

THE OPERATIONALIZATION OF LEARNING

Per-Anders Forstorp, KTH
& Jörgen Nissen, LiU



Contents

1. Examples of cross-boundary learning
2. Various reasons for cross-boundary learning
3. Changes in curricula
4. Studies of higher education
5. The project GLIO – some entries
6. Two meanings of 'operationalization of learning'
7. What learning can mean
8. On cross-boundary learning and boundaries in learning



1. Examples of cross-boundary learning

Högskoleguiden

Mittuniversitetet

Växjö Universitet



2. Various reasons for cross-boundary learning

- ... from mode1 (knowledge created in the academy) to mode 2 (knowledge created in the context of application) (Gibbons *et al*, 1994)
- '...the production of knowledge has shifted from within the epistemological development of the disciplines, to sites outside of the university where knowledge is applied' (Barnett, 2004:150)



... more reasons

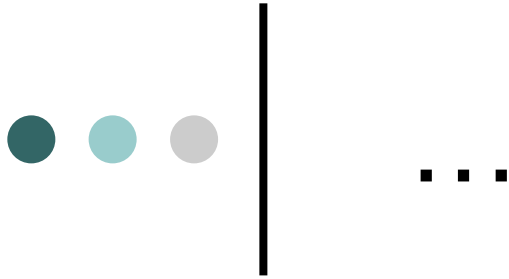
- Decentralisation of higher education
- De-regulation (?)
- Expansion of higher education (from elite to mass education)
- A curricular and pedagogic vogue
- Higher education in regional development
- Higher education and the vision of a 'knowledge society'
- Political governance and higher education
- Directives and recommendations from the government



3. Changes in curriculum

- (1) Different knowledge fields dominates higher education and constitutes a source for academic identities but also as a way of structuring the curriculum (Barnett et al 2004:142; Henkel 2000)

For most academics, an institutional loyalty is secondary to a disciplinary loyalty and a working relationship within the institution is framed through the deep, underlying epistemological structures of the knowledge fields. Consequently, curricula will be shaped in significant degrees by the values and practices of the different knowledge fields. (Barnett 2004:142)

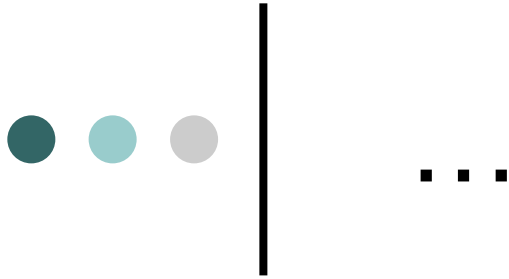


(2) Changes in the production and application of academic knowledge, the most important question is not 'is this true?' but 'is this useful?' 'the performative shift' (Lyotard, 1984:51) associated with an increased emphasis on 'efficiency', 'outputs' and 'use-value'



The principle of performativity

- The principle of performativity in professional education
- The principle of performativity in the sciences, 'optimal performance'
- The principle of performativity in the humanities, skills that are characteristic for a historian will be understood as 'transferable' when it is identified, refined and applied in the repertoire of other professions



‘Performativity’ is about doing rather than knowing, performance rather than understanding, and indicates the relation of academic education to the society

In the performative society, there is a mistrust of all things that cannot easily be quantified or measured. Those knowledge fields that were once intrinsically valued for their own sake must now demonstrate their relevance to the wider world. (Barnett 2004:142)

Traditional curricula	Emerging curricula
Knowing that	Knowing how
Written communication	Oral communication
Personal	Interpersonal
Internal	External
Disciplinary skills	Transferable skills
Intellectual orientation	Action orientation
Problem-making	Problem-solving
Knowledge as process	Knowledge as product
Understanding	Information
Concept-based	Issue-based
Knowledge-based	Task-based
Pure	Applied
Proposition based learning	Experience based learning



Knowledge fields

'Knowledge fields': science and technology; arts and humanities; professional subjects

