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Centre for Excellence in Enquiry-Based Learning (CEEBL)

www.manchester.ac.uk/ceebl

Karen O'Rourke (Associate Director)

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Outline :

- Introduction to CEEBL
- Enquiry-Based Learning - principles, processes, skills
- Projects, Research and Networks
- Student feedback

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Extent of EBL at the time of the bids….2004-5

- **Evidence across the two Universities**
- **Range of implementation levels**
- **Most expertise in Problem-Based Learning**
  - **Medical School**
  - **Dental School**
  - **Nursing**
  - **Engineering**
  - **Manchester Business School**
- **But also in Geography, English Literature, History….**

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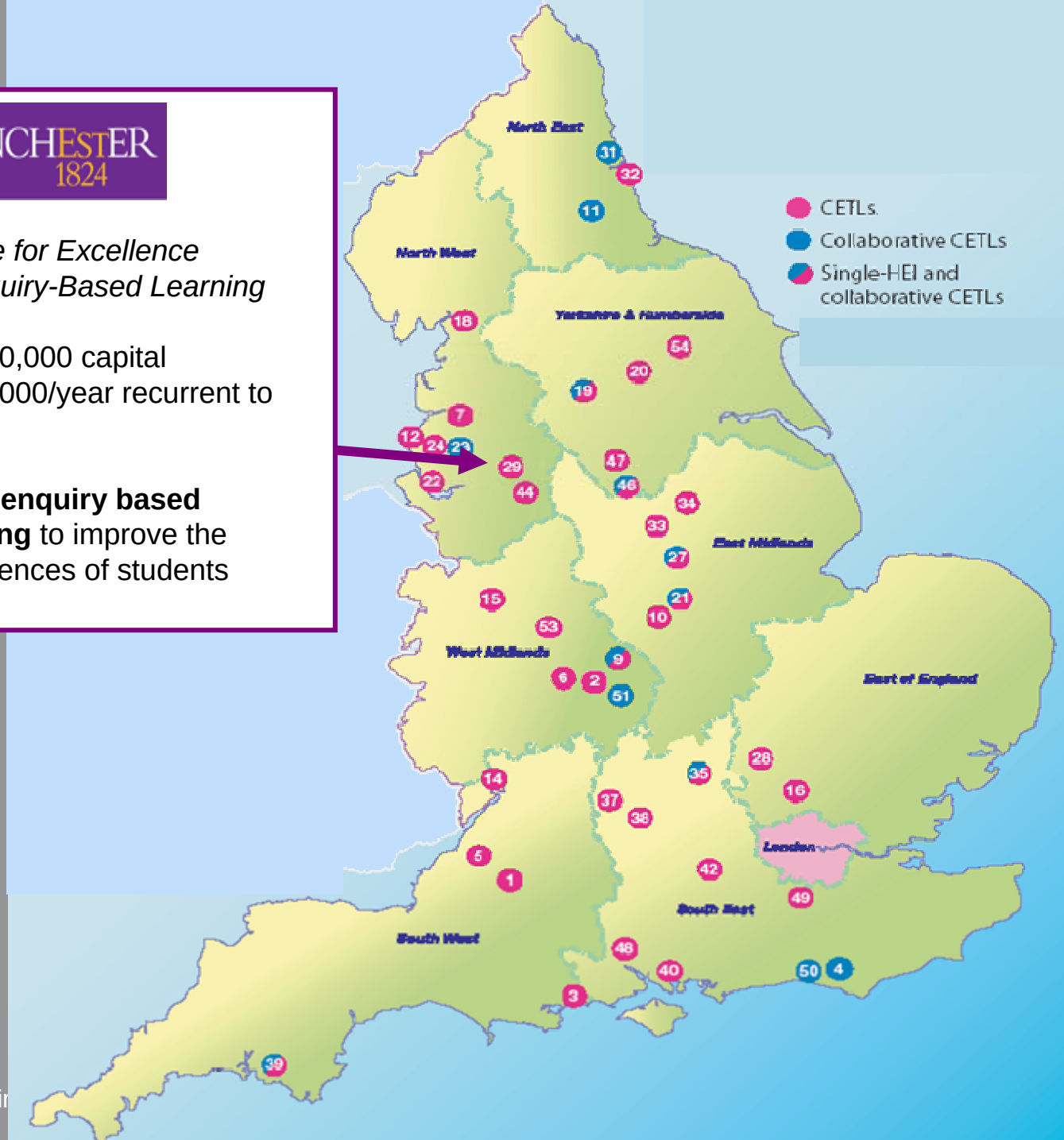
Centre for Excellence in Enquiry-Based Learning

