DIGITIZING PRODUCTS:
CREATING DEMONSTRATORS
FOR FUTURE EDUCATION

A Pedagogic Framework for the DIGIDEMO Demonstrators

«TechTalk» Part 1

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“It is not teaching but learning that is the core interest for the study and development of Professional Didactics (PD).”
(Freely translated from Nilsson 2000).

Key Takeaways

- The work-task's key role for professional learning
- Features of the work-task affecting the professional learning outcome
- A model for task-centric professional learning

Industry 1.0: Apprenticeship learning

- The tradition from the medieval guilds carried on into the first industries
- Learning process:
  - Observe master
  - Own practice under supervision and coaching
  - Created journeyman by master
  - After long and prosperous practice, some are created masters by the guild
- Observations:
  - The tasks are the core learning elements
  - The process implies social mobility
- The tradition lives on and forms the base for amongst other, situated learning

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Main features of skills training and professional theory in Industry 1.0

Characteristics	The craft-oriented model
Industrial paradigm	Industry 1.0
Orientation of production	Placework and small production runs
Processing (work techniques)	Dominated by manual techniques
Planning of work/education	Task-oriented
Organisational structure	A craft-oriented organisation similar to that of apprentices, journeymen and master working together in the same unit
Character of the tasks	Mainly dominated by authentic tasks
Work mode	Group-oriented
Nature of communication	To a large extent personal communication and concrete illustrations

Nilsson, 1981

Industry 2.0: Learning by mass production

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- An industrial and educational revolution
- Division of learning tasks
  - Station learning
  - Synthetic tasks
- Method oriented
- Consequences …
  - Quality of learning outcome
  - Effectiveness/efficiency
  - Dropout

Main features of skills training and professional theory in Industry 2.0

Characteristics	The industry-related model
Industrial paradigm	Industry 2.0
Orientation of production	Large production runs
Processing (work techniques)	Dominated by mechanical techniques
Planning of work/education	Method-oriented
Organisational structure	Dominated by the individual student working on the specific task allocated to him in “his working unit”
Character of the tasks	Mainly dominated by synthetic tasks
Work mode	Individual
Nature of communication	To a large extent indirect communication in the form of written instructions and written illustrations

Nilsson, 1981

Industry 3.0: Socio-technical learning

- Holistic and meaningful tasks
  - Problem based learning
- Task oriented
  - Functionally coordinated authentic tasks
- Teams
  - Collaboration, but
  - Specialisation

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Main features of skills training and professional theory in Industry 3.0

Characteristics	The socio-technical model
Industrial paradigm	Industry 3.0
Orientation of production	Functional parts of large and small production runs
Processing (work techniques)	Computer techniques and electronics will be combined with some mechanical and some manual techniques, i.e. “automatic” processing techniques will be supplemented.
Planning of work/education	Task-oriented with focus on job rotation and job enrichment
Organisational structure	Dominated by a group of students working with functionally coordinated pieces of work in partly self-controlled groups
Character of the tasks	Functionally coordinated authentic tasks
Work mode	Group-oriented and combined with individual work
Nature of communication	Personal and indirect communication

Nilsson, 1981

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Thank you for your attention!

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