achievement Tests in Maths (PATMaths).

ACER is piloting early-years technology-based tools, such as the Digital Early Reading and Mathematics Assessment (DERMA). DERMA is an audio-based assessment of early reading and mathematics skills delivered on offline tablets fitted with headphones. The practice program enables young students who have never used a computer before to gain sufficient skill to independently work through the assessment. DERMA promotes the message that reading is a meaningful activity with tasks that model good classroom practices. It also promotes authentic mathematics tasks where students can drag and drop objects to count, sort and compare groups and order numbers. DERMA has been successfully used in Afghanistan in 2014 in a large-scale survey conducted in Dari and Pashtu with Grade 3 students. It has also been successfully used in pilot studies in Lesotho and with remote Indigenous communities in Australia. ACER is currently piloting a version of DERMA for use with Australian students in the first three years of school. This workshop session will demonstrate DERMA and cover the five main reasons for using DERMA: motivation of the students, portability of the medium, validity and content coverage, reliability, and efficiency of gathering sample data.
**Abstract**

The ACER 1999–2005 Longitudinal Literacy and Numeracy Study (LLANS), and several subsequent studies, investigated growth in literacy learning in the early years of school. A key finding was the wide distribution of achievement at school entry and the next two years at school. A further study with a random sample of Australian children drawn from preschools in the year prior to school entry, the LLANS Transition from Preschool to School, has investigated literacy development from preschool to Year 1. Following the LLANS methodology, one-to-one interview assessments were based on tasks and activities designed to provide information about students’ achievement in critical aspects of literacy: comprehension, reading fluency, phonemic awareness and phonics, concepts about print, and writing. Data were gathered from the preschool students in mid-2012, at the beginning of Foundation in 2013, and in Year 1 in 2014. A wide distribution of achievement across these three years was evident. For example, in preschool, 49 per cent of children knew where to start reading a story, rising to 77 per cent among students in Foundation. These assessments have clear potential for identifying starting points for teaching and planning to support progress in learning.