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ICTs and Educational Research in Changing Times
ICTs and educational research
This presentation...

• An overview of issues, possibilities and enduring requirements... in ‘changing times’
• An introductory sketch of the research implications of how ICT in education often depends on factors of performance and context:
  – ‘missing links’ between practice and theory/policy
  – A convergent view beyond the traditional opposition between quantitative and qualitative methods
• Some connections to previous and current research interests re: ICT in education
Key emphasis

• ICTs are increasingly a focus of educational research

• However, ICTs in educational practice requires an ‘proactive’ not ‘passive’ approach

• Thus an inquiry into the link between
  – (a) educational research in changing times, and
  – (b) the challenge of integrating ICTs into teaching and learning

• What are the ‘constants’ of ICT and effective educational research?
Taking up the challenge: an initial context

• How fair is Kaestle (1993): “The awful reputation of educational research”?

• Are the educational implications of ICT intrinsically ‘constructivist’ (Jonassen et al, 1999)?

• Likewise, many researchers are interested in e-learning, online distance education and web-based learning as collaborative learning and flexible delivery - an add-on or an integrated view?

• ICT in education as a conflict between learning models of ‘calculation’ vs ‘simulation’ (Turkle, 1997)

• On the other hand, to what extent does quantitative research sometimes produce “banal and trivial findings of little consequence… (with) results which have no bearing on real life” (Burns, Research Methods, 1997, 3rd edn)
At the outset…

Key requirements for ICT and educational research and/or reflective practice

• New ICT tools, methods, ideas or approaches need to be hands-on, applied and practical to ‘work’ and to be transferable across different and changing contexts.

• Cannot be just a ‘passive observer’ – ‘individual performance’ (esp. in design) an important factor also.

• Need also to connect more effectively thinking and talking about this on one hand (even demonstrations or cutting-edge modelling) and actual ‘doing’ on the other – in terms of the concrete and/or typical practices of individuals, groups, and institutions.
Initial focus questions

Increasingly ICT is providing a key focus for educational research:

• What are some of the issues and possibilities of this imperative?

• What are the implications of ICT for education in changing times? … For new notions of teaching and learning?

• What is/are the most appropriate ‘methodologies’ for this? Are there new and changing requirements for doing effective research in this area? If so, what are they?

• How might academic research about ICT in education remain relevant to teachers and schools?
My recent and current research projects/interests

• The relation (or gap) between teacher attitude towards computers and ‘performance’ (self-fulfilling prophecies)
• Educational use of internet communications
• School-based projects: Teacher education partnerships
• More effective ICT staff development models, student learning models, and course/teaching design
• Related topics: performative action research, project/problem-based learning, ICT generic skills
• Activity-reflection e-portfolios (as learning/assessment strategy)
• Educational implications of the hypermedia interface
• ICT as a force of change in education [learning models, role of teacher, in and outside schools]
ICT: Key challenges for educators

Polarisation in both popular media and educational/academic debates

- **Pitfalls of misuse**: plagiarism, programs/templates which bypass learning process, educational vs popular uses
- ‘**Magic bullet**’ syndrome of staff development [& related policy embrace of e-learning and ‘flexible delivery’]
- **Specialist vs generalist requirements** for effective use, effective learning, and ‘territorialisation’ (e.g. skills vs literacy view)
- In short, various tensions between **top-down formal imperatives** and **bottom-up informal practices**
- Also virtual learning, chaos theory, knowledge management, AI, etc. (i.e. ‘**problematising**’ of field... where are the ‘constants’?)..
Traditional research/teaching, ICT, and the ‘passive’ learner

- Similarity between descriptive research and transmission model of teaching (observer/teacher).
- Linear/hierarchical/rote views of information transmission to ‘passive learners’
- Constructivist view of active learning with ICT
- Similarly, ICT as primarily information vs communication/knowledge, skills vs literacy
- Traditional research/teaching, ICT, and the passive learner
- Focus on interpretations, applications, uses
- Link between teacher reflective practice/ academic formal research
ICT in teaching and learning as ‘performance in context’

