

Open Learner Models: Opinions of School Education Professionals

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Abstract. This work surveys the opinions of teachers and other education professionals regarding the potential for Open Learner Models (OLM) in UK schools. We describe the aims of OLM, and of current UK initiatives involving formative assessment and promotion of metacognitive skills. We conclude that UK education professionals appreciate a synergy of these approaches, and that OLM-based systems could be valuable in achieving educational aims in schools.

1. Introduction

Open Learner Modelling (OLM) extends traditional learner modelling in Intelligent Tutoring Systems with the aim of making the model's contents a visible and interactive part of the learning environment. A key reason to open the learner model to students is to encourage them to reflect on their knowledge and learning process. Teachers may use OLMs to adapt teaching, for curriculum planning, or for formative assessment [1].

Reflective and metacognitive skills have long been recognised as important parts of the learning process [2]. Black and Wiliam [3] argued that formative assessment is an essential component of classroom work, but that current practices were weak. Modern UK educational practice now promotes the development of reflective skills to enhance learning. In the UK, the term 'Assessment *for* Learning' (AfL) is widely used to describe classroom practices aimed at promoting formative assessment. Pupil self-assessment is regarded as an essential component of this [3]. The aims of AfL (promoting reflection, using assessment to modify teaching, conducting pupil self-assessments and providing formative feedback) closely mirror the ethos of OLM.

Research on the opinions of teachers and other educational professionals towards the potential for the use of OLM in schools has so far been limited. Given the range of issues that OLM can support, the apparent close fit between OLM and AfL approaches, and the fact that these professionals will be crucial in OLM uptake, it seems timely that these school professionals be consulted. Therefore, we present a survey to elicit the opinions of teachers and educational professionals on the potential for OLM in schools.

2. Educational Professionals' Beliefs about the Potential for OLM in Schools

There were 15 participants, comprising UK school teachers (five Primary; three Secondary), two head teachers (Primary), and five Local Authority advisers or UK

Government (OfSTED) school inspectors. Participants were given documentation introducing OLM, including examples of six OLMs, discussing the aims of OLM, and summarising OLM research. Participants completed a questionnaire comprising questions with a 5-point Likert scale, and a number of free response questions.

	< strongly disagree-strongly agree >					Mean score
	(1)	(2)	(3)	(4)	(5)	
What would OLM be useful for?						
For teachers in assessing pupils	0	0	0	10	2	4.3
For feedback to pupils	0	0	2	8	5	4.2
For teachers' planning	0	0	5	7	3	3.9
Motivating pupils	0	0	2	6	7	4.3
What aspects would be useful to the learner?						
Viewing individual learner model	0	0	1	9	5	4.3
Comparing knowledge to expectation	0	0	0	11	4	4.3
Comparing their knowledge to peers	0	4	9	1	1	2.9
What aspects would be useful to the teacher?						
Viewing individuals' learner models	0	0	0	10	5	4.3
Comparing models with expectation	0	0	0	10	5	4.3
Comparing individuals to their peers	0	3	4	6	2	3.5
For what reasons would you want learners to access their model?						
Reflect & understand knowledge	0	0	1	10	4	4.2
To help them plan their learning	0	0	5	6	4	3.9
To give more control/responsibility	0	0	5	5	5	4.0
Practical Issues about OLM & AfL						
OLM fits with classroom teaching	0	1	8	3	2	3.4
OLM reflects educational philosophy	0	0	2	7	5	4.2
OLM supports AfL aims & objectives	0	0	3	9	3	4.0

The open ended portion of the questionnaire covered the following issues.

Asked about **particular subject areas that OLM would lend itself to**, some respondents felt all subjects could be appropriate (e.g. *"hard to think of a subject that couldn't benefit"*), some gave specific suggestions (e.g. *"D&T, Maths, Science"*, *"Subjects where answers are fact based"*), or broader views (e.g. *"OLM goes beyond subject areas...contribution in thinking skills, problem solving and metacognition"*).

Contributory **factors that would influence personal uptake/advocating of OLM** were related to the OLM tool (e.g. *"quality of the underlying tool"*, *"quality of interpretation"*, and *"intuitiveness of the OLM software"*), and practical considerations (e.g. *"time involved for teachers"*, *"Whether OLM is tied with Key Stage material"*).

Respondents offered a range of uses for **OLM in assessment/feedback/planning**, including *"Feedback...for class, groups and 'outliers' could be used quite easily in planning for extension and remediation"*, *"I would use this as a whole class delivered task"*, *"To motivate pupils to plan their own development"*, and *"setting targets"*.

Respondents felt **OLM would be useful to children or teachers** in that "The greatest benefit to students would come from teachers [giving] the power over learning to their students - enter into a learning dialogue on the basis of the OLM feedback", "Build on prior achievement / understanding. Highlight gaps in learning". Two school inspectors stated "OLM...[makes] a strong contribution in such aspects as thinking skills, problem solving and metacognition" and "engaging pupils in their own learning ...is a key towards faster progress and better understanding". Overall it was felt that

individual OLMs would be useful for children and teachers, with access to peer models less so. The main difficulties are in practical deployment rather than educational issues.

3. Analysis and Discussion

AfL and OLM concepts appeared to be accepted and valued by those surveyed (see open ended comments). Responses suggest that OLM could give students power over their learning, a learning dialogue and motivation – all supporting AfL as a method to actively engage students in their learning. The free responses suggest recognition of OLM's potential in developing non-subject specific skills to support learning.

Viewing their individual learner model or comparing their knowledge to teacher expectations was considered to be the most useful to children and teachers. Comparing knowledge to peers received a largely neutral response, though some respondents identified allowing students to compare their knowledge to peers as not being useful. Care needs to be taken to ensure motivation or self esteem are not damaged, that learning difficulties are treated sensitively, and that access is appropriate for the individual. The belief that viewing peer models may not be useful is interesting given results of prior studies (e.g. [4] where pupils aged 8-9 showed interest in comparing their progress with peers). The key reason for wanting learners to access their model was to help them better understand their knowledge and problems, helping them identify their needs themselves. Access to enable pupils to plan their learning or take more control and responsibility over learning was also considered desirable. Teachers would use OLM in particular for assessment, feedback and to motivate pupils.

Crucial to developing OLM use in schools, respondents agreed that OLM reflected their philosophy of learning, and the potential for OLM in achieving AfL aims. Guidelines for development include: integrating OLMs with schemes of work, targets or curricula to minimise teacher workload; OLMs must be quick to use and learn for teachers and students (but designs should not reduce complexity beyond usefulness).

4. Conclusion

This survey has identified that, while there are challenges to be met in enabling wider uptake of OLMs in schools, teachers and educational professionals see the potential benefits of OLM. The methods and aims of OLM are not only in keeping with, but actively support and promote current UK educational policy and practice.

References

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- 4 Bull, S. & McKay, M. (2004). An Open Learner Model for Children and Teachers: Inspecting Knowledge Level of Individuals and Peers. *Intelligent Tutoring Systems: 7th International Conference*, Springer-Verlag, Berlin Heidelberg, 646-655.