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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 importan
- 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) multi-media 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

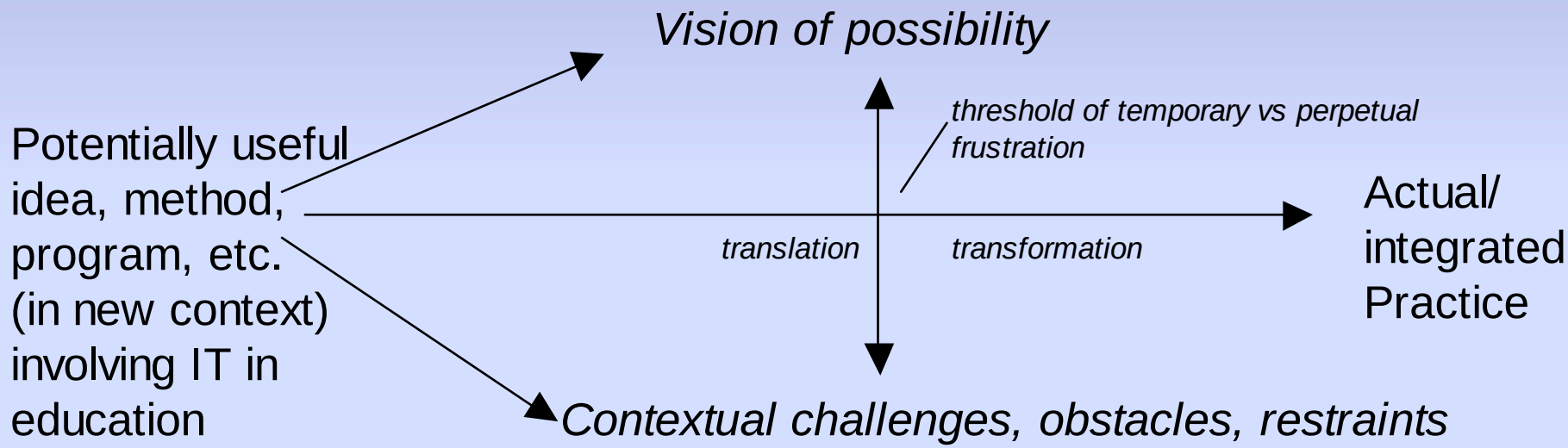
- *Linking* doing and thinking, practice and theory
- *Convergent focus* on "change and improvement"
- *Beyond* quantitative/qualitative opposition
- *Reconciling* bottom-up and top-down imperatives
- Educational/research *design*
- *Complementary* relation between ICT as generic literacy and as specialised 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