• The primacy of practical modelling and hands-on use
• What works for one person in a particular context, may not work for another person or in another context
• Yet general principles transferable (effective resourcing, applications, etc.)
• ICTs as general literacy and not just specialist skills or knowledge
• Convergent focus for going beyond opposition between qualitative and quantitative approaches to research
Beyond an oppositional view of research methodologies (as distinct from methods)

• Opposition of quantitative and qualitative approaches to do with central focus on **evaluation** (as distinct from design and implementation)

• When emphasis more on quality and relevance of **design** then factors of ICT context and performance more important

• Hence, educational research **design-implementation-evaluation** is a cycle and process which depends on performance and is often open to context

• Likewise, a convergent view of the link between
  – The research cycle of inquiry, hypothesis testing, interpretation, etc. (distinct or confused stages?)
  – Modes of description/interpretation, observation/participation
  – The reporting or ‘writing up’ cycle (e.g. as a dissertation)
ICT educational research (vs. traditional dissertation model?)

- The useful models of (a) instructional design; (b) multimedia project development; (c) action research spiral
- Converting work-based or authentic problems, issues or interests into a viable and relevant academic focus?
- A convergent approach to projects applicable to both commercial and professional as well as academic contexts
- Starting point for inquiry (and ‘contribution to knowledge) ‘is change and improvement to my performance and context’ – may be useful for others (and also ‘specialists’)
- In other words, a project about e-learning courses or objects is typically about a general inquiry but requires a specific focus of relevance and application – in this research can ‘have its cake and eat it’
Revisiting research
dissertation/report requirements

• A viable ‘focus question’ or problem (and research rationale which links to specific ‘interest’) the key...

• ‘Methodology’ thus refers to a relevant design/strategy for exploring and responding to organising focus

• A ‘literature review’ situates the research topic and design in general contexts of relevance

• Various modes of ‘triangulation’ – appropriate to the particular design methods/approach - serve to strengthen the reliability, relevance and claims of ‘findings’

• The writing up of a dissertation/report thus tells the ‘story’ of how findings/outcomes/conclusions/hypotheses/arguments either directly or inversely respond to an initial ‘focus question’ or problem
ICT and Educational research: performances in context

- Linking doing and thinking, practice and theory
- Convergent focus on “change and improvement”
- Beyond quantitative/qualitative opposition
- Reconciling bottom-up and top-down imperatives
- Educational/research design
- Complementary relation between ICT as generic literacy and as specialised skills and knowledge
- A continuum between teacher reflective practice and formal/academic research
- Work-place/authentic problems or interests converted into viable and relevant academic focus questions
- Knowledge as ultimately a dialogue
Conclusion

• ICTs exemplify forces of change in both recent educational research on one hand, and in teaching and learning on the other

• Yet, if ‘change’ is now the norm, still ‘constants’ may be found in:
  – proactive improvement in teaching and learning
  – And in solid research design  whatever the methodological orientation
Part B
ICT and educational research as ‘performance in context’: a diagrammatic series
Innovative vision, IT integration, and the transformation of learning/teaching practice through performative action research

Vision of possibility

- Potentially useful idea, method, program, etc. (in new context) involving IT in education

- Contextual challenges, obstacles, restraints

- Actual/integrated Practice

- Threshold of temporary vs perpetual frustration

- Translation

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Methodological orientations

- **Observation**
  - naive vs critical
  - naturalism (passive/reflective)
  - experimentalism (active/intervention)

- **Participation**
  - naive vs critical
  - objectivism (reflection of order)
  - therapeutic (indirect/social purposes)

**SOCIAL KNOWLEDGE**

- INDIVIDUAL PERFORMANCE
The Action Research Continuum

Reflective Practice

Action Research Methodology

‘doing’

‘thinking’

design

formal

(spiral)

(continuum)

implementation

evaluation

informal
### Convergent focus questions for research and professional practice

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<tr>
<th>Approach</th>
<th>Generic focus question</th>
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<td>Research generally</td>
<td><em>Does it make a difference? (Or, so what?)</em></td>
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<tr>
<td>Action research</td>
<td><em>How do I/we change and improve my/our practice?</em></td>
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<tr>
<td>Action research and IT use or integration</td>
<td><em>How can I/we change or improve my/our practice to give this idea, program or tool a chance to work? If this should work (or has worked elsewhere), what do we need to do to make it work in our current situation?</em></td>
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The Action Research ‘Spiral’

plan → action → observe → reflect

new cycle ← ‘change and improve’ plan

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Performative action research spiral

