



## **REPORT ON THE 2010 SUMMER SCHOOL**

**6 - 8 NOVEMBER 2010**

**CREWE HALL, CREWE**

**MATHS and SCIENCE**

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## SUMMARY OF SUBJECT PRESENTATIONS

Brief presentations were made by Teacher Leaders in Mathematics and Science summarising the outcomes of the group discussions. The main points were the distinctive value of the residential, and three areas of concern for the future.

### 1. The distinctive value of the Residential

The residential was highly valued by delegates as it provided:

- The opportunity to network with professional colleagues
- The opportunity to reflect on one's own practice and to learn from others'
- Having time and incentive to discuss the core values and other important aspects of one's subject
- The variety and intellectual rigour of the lectures
- The chance to have an impact on national education planning
- The discussion of engagement and challenge
- The inspirational and reinvigorating nature of the course
- The active participation and informed contribution of other delegates
- Learning new ways of enhancing departmental capability.

### 2. Issues for the future

Delegates identified the following areas of challenge and potential challenge for the future:

- **Assessment.** It was felt that the dominance of exam-led and data-driven assessment makes it harder for pupils to learn in an imaginative and investigative way and may deprive them of educational opportunities; the present yardstick of A\*-C grades was seen to be a crude one, and a review to enable success to be measured across a range of pupil achievement would be welcome; there should be more scope for validating individual teachers' judgement.
- **Curriculum change.** There was perceived to be too much recent change and often with too short a lead-in time; a period of stability would benefit everyone. It was also recommended that there be more emphasis on subject-knowledge; this should have priority over skills and cross-curricular topics.
- **Teacher recruitment and Professional development.** Delegates felt there should be a compulsory element of subject-based CPD for all teachers every year; this might help to attract teachers to the profession and keep them interested. In Science, more effort should be made to redress the imbalance between teachers of Biology on the one hand, and of Chemistry and Physics on the other.

## SUMMARY OF PANEL DISCUSSION IN RESPONSE TO SUBJECT PRESENTATIONS

Bernice McCabe (BMC)	Chair, Co-Director, The Prince's Teaching Institute
Liz Francis (LF)	Training and Development Agency
Michael Chisnall (MC)	HMI and Adviser to HMCI
Peter Griffin (PG)	National Centre for Excellence in the Teaching of Mathematics
Mary Ratcliffe (MR)	National Science Learning Centre
David Moody (DM)	Teacher Leader in Mathematics
Alastair Cuthbertson (AC)	Science Stream Designer

Following the Teacher Leader presentations, the final panel of the Residential picked up their themes and the discussion centered around five main areas of discussion:

- A. Curriculum Change
- B. Accountability and Assessment
- C. Targets
- D. Professional Development
- E. The Future

### A. Curriculum Change

*Having to deal with a succession of changes to the curriculum makes it very difficult for teachers to plan a coherent and rigorous programme of teaching. So how should such changes be made in the future?*

**MC:** Ofsted has no power over the curriculum itself. Its job is to inspect what Parliament requires it to inspect and report on the effectiveness of the curriculum. But it should certainly be the teachers who influence change.

**LF:** There needs first to be a national debate – to which teachers as well as other interested parties should contribute – about the principles that should underpin any curriculum; about the balance between flexibility and entitlement, for instance. Then, once a decision is made, there should be five years of stability.

**MR:** There was plenty of consultation of teachers before the introduction of the National Curriculum; but not in more recent changes. Now I feel they are more likely to be listened to; but they must keep up their voice.

**PG:** There is a great difference between the curriculum as a paper document – to whose production teachers should indeed contribute – and as the substance of what is delivered in the classroom, where the teacher can and should be able to exercise their own creativity and make decisions about the fine detail of what is taught and how it is taught. Local Authorities and Government need to be kept informed of how well the curriculum works in practice....

**AC:** ... and no curriculum should be rolled out until there has been time for proper trialling and modification.

## **B. Accountability and Assessment**

*There is a movement towards greater autonomy in schools, but there still needs to be a framework for accountability. In what areas might schools exercise more autonomy for the benefit of their pupils, and how might the role of Ofsted change to accommodate such a shift?*

**LF:** This would be part of the preliminary debate. Greater autonomy might make politicians nervous, and there would have to be safeguards against falling standards; but in itself it is a good thing. It will throw greater responsibility upon the Head, and they may need more training in order to be able to use it constructively.

**MR:** Teachers will also need knowledge and skill to use that freedom properly, as well as appropriate training.

**MC:** There are big changes in the Inspection framework coming up, with the main judgements reduced to just four: Leadership and Management, Teaching and Learning, Behaviour and Safeguarding and Attainment and Achievement. This will give greater freedom to schools while maintaining accountability in the core educational activities.

**DM:** It would be better if the framework were to be determined by teachers for teachers, not externally imposed.

*What methods of assessment would do most to encourage imaginative teaching?*

**DM:** Success should not just be measured by figures like the number of A\*-C grades. The raw grades do not give enough information. Teachers need to be able to make nationally validated judgements about progress, imagination etc.

**LF:** Nationally, teacher assessments have been shown to be not that reliable. There is always a danger that the pupil is judged by the standards of the school not of the country.

**PG:** Decisions about modes of assessment (by individual teacher or by national test) should be made on the bases of what knowledge, skills and understanding should be assessed and not be dominated by what the easiest and most manageable forms of assessment might be

**MC:** The aim of the Ofsted inspection is to find out what individual pupils are getting from their education and how well they are progressing. Public exam results provide only a part of the evidence for making that judgement.

**Delegate:** Instead of the present 'race to the bottom' by competing Exam Boards, public exams should be set centrally, in consultation with HE and employers, and the function of the Exam Boards should simply be to deliver the exams, competing to provide the best support, service and resources.