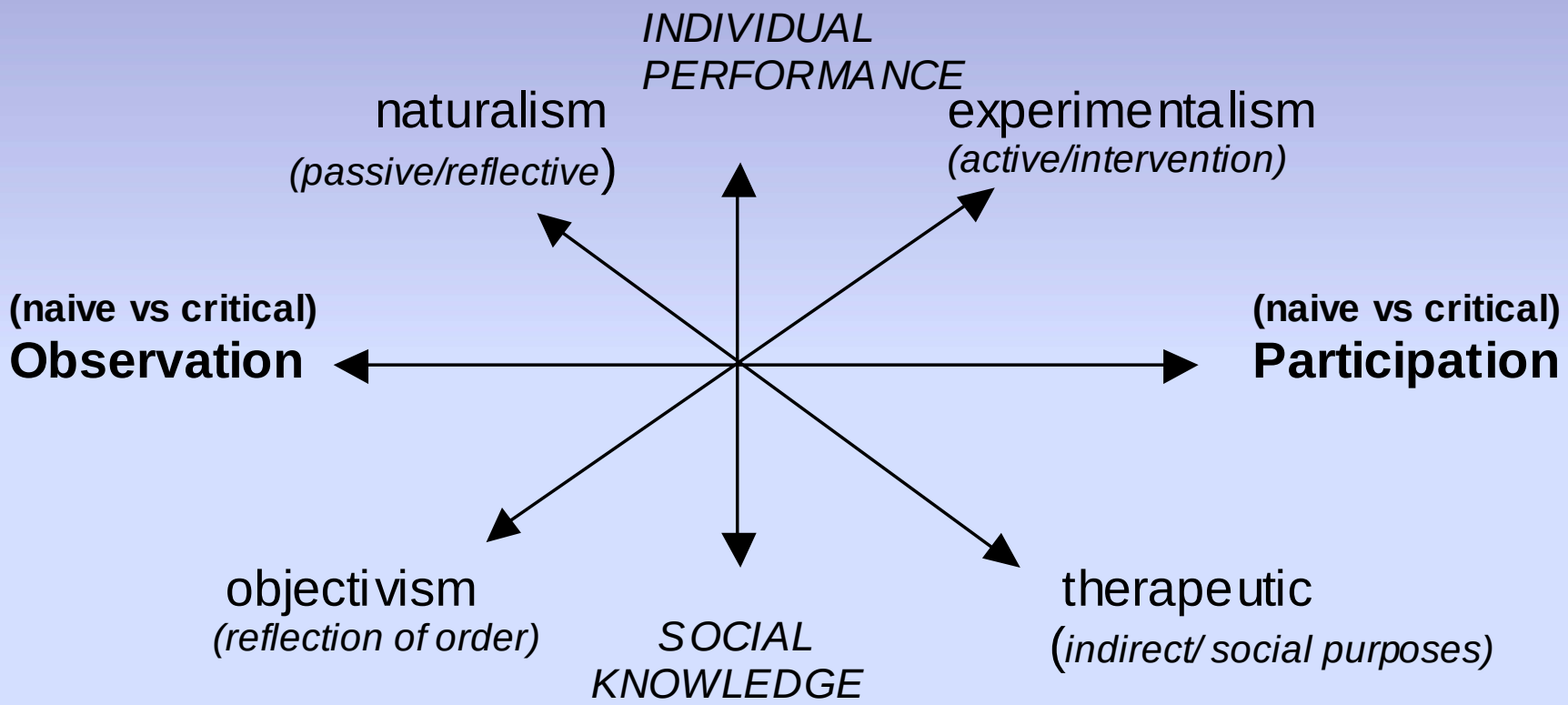
- ICTs exemplify forces of change in both recent educational research on one hand, and in teaching and learning on the other
- Yet, if ‘change’ is now the norm, still ‘constants’ may be found in:
  - proactive improvement in teaching and learning
