Report of Discussion
Working Group 3
Our Questions/Tasks

• How to improve design and development?
• Learning from other fields of research
• Formulating evaluation criteria
• Convincing decision makers.
Sub-group report

• Problem 1
• Mathematics is not always considered as a research domain

• Solution
• To circulate research results, including from CIEAEM, in each of our countries.
• „Top-down” and „bottom-up” should meet in a co-ordinated way.
• **Problem 2**
  • Research results are not instantaneous – they may take many years.

• **Solution**
  • All activities should have a clear aim which enhances social and intellectual development (eg small group work)
  • It is important to share results and to repeat research in many different classrooms.
• Problem 3
• What methodologies should be used?

• Solution
• We can use and adapt methodologies from other disciplines (e.g., ethnomathematics) or create our own.
• Problem 4
  • How can we improve methods of design and delivery?

• Solution
  • We need to find ways of co-operation between teachers and researchers through negotiation.
  • And, to find a common purpose.
This original presentation wants to show that mathematical understanding occurs most effectively when communicated across multiple representations.
Common Themes

• Innovative activities

• Diverse Goals
  – Students
  – Teachers
  – Researchers
  – Broad community
  – Politicians
• Communication & Semiotics
  – Oral language (formal, informal)
  – Textual
  – Images
  – Gestures
  – …

• Reform vs Conservatism
  – Students
  – Teachers
  – Researchers
  – Broad community
  – Politicians