

An inquiry into improving the promotion, teaching and learning of scientific literacy skills in Key Stage 3 pupils

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"In an age fueled by information and driven by technology, understanding the concepts and processes of science is as indispensable as knowing how to read, write, speak and listen"

Thier 2002, para. 1

Rationale

Existing methods for assessing scientific skills are complex, time-consuming and inaccessible for pupils. I wanted to develop a way to integrate skills better into lessons, and facilitate easier and more consistent assessment.

Intervention

This will take the form of a grid of success criteria for the various skills that are taught. This was shared with pupils in lessons, and I investigated its impact on pupils' skills, particularly those of evaluation. An extract of this is given below:

	Skill	Level 5	Level 6
Reflecting	Bias and Reliability	I can <u>identify</u> information or data that has been presented in a <u>biased</u> way and start to consider whether my findings/evidence is <u>reliable</u> .	I can assess the <u>degree of bias</u> in the evidence/information and <u>consider the reliability</u> of my findings.
	How could I improve my plan	On <u>my own</u> I will begin to discuss how my plan could be improved.	On my own I will discuss in detail how my plan could be improved
	Identify thinking skills	I can identify one thinking skill I used in my own work.	I can identify a range of thinking skill I used in my work.
	Linking learning to situations	I can link my learning to different but familiar situations.	I can link my learning to unfamiliar situations.

Design

The overall methodology was that of action research, using a middle ability year 8 class and the following methods:

1. Questionnaire (for pupils)
2. Colleague interview
3. Non-participant observation (by external mentor)
4. Baseline assessment data
5. Reflection from professional journal entries

Findings

After four weeks using the intervention, pupil's skill levels showed marked signs of improvement as shown in figure 1. Of the 23 pupils that filled in the questionnaire, 18 of them found it quite or very helpful during lessons. Figure 2 gives an overview of the features of the intervention that helped to make it successful.

As a result of providing structured criteria, the quality of self and peer assessment improved according to 77 % of pupils. I also noticed a considerable improvement in the quality of work and feedback in pupils' books.

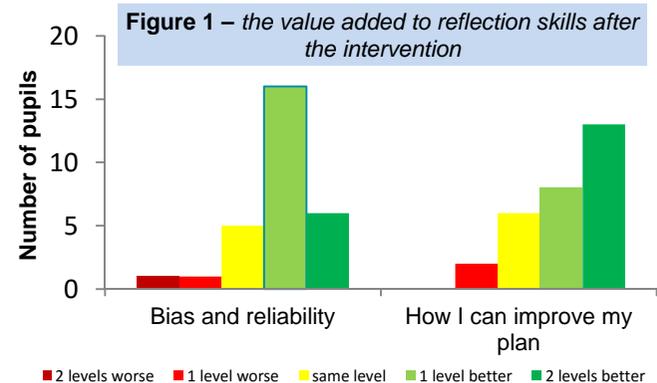
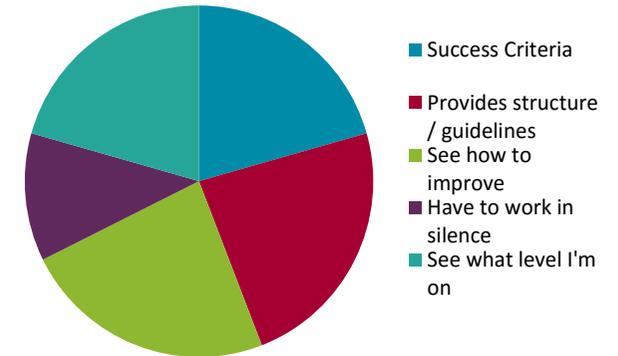


Figure 2 - a summary of the qualitative comments made by pupils about the intervention



Implications

The skills grid has proved successful so far with pupils, and engagement and attainment in skills-based lessons is improving. According to a colleague, it has made the assessment procedure "quicker and easier" as well as enabling easier and more consistent application for departmental marking policies.

This will be rolled out to all KS3 pupils and integrated into all new and existing KS3 schemes of work.

There is also an opportunity to create a version to share with feeder primary schools to aid the transition process in the future.

References

Thier, M. 2002. The new science literacy: linking language and science. *Classroom leadership* 6(4). Available at: <http://www.ascd.org/publications/classroom-leadership/dec2002/The-New-Science-Literacy.aspx> [Accessed: 21 August 2015].