## **C. Targets**

*One of the most unremitting and potentially damaging pressures on schools is the need to achieve particular results (in terms of exam passes) and to perform well in League Tables. Can anything be done to alleviate this pressure?*

**MC:** We tend to pay too much attention to where the boundaries are drawn rather than on the progress that pupils are making...

**Delegate:** ... and so more attention should be paid to the value that the school is adding.

**MR:** We should be separating individual attainment from school accountability.

#### **D. Professional Development**

***Giving teachers a programme of stimulating professional development can have a major impact on school improvement, as well as on recruitment and retention. Should there be more emphasis on subject-specific training ?***

**LF:** Yes, undoubtedly we need more. For a decade there has been too much emphasis on generic training included that which is related to the National Strategies. But some Heads will need persuading and teachers must continue to make the case.

**PG:** Teachers need opportunities to develop their practice as well as their subject knowledge and subject specific pedagogy. Much can be gained from teachers collaborating in shared planning and teaching ; observing each other, being observed by their peers and developing practice together.

**MR:** There are courses which give scientists the knowledge to teach outside their specialism, to great effect. But where School Management teams are unpersuaded of the value of subject-specific training, they need to be won over by demonstration of its worth, not by compulsion.

*(A show of hands indicated a very large majority of delegates in favour of at least one day per year of subject-based CPD)*

***What other ways might be used to attract suitable candidates into the teaching profession and retain them?***

**LF:** We have a very good cohort of trainees coming through, but Initial Teacher Training is under review and a White Paper shortly to be published may place greater emphasis on school-centred training. National targets for teacher recruitment may mask regional differences.

**Tom Dawson (Science Teacher Leader):** There also considerable differences between University Education Departments which affect the quality of new teachers. And the statistics do not sufficiently differentiate: there may be plenty of Science teachers coming in, but the number of biologists among them is seven times as many as the physicists.

#### **E. The Future**

***What grounds for optimism can you give to the teachers here in regard to the development of education over the next five years?***

**LF:** The Government shows itself keen to reduce bureaucracy, to free up schools to concentrate on Teaching and Learning, and to support a commitment to subjects. But the changes will need careful planning and present a big challenge to school leaders.

**MC:** There are strong signs of a greater focus on what is most important in schools: the transaction between teacher and pupil, passion in teaching, and inspiration of the pupils. Don't let anyone suggest to you that Ofsted isn't interested in these things.

**PG:** There is growing attention to, and evidence of, the professionalism of teachers.

**MR:** STEM subjects are as important as ever, and so are their teachers.

**AC:** The PTI bug is infecting an increasing number of schools.

## SUMMARY OF STUDENT PANEL

A discussion was held involving pupils from the Sir William Stanier Community High School, a mixed 11-16 school in Crewe, and from Upton Hall FCJ, a Catholic High School for girls aged 11-18 in Merseyside. All were studying Mathematics and Science.

### Summary of main points:

1. The students felt that the inspirational features of Science and Mathematics are:
  - Constant challenge
  - Opportunities to work independently
  - Tackling topics outside the syllabus
  
2. Their advice from pupils to teachers would be:
  - Enable pupils to learn by doing
  - Use practical examples to teach concepts
  - Encourage independent work
  - Use feedback from pupils to help those with different abilities and aptitudes to learn in different ways
  - Learning in groups is sometimes more effective than personal help from the teacher
  
3. The qualities that make a teacher inspirational are:
  - Showing interest in the individual pupil
  - Not always sticking to the syllabus or the lesson plan
  - Setting a good personal example
  - Being able to see things, including difficulties, from the pupil's point of view
  - Accessibility outside the classroom
  - Good knowledge about the subject and showing a real passion for it.

## SELECTION OF QUOTES FROM DELEGATE EVALUATIONS

“If Ofsted were to assess the CPD given by the PTI they would have to create a new grading as it goes beyond outstanding!”

“I enjoyed it immensely. I had set high expectations, and it has met them. I've picked up lots of ideas and new contacts.”

“This course has made me realise the importance of keeping up-to-date with new advances in Science - something I am going to ensure is happening across my department.”

“I have never had this amount of time to discuss Maths with other subject specialists. Knowing that other schools are focussing on learning is re-assuring.”

“Excellent mix of activities. It was obviously well planned and executed. I have really appreciated the opportunity to have lectures/discussions on my subject, and to interact with colleagues from around the country – invaluable.”

“Sharing development objectives and ideas, I feel I have renewed enthusiasm.”

“Excellent CPD opportunity with the chance to take back lots of ideas for simulating on current strengths and successes.”

“It was fabulous to be able to discuss pertinent issues with small groups of professionals.”

“I have always had it clear in my mind about the importance of Science. It has made me reflect on the importance of extending Science knowledge beyond [exam] specifications.”

“This course is a unique opportunity for subject-based invigoration and stimulating our minds.”

“Enjoyable and very useful weekend, I feel extremely privileged to have had this opportunity and I am looking forward to sharing my experience with the department.”

“The balance was right- the topics were appropriate and the leaders were excellent.”

“A well put together, full programme of events. The content was suitable, accessible and inspiring.”

“This is an excellent way for teachers to meet and share ideas and learn from experts in the field of Maths. The programme was intense but rewarding. “

“A fantastic opportunity to refresh my subject knowledge. An excellent opportunity to share ideas from other Maths teachers across the country.”

“A very good balance of sharing, discussing, inspiring and engaging.”

“A unique opportunity to attend CPD where subject teachers set the agenda.”

“All lectures were enjoyable, the scope, depth and level of the lectures was incredible.”

“This is without a doubt been the best CPD I have had during my whole teaching career.”