£2,000,000 capital
£500,000/year recurrent to 2010

Using **enquiry based learning** to improve the experiences of students



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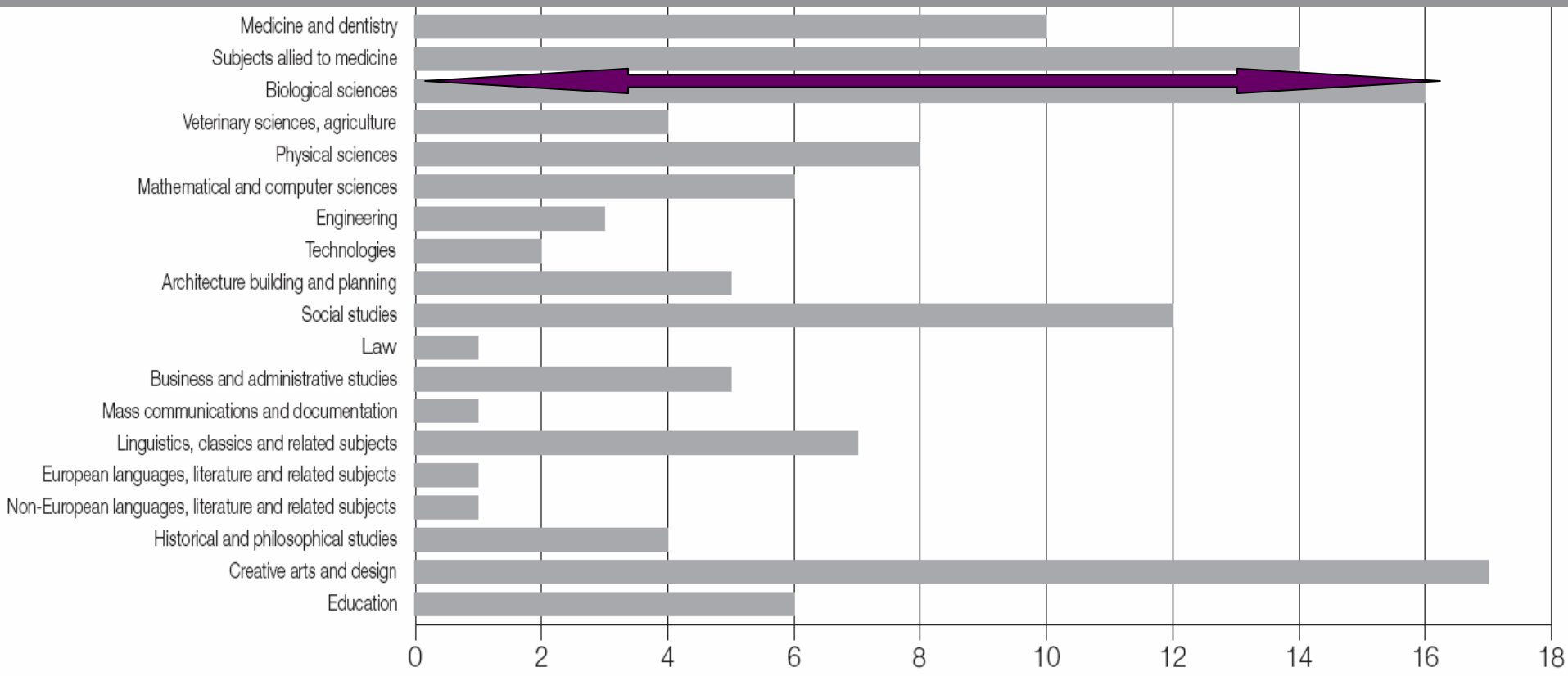
Subject spread of funded CETLs

High representation for Bio Sciences



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Pedagogic spread of funded CETLs

CEEBL engagement with several themes

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Building on ‘excellence’….

- PBL in Medicine, Dentistry, Nursing, Engineering
- ‘Manchester Method’ in the Business School
- Pioneering application of EBL in English Literature
- Management of externally-funded EBL Staff Development Project across six NW UK HEIs
- ‘Students as Partners’ initiative
- FDTL projects, NTF awards
- Publications, research

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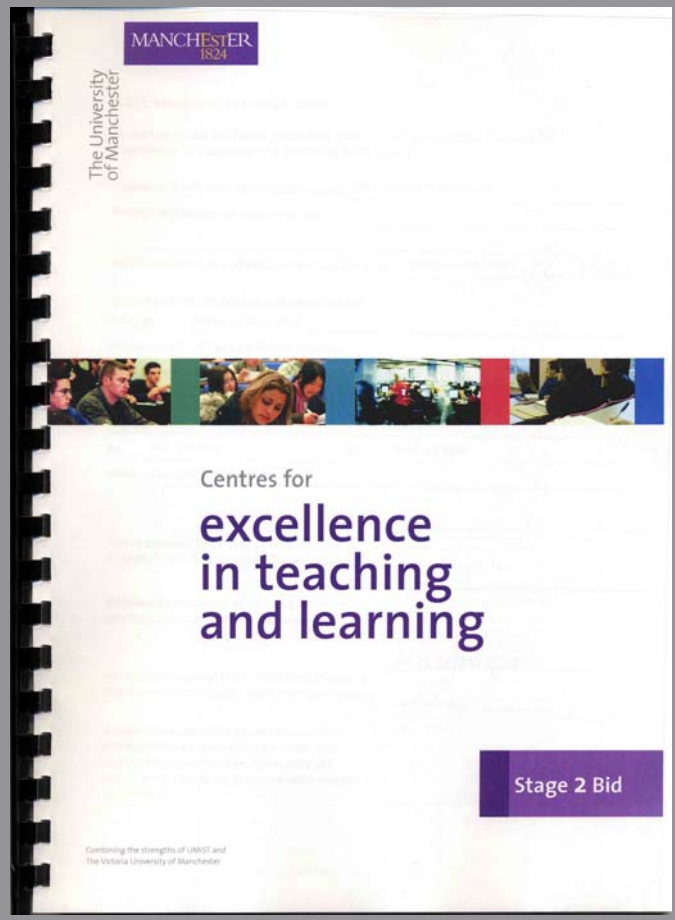
Team Effort

