Social organization of knowledge in VET: challenges for schooling and apprenticeship in Austria

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Agenda

- Introduction: „distributed knowledge“
- Innovation and „knowledge dynamics“
- Interaction of „know-dyn“ & VET structure
- The Austrian case: tensions and policies
Significance of knowledge

Basic proposition

Knowledge is power ("Wissen ist Macht")

General knowledge is the vocational knowledge of the ruling class

A certain pattern of kn is institutionalised in ET-systems

knowledge types roughly: academic, general, vocational

This pattern includes a certain distribution of kn types...

horizontally (specialisations) & vertically stratified

...that influences rationing of access to those kn types

based on ideological beliefs (e.g., abilities)

This aspect was neglected by theory and seems to change

with the new paradigms of kn ec&soc

Model: "distributed knowledge"

Higher Education (academic)

Theoretical knowledge (methodology)

Basic education (foundation)

Skills (mixed basic & specialised codes)

Working knowledge

Vocational Education and Training
The model presented is titled "distributed knowledge." It categorizes education into three main sectors: Higher Education (academic), Vocational Education and Training, and General Education. Each sector is further divided into theoretical knowledge, basic codes, and skills.

- **Higher Education (academic)**:
  - Theoretical knowledge (methodology)
  - Simple basic codes
  - Basic education (foundation)

- **Vocational Education and Training**:
  - Skills (mixed basic & specialised codes)

- **General Education**:

The model also highlights the concept of **Borders & Tensions** and **Distances & Selectivity**, indicating the complexity and interconnections between these sectors.

This model emphasizes the practical application of theoretical knowledge, the importance of foundational skills, and the adaptability required to navigate between academic and vocational education.
knowledge related conceptual changes

Concepts of knowledge: „internalisation“
constructivistic, process vs. entity, anti-rationalistic-nominalistic concept

Mode A - Mode B knowledge production
new status of academic knowledge vs. „applied knowledge“

Linear to systemic (complexity) model of innovation
new status of actors (e.g., university), and interaction among them

New growth theory, evolutionary economics
knowledge = factor, „firm as knowledge producing entity“, collective use

New macro-economic emphasis on competence
unknown how it works; TFP; impact of VET vs general competence (US-EU - growth gap)

Dynamic: “distributed knowledge”

Dynamics of „system building“:
Unification

Theoretical knowledge
(methodology)

Skills
(mixed basic & specialised codes)

Simple basic codes

Working knowledge

Employment

General Education

Academic schooling

Higher Education

Vocational Education
Innovation

Innovation, driven by technological change and market change, is a core process of the knowledge economy & society, and primary source for economic success

- Education and VET are important sources for innovation

however

Innovation does not produce sustainable and equitable social and economic well-being by itself

- Intervention is necessary to fight social and regional disparities

Innovation seems not to be the primary strategy taken by firms in the capitalist market

- Intervention is necessary to support innovative behaviour of firms
Innovation

„Culture of innovation“ is a key concept in the EU policy debate, however, not very much defined
- „positive climate“ towards change
- orientation to application of R&D

Aggregate patterns of innovation regimes, mixture of

<table>
<thead>
<tr>
<th>Security-orientation</th>
<th>Risk-orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Incrementalism</td>
<td>- Exploration (radical innovations)</td>
</tr>
<tr>
<td>- Integration &amp; lock-in</td>
<td>- Flexibility &amp; openness</td>
</tr>
<tr>
<td>- Standardisation</td>
<td>- Diversity of products/process</td>
</tr>
</tbody>
</table>

The actual mixture of those orientations might be seen as an important part of “innovation culture”

Innovation and knowledge

Knowledge is embodied in **people**, therefore people should be at the core of innovative strategies

Innovative **enterprise behaviour** is a key issue in theory:
- “high performance workplace”
- learning organisation
- knowledge-based economy

however:

It is not clear how enterprises spontaneously behave:
- rather cost-cutting, outsourcing, etc.
- than broad and inclusive innovative strategies
Innovation, knowledge and VET

What are potential roles of VET in relation to innovation, and which kinds of contradictions are involved in those roles?

- VET might be seen as **part of an innovation regime**, contributing to the Status-quo (some supporting it, some critical to it)
- VET might be seen as an element in broader policy **attempts to change an innovation regime** (potential impact might be questioned)
- Roles of VET in relation to innovation might be seen as **conflicting with other missions of VET** (assessment of innovation regime, and of potential impact of innovation might be different)
- The changing role of knowledge in the economy and society might be seen **independently from innovation** in a narrow sense, as a secular process, interacting with VET

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Knowledge categories

<table>
<thead>
<tr>
<th>TACIT KNOWLEDGE</th>
<th>CODIFIED KNOWLEDGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>KNOW WHAT</td>
<td></td>
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<tr>
<td>KNOW WHY</td>
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<td>KNOW HOW</td>
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<tr>
<td>KNOW WHO</td>
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</tbody>
</table>

