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

Dr Stamatina Anastopoulou,
M. Wright, M. Sharples, S. Ainsworth, C. Crook,
B. Norton, C. O’Malley

University of Nottingham,
Learning Science Research Institute
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

Co-ordination within contexts
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?
stamatina.anastopoulou@nottingham.ac.uk
www.pi-project.ac.uk