



Evaluation Report Month 36

Deliverable D9.1

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December 2016

**FaSMEd: Improving progress for lower achievers through Formative Assessment in Science
and Mathematics Education**

Grant agreement no: 612337

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This report focuses on the later key deliverables of the project, and has been informed both by our reading of the documents concerned and the attendance of two of us (AC, KR) at the final FaSMEd meeting, held in Maynooth, Ireland in November 2016.

D 5.2 Cross comparative analysis of case studies

This deliverable¹ reports the cross-comparative analysis carried out on the case studies conducted by the various project partners. These case studies were all based on the same agreed set of research questions:

- How do teachers process formative assessment data from students using a range of technologies?
- How do teachers inform their future teaching using such data?
- How is formative assessment data used by students to inform their learning trajectories?
- When technology is positioned as a learning tool rather than a data logger for the teacher, what issues does this pose for the teacher in terms of their being able to become more informed about student understanding?

The comparative analysis led to the identification of seven themes, each expressed in terms of a Statement. Each Statement is supported by reference to individual case-studies and sometimes fuller exemplification from these. These themes then provide the basis on which, in the concluding section, the four questions are answered.

It was clearly a demanding task not just to carry out such analysis of an extensive body of case studies, but to report on this analysis in a way which made clear how findings were grounded in the evidence base. The report made in this deliverable provides a useful basis for further work with a view to a publication meeting the highest standards of international research.

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<https://research.ncl.ac.uk/fasmed/deliverables/Deliverable%20D5.2%20Cross%20Comparative%20study%20of%20case%20studies.pdf>

D 5.3 Cross comparative analysis of country studies

This deliverable² reports the cross-comparative analysis carried out on country-specific data and other forms of input provided by the various project partners. The findings, then, are based largely on internal testimony. This material is thematically organised and the reader guided through various aspects of the comparison. The main findings, however, relate more to the common achievements of the FaSMEd activity in each participating country. It is reported that “All the countries except South Africa, that did not use ICT in their case studies, seem to have connected the FaSMEd project and the case studies to national ICT policy and strategies” and that “In all countries the FaSMEd teams have found ways to work with mathematics and science teachers in ways that enrich the national initiatives and projects that were already in existence” while “At the same time, the FaSMEd teams have been contributing to new and innovative combinations of technology and formative assessment, and also on the use of technology in mathematics and science classrooms.”

D 6.1 Approaches to raising attainment: Socio-technical approaches to the raising of achievement in mathematics and science education

This deliverable³ focuses on the manner in which technology might be used to raise attainment through its use as a formative assessment tool, and particularly with previously low attaining students. One theoretical outcome reported is the development of a three dimensional grid (agents vs assessment technique vs technology). As a three dimensional grid it is perhaps difficult to interpret in 2D and the team might want to consider alternative ways of conveying three variables.

There are examples of teachers’ use of technology to provide immediate feedback from the whole class and therefore inform real-time formative assessment judgments, in: the UK, Ireland, Norway, Italy, Germany, Netherlands. These technologies are in their infancy in terms of reach within schools and hence there is potentially significant value in broadcasting these examples (some using commercial apps, others created for the project) and the value they can bring, as well as what has been learnt in terms of supporting teachers to make use of the technology for formative assessment, particularly if there is robust evidence of technology enabling change in teaching practices, as is suggested.

While there is great promise in combining technology and formative assessment, the report for 6.1 acknowledges that the full potential of this synergy has not yet been realised. There is now a toolkit and professional development package. In our view, one important step towards realising the potential of project findings, would be to run trials of these resources and to refine them in light of feedback from teachers.

² <https://research.ncl.ac.uk/fasmed/deliverables/D5-3%20Cross%20Comparative%20analysis%20of%20country%20studies%20final%20repor.pdf>

³ <https://research.ncl.ac.uk/fasmed/deliverables/Deliverable%20D6.1%20Socio-technical%20approaches.pdf>

D 6.2: Policy Guidelines: National, regional and EU policy guidelines for the provision of approaches to the raising of achievement in mathematics and science education

This deliverable⁴ sets out the policy implications of the FaSMEd project. These principles are well argued and clearly articulated and follow an evidence trail through the project. We recommend that these conclusions are taken seriously and that further dissemination activities are considered.

D 6.3: Future research: Recommendations for future research

This deliverable⁵ suggests ways in which further research might build on the FaSMEd project. Amongst the suggestions are further refinement of, and research on, particular tools and approaches investigated in individual FaSMEd case studies as well as further iterations in development of the Toolkit for teachers and Professional Development package to take account of feedback from a wider group of teacher users who have not participated in the project. Finally, it points to the desirability of evaluations being conducted of the extent to which, and ways in which, the types of resource produced by this and other EU-funded projects are actually being taken up by teachers.

D 10.3: Ethical report 2

We commend the FaSMEd team for the ethical conduct of this project and for the ethos of trust and collaboration that was apparent between partners and which was surely a crucial element in the overall successes.

Conclusion

The FaSMEd project has successfully completed the contracted deliverables. In particular, the promised Toolkit and Professional Development package are now available online⁶, along with the supporting case studies and cross-case analysis. The evidence assembled during the project provides scope for further and fuller analysis which might provide a good basis for research publications meeting the highest standards of international research.

⁴ <https://research.ncl.ac.uk/fasmed/deliverables/Deliverable%20D6.2%20Policy%20guidelines.pdf>

⁵ <https://research.ncl.ac.uk/fasmed/deliverables/Deliverable%20D6.3%20Final.pdf>

⁶ <http://www.fasmed.eu/>