

Creating Powerful Teacher Education Opportunities:

The need for risk, relevance,
resource, recognition, readiness
and reflection

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Introduction

- The Scottish Scene
- A tale of two projects
- Some recommendations

Scotland



produce sufficient
numbers of qualified
scientists and produce a
scientifically aware public
(Science Strategy for Scotland, 2001)

65% of Scots
have no formal
qualification in
any science
subject
(Scottish Executive, 2001)

Relevant science
education is at the heart
of an innovative,
knowledge society
(National Academy of Engineering, 2005)

ICT?

- The literature on the potential use of technology in science classrooms was growing.
- Though resource levels in schools had increased, informed use had not.

The National Response

- Curriculum for Excellence (Scottish Executive, 2004) is seeking to promote a ‘less crowded and better connected’ curriculum that offers more ‘choice and enjoyment’.
- The Assessment is for Learning project is trying to develop informed policy and promote formative assessment by involving teachers, schools, local authorities and teacher educators (Hutchinson and Hayward, 2005).
- In 2001 the £800 million “A Teaching Profession for the 21st Century” (‘McCrone’) National Agreement was reached.

The local response

- The McCrone agreement provides contractual understanding for professional development and requires teachers to maintain a professional development record
- The PIPS Projects (funded by Astrazeneca Science Teaching Trust fund)
- The Film in School Science Project (funded by the Wellcome Trust fund)

Project details

- A community of teachers, educators and scientists working to develop resource materials involving various technologies to be used in their classes.
- PIPS1- 4 Scottish councils, 10 schools (16 teachers), 9 scientists, and 2 secondary school teachers - 10 months.
- PIPS 2- 3 Scottish councils, 15 schools (17 teachers), 5 scientists, 2 secondary science - 5 months.
- FISS 12 secondary school teachers.

Project findings

- Risk
- Recognition
- Relevance
- Reflection
- Readiness
- Resource

Classroom Reality

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- A day in the life of the project.
- Stimulating interaction with peers, who recognised the challenges of the classroom, and the nature of engagement with scientists who were able to communicate science well encouraged teachers to review their practice.

School Leadership and Readiness

- Teachers who had not reflected on their practice were not ready for change. Teachers working in environments where change was encouraged introduced new practices. (Anne Comrie- QT)

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Modelling practice

- ❑ projects were well resourced in terms of time and equipment, but unequally resourced in terms of community support - didactic project officers who continued to 'instruct' and failed to recognise teachers' expertise generated 'usual' teacher materials, teachers were less reflective and took fewer risks.

Relationship between recognition and risk

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- Teachers who took initial risks came to be recognised as expert teachers within the group. Teachers who took risks and modified classroom practice found their action was recognised and commended by peers, pupils, parents and grandparents. This recognition encouraged them to continue to change their practice. (Marion's show & tell)

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- ❑ Many primary school teachers have had their practice recognised more formally (HMIE, invitations to present at conferences, manage local council CPD, national newspaper items, or short-listed for national teacher competitions). And they have brought about change in their school.
- ❑ Many secondary school teachers feel that the examination regime restricts creative practice to the first two years of secondary schooling.
- ❑ Some of the scientists were better at communicating with the pupils than others.

model of teacher professional development recommends the following:

- Develop communities of practice that help support teachers in classrooms; promote diversity by encouraging teachers with varied experiences and expertise to form the community.
- Provide customised and contextualised programmes that demonstrate knowledge and understanding of a particular education sector.
- Brief scientists (and others) in order to ensure they understand the ethos and theory underpinning the model and their anticipated role within the community.
- Foster authenticity by starting with teachers' experiences and providing strategies that allow teachers to address relevant classroom practice.
- Employ creative approaches that encourage curriculum resource development in tandem with professional development, rather than pre- or post- professional development.

model of teacher professional development recommends the following:

- Focus upon the types of ICT resources available to teachers in school and make available sustained opportunities for teachers to acquire skills that enable them to select and use ICT in an informed and effective manner.
- Deploy mechanisms that provide opportunity for teachers to illustrate exemplary classroom practices and strategies which are recognised by peers, parents and pupils.
- Adopt a project timeline that maintains teachers' interest and provides sufficient time to try out tasks with their classes, and reflect on the experience.
- Make explicit the theory underpinning the model of PD.

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Where to Get More Information

- PIPS CDROM
- FISS Booklets with teacher resource materials
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