  - And in solid research design whatever the methodological orientation

Part B
ICT and educational research as ‘performance in context’: a diagrammatic series

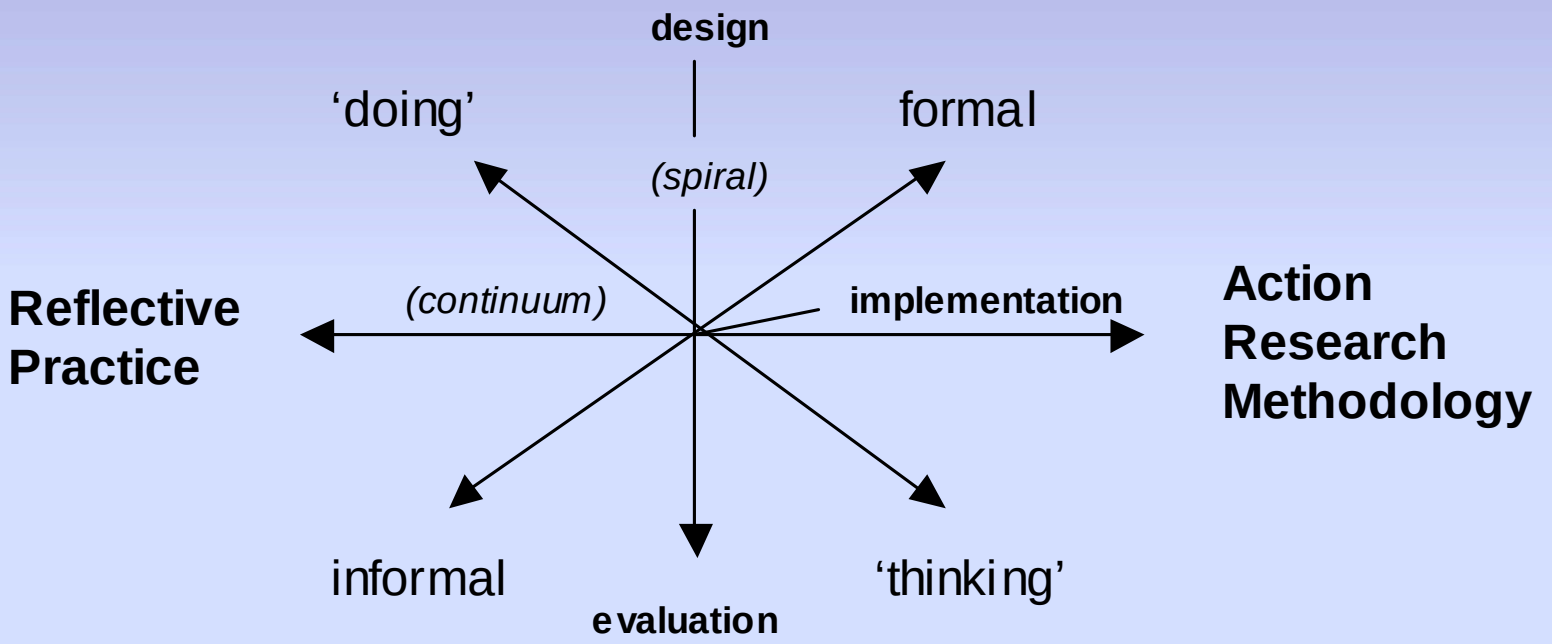
Innovative vision, IT integration, and the transformation of learning/teaching practice through performative action research



