Expertise development in the professions; Implications for teaching and assessment

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Quincy’s questions

• What is your definition of expertise development?
• What are educational and instructional implications that can be derived from your research?
• What are possibilities for expertise development within the context of formal (secondary and tertiary) education?
• What are difficulties when implementing these implication in schools’ daily practice?
Platitude OR a nomological network

‘DEFINITION’ OF EXPERTISE DEVELOPMENT
Expertise development

• Professions and professional tasks
  – Shared body of knowledge, shared standards
  – Responsibility for own services and products and to the profession itself (Mieg, 2009)

• A process taking a whole working life
  – Becoming better, staying up to date, picking up new tasks, new divisions of labour and new tasks, …
Expertise development

• Getting better at what?
  Developing expert performance +
  – Platitude?

• Building the knowledge and skills base for that
  – Which is not trivial either
Expertise development

Research on tasks performance, and knowledge use and structure at different stages in professional domains
Development in stages

• Networks
  – *Knowledge*: Validation and integration
  – *Reasoning*: Active, slow, small steps

• Encapsulations
  – *Knowledge*: clustering under professionally shared, higher-level concepts
  – *Reasoning*: active, bigger steps

• Scripts
  – *Knowledge*: describe conditions, causes, faults and consequences; integrate basic and clinical knowledge and required action
  – *Reasoning*: fast; script activation and instantiation
Expertise development
One big balancing act

• Learning in stages with specific emphasis
• Building on the previous
• Knowledge construction and reconstruction
• Simultaneous execution of increasing number of tasks
...educational and instructional…

IMPLICATIONS
Educational and instructional implications

- Selection of topics must depend on the body of knowledge shared by professionals
- Basic science knowledge should help improve understanding of clinical knowledge
- Solution of misconceptions should be supported
- Tasks should also help students to validate knowledge
- Training in all tasks at the level required of a beginning professional
- Knowledge development should have priority but not in isolation from the competences
- Selection of authentic problems such that they best serve
  - integration and validation of knowledge - support knowledge restructuring - demonstrate the variations within problem themes prevalent in the field - cover the kind and complexity of tasks of beginning professionals.
Instructional and educational implications - assessment

• Whole-task assessment

• At the lower levels students should demonstrate the validity and extent of their knowledge in the context of authentic cases.

• At higher levels students should show their competences in the context of cases that gradually become more complex
  – cases themselves more complex and circumstances in which action is more demanding
  – Task complexity can involve co-ordination, speed, timing and time-management
Restrictions: in formal education

POSSIBILITIES
Curriculum design
Development in stages
Implementation in school daily practice

DIFFICULTIES
Merrill’s first principles, how do they apply?

- Activation
- Demonstration
- Application
- Integration
- Authentic problems

It’s all about **NEW** knowledge
Difficulties

- Curriculum design: relation between basic and ‘applied’ subjects
- Pedagogy of Work-based learning and Learning from experience
Practice is a powerful but limited learning environment
Thank you