CETL Bid Team: Bill Hutchings, Ivan Moore, Sarah Morgan, Bob Munn, Paul O'Neill, Karen O'Rourke, Marcia Ody, Alasdair Renfrew, Liz Theaker



Towards Manchester 2015

CEEBL Capital Spend

Sackville Street Building

- Flexible Learning Space
- Learning Resource Room
- Social Learning Space
- Offices/hot desks

Faculty

- Flexible learning space
- Resources

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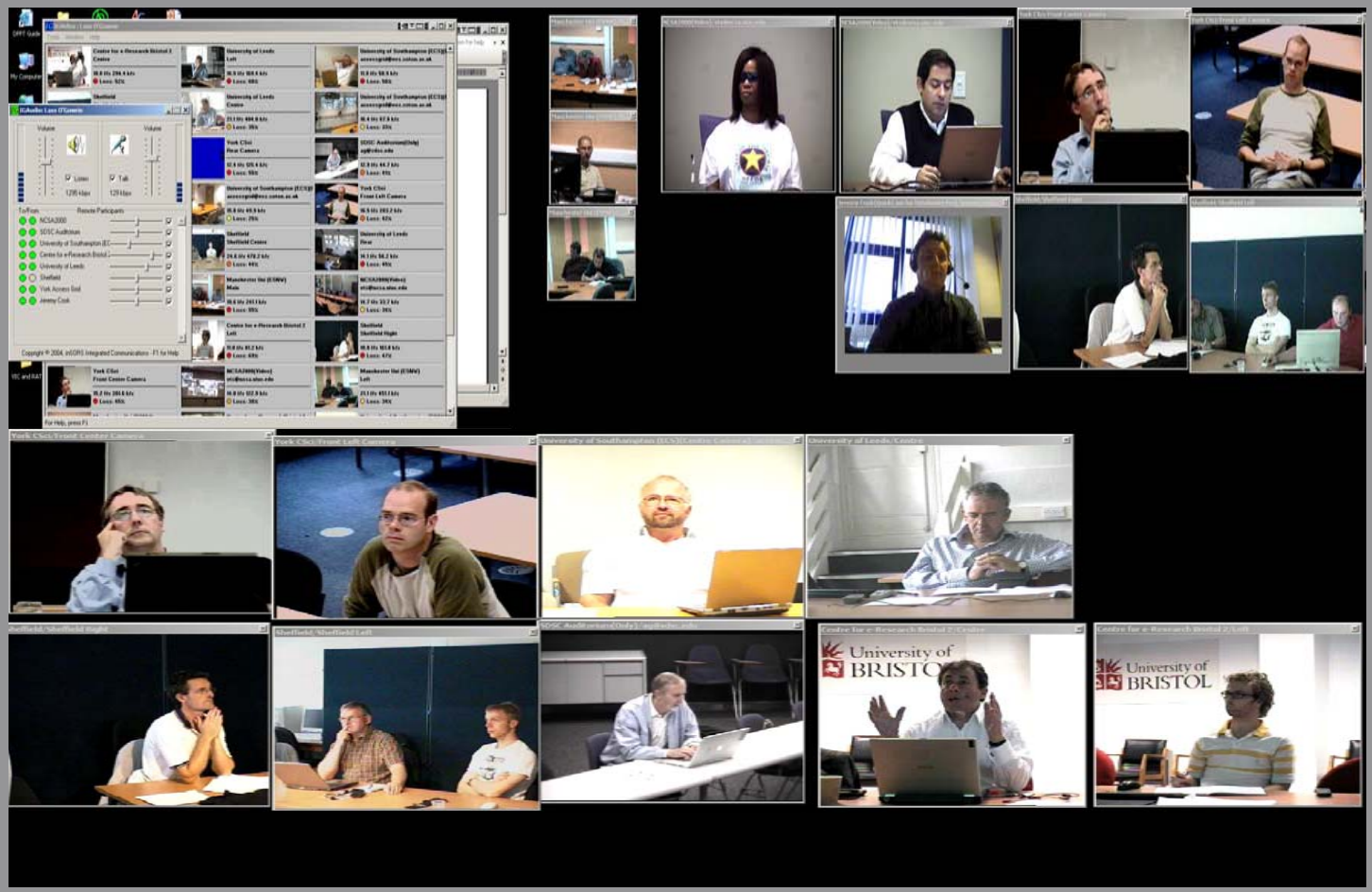
CEEBL developing use of Access Grid



