Personal Inquiry: Designing for Evidence-based Inquiry Learning across Formal and Informal Settings

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Introduction – main objective

to design new educational methods of scripted inquiry learning,
implemented across devices
to evaluate their effectiveness in helping young people
to understand themselves and their world through a process of active scientific inquiry
across formal and informal settings.”
Partnerships

- Open University, UK
  - Oakgrove School
- University of Nottingham, UK
  - Hadden Park High School
- We have run 3 set of trials
  - themes: “myself” & “my community”,
  - for the last trials we’ll swap themes.
HEALTHY EATING: NOVEMBER 2008

Theme: myself
with Hadden Park High School

Research Question:
How does the PI toolkit scaffold and enable the Personal Inquiry learning approach?
Personal Inquiry learning approach

Pupils to understand where they are in the inquiry process
November 2008: Healthy Eating

- 9 lessons in 3 weeks science curriculum
- 30 pupils, 14 years old
- Equipment taken home for the whole period
- Inquiry Questions:
  - What nutrients do I eat?
  - Do I eat enough nutrients to be healthy?
Nov 2008: Technology

- Asus running the PI toolkit
- Camera to keep a food diary
Inquiry Process (part of)

**Data collection**
- To be able to reflect on data collected by their group on food observations

**Data Analysis**
- Compare their nutrients intake with the RNI,
- To make valid inferences
- To recognise a healthy and less healthy diet
Nov 2008: Data Collected

- **Video** capture of the 9 lessons with three cameras (2 groups and 1 overall),
- **Interviews**
  - 11 interviews with Teacher, 7 with pupils
  - during and post-intervention
- Researchers’ **observation notes** after each lesson
- 70 sets of **Questionnaires** (pre-post)
- **Log files** from 28 students coming from their use of the PI toolkit in class and the home (e.g. summaries, graphs, presentations)
Research Question re-visited:

• How does the PI toolkit scaffold and enable the PI learning approach?

• modified Critical incidents analysis (Flanagan, 1954; Carroll, 1993; Sharples, 1993)
  – Breakthroughs
  – Breakdowns
  – Routines
Themes from Critical Incidents

• **Co-ordination across contexts**
  - connect school with out-of school activities, e.g. carrying the equipment

• **Co-ordination within contexts**
  - technology-mediated activities within the school or home context, e.g. Usability of the PI toolkit

• **Revealing identity**
  - Activities need to be engaging and personally relevant but not too personally revealing
Lessons learnt: orchestration

• Students forgot computers
  • They didn’t have access to previous work
  • Need for centrally accessible data storage

• Lack of willingness to bring the equipment from home to school
  • Need to provide storage place at school

• Pupils not in the same inquiry phase
  • Maintain flexibility
  • Need for iteration of inquiry activities
Lesson learnt: orchestration

- Pupils’ support for
  - Access to a shared pool of data (group - class)
  - Activities to discuss and negotiate findings

- Teacher’s dashboard to monitor pupils’ activities
  - “Freeze” button to support class discussions
Lesson learnt: too personal

- Difficulties in finding the sweet spot between personal and non-personal inquiries
  - Participatory design techniques are essential
- Ownership data and results
  - Permissions for sharing own, group and class data
- Responsible for their actions
  - Aware of other pupils’ actions
Thank you

Any questions?

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