'Knowledge fields' in this context is a shorthand: behind this term stands a hinterland of contending interests of shifting epistemologies, academic communities, institutions, professions, the corporate world, students and state agencies. A curriculum, in other words, is a dynamic set of forces. The actual form that curricula take in particular settings represents the balance of the interplay of the separate interests. (Barnett 2004:144)



Three domains forming a curriculum: knowledge, action, self

- Knowledge – components of curriculum based on discipline-specific competencies, aspects of teaching and learning that develop subject specialists
- Action – competencies acquired through doing; clinical practice for nurses, oral presentation for art history, etc.
- Self – develops and educational identity in relation to the subject areas; nurses become reflective practitioners; history students ‘critical evaluators’



Forms of performativity (Barnett 2004:150)

- Epistemological performativity – ‘the way in which all scientific fields are shifting to take on a more practical interest’
- Pedagogical performativity – ‘the way that pedagogies themselves take on a more performative character’
- Educational performativity – ‘the skills internal to the discipline are re-defined in terms of their value to the world of work, rather than being left as tacit components of a disciplinary competence’
- Self-monitoring performativity – students are asked to develop a self-reflexivity which enables them to perform more effectively in clinical practice



Universities are expected to develop capabilities which enable students to function efficiently in the workplace, for instance. Accordingly, outcomes are being defined in relation to the needs of working life within different professions, independently of the specific educational arrangements that might produce these outcomes. This is the idea of the competency movement: for each profession a number of necessary competencies should then be identified and it is argued that educational institutions should then be judged in terms of the extent to which they develop these competencies in their graduates. (Bowden & Marton, 1998:)



4. Studies of higher education

Two dominating approaches (Tight 2004:3):

- Relatively small-scale, evaluative case study or a development in teaching, learning or evaluation, qualitative or quantitative, some theory – practice
- Policy critique, nationally based with no explicit theory or methodology – policy

But also other approaches: Large scale, comparative, conceptual, educational-philosophical, critical, feminist, phenomenological, etc.

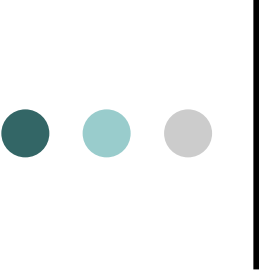


Themes in the study of higher education

(1)

Frackmann 1997

- Role and function of higher education (economy and sociology)
- Nature of knowledge and learning (history and sociology)
- Coordination mechanisms between society and higher education (political science, economy, law)
- Learning and teaching (educationalists and psychologists)
- Higher education and European education



Themes in the study of higher education (2)

Tight 2004

- Teaching and learning (approaches to studying, learning styles, pedagogical styles)
- Course design (assessment, competencies, critical thinking, learning technologies, portfolios, postgraduate study, reflection, writing) +
- The student experience (access, counseling, diversity, employment, evaluation, motivation, multiculturalism, non-completion) +
- Quality (evaluation, grading, outcomes, qualifications, standards)
- System policy (economies of scale, funding, globalization, massification, national policy, returns on investment) +
- Institutional management (autonomy, departments, governance, management, marketization, mergers) +
- Academic work (careers, induction, mobility, professionalism, training, writing)
- Knowledge¹⁷ (disciplinarity, forms of knowledge, research)



Methodologies in the study of higher education

- Documentary analysis (historical studies, literature reviews, most policy analyses)
- Comparative analysis (international studies comparing two or more national systems)
- Interviews (face-to-face and internet-based, focus groups)
- Surveys/multivariate analyses (questionnaires, analysis of large quantitative databases, experimental studies)
- Conceptual analysis (including more theoretical studies)
- Phenomenography (and related approaches)
- Critical/feminist perspectives (and studies that set out to criticize established positions)
- Auto/biographical studies and observation (and accounts based on personal experience)



5. The project GLIO – some entries

Det gränsöverskridande lärandets innehåll och organisering (GLIO)
The Organization and Content of Cross-Boundary Learning