Typical Access Grid meeting: this one is a WUNGrid meeting with people in Illinois, San Diego, Bergen, Bristol, Southampton, Manchester, Leeds, Sheffield

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Key CEEBL Activities

Recognise and reward teaching excellence

Continue innovation and development

Draw on existing pedagogic research and undertake further research and evaluation

Develop projects and partnerships at local, national and international levels

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CEEBL mission statement:

To expand and enhance the practice, understanding and profile of EBL, institutionally, nationally and internationally, with the result that everyone engaged in CEEBL and EBL will become capable, committed, curious, collaborative, scholarly and life-long learners through enquiry.

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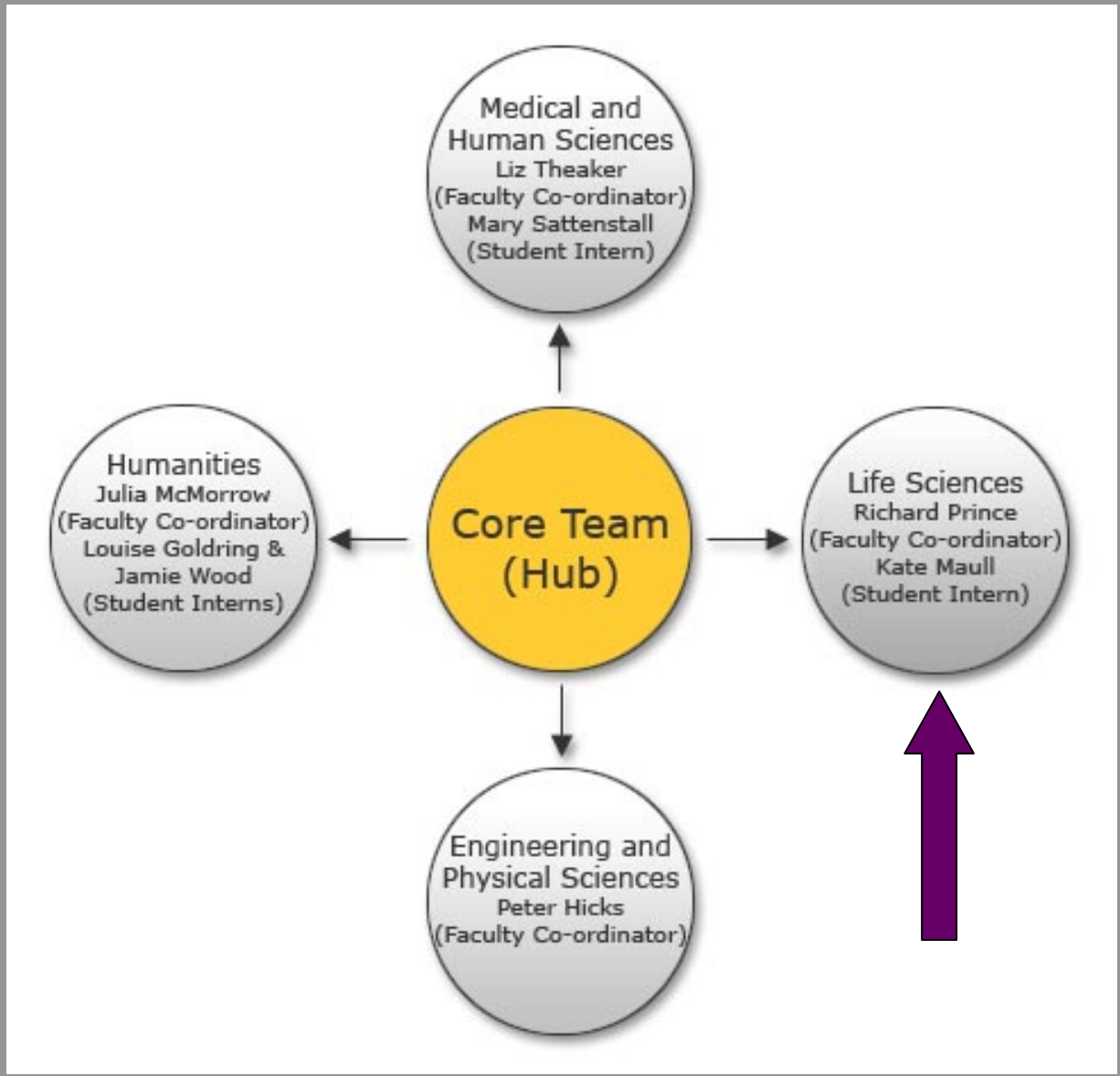
Faculty Co-ordinators with expertise in EBL



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The CEEBL Student Interns

- Advocacy
- Blog
- National Student Network
- Induction and resources to support EBL
- Contribute to research and evaluation activities
- Input to CEEBL projects
- Dissemination

Supporting the work of the CEEBL….