Methodological orientations



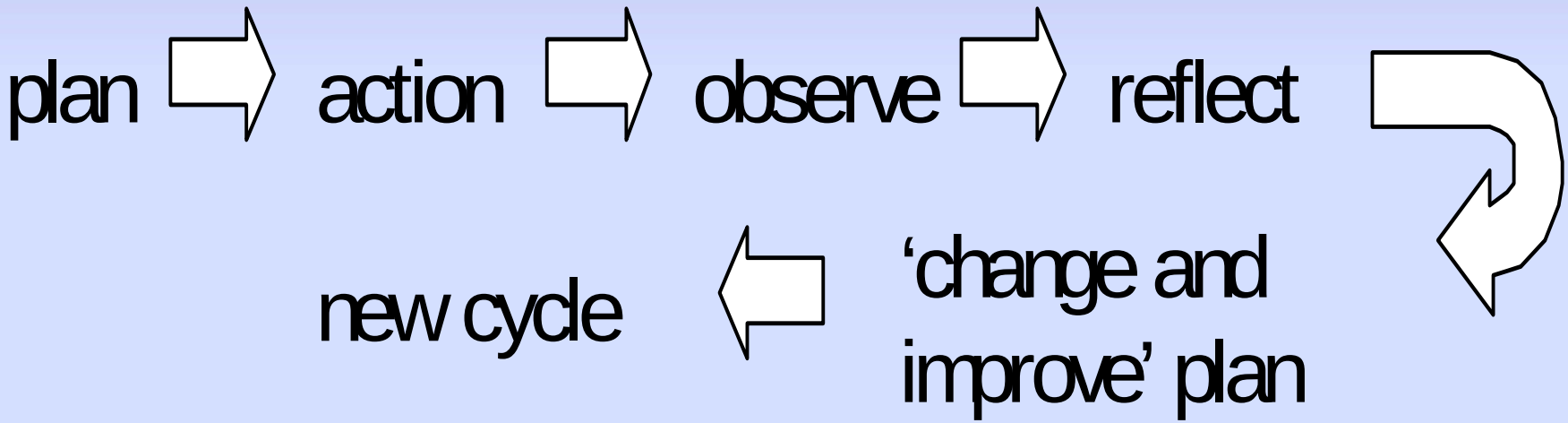
The Action Research Continuum



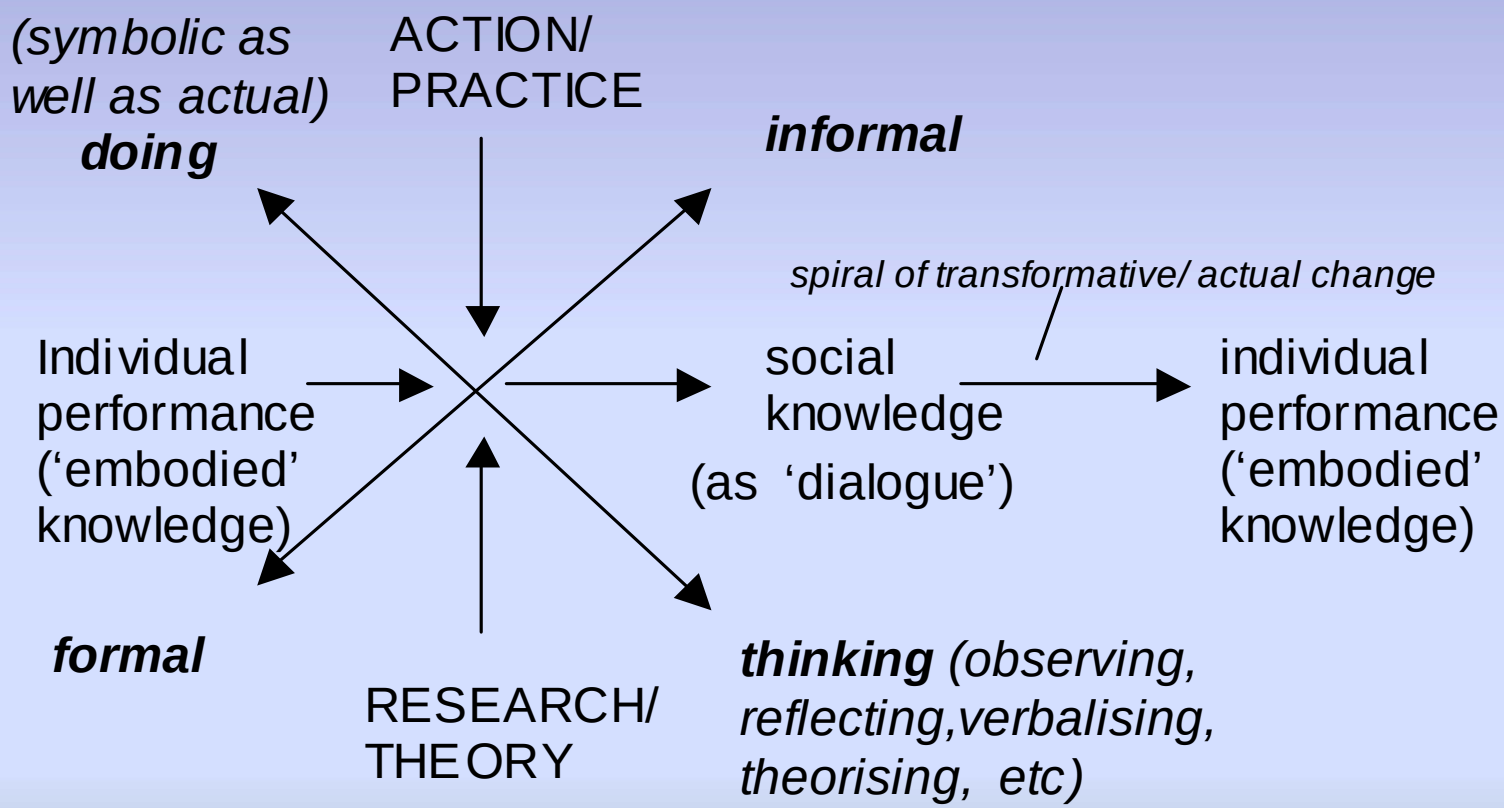
Convergent focus questions for research and professional practice

Approach	**Generic focus question**
Research generally	*Does it make a difference? (Or, so what?)*
Action research	*How do I/we change and improve my/our practice?*
Action research and IT use or integration	*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?*

