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Knowledge cultures as constitutive for student learning in HE:
Disciplinary cultures and Epistemic cultures

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Background

The move towards the knowledge society and the incorporated concept of a knowledge-based economy has transformed higher education institutions and their educational practices in several ways:

- More complex knowledge worlds, expectations to professionals and academics to take on responsibilities related to justifying, validating and further developing knowledge

- The use of advanced instruments and representations

- Extended contexts for learning
Significant tasks for higher education

The ‘enrolment’ of students in knowledge cultures, which includes learning the techniques, procedures and principles for how knowledge is produced and handled in the respective expert domain.

To develop what has been termed “epistemic fluency” – capacities for understanding and creating knowledge in different settings.

Actualizes the question of how we conceptualize knowledge cultures and their ways of constituting learning – and what analytical resources different conceptualizations bring about.
Disciplinary cultures

Research on knowledge cultures in HE has primarily used the Biglan scheme as a point of departure: Hard-Soft, Pure-Applied (Biglan 1973)

A main contribution: Tony Becher’s *Academic tribes and territories: Intellectual enquiry and the culture of disciplines* (1989, revised version with Paul Trowler 2001)

Highlights how the structures of knowledge domains (cognitive dimensions) have implications for social organization

Has given rise to a range of studies which employ disciplinary perspectives to differentiate between groups of students and academics, including research on teaching, learning, and curriculum development
Important contributions

Studies carried out in this tradition have identified and described disciplinary differences in ways of organizing teaching, learning and curriculum development (e.g. Neumann et al. 2002, Brint et al. 2008)

Comparative analyses of the knowledge structures of course content and methods of inquiry in different educational programs have revealed disciplinary differences in what it means to learn to «think» like an expert (e.g. Donald 2002)

Viewed in sum this research underlines the importance of recognizing the distinctive features of knowledge domains and their social environments if we are to understand key aspects of teaching and learning.

At a more general level they contribute to question the feasibility of promoting pedagogical principles that are believed to be valid across all knowledge domains.
Limitations

When applied in studies of student learning, this research has been dominated by individualist methodologies (interviews, surveys)

Targets participants’ perceptions of a knowledge domain, rather than their epistemic engagement

Knowledge tends to be treated as fixed ‘content’ to be learned, rather than as dynamic objects that are mediated, explored and further developed in multiple contexts

In some studies the discipline is treated as a context for learning, rather than as a set of problems and epistemic resources with which the students engage

Research into learning in higher education has not accounted sufficiently for ‘the fleeting’, ‘the distributed’, ‘the multiple’ and ‘the complex’ (Haggis 2009)
"The concept of disciplines has been important to capture the differentiation of knowledge, but it has not sufficiently captured the strategies and policies of knowing that inform expert practice.”

(Knorr Cetina 1999)

To understand how students of today become enrolled in expert cultures; become acquainted with the principles for producing and validating knowledge in specific areas; and develop as skillful practitioners capable of identifying, exploring and utilizing knowledge in relevant ways, the manner in which students participate in epistemic practices across settings and over time should be examined.
Epistemic cultures (Knorr Cetina 1999)

Focus on the methods of inquiry, epistemic practices, ‘machineries of knowledge construction’ which constitute knowledge and ways of knowing in the sciences (and other expert communities)

Provides analytic resources for studying learning as embedded in ecologies of knowledge that operate within – but stretches beyond – local activities

Case studies and ethnographic approaches

Access points for empirical investigations: Epistemic practices and object relations
Epistemic objects and practices

Epistemic cultures are typically object-centred in the sense that they are oriented toward exploring, developing, and mobilising knowledge objects.

Knowledge objects as complex ‘problem-knowledge constellations’
- Invite different interpretations and patterns of use
- Potential for increased complexity
- Characterised by their question-generating character and their display of unfulfilled opportunities
- Simultaneously ready to be used and in transformation
- Generated in epistemic cultures, cut across local boundaries

- Models of medical treatment
- Computer programs
- Representations of financial markets,...
Since knowledge objects are always in the process of being materially defined, they continually acquire new properties and change the ones they have. (Knorr Cetina 2001, p. 181)

Knowledge objects are approached, mobilised and further developed by way of epistemic practices.

May contribute to enrolment in expert cultures by
• Inviting explorative and confirming modes of engagement;
• Providing access points to wider knowledge worlds;
• Giving rise to community formations around specific problems or knowledge challenges.
Projects in Oslo: What we have done

- Two projects in the years 2004-2011 (ProLearn and LiKE) in which we focused on how knowledge was developed, distributed, approached and negotiated in different professional settings in teaching, nursing, computer engineering and accountancy

- Included case studies of knowledge practices around new artifacts, standards or procedures in professional work
  - The introduction of a new standard for risk auditing
  - EBM and the development of clinical guidelines in a larger hospital
  - The local work of developing shared assessment practices in schools
  - The use of a new technique for software effort estimation in teams

(Jensen, Lahn and Nerland, Eds., 2012; Nerland and Jensen, 2012)
Conditions for enrolment in an expert culture

- Systematized field of knowledge, transparent opportunities for advancement
- But also a *dynamic* field of knowledge, linked with wider circuits of knowledge development
- Opportunities for variegated participation: exploring, validating, testing, documenting, developing knowledge
- Methodological principles are needed for a variegated set of knowledge practices
- Rich material culture, provision of mediating artifacts and resources
- Shared professional language
- Reinforcing mechanisms: Well-embedded students are more capable of identifying problems, posing relevant questions, envision new opportunities, and participating in more sophisticated ways
What we plan to do

• Turning the focus back to higher education
  – Engineering
  – Law
  – 5-year University-based teacher education

• Case studies of selected inquiry-based activities in these programs.
  (Collaborative, interactional, object-related )

• Focusing on how students get introduced to, and develop competencies in, the investigative processes and principles which constitute their area of expertise

• Follow groups of students across activities to study how they draw on resources from former activities in present situations and how they activate resources from the wider knowledge infrastructures of their domains

• The case studies are part of a larger project (Horizon) which will look at how political and epistemic dimensions interact – or counteract – in organizing higher education programs and activities
References


