Fox, Kathryn, Hurst, Ruth and Appleton, Nigel (2011) Developing subject knowledge in initial teacher education. In: TEAN Subject Knowledge Seminar, 14 January 2011, University of Cumbria, Lancaster, UK. (Unpublished)

Downloaded from: http://insight.cumbria.ac.uk/id/eprint/3768/

Usage of any items from the University of Cumbria’s institutional repository ‘Insight’ must conform to the following fair usage guidelines.

Any item and its associated metadata held in the University of Cumbria’s institutional repository Insight (unless stated otherwise on the metadata record) may be copied, displayed or performed, and stored in line with the JISC fair dealing guidelines (available here) for educational and not-for-profit activities provided that

• the authors, title and full bibliographic details of the item are cited clearly when any part of the work is referred to verbally or in the written form

• a hyperlink/URL to the original Insight record of that item is included in any citations of the work

• the content is not changed in any way

• all files required for usage of the item are kept together with the main item file.

You may not

• sell any part of an item

• refer to any part of an item without citation

• amend any item or contextualise it in a way that will impugn the creator’s reputation

• remove or alter the copyright statement on an item.

The full policy can be found here.
Alternatively contact the University of Cumbria Repository Editor by emailing insight@cumbria.ac.uk.
Developing Subject Knowledge in Initial Teacher Education

Kathryn Fox: University of Cumbria, Lancaster
Ruth Hurst: University of Cumbria, Lancaster
Nigel Appleton: Bishop Grosseteste University College, Lincoln
Developing a Course for 21\textsuperscript{st} Century Subject Specialists: Considerations

IDEAS, THOUGHTS & NEEDS
Pre-Validation Considerations

- Link subject knowledge to themes
- Links with the Secondary Curriculum
- Forge links with partnership schools

- Personalised
Developing a Course for 21\textsuperscript{st} Century Subject Specialists: Considerations

Placements are viewed by the students as one of the most important parts of their development as a teacher (Challen 2006)

\textbf{Maths: Peer mentoring 1:1}

\textbf{ICT: BBC School News Report}
This year a school interviewed David Beckham.

Strictly Come Dancing in Blackpool
Developing a Course for 21st Century Subject Specialists: Theoretical Perspectives

How has the school engagement helped you:

It has helped me now whilst on placement, as I feel I am already familiar with the types of topics being covered by different year groups, and areas such as APP and ICT levels are more clearer.
Not starting from scratch:

• Two year PGCEs (latterly 1+1)
• Physics and Chemistry Enhancement Courses (6 month)
• BA/BSc with QTS in some secondary subjects (3 years)
• Short subject knowledge booster courses (2 weeks)
Differing perspectives in the courses:

• Advanced perspective at degree level on the school curriculum subject, levels 5 and 6 (2yr PG, yr1)

• In-depth knowledge of the subject at levels 2 and 3 (CEC, PEC)

• Combining degree level study of subject, education and subject education (SecUG)
What is the subject knowledge these students need?

• Elementary Mathematics from an Advanced Standpoint; Professor Felix Klein (1908)
• Advanced Mathematics from an Elementary Standpoint; M. R. Spiegel (1950); W. W. Sawyer (1950s and 60s)

Subject or pedagogy?

• Q14 (exit requirement):
  Have a secure knowledge and understanding of their subjects/curriculum areas and related pedagogy to enable them to teach effectively across the age and ability range for which they are trained.
• Pedagogical Content Knowledge; Shulman (1986, …)
Developing a Course for 21st Century Subject Specialists: Theoretical Perspectives

School knowledge

Subject knowledge

Personal subject construct

Pedagogic knowledge

Teachers’ professional knowledge from Banks, Leach & Moon (2005)
Deep and surface approaches to learning; Biggs (1999, 2003)

Student perceptions of what they know and what they need to know; eg Kempe (2009); Green (2006)

Effectiveness of subject knowledge enhancement courses; eg May et al (2008); Woolhouse & Cochrane (2009)
Subject Knowledge Enhancement or ‘engaging with more than just the subject matter’.

- Basic tier varies depending on individual and subject needs.

Tracked and assessed through SK portfolio tracking system.
Subject Knowledge Enhancement or ‘engaging with more than just the subject matter’.

- Basic tier varies depending on individual and subject needs.
- Three overarching modules:
  - Subject Structure and Key Ideas
  - Subject Themes and processes
  - Subject Across and Beyond The Curriculum
- Basic and second tier learning are usually be interwoven.

Tracked and assessed through the University module system.
Tracked and assessed through SK portfolio tracking system.
Digital Literacy: Graphic & Animation

Prior Knowledge before this Module:

Before this module I had a little knowledge of some of the software packages used. The previous unit on creating Learning resources had introduced me to Flash at the deep end. This unit gave me some of the basics that I had missed previously and therefore increased my skills. I had only used photoshop on a very limited basis before and so my confidence is improved with this package. We had covered various file types and file sizes of images in Computer systems and Web Technologies 1 so again this was revisiting and consolidating my learning in this area. I did feel very confident with using Publisher as I have used this on many occasions over a number of years to create posters, newsletters and certificates.

My Learning Journey:

Session 1: This commenced with an introduction to visual literacy and as a group we looked at many sources of artwork and analysed the use of colour and contrast in a number of paintings. The types of colours used together created different moods and how a colour wheel can be used to help pupils choose which colours are effective together. The task we did was aimed at Y7’s to get them familiar with the Adobe Photoshop user interface and tools. We chose a picture which had good contrasting colours in it, this was imported to photoshop and pixelated. From this version of the photo we chose the main colours and created a palette of these at the side of the canvas the photograph was then
Developing a Course for 21st Century Subject Specialists: Theoretical Perspectives

direct involvement by students in assessing and discussing their own work and being given the opportunity to reflect on goals, strategies and outcomes are highly effective in enhancing learning and achievement.

McDonald and Boud, (2003)
Case Studies: Raising Awareness of Subject Structures

“The links to the curriculum has been invaluable this year. There is little time on the PGCE to go into great depth but this section of 6001 has left me far better prepared and therefore helps me with lesson planning now.”

“I definitely feel more confident about the supporting frameworks for teaching my subject”

“I developed a better understanding of the national curriculum and the connections in mathematics.”

From students who undertook SKE and are currently on PGCE courses.
Subject Knowledge Enhancement: Evaluating the Impact

How has the SKE course impacted upon outcomes …?

- Trainees’ classroom practice?
- Trainees’ attitudes to their subject knowledge development?
- Trainees’ understanding of the subject structure, key processes and the subject across and beyond the curriculum?
Subject Knowledge Enhancement: Discussion Questions

- How might following the SKE course impact upon trainees’ attitudes to their subject knowledge?
- How could trainees’ attitudes to subject knowledge impact upon their classroom practice?
- How might we further develop our understanding of the impact of the SKE on classroom practice and where are the opportunities to assess the impact of the SKE on outcomes for trainees?
Developing Subject Knowledge in Initial Teacher Education

Thank You!