(sympollic as well as actual) doing

ACTION/PRACTICE

informal

spiral of transformative/actual change

Individual performance ('embodied' knowledge)

formal

thinking (observing, reflecting, verbalising, theorising, etc)

social knowledge (as 'dialogue')

RESEARCH/THEORY

individual performance ('embodied' knowledge)
The interplay of context and performance

1. **Dialogue to establish and develop contexts of communication and community**
   - (trust)
   - Objectivism vs. (or relativism)

2. **Dialogue as a sharing or exchange of resources, information, models, etc.**
   - (dissemination/community of practice)

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**Social knowledge**
- Implicit
- Explicit
- Axes of 'knowledge as process'

---

**Structured content**

---

**Individual performance**
- Autonomy
- Thinking whilst doing
- Reflection on practice

---

**Activity-based learning**
- vs. doing without thinking (or thinking without doing)
ICT integration in e-learning as a threefold process

1. Naive/activity phase (initial familiarisation)
2. Critical/reflection phase (procedural/theoretical explanation)
3. Dialogical/transformative phase (specific application)

Individual performance
Doing (using)

Content

Process

Thinking

Social knowledge

Threshold of temporary vs perpetual frustration (esp. where ICT is concerned)
Model of learning

OLD LEARNING

Linear/hierarchical acquisition of skills/information

AN ALTERNATIVE APPROACH

Initial familiarisation (naïve/activity phase)

Explanation of steps or components (critical/reflective phase)

Specific Application (dialogical/transformative phase)
project-based learning as integrated focus and ‘umbrella’ of learning

- ‘knowledge’
- activity
- reflection
- content vs process
- lesson
- theory vs practice
- information/skills

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The e-portfolio as a convergent ‘hub’ for new/student-centred learning

- Constructivist learning theory
- Educational reform
- Life-long learning
- Authentic/ outcomes assessment
- Quality assurance/ standards
- Reflective practitioner (action research/learning)
- Across-the-curriculum
- Electronic info. resources
- Hypermedia/online interactions
- Group work /collaborative learning
- Project work
- Problem/inquiry/ case –based learning
- Act-reflect. e-portfolio

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Course X Activity-reflection e-portfolio

**A. Reflections: Framework issues**

#1 Education, new IT policy and requirements, and the push for ‘innovation’

#2 Across-the-curriculum implications of ICT integration and computer literacy

#3 Customised IT plans and professional development standards

#4 Teachers and learners as ‘reflective practitioners’

**B. Reflections: Design and practice strategies**

#1 Using the internet as an electronic information learning resource

#2 Basic hypermedia design for education

#3 E-learning activities and assessment rubrics or criteria

#4 Internet publication, communication, and collaboration

**C. Activity artifacts**

#1 online information literacy

#2 evaluation of internet resources

#3 basic hypermedia design

#4 e-learning activity

**D. Seminar presentations**

- Individual seminar
- Group Seminar: *Developing a practical plan for effective ICT integration in education*
E-learning convergence and add-on vs. integrated approaches

- On-campus/ in-school e-learning (supplementary use of online resources/ communications)
- Internet learning activities/ environments (construction of knowledge/ focus of integrated approach)
- Fully online/ distance education e-learning
- Online delivery or transmission of mere content (i.e. an ‘add-on’ view of e-learning)

Individual performance vs. immediate/ virtual

Mediated (e.g. technologically) vs. social knowledge

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ICT and ‘cultural change’ in education

- New ICT tools and media
- Popular digital cultures
- 'Culture of Learning' models (old vs new, transmission vs learner-centred)
- Educational institutions (top-down policies/man. vs bottom-up)
- Society – tradition vs ‘globalisation’ (community values vs individual interests)

CULTURAL CONTEXTS and EDUCATION (discipline vs innovation)