

# Reflections from the UK national INSTEM workshop

The second UK national INSTEM workshop was held at the University of Exeter on the 11th of November 2013. This followed on from the first meeting in the Royal Society of Chemistry in London, organised by the National Education Organisation Network (NEON) and Graeme Atherton. The Exeter workshop, intentionally focused on pupils and teachers' perspectives, was organised and delivered by UK members of the INSTEM Project, namely Tricia Jenkins and myself from the University of Liverpool, Lindsay Hetherington and Alun Morgan from the University of Exeter and Martin Dixon from Bodmin College. The workshop, chaired by Dr Dixon, involved the participation of: a University of Exeter Public Engagement specialist, local teachers, STEM project managers, a regional Teacher Advisor for STEM (Cornwall), a representative from a regional provider of Informal STEM education (@Bristol), and, crucially, year 10 and 12 students from Bodmin college.

The event began with a presentation of the WP5 state of the art report and its recommendations delivered by the University of Liverpool team, which participants endorsed with enthusiasm. A further presentation entitled "strategies to implement IBL activities in the classroom (and beyond). Evidence from research" was delivered by the Exeter team. To follow, the main part of the meeting was given over to discussion in three smaller 'break-out' groups followed by a Plenary.

The most outstanding result of the meeting has been the engagement of children in the discussions on IBL and on the state-of-the-art report recommendations. The Bodmin students provided very articulated and thoughtful views on the project findings. To summarise their ideas, pupils at Bodmin emphasised their strong desire for creative approaches to learning, especially in STEM subjects, which are often seen as more factual than creative; they also pointed out that at Bodmin they often make suggestions to teachers in regard to possible creative learning activities through feedback sheets. Some of them suggested taking an interdisciplinary approach to teaching, bringing art into science, for example learning STEM through drama; they thought this would help engage all the pupils in a classroom regardless of their learning styles.

The students were also very positive about the notion of peer learning, or a structure in which some learning is 'taught' and some is 'independent'. In relation to peer learning, they felt that some teachers assumed they would go off task and talk about other things, but through talking with peers they could then both ask the teachers questions if needed. Pupils claimed an interest in the idea of 'explaining' – also with graphic or visual representations - they need to be kept interested – as it helps ideas to stick in their minds. In regard to the need of involving children as key players in the education system, they clearly felt that this is the only way of engaging all pupils with education during their learning journey and of giving them the opportunity to feedback to the teachers, making clear what has worked for them in the classroom and what hasn't.

Pupils at Bodmin confirmed the overall perception that the use of IBL in the classroom allowed much more communication between pupils and teachers; they were absolutely positive about the idea of IBL but wouldn't like all their learning to be conducted through IBL approaches. "There is a need of a mixture of contents and skills" stated one of the participants. Teachers on the other hand, were highly enthusiastic about IBL activities in the classroom but at the same time concerned to ensure that pupils are covering the necessary material and make the required number of levels progress - as these are linked to Ofsted targets and league table metrics and also impact on teacher's performance related pay.

The UK national INSTEM workshop confirmed the overall perception that IBL is good within a structure, and great but in moderation, as students still 'aim for a grade' - and this recalls the need of discussing assessment methods within IBL - a step that needs to be tackled as a matter of priority.

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This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use, which may be made of the information contained therein.