- Four Faculty Co-ordinators
- Student Sabbatical/interns
- Expert Consultants
- Educational Consultant
- International Advisor

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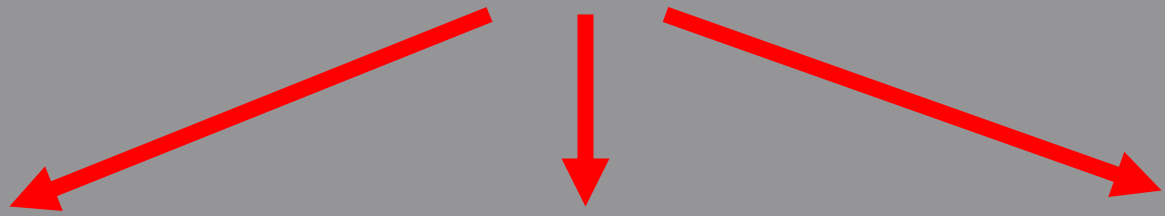
Enquiry-Based Learning



PBL:	Small scale investigations:	Projects & Research:
Exploration of scenario drives learning experience	Field work or case study adapted to disciplinary contexts	Encouragement of research-based approach to projects and processes

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Enquiry-Based Learning

- Nothing new! See Morven Shearer in BioSci Bulletin Summer 2007
- Learning driven by a process of enquiry or investigation
- Engagement with complex, ‘real-life’ scenarios
- Student centred
- Demands action
- Connects theory and practice
- Supported process
- Develops skills
- Social
- Fun?

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EBL provides two broad models of learning through enquiry:

a) **Engagement with problems that present difficulties but are capable of solution when subject to appropriate enquiry**

b) **Engagement with problems whose outcomes are inherently uncertain, open to question, unsettled, and thus a matter for continuing, perhaps irresolvable, enquiry**

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Why EBL?

- Transition into (and through) Higher Education
- Integration – knowledge, cultural, social
- Lifelong learning – information explosion
- Inter-professional and interdisciplinary learning
- Links between teaching, learning and research
- Employability/professional body requirements

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Support for Learning

- Practice in a ‘safe’ environment
- Creation and retention of knowledge
- Research skills
- Accommodates different learning styles
- Presentation of findings
- Feedback
- Reflection

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Professional Skills

Sources:

- Professional Bodies
  - BCS
  - (EC-UK) UK-SPEC
  - RPSGB
- QAA Subject Benchmark Statements

- Team-working
  - including Leadership
- Communication
  - Written & Oral
- Organisational
  - Planning & Management
- Information
  - Retrieval & Critical Appraisal
- Life-Long Learning/CPD

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Ian Hughes in Bioscience Bulletin Summer 2007….

Graduate attitudes valued by employers

….interested, enthusiastic and flexible graduate….and….keen, motivated and ambitious individuals….

….dedicated, passionate self-starters….energetic, systematic, committed….

….early start in developing these attitudes will enhance learning as well as better prepare them for the real professional world….

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Life Skills

- Encourages exploration, curiosity
- Creative problem-solving
- Responsibility
- Time-management, organisation and planning
- Communication
- Leadership
- Empathy, tolerance and understanding

What we expect from students….

- Accept responsibility for their learning
- Work co-operatively
- Determine a plan of activity and agree individual responsibilities for the work
- Use resources effectively and appropriately
- Share findings and collate research
- Negotiate deadlines and targets
- Present their findings
- Undertake assessment tasks

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What is expected from tutors/facilitators

- Devise the stimulus, audit resources, determine the assessment method(s)
- Prepare the students – benefits and expectations, change of role, groups
- Ensure that assessment process and criteria are understood
- Provide a clear starting point
- Facilitate the group processes and the learning
  - Guide lines of enquiry by asking questions
  - Support for any difficulties with groups or individuals

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Benefits to the facilitator….

- Can inform your own research
- Livens up tutorials
- Encourages participation
- Widens teaching experience
- Enjoyment!

EBL Tasks….Triggers….Problems….Scenarios….Projects….

- What do we want students to do?
  - Gain understanding, retain knowledge, create knowledge
  - Make decisions based on evidence and research
  - Analyse, synthesise and evaluate rather than just define and explain
  - Adopt a positive attitude towards their subject/profession
  - Take more responsibility for their learning
  - Develop skills

