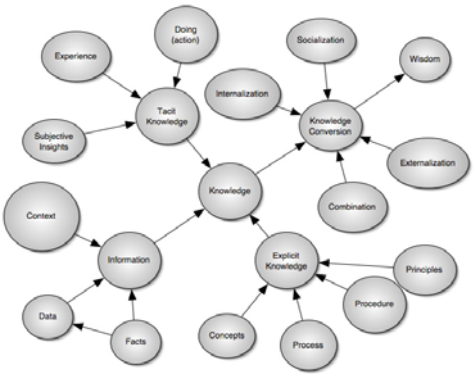

Knowledge Creation in School Networks

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4th Lüneburg Workshop on Environmental and Sustainability Communication
September 28- 29th 2009

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Agenda

1. **Introduction: Networks in Education**
2. **An Empical Study on Learning in School Networks**

2.1 Theoretical Framing
2.2 Methodological Approach
2.3 Findings

3. **Discussion**

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Networks in Education

„In education, networks

- promote the dissemination of good practice,
- enhance the professional development of teachers,
- support capacity building in schools,
- mediate between centralised and decentralised structures, and
- assist in the process of re-structuring and re-culturing educational organisations and systems."

(Hopkins, 2001)

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School-to-School Networks

Assumpitions regarding networks between schools:

- Networks have characteristics of „Professional Learning Communities (Jackson 2006; Earl et al.2006)
- Networks enhance sustainable professional development of teachers (Hargreaves & Goodson, 2006; Gräsel et al., 2006)
- Networks provide the necessary space for experiments, intensive exchange of experiences, information and knowledge (Chapman & Aspin 2003; Risse 1998)
- Networks allocate potentials for improving school quality (Czerwanski et al., 2002)

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Selected Findings

- Cross-institutional learning communities help to establish collaboration between teachers in schools (Gräsel et al., 2006)

- Changes at the class room level (e.g. Fußangel et al. 2008, Allen, 2007; Prenzel et al. 2005)

- Improvement of student performance
(e.g. Sammons et al., 2007; Ainscow & Howes, 2007; Allen, 2007; Earl et al. 2006; Adler et al., 1995)

➔ **Main orientation:** Output of networking/ networks

➔ **Desideratum:** Both theoretical and empirical examination of actual learning and innovation processes in school networks

2. An Empical Study on Learning in School Networks

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