

Assessment and Evaluation

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The assessment and evaluation section of PATT38 consists of five papers. Together these provide insights into how teachers make tacit and subjective assessment judgements, how assessing students' knowledge of technological systems enables developing 'qualities' of knowledge, how assessing pre-service teachers' knowledge highlights levels of complexity missing in their understandings, and into a framework to support teachers' assessments at the point when a national curriculum is reformed.

In the first paper, *Is it possible to reveal tacit knowledge with ACJ and RGT? Unpacking Teachers' Assessment Practices*, Isaksson Persson & Hartell explore possibilities of using assessment to make visible students' tacit knowledge. The research builds on a previous pilot study on technology teachers' assessments using a combination of Adaptive Comparative Judgement (ACJ) and Repertory Grid Technique (RGT). The second pilot explored the findings of the first via in-depth interviews with the teacher judges. This paper presents insights from one of these interviews. It illustrates how using the combination of ACJ and RGT can help unpack the tacit assessment decisions made by the teachers.

The next paper, by Björklund & Nordlöf, also focuses on the combined use of ACJ and RGT. In their paper, *Teacher's assessment in programming – comparing teachers' individual judgement criteria in a programming course*, teachers' judgements focusing on explicit, tacit and subjective criteria are explored. Based on RGT interviews with teachers from lower secondary to university level combined with ACJ grading, both product and process criteria for assessing students' programming were found. Comparing their results with studies by Lindström on assessing creativity product and process, they found similarities that suggest that focusing on process criteria will help develop programming skills.

Paper three *Towards a Student Systems Thinking Inventory: Defining 'Qualities of Knowledge' about Technological Systems* by Hallström, Klasander & Zetterqvist shifts the focus from teachers to students. Taking an under-researched curriculum aspect of knowledge of technological systems, the authors used a test instrument about water supply and sewage systems to explore 'qualities of knowledge' in 14-15 year old Swedish students. Their research revealed that students had good knowledge of overall structure of the system, but not the societal impact. They noted that using the test instrument had allowed them to gauge 'qualities of knowledge' but that further use could improve validity.

The fourth paper focuses on Swedish secondary pre-service teachers understandings of feedback in technological systems. In *Evaluating an Intervention to Improve Secondary Pre-Service Teachers' Conceptions of Feedback in Technological Systems*, Hallström reports on small scale research exploring the impact of a 2 hour intervention on feedback in technological systems. Data was collected via an initial questionnaire and pre and post testing. Data showed that students performed better in the post intervention test, but largely at the macro level. This highlighted a need to develop understanding at a micro level, including the complexity of feedback systems.

The final paper relates to the introduction of a new technology curriculum in Ireland. The reform includes Classroom Based Assessment (CBA) at the lower secondary level, with teachers being required to assess both formatively and summatively. In *A conceptual framework for assessment of learning in Technology classroom based assessments*, Canty, Seery, Buckley & Dunbar present a framework to capture and value technological capability in a reformed curriculum. The framework identifies features of quality and provides descriptors that support teachers' judgements, progression and assessment.