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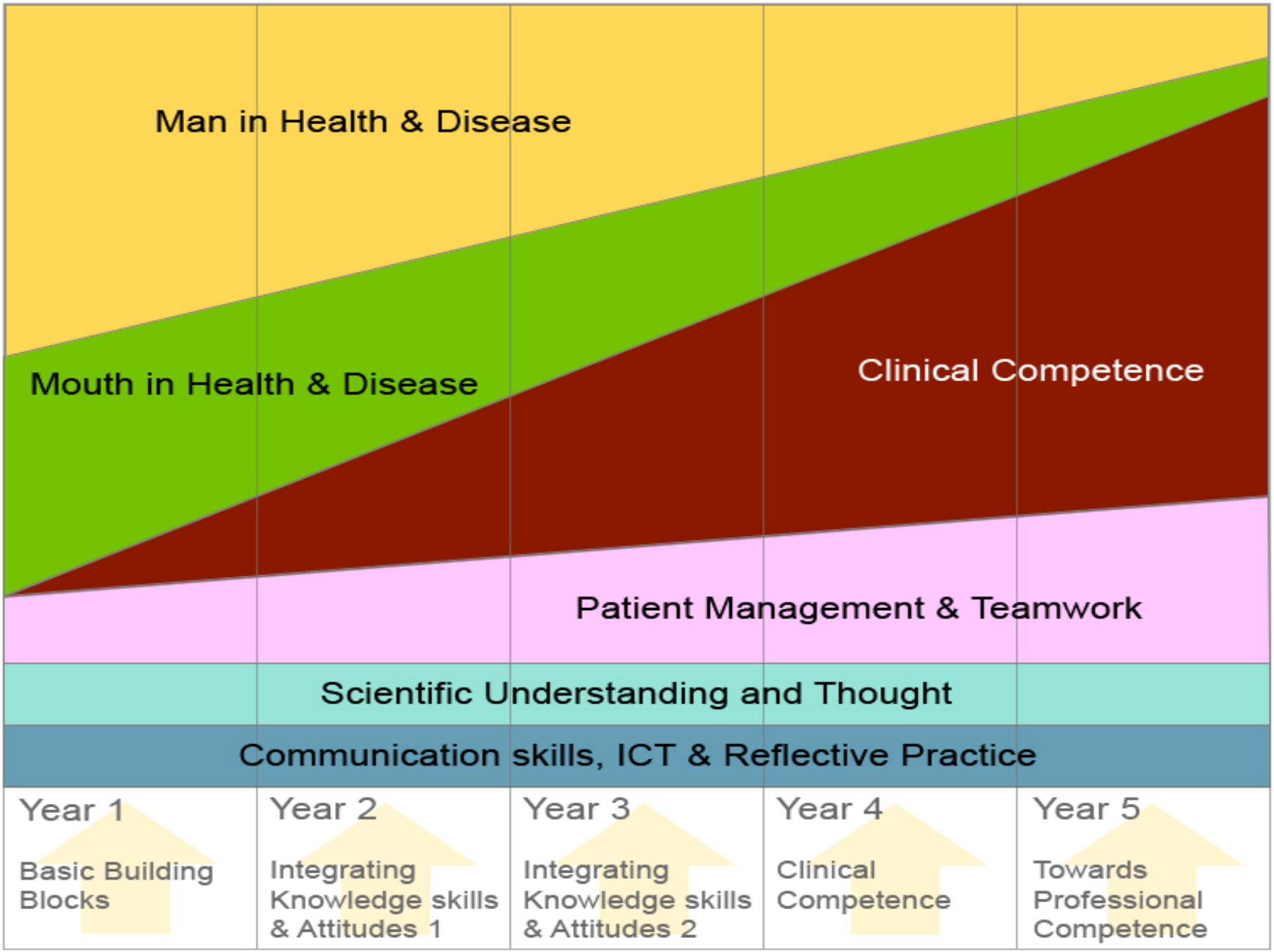
Enquiry-Based Learning at Faculty Level

Large-scale, 3-year funded projects 2006-9

- Medical and Human Sciences
  - new curriculum for the Manchester Dental Programme

- Life Sciences
  - Data-Driven EBL: embedding research in Life Science practicals


Man in Health & Disease
Mouth in Health & Disease
Clinical Competence
Patient Management & Teamwork
Scientific Understanding and Thought
Communication skills, ICT & Reflective Practice
Year 1
Basic Building Blocks
Year 2
Integrating Knowledge skills & Attitudes 1
Year 3
Integrating Knowledge skills & Attitudes 2
Year 4
Clinical Competence
Year 5
Towards Professional Competence

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Faculty of Life Sciences – 3-year development project

Data-driven EBL: embedding research in Life Sciences practicals

All undergraduate degree programmes within FLS (circ. 450 students)

- conduct an audit of current EBL activities within FLS
- generate EBL support material to enhance the Research Skills Modules and Laboratory Skills Modules taken by all FLS students
- produce an EBL enhanced final year tutorial programme to prepare our students to tackle integrative problems in the Life Sciences
- disseminate examples of good EBL practice amongst FLS staff and to staff in other institutions

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Enquiry-Based Learning at Module /Course level