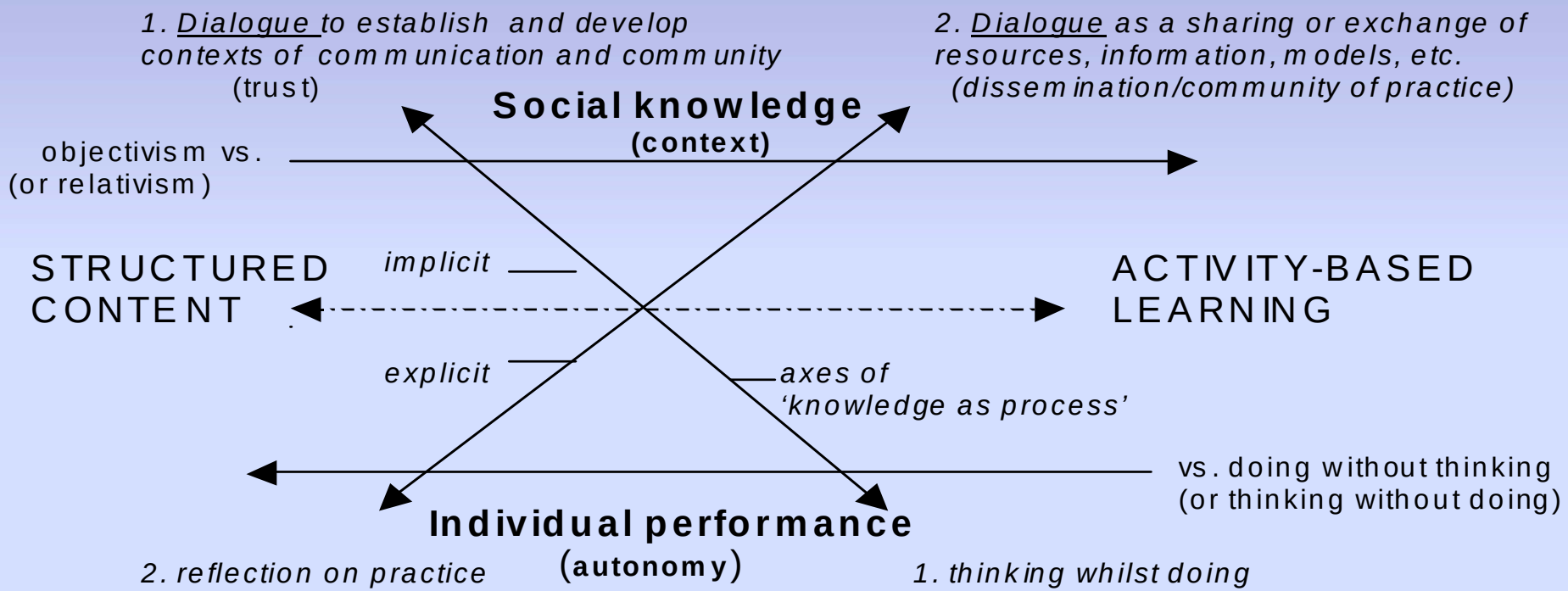
The Action Research 'Spiral'