- Studies of higher education (undergraduate and graduate)
- Didactics and pedagogy of higher education
- Epistemology and learning
- Organization and content
- Curriculum change, academic development
- Methodologies: ethnography (auto/biographical studies and observation, interviews); documentary analysis and conceptual analysis

Stages in research:

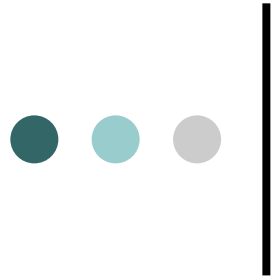
- (1) inventory, interviews, scope-study
- (2) two parallel fieldworks in undergraduate contexts
- (3) two parallel fieldworks in graduate contexts
- (4) writing up, reporting



Boundary-work

Cross-boundary instead of interdisciplinary (or multidisciplinary):

- All kinds of boundaries (disciplines, development and dynamics of knowledge production, professions, geopolitics)
- Notions such as 'interdisciplinary' tends to be very loaded
- Trying to avoid the normative approach



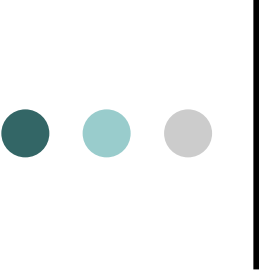
What GLIO is not

- Not cross-boundary *research* (except as part of education)
- Not normative
- Not distinguishing a specific learning experience (?)



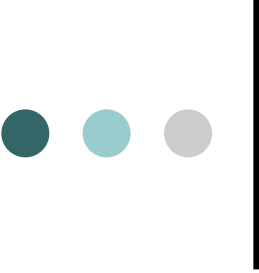
6. Two meanings of 'operationalization of learning'

- How can we discern and focus on learning as an element of education, operationalization as 'making visible', the *analytical* perspective
- How learning can be implemented, operationalization as 'know how' and 'doing', the *applied* perspective



Two meanings of 'operationalization of learning' linked to perspectives on learning

- (1) Learning as an activity in a context; the object of learning can be shifting, the identification of learning as a social and psychological process
- (2) Learning as the application of best practices; implementation of good learning strategies; learning can be part of an educational strategy



Risks with the second approach – learning being regarded as transmission

- 'which invites a view of the student as simply the recipient of knowledge – whatever past experience or understandings she might bring with her are outside the focus of attention.' (Scott, 2004:58)
- 'a technician approach to teaching' (e.g. seeking neat answers) (Scott, 2004:65)
- 'the technification of learning' (Marton & Säljö, 1997)
- 'a mechanistic, artificial type of deep learning rather than genuinely engaging with and understanding the issues, concepts and principles of what they are being asked to learn' (Norton *et al*, 2004:70)
- 'the perceived demands are so predictable that students use this knowledge to economize their efforts' affected by assessment demands' (Norton *et al*, 2004:82)



7. What learning can mean

What is learning according to students (Säljö, 1979; Ramsden, 1992:26)

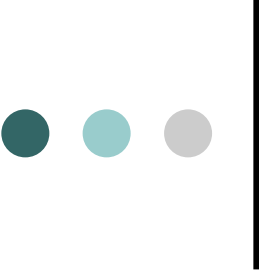
“What do you understand by learning?”

- Learning as quantitative increase in knowledge. Learning is acquiring information or ‘knowing a lot’
- Learning as memorizing. Learning is storing information that can be reproduced
- Learning as acquiring facts, skills and methods that can be retained and used as necessary
- Learning as making sense or abstracting meaning. Learning involves relating parts of the subject matter to each other and to the real world
- Learning as interpreting and understanding reality in different way. Learning involves comprehending the world by reinterpreting knowledge



Metaphors for learning/knowledge

- The prefix in- (in Swedish)
- A store of knowledge
- Transmission and reception
- Knowledge as a mirror of reality
- Knowledge as patchwork (Becher, 1989)



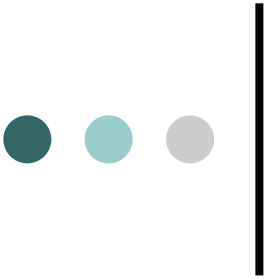
The concept of learning and learning processes