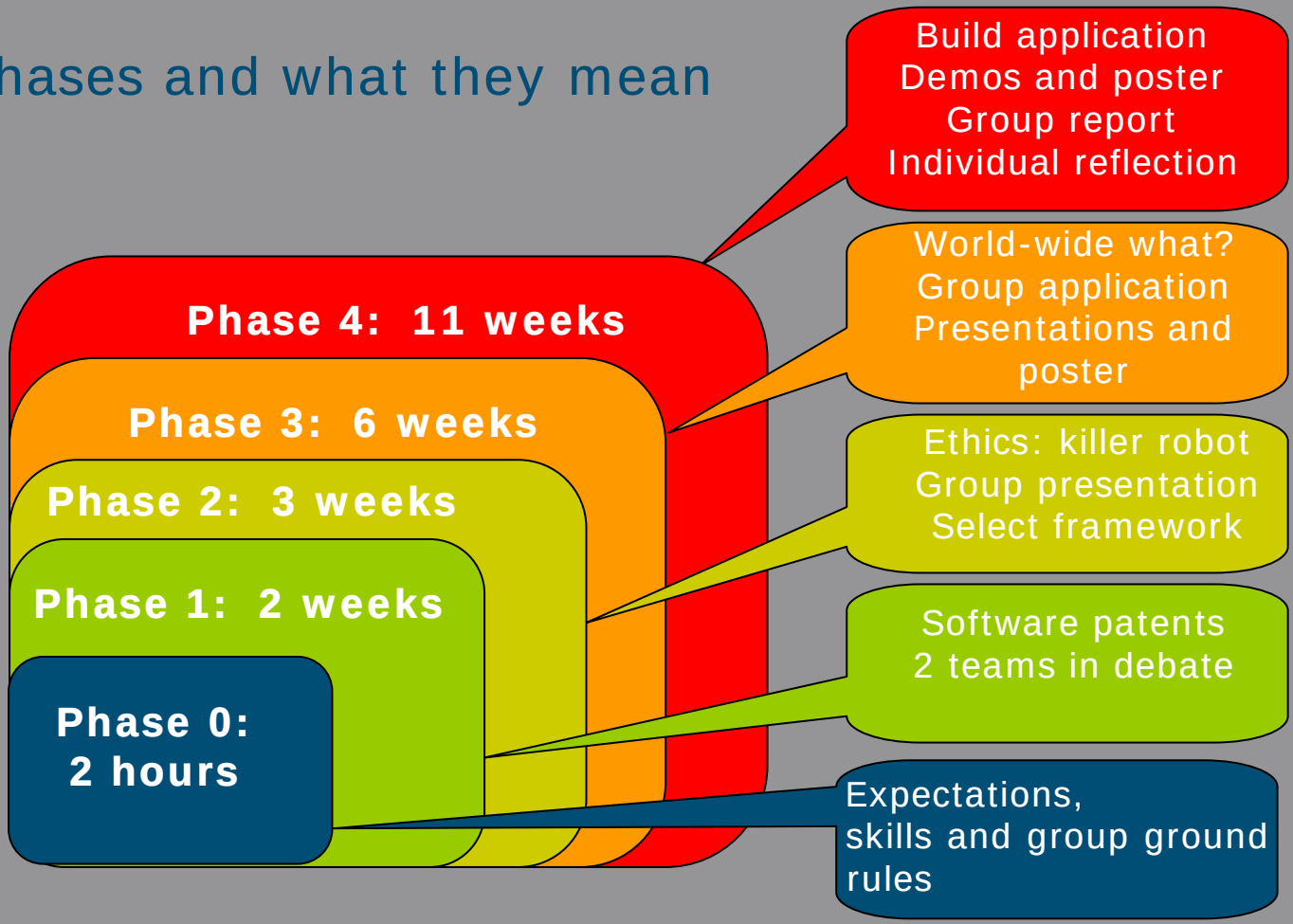
For example, first-year modules in

Computer Science (Semesters one and two)

Pharmacy (Semester Two)

Geography (Semester One)

Phases and what they mean



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Faculty of Life Sciences – CEEBL-funded Projects

- **Life Sciences goes to the movies**
- **Critical Project Development Skills in the History of Science, Technology and Medicine**
- **Linking Teaching and Research: Using Faculty research seminars to enhance EBL activities in final level tutorials**
- **Development of an Enquiry-Based programme for exploring the scientific method**
- **Life Sciences Enterprise Projects**
- **Improving the PBL Experiences for First Year Nurses**
- **Embedding Interdisciplinarity: Developing a Generic Undergraduate EBL Team Project Module**
- **An Enquiry-Based Learning Approach to Drug Development and Design**

What do students say about EBL?

All of us hold the key to loads of information. We are all sources of information as much as the bookshelves and the teacher. It taught me how to work with others

You had to plan and so you learnt so much and it was work you WANTED to do because YOU CHOSE to do it

It's like…..intravenous learning

You go out of a PBL [session] with your head buzzing….

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This has been a very demanding course in terms of how challenging the work has been….

You have responsibility to the whole group, not just yourself, everyone has to pull together

….five other people researching a topic and sharing information has led to a wider breadth of knowledge than I have previously experienced….