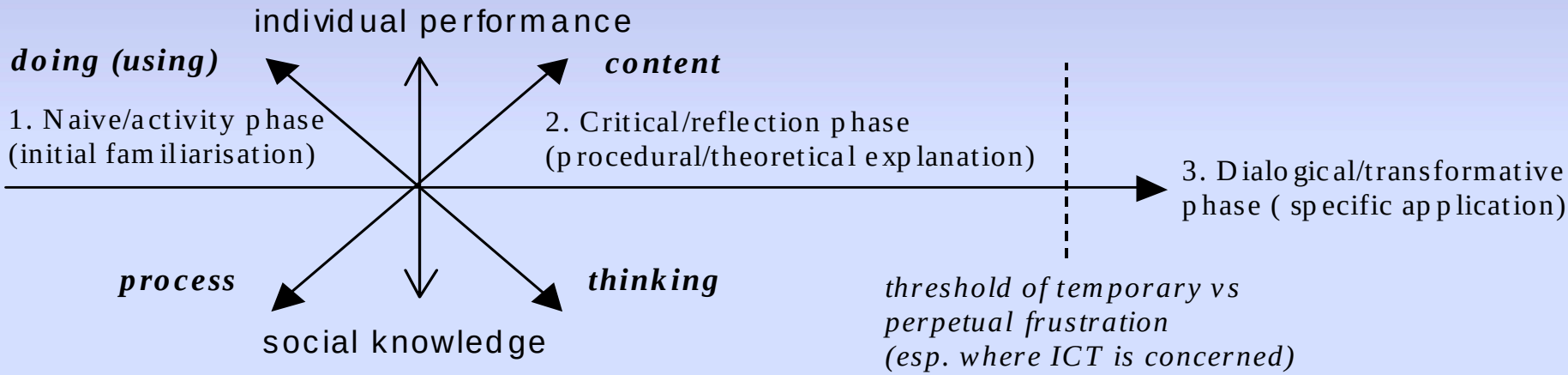
Performative action research spiral



The interplay of context and performance



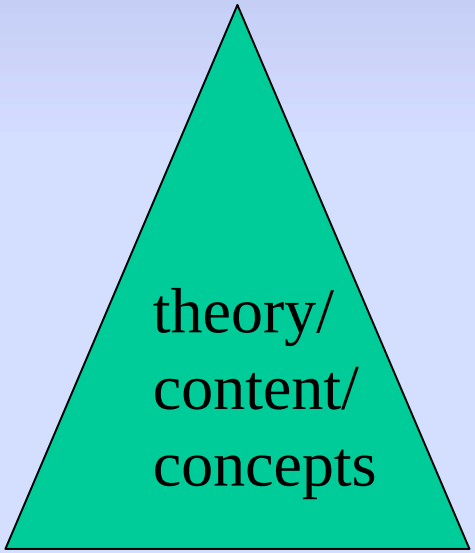
ICT integration in e-learning as a threefold process



