Teachers' perceptions of Inquiry: Impact on formative assessment in the classroom.

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In many schools in England, science practicals tend to follow a 'recipe' approach. This results in procedures that are more 'hands on' than 'minds on' for students, hampering students' science learning. Open inquiry has been advocated as a powerful strategy to introduce 'minds on' practicals and support the development of multiple competences that are at the core of thinking and working scientifically.

Inquiry-based science education is a student-centered approach to teaching and learning science that is conducted through the process of raising questions and seeking answers. For open inquiry to be successful teachers need to develop strategies to collect evidence of where their students are in their learning while they are conducting the inquiry, and plan their scaffolds accordingly. Research shows that inquiry-based science uptake has been slow as teachers struggle with curriculum and examinations pressures and confidence to engage with this type of practice.

The European projects SAILS and ASSIST-ME have been focusing on strengthening teachers' confidence in implementing and developing inquiry-based learning in science through supporting teachers in producing and trialing assessment models and materials that help them assess inquiry skills in the classroom. At the center of this work is a formative approach and a focus on assessing during an inquiry, rather than from the inquiry write-up. In other words, teachers assess the process, and in doing so acquire a rich bed of evidence of students' learning progress.

In this context it is important to understand how teachers participating in these projects perceive inquiry and how their perceptions shape their teaching practice in the classroom, namely their formative assessment practice. Anchored on a qualitative research approach, this paper documents through a case-study approach the journey of two secondary science teachers (participating in SAILS and ASSIST-ME) who have embraced inquiry based science and how this has impacted their teaching practice in terms of formative assessment, as well as how this has contributed to their advocacy for an inquiry approach in their science departments. The differences in teachers' perceptions of inquiry and the subsequent differences in assessment for learning strategies that they use will be discussed in light of implications for the development of initial-teacher training and CPD courses.