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CEEBL Supporting Collaborative Partnerships

- Research and evaluation activities
- Networks
- Projects
- Staff and Student Development
- Publication
- Conferences and Symposia

NETWORKS

- Regional, National, International
- Students
- Web-based resources, newsflashes, blogs
- Face-to-face contact, workshops, conferences

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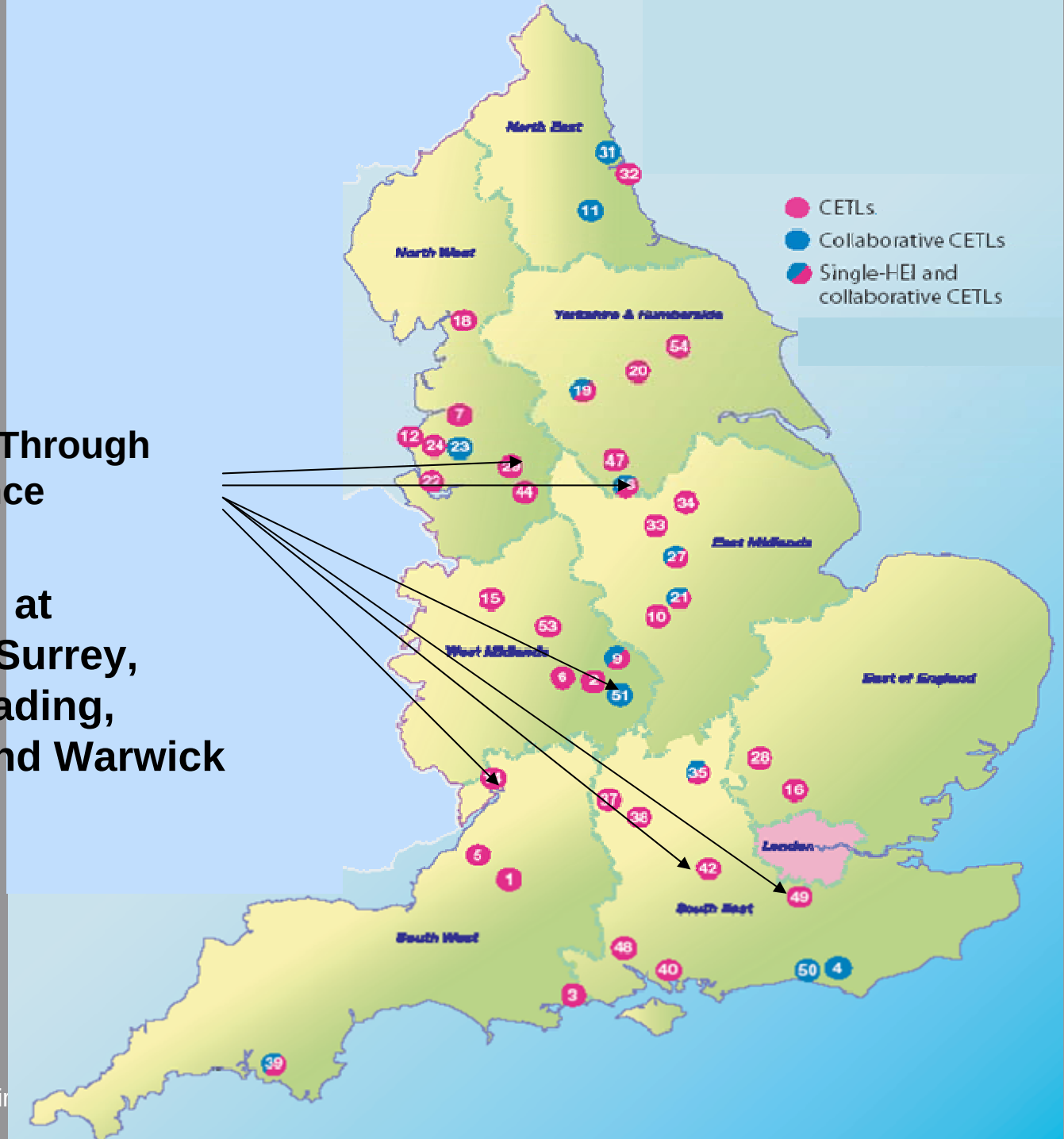
The Learning Through Enquiry Alliance

CETLs based at Manchester, Surrey, Sheffield, Reading, Gloucester and Warwick



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The Learning Through Enquiry Alliance

- Supports active, enquiry based learning
- Spirit of co-operation to achieve greater benefits (e.g. evaluation tools, seminar programme)
- Research-informed approach to pedagogic development
- Collective voice
- Pooling and co-developing knowledge
- Acquiring technology to support and connect student learning and to encourage interaction
- 2008 Symposium to be held in Sheffield

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In conclusion

- We believe that EBL is the most natural, creative and enduring method of learning
- EBL is conformable to nature; it creates learning situations that replicate those encountered by people in everyday life.
- It is creative because the spirit of enquiry releases the individual and group power of learners to seek imaginative responses to problems
- It is enduring because autonomous control of processes ensures a deep engagement with every stage of learning

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