UiO : University of Oslo

Learning at work – digital resources

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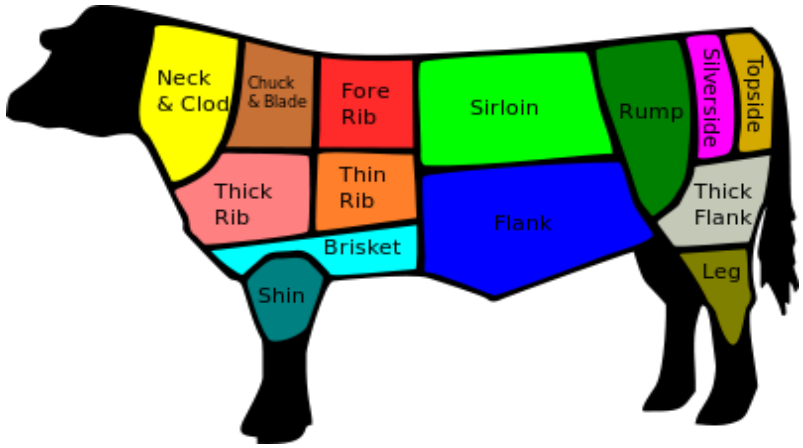
Structure for talk – and conversation

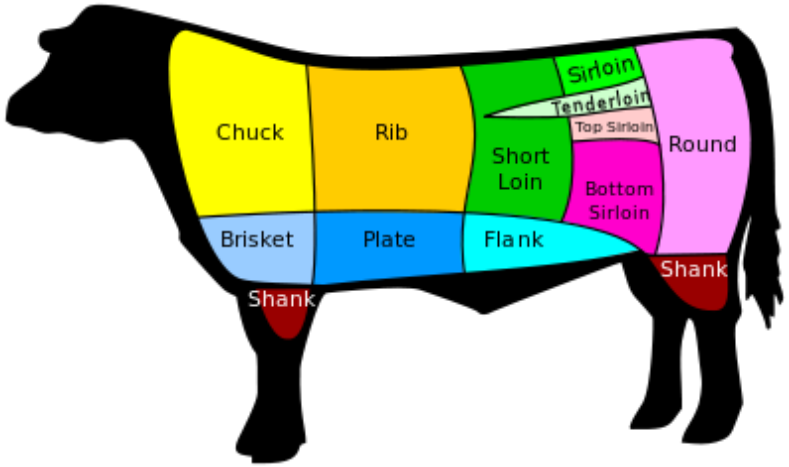
- Part 1: about the session
  - The four articles (different traditions)
  - Human categories
  - My way to the learning science and CSCL community
- Part 2: theory and analytic stance
- Part 3: the chapter – knowledge sharing
- Part 4: the three articles

Cuts of beef

The British way…..



- and the American way



- Part 2 – theory and analytic stance

theory and analytic stance

- Levels of understanding/explanation:
  - Ontogenesis
  - Microgenesis
  - Sociogenesis

The analytic stance

- Symbolic interactionism
- Critical theory
- CHAT
- Etnomethodology
- Cognitive perspectives

- Unit of analysis – levels of description

Analytic stance

- Multiplicity as starting point
- Sensemaking (members orientation)
- Dynamic understanding of context – context not as given
- Multiple layers of context
- Sequences – but not only
- Historical influence

A key term …meaning

- Meaning potential
- We can say that linguistic meaning has an open potential, and there are non-fixed codes of meaning, however they comes history…. .
- Words and sentences are essentially characterized by “vagueness, ambiguity and incompleteness” (Rommetveit 1984: p. 335).

The layers …

- Cognition (prior knowledge, relevance….)
- Social interaction (ways of reasoning…)
- Institutional (norms, organization of knowledge, expectations….)

  – What's a adequate reduction? And what do we want to explain/understand?

Questions

- Questions about the introduction?
  - About the sociogenetic perspective
  - About the concepts
  - Methodological implications

- Part 3 the chapter
- Knowledge sharing in professions
  - What's as stake, what counts as, what's creative here …

Key concept's

- Expert cultures
- Infrastructures of knowledge
- across sites – in particular sites
  - Local contingencies

Case studies from three professional contexts

- The introduction of a new standard for risk auditing (Mathisen & Nerland, 2012)
- The development of clinical guidelines in a larger hospital (Nes & Moen, 2010)
- The use of a new method ('Planning poker') for software effort estimation in engineering teams (Børte, Ludvigsen & Mørch 2012)

Analysed as (collaborative) work from a social practice perspective

- The role of artifacts and tools
- Exploring and negotiating meaning potentials
- Elaboration, specification, justification
- Historically developed and emergent practice

Questions asked in this paper

- How do professionals share and develop knowledge when exposed to new standards for work?

- In what ways do these practices involve creative and explorative actions?