Source: Graphik Lassnigg after Lundvall/Borras 1997, 59
Dynamic 1: codification

Dynamic 2: understanding
Dynamic 3: Renewal

TACIT KNOWLEDGE  CODIFIED KNOWLEDGE

KNOW WHAT  KNOW WHY

KNOW HOW  KNOW WHO

Source: Graphik: Lassnigg after Lundvall/Borrás 1997, 59

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The structure of VET systems is diverse and various changes are going on in VET systems:

- universal access to VET
- formal upgrading of overall systems by growth of higher education
- diversification of higher education by VET oriented institutions
- strengthening of foundational role of VET (e.g., double qualifications)
- growth of continuing VET, combination of formal, non-formal, informal learning
- interplay and integration of initial and continuing VET

Is there a basic relationship between the model of knowledge dynamics and VET structures? Hypotheses:

- some parts of VET might serve certain knowledge categories
- certain dynamics might be supported/prevented by certain VET structures

H1: VET & knowledge categories

Traditional relationship, intuitively:

<table>
<thead>
<tr>
<th>know why</th>
<th>know what</th>
<th>know how</th>
<th>know who</th>
</tr>
</thead>
<tbody>
<tr>
<td>higher education</td>
<td>upper secondary VET</td>
<td>practical training, apprenticeship</td>
<td>missing</td>
</tr>
</tbody>
</table>

Knowledge and competencies:

Cleavage between traditional VET and new dynamic competencies?
H2: VET & knowledge dynamics

Policies and Trends related to knowledge dynamics

Codification of tacit knowledge
- combination of informal, non-formal, formal learning
- human resource strategies in the enterprise sector
- lifelong learning

Understanding
- upgrading towards higher education
- new forms of higher education
- upgrading of upper secondary programmes

Renewal
- work-based learning, strengthen dynamic competencies
- partnerships, apprenticeship

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Context

**Low profile of innovation system** (e.g., low R&D expenditure, traditional structure, high tech low level)

Strong emphasis on **medium level qualifications**, particularly apprenticeship, upgrading by VET colleges

**Higher education** small and traditional, low supply of R&D personnel

**Overall:** Low-risk incrementalistic pattern of innovation system, import rather than production of technology, some exceptions prove the rule

Overview VET system

**Challenges**
- de-specialisation
- new competencies
- low profile of apprenticeship partly decreasing
- upgrading within institutions
- innovative role of polytechnics theory practice gap
- assessment of demand for CET

**System traits**
- **Strong VET** system
  - fulltime schools at two layers (double qualification, medium level) and apprenticeship training
  - **Enterprise sector** strong in apprenticeship, signs for withdrawal
  - **Upgrading** through change from apprenticeship to fulltime schools
  - **Higher Education** relatively small polytechnics growing universities under critique
  - **Continuing ET** on average level, strongly supported by enterprises
Apprenticeship

- Key focus on know how and tacit knowledge
- Codification process badly developed, low level general competences
- Learning from past and current practice, low input from outside
  - Paradigm case for incrementalism

Full-time VET - schools & colleges

- Focus on rather specialised know what
- Adaptation to new developments difficult because of costs
  - Difficult to implement the new competencies because of overload with "know what" - technical and subject knowledge
- Foundation function increasing, however, limits because of overload and contradictory interests
Polytechnics (”Fachhochschule”)

- Built up from **bottom up**, on small scale & with low dynamic
- as *alternatives to universites* that were considered as being “too theoretic” and detached from practice
- Rigid demand orientation, to be proved by formal assessment
- Low R&D profile because of fear from “academic drift” and of small scale

Lifelong learning

- Policy focus on *initial* education and training
- Small function of upgrading, mostly *short adaptation* courses and informal learning, provided by *enterprises*
- Low profile of lifelong learning *policy*, missing responsibility for co-ordination of actors, social partners certain role
- Diversified market driven adult education system, with several *tensions* (VET vs. general, public vs. private, etc.)
Conclusion

There are two feedback loops in the relationships between VET, innovation, and policy making:

1. Apprenticeship boosts successful incrementalist innovation, which is self-sufficient, and separates practice from theory, by not producing demand for R&D and by indirectly crowding out radical innovation

2. Research institutions seem without use the more they are theoretically oriented, which undermines the functioning of universities, and leads to bottlenecks in financing and political support for (basic) research

Summary general

- Ideal of equal access to knowledge
  - ET systems rationing access: „distributed knowledge“
    - Dynamic towards unification in ET systems ...
      ... possibly in line with knowledge economy&society ...
      ... however not a spontaneous process, policy needed
  - Interaction innovation dynamic and ET system
- The Austrian case points to negative feedback cycles:
Summary Austria

- A strong & traditional VET system with big distances between knowledge types ...
- ... seems to interact with a security-oriented pattern of innovation ...
- ... in a way that supports a pattern of distributed knowledge with a high „rationing parameter“

The End

Thank you!

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