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PCMAT – mathematics collaborative educational system.

Peña-Ayala, Alejandro (ed.), Intelligent and adaptive educational-learning systems. Achievements and trends. Berlin: Springer (ISBN 978-3-642-30170-4/hbk; 978-3-642-30171-1/ebook). Smart Innovation, Systems and Technologies 17, 183-212 (2013).

Summary: PCMAT (mathematics collaborative learning platform) is a collaborative adaptive learning tool based on progressive assessment for mathematics in basic schools. The learning platform is based on a constructivist approach, assessing the user knowledge and presenting contents and activities adapted to the characteristics and learning style of the student. The intelligent behavior of such platform depends on the existence of a tentative description of the student – the student model (SM). The contents of this model and the student most prominent learning style are used by a domain and interaction model to select the most appropriate response to student actions. The SM is used to select the more appropriate learning object according to the student learning stage. However, this selection demands for the access to metadata describing the contents of the learning object. This need leaded to the application of a standard to describe the learning objects (LO). The authoring of LO corresponds to one major maintenance costs present in these applications. PCMAT is able to generate several instances of the same learning object through the parameterization of some features of the learning object. The platform is also able to process student responses in natural language. This project shows how techniques from adaptive hypermedia system (AHS) field can improve e-learning based systems in a basic school environment.

Classification: U50 U70 P30
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