



Findings

How does the PSQM programme work with teachers in their professional development as leaders of science in primary schools?

'One of the benefits of the PSQM; it turns a coordinator into a leader ... but science is one of the things they are coordinating very often to start with, it's not the reason for their existence in terms of their professional development. But it becomes that through the PSQM approach, so they shift from being 'have we got some filter paper in the cupboard?' to 'now we are going to share our practice with the school down the road.'
PSQM Stakeholder

The research demonstrated that the PSQM developed science leaders through:

- providing a clear structure through a framework
- developing an understanding of the role
- developing some key skills (e.g. action planning, evaluating practice and team teaching)
- creation of principles for a whole school approach by listening to pupil voice

The primary way in which professional development was facilitated was through the hub providing a supportive sharing network across schools and a mentoring relationship between the science leaders and the hub leader.

'The close mentoring relationship is vital... a person that you respect, investing in you, listening to you and guiding you... this is powerful stuff... where else offers this?'
Hub Leader 5

The latter point is illustrated further in that creating the principles at the start of the process:

'provides a common understanding of what science in the school should look like. In many schools this is the first time that science has been discussed with the whole staff. This brings everyone together with a common agreed purpose and vision'
Hub Leader 3

Some of the research participants described how the science leaders were growing in confidence:

'... At the end of the process the subject leaders have grown in confidence and feel much more comfortable with offering guidance and support to others.'
Hub Leader 3

'For me it was the leadership, communicating with the other staff especially because I am quite young ... so I was quite intimidated to talk to them about things but once I did ... I realised they are just like me and want to share their knowledge too.'
Science Leader 1



Listening to pupil voice as part of the PSQM procedures was empowering some of the science leaders:

I liked doing the pupil voice, the questionnaire ... I found that really useful because it gave me targets for what the children want, that's important to me, to know what are the children thinking about their science and what were the pitfalls for them ... They didn't like the PowerPoints ... so it was good for me to tell the teacher and raise that with teachers, which I thought that was powerful and important, which I wouldn't have been able to do without the PSQM.
Science Leader 2

There was a wider range of learning strategies as a result of participating in the PSQM programme. These strategies were being implemented in conjunction with a focus on child-led and hands-on learning. Pupils were asking their own questions and working scientifically to answer them in their own investigations.

There was also more consistency in the quality of teaching primary science across the school.

The submissions to the PSQM portal supported the data collected from the focus group and questionnaire of science leaders showing internal congruency. In some schools:

- science teams were established
- staff were sharing good practice
- staff were accessing more professional development to improve the learning and teaching of science
- science leaders were more confident in their role

Conclusions

Our research provides evidence that the primary science leaders were working as teacher leaders, formally influencing their school community through collaborative relationships.

There was evidence that through undertaking the PSQM award the profile of the science leader was enhanced, giving them the recognition with which to lead change, and empowering them to have confidence where they had newly taken on the role.



Why the focus on primary science?

'Children start to develop perceptions about whether science is 'for them' towards the end of primary school. It is therefore essential that all primary school pupils experience inspiring science that builds their understanding of the value and place of science in their lives. This will lay the bedrock for their future studies, enable them to make well-informed decisions in our increasingly hi-tech world and give them access to a wide range of rewarding careers.' (Wellcome 2014:4)

Why the Primary Science Quality Mark?

The Primary Science Quality Mark (PSQM) is an award programme with the following aims:

- to raise the profile of science in primary schools
- to provide schools with a framework and professional support for developing science leadership, teaching and learning
- to celebrate excellence in primary science
- to use networks to provide local support for science for schools
- to assemble a rich database of current practice in primary science and make it accessible to the wider science education community.



www.psqm.org.uk



Research Approach Questions

How does the PSQM programme work with teachers in their professional development as leaders of science in primary schools? What is the impact of undertaking the PSQM award on the quality of science leadership in primary schools?

An interpretive approach was taken to understand the experiences of the participants. Data collection methods included:

- email questionnaires to the PSQM Director, science leaders in renewal schools and hub leaders
- semi-structured telephone interviews with PSQM stakeholders and a hub leader
- a focus group with science leaders
- selected data from PSQM submissions

References

WELLCOME TRUST 2014. *Primary Science - is it missing out?*