- Results of individual learning processes
- Psychological processes in the individual
- Interaction processes
- 'Teaching'



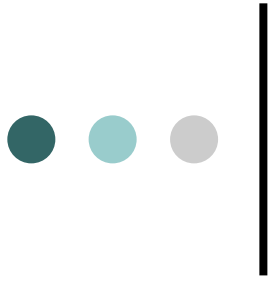
Theories of learning

- Behaviourism – studies of observable changes in behaviour; experiences; amplification (Pavlov, Skinner)
- Cognitivism – rationalism, focus on thinking and mental processes, Cartesian division of mind and body
- Constructivism – Piaget, a kind of cognitivism, 'betoningen av att individen inte passivt tar emot information utan själv genom sin egen aktivitet konstruerar sin förståelse av omvärlden' (56), kunskapsbildning hos barn, människor är aktiva och skapar meningsfulla helheter av det vi varseblir, Piagets syn på rationalitet som tror på människans inneboende rationalitet som skall tillåtas växa 'naturligt' bl. a genom att den omgivande världen ses som ett 'landskap' som skall upptäckas, utvecklingen har en universell uniformitet



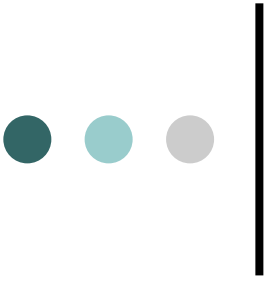
Learning can be understood as (Resnick, 1989)

- A process where knowledge is reproduced in a linear, atomistic and decontextualized way (cf. 1-3)
- A process where knowledge is created and reproduced in specific contexts (for learning) (cf. 4-5)



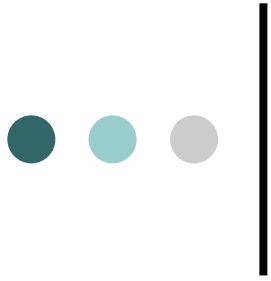
Another distinction:

- Rational-cognitive model of learning – individual, private, cumulative, permanent, context independent, acquired and predominantly rational in nature
- Situated model of learning - Embedded knowledge – systematic routines and forms of technology used as well as the way they interrelate, rules and formal procedures, located in emergent often tacit routines



Knowing (learning) as process – reflecting dynamic, social processes by which understandings are constructed, contested and continually changed, (Lave 1993)

- knowledge always undergoes construction and transformation in use
- learning is an integral aspect of activity in and with the world at all times
- what is learning is always complexly problematic
- acquisition of knowledge is not a simple matter of taking in knowledge; rather, things assumed to be natural categories, such as ‘bodies of knowledge’, ‘learners’, and ‘cultural transmission’ require conceptualization as cultural, social products (Lave, 1993:8, quoted in Trowler & Knight, 2004:165)



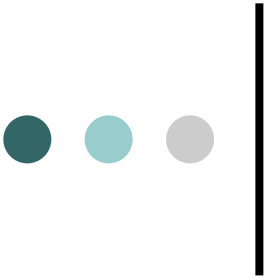
Studies of learning in professional contexts

vs.

institutionalized and decontextualized learning in
universities

Implications for pedagogy:

'In other words, assessments tasks should reflect the
ways in which knowledge and skills are used in real
world contexts' Maclellan 2004:87)

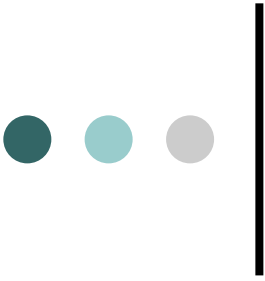


Learning as *approaches*

Learning signifies the strategies that are used by learners in their activity of learning (Marton & Säljö 1976; Kember 2004:42)