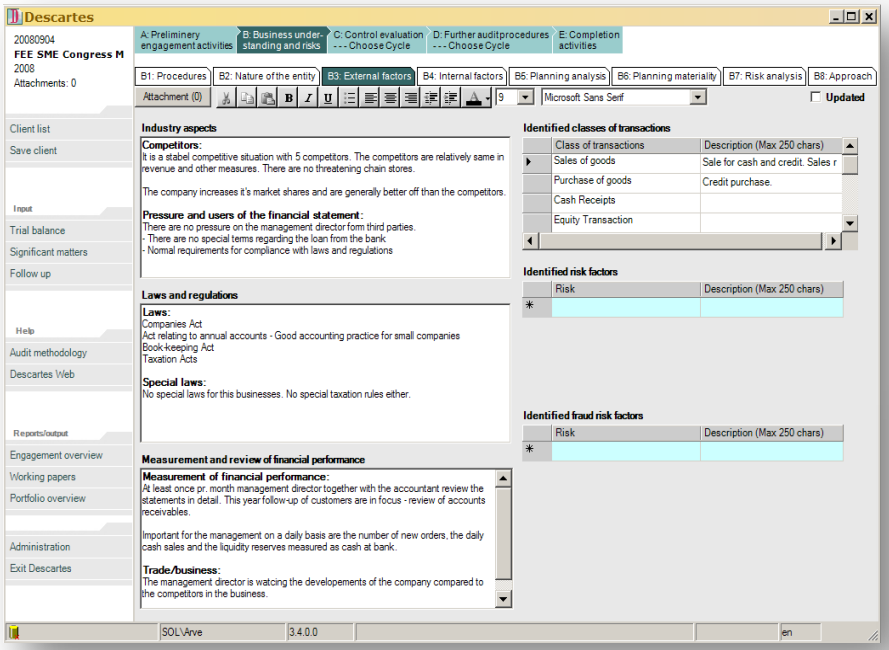
Case 1: Risk auditing with the system ”Descartes”

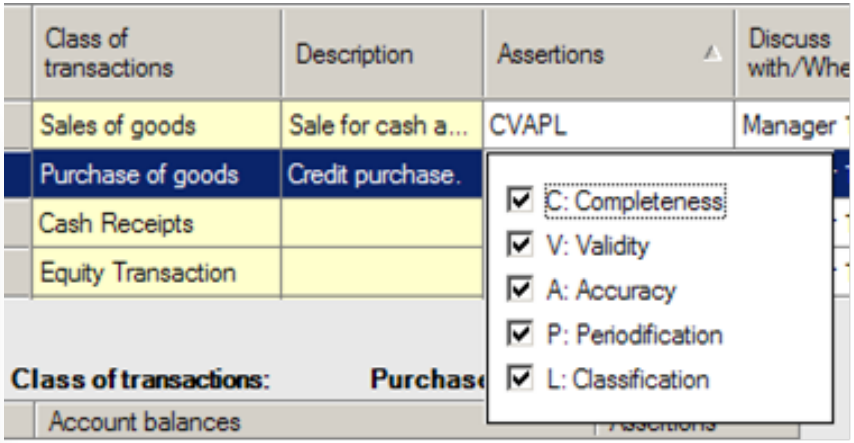
(Mathisen & Nerland 2012)

The audit support system “Descartes 3”

- Launched by the Norwegian Institute of Public Accountants in 2006 to assist auditors in following the standards for risk auditing
- Used by approx. 75% of the Institute’s members
- Support system for the performance of work
- Incorporate standard based methodologies

Example 1 cont.





I: Do I understand it correctly, if these assertions describe what to do when you perform the audit controls later on, that you should look for completeness and validity?

A: Yes, in a way they do, like when you control costs, it's validity you should check, right.

I: Yes

A: But, when you go through it, and you see, well here we have a cruise to Amsterdam, for example, hmm.

I: Not quite valid?

A: I suspect that perhaps it should not have been here.

“It is essential to identify conditions that shed light upon the development of the entity's economic welfare “ (ISA315, 2009)

And here in B3 [pointing at the screen], these things we do out at the clients. Like here, one of them has a shop in this shopping center. And then, of course, you have to look around and see what other shops are there. (…)

In this case it is a family business, and I will then check who is in charge of the three different shops they run, where settling cash holdings and the like is concerned. You'll soon discover who is well organized and who is perhaps not so organized. If you see that one shop is well managed, you will perhaps make more controls in one of the other shops, for instance if it is managed by the son in the family who perhaps is not that organized…

(Auditor´s explanation, modified from Mathisen & Nerland, 2012)

- Descartes was seen as a work infrastructure that connects information, knowledge, standards, and work procedures across sites.

- At the same time, this infrastructure needed to be re-created in specific ways in each audit task, through the auditors' analytic and constructive actions.

- This involved exploring the meaning of concepts and procedures in order to close the gaps in the infrastructure and make generalised categories useful for deciding on specific cases.

- Descartes mediated an orientation towards the standard of risk auditing itself and how it should be understood – an oscillation between the generic and the specific.

(Mathisen & Nerland, 2012)

Case 2: Constructing clinical guidelines

(Nes & Moen, 2010)

•A large number of procedures for nursing practice had to be consolidated in a Norwegian hospital as part of a new work organisation.

•Should also be incorporated in a knowledge management system

•Group of senior nurses from different departments and wards assigned with the task to review suggestions from ward-specific working groups

•This study followed the process of constructing standards through observations and interviews

•Analytical concept: “local universalities” (Timmermanns & Berg)

Findings

- Many procedures could not be easily adopted and implemented across the wards
  - 18% accepted directly
  - 72 % commented on, added information
  - 10% rejected

- The process involved examining different types of evidence, elaborating on the different practices and needs in the wards, identifying gaps, and specifying local concerns and conventions.

- Required negotiation and integration of multiple forms of knowledge

(Nes & Moen 2010)

Case 3 estimation in teams

- Estimation is a key factor that is important to the quality and cost of building such software systems.
- Estimation may be defined as a set of activities that aim to predict what is needed to program a system or parts of a system, or an attempt to plan, control, and imagine the future.

- Estimation is dependent on:
  - social, communication, and cognitive aspects
  - Planning poker – et way of displaying knowledge

Case 3 – estimation in teams

- the principle of communication proposed by Grice (1989), who suggests that participants communicate what is needed to further the conversation.
- participants do not use technical terms as long as the conversation flows smoothly and everyone in the group seems to understand.
- gaps and conflicts elicit the use of technical terms, which help to create relevant frames for interpretation in the ommunicative encounters, which are the microgenetic constructions.

Findings across the cases

- Standardised knowledge alone does not provide sufficient levels of specification to perform problem-solving activities

- Rather this form of knowledge represents meaning potentials from which the professional can begin to work. Standards and creative-explorative actions work in tandem both in problem identification and problem solving.

- Practitioners create frames of relevance and interpretations which provide spaces for knowledge sharing and local development. This happens in the intersection of historically developed practice, exploration of new standards, and experience-based knowledge.

- Important factors
  - Concepts and material artefacts
  - Formalisation – of tools and procedures
  - Conceptual understanding and epistemic reflexivity

Analytic stance

- Microgenesis
  - Case 1, 2, 3
- Ontogenesis
  - Case 1,2, 3
- Sociogenesis
  - Case 1,2,3

Conclusion

- Standards come with meaning potentials that restrict – but not determine – realised and enacted meanings in professional work

- To understand how standards work, and how they also may stimulate learning, we need to reveal how they are approached, employed, and further developed in local practices.

- Knowledge is mastered through practice, and procedures are what constitute the collective state of understanding. These are continuously approached, enacted, and developed through an interchange between the innovations of creative individuals and their acceptance or rejection by the professional community.

  (Toulmin 1999)

Standards as Learning Resources: Knowledge Sharing in Professional Work

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Points of departure:

•Increased formalisation of standards in professional work

•Knowledge represented in what aspires to become ‘global forms’

•Needs to be ‘localised’ to be useful in specific tasks and practices

•Requires local knowledge work: sharing and assessing knowledge, creating frames of relevance

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Questions

- We can discuss following issues
  - The rationale for the study – aims
  - Is the premises clear
  - The cases: what functions do they serve?
  - Is the analytic concepts used?
  - The conclusions – are they valid?

- What kind of contribution is such a chapter?

Part 3 – the articles

- Articles
- The function of digital resources
- Different assumption – analytic stances,
  - Romantic views
  - Boundaries

Part 3 – the articles

- Review
  - CSCW in the health sector
  - Status
  - Review
  - Findings
  - The role of the research?
    - Understanding mechanisms
    - Doing politics

Part 3 – the articles

- eScience
  - A new idea
  - Struggle with boundaries
  - Unit of analysis – levels of description
  - Explorative study
  - Findings?

- Is eScience a good idea – if yes under which conditions?

Part 3 – the articles

- Digital resource and task's
  - What is a task for teachers and student's
  - Unpacking social practices
  - Emerging sequences
  - Local contingencies
  - The resource – affordances – history
  - Teaching the content

Part 3 – the articles

- Continued.

- The students work in order to do the work expected..
- Unit of analysis and level of description
- Social order – microgenesis
- Findings
- What's missing?

Questions

- Themes:
  - Learning science, CSCL, **CSCW**
  - What does the concept learning contribute with in workplaces studies
  - Why should learning science engage in such fields?
  - What kind of studies can one do in naturalistic work settings?
  - In which ways do the studies on the readings list contribute – they are published ☺