Model of learning

OLD LEARNING

Linear/hierarchical acquisition of skills/information



practice/
application

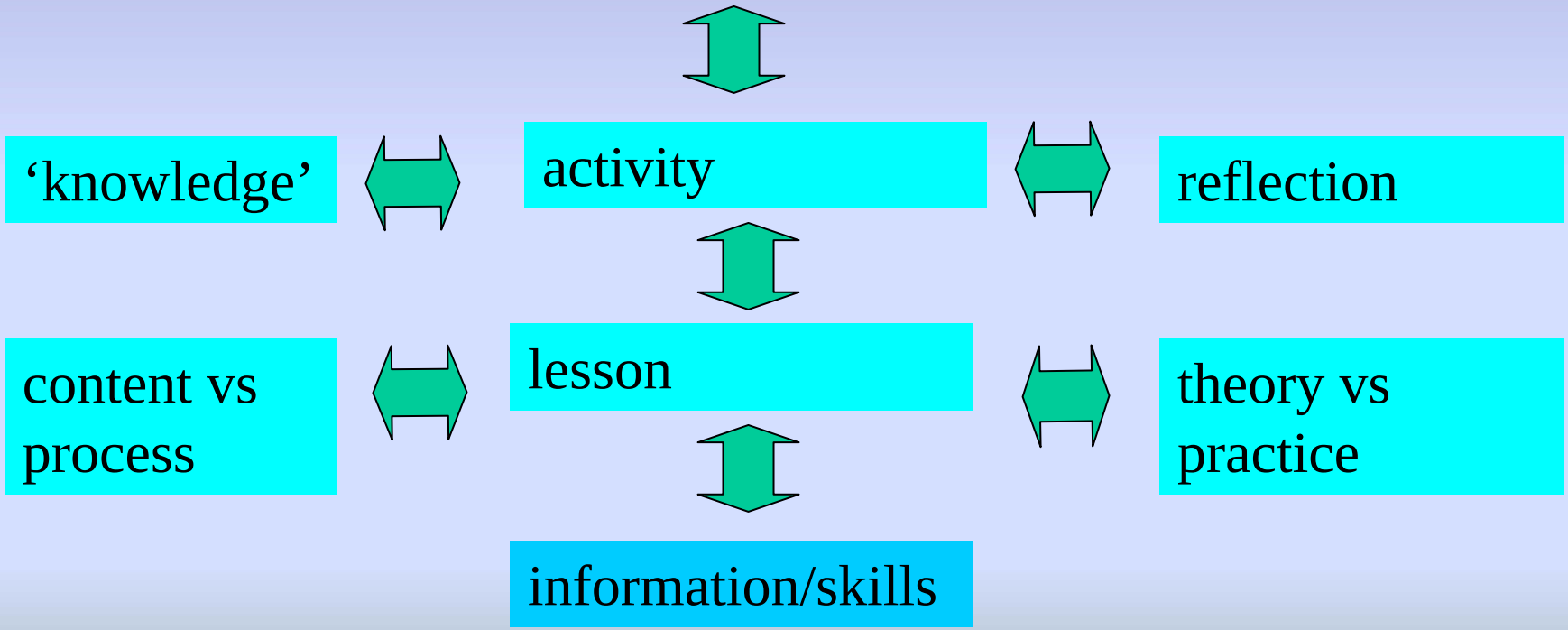
AN ALTERNATIVE APPROACH

Initial familiarisation (**naïve/**activity phase)

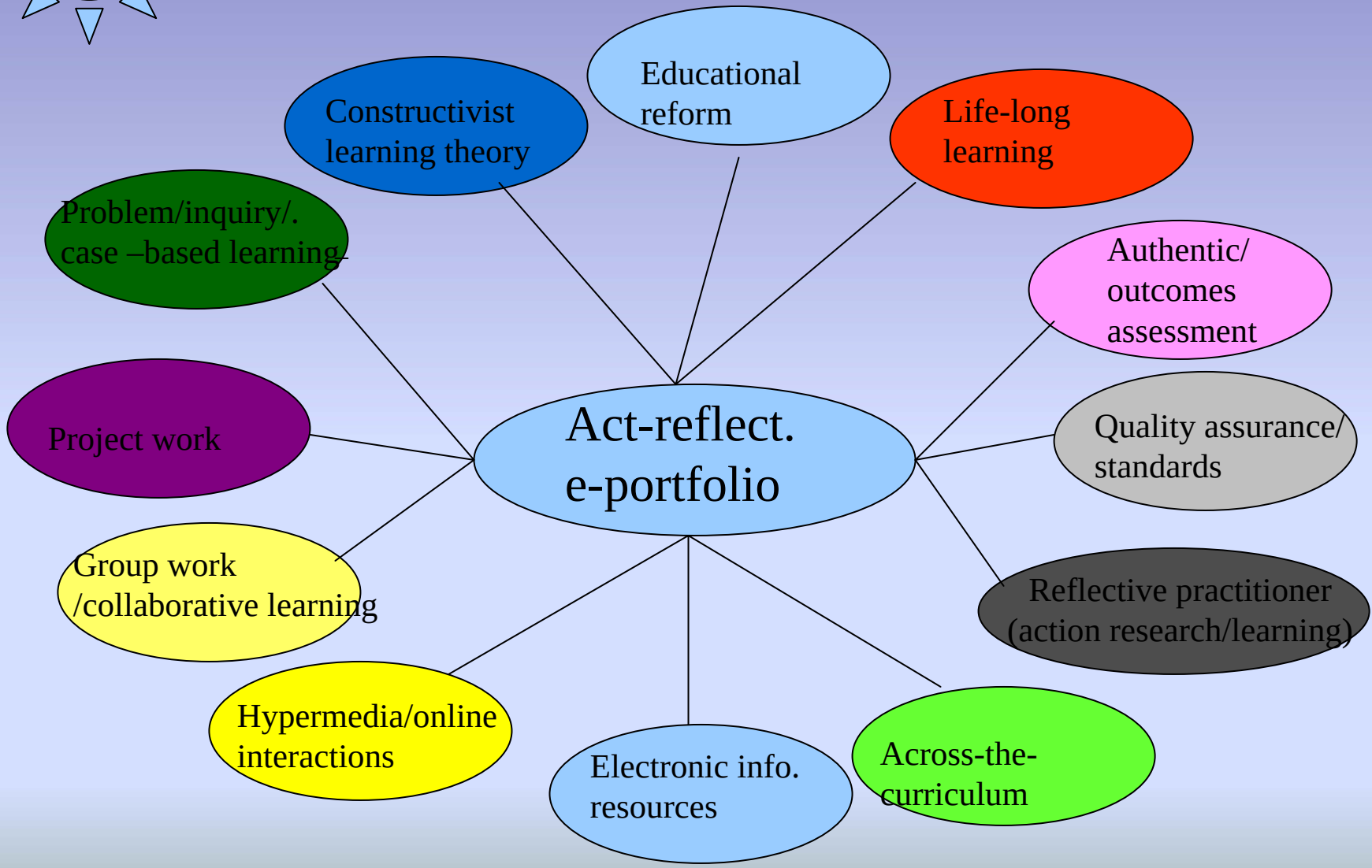
Explanation of steps or components (**critical**/reflective phase)

Specific Application (**dialogical**/ transformative phase)

project-based learning as integrated focus and ‘umbrella’ of learning



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



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

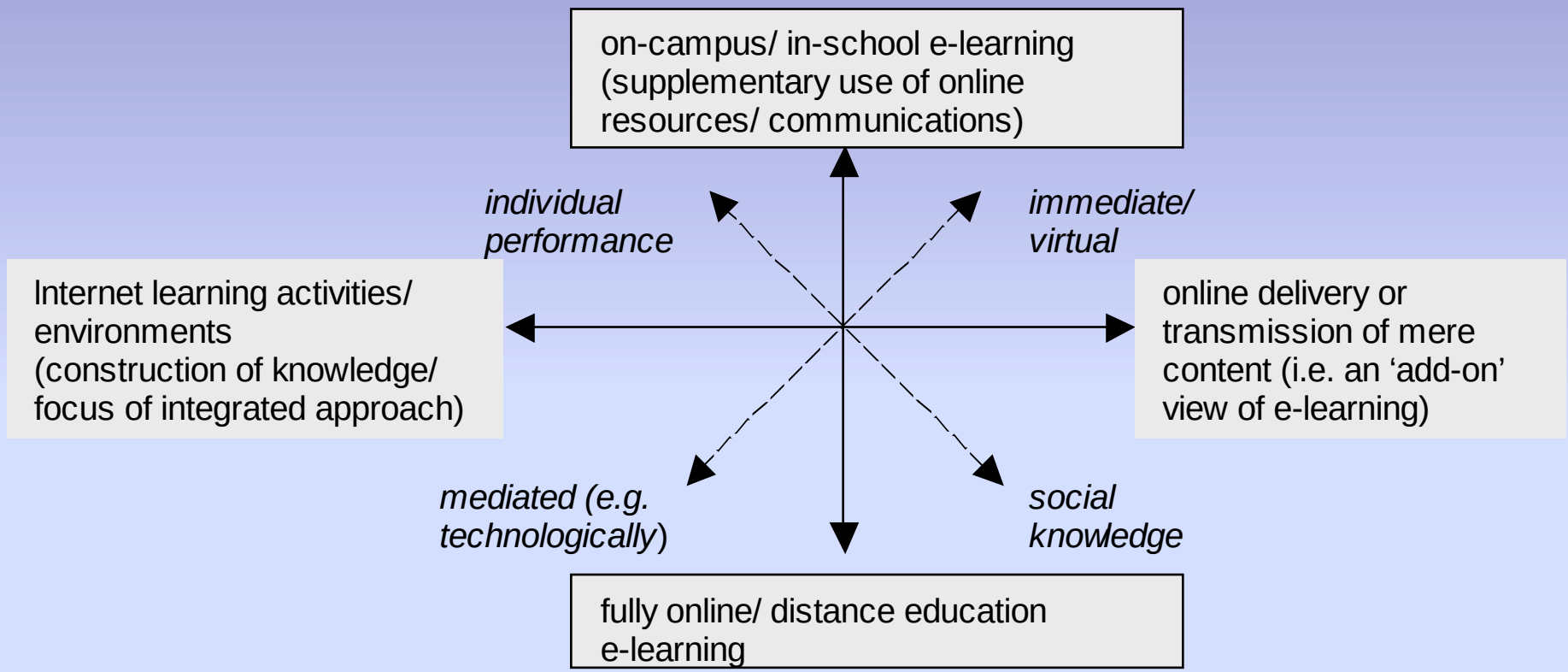
#3 basic hypermedia design

#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



ICT and ‘cultural change’ in education