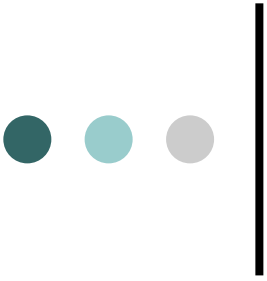
Approach	Intention	Strategy
Surface	Memorising without understanding	Rote-learning
Intermediate 1	Primarily memorising	Strategic attempt to reach limited understanding as an aid to memo
Understandign and memorizing	Understandign and memorizing	Seeking comprehension for examination or task after understahding reached
Intermediate 2	Primarily understanding	Strategic memorization for examination or task after understanding reached
Deep	Understanding	Seeking comrehension



Two study orientations:

- Meaning orientation – ‘deep’ approach, comprehension learning, interrelating ideas, use of evidence and logic
- Reproducing orientation – ‘surface’ approach, improvidence, fear of failure, syllabus-boundedness

Students will adopt a surface approach if they perceive that is what the course and assessment requires or if that approach best enables them to deal with the demands of the course. Teachers, wherever, must expect that if they design curricula or courses of this type, that student behaviour will be consistent with their perceptions of the course design. (Kember, 2004:46)



'Ways of seeing' (experiencing the learning situation) and 'ways of acting' (handling the learning situation) are interrelated (Bowden & Marton, 1998:8)

'Ways of seeing' (after Norwood Hanson (1958) *Patterns of Discovery*) – 'can be characterized in terms of the pattern of critical aspects of the situation that are discerned and focused on simultaneously.'
(46) 'People, not their eyes, see'



- Surface – ‘focusing on surface characteristics of the situation, on the very wording of a text being read, of the argument put forward, on figures in a problem, on formulas to be used for solving the problem. They want to be able to answer the questions they are anticipating and they will probably fail even though they are trying so hard (they would also fail, of course, if they did not try at all). They will fail because they are not focusing on the meaning of the text.’
- Deep – ‘learners are focusing on the object of learning, they are trying to get hold of the phenomenon dealt with in the text they are reading or in the presentation they are listening to. In problem solving they are initially trying to grasp the problem. And, paradoxically enough, because they do not immediately aim at being able to recall a text or to come up with an answer to the problem given, they will probably be better off when it comes to recalling the text or solving the problem.’

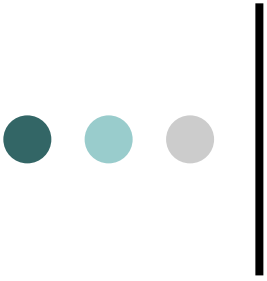


'Application' and 'performativity' (Bowden & Marton 1998; Boyer *Scholarship Reconsidered* (1990))

Just like Boyer, we too prefer using the term 'application' in a wider sense than is usually the case. In addition to asking 'how can our knowledge be used to solve problems outside the university?', we ask: 'how can we develop knowledge for dealing with questions formulated outside the university?'. Serving the interest of 'the larger community' can bring about learning not only in the individual, but also in the collective sense: genuinely new and fundamentally important knowledge might be produced. (10)

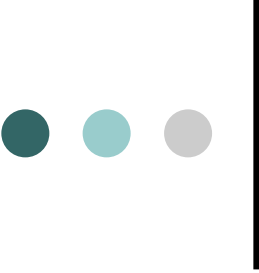
'the only way of mastering variation in the yet unknown future is by having met variation in the now known past' (12)

Not 'teaching' but 'bringing learning about' (12)



The classical problem of transfer (Bowden & Marton, 1998:23f)

- Authentic learning is embedded
- University learning is (tends to be) disembedded



Communicative learning in a sociocultural perspective (Säljö, 2000)

'Kunskap lever först i samspel mellan människor och blir sedan en del av den enskilde individen och hans eller hennes tänkande/handlande...' (9)

'det handlar om hur människor tillägnar sig och formas av deltagande i kulturella aktiviteter och hur de använder sig av de redskap som kulturen tillhandahåller' (18)

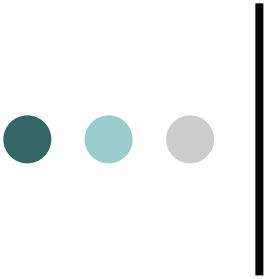
'Vi lär oss helt enkelt genom att uppmärksamma, beskriva och agera i verkligheten på det sätt som omgivningen tillåter och uppmuntrar' (66)

'Det är genom kommunikation som sociokulturella resurser skapas, men det är också genom kommunikation som de förs vidare.' (22)

- utveckling och användning av intellektuella redskap
- utveckling och användning av fysiska redskap
- kommunikation och de olika sätt på vilket människor har utvecklat former för samarbete i olika kollektiva verksamheter



'I ett sociokulturellt perspektiv är det således grundläggande att fysiska, liksom intellektuella/språkliga redskap *medierar* verklighet för människor i konkreta verksamheter. Begreppet medierar – som kommer från tyskans Vermittlung (förmedla) – antyder således att människor inte står i direkt, omedelbart och otolkad kontakt med omvärlden. Tvärtom hanterar vi den med hjälp av olika fysiska och intellektuella redskap som utgör integrerade delar av våra sociala praktiker. Om vi skall förstå lärandet som en del av sociala praktiker, där människor exempelvis använder mikroskop (...) kan vi inte analysera dessa apparater 'i sig' och därefter studera det 'rena' mänskliga tänkandet. Vi måste se och förstå hur tänkande utövas av människor som agerar i sociala praktiker med hjälp av artefakter. När vi tar bort redskapen, den sociala praktiken och studerar tänkandet eller lärandet 'i sig', har vi tappat bort vårt fenomen och ägnar oss åt studier av tämligen hjälplösa individer som berövats sina sociokulturella resurser.' (Säljö 2000:81)



The challenges of learning (Bowden & Marton 1998:6)

The most important thing about institutional forms of learning, such as studying at a university, is that they are supposed to prepare students for handling situations in the future, situations which are often very much unlike the situations in which students are being prepared. These future situations are more or less unknown. The more rapidly the world changes, the less can be said about them and the more unknown they become. And the world is changing more and more rapidly, many would say. The instrument we have for preparing students for an increasingly unknown future is our current knowledge. We have to prepare them for the unknown, by means of the known and we have to work out how that can be done. (ibid)



8. On cross-boundary learning and boundaries in learning

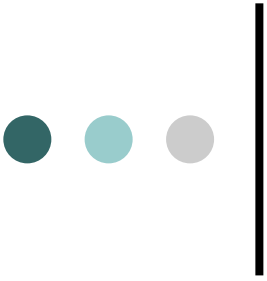
1. Is learning a process and/or a norm which we use in order to assess and evaluate a specific activity?

The normative perspective of Bowden & Marton, 1998:7:

‘Enabling students to engage in effective action in relation to purposes and criteria which they have accepted as their own.’ ‘The central point of this book is that the most important form of learning is that which enables us to see something in the world in a different way.’ (ibid)

2. Learning as a qualitative shift?

3. Is there a specific form of learning which can be distinguished as cross-boundary learning?



Boundaries in learning – some observations (inspired by Bowden & Marton, 1998):

- Learning is learning of something new
- Learning is 'building bridges'
- The collective consciousness and the ethics of learning
- Learning in contrast to what others learn
- Interdisciplinary learning as a highly ethical form of knowledge production
- Specialization may be an inhibiting factor for learning
- Learning and the resources of meta-epistemology



References

Barnett, Ronald (1997) *Higher Education. A Critical Business.*
Buckingham: Open University Press

Becher, Tony (1989) *Academic Tribes and Territories.
Intellectual Enquiry and the Culture of Disciplines.*
Buckingham: Open University Press

Bowden, John & Ferenc Marton (1998) *The University of
Learning.* London: Kogan Page

Tight, Malcolm 2004 (ed.) *The Routledge/Falmer Reader in
Higher Education.* London: Routledge/Falmer

Säljö, Roger (2000) *Lärande i praktiken. Ett sociokulturellt
perspektiv.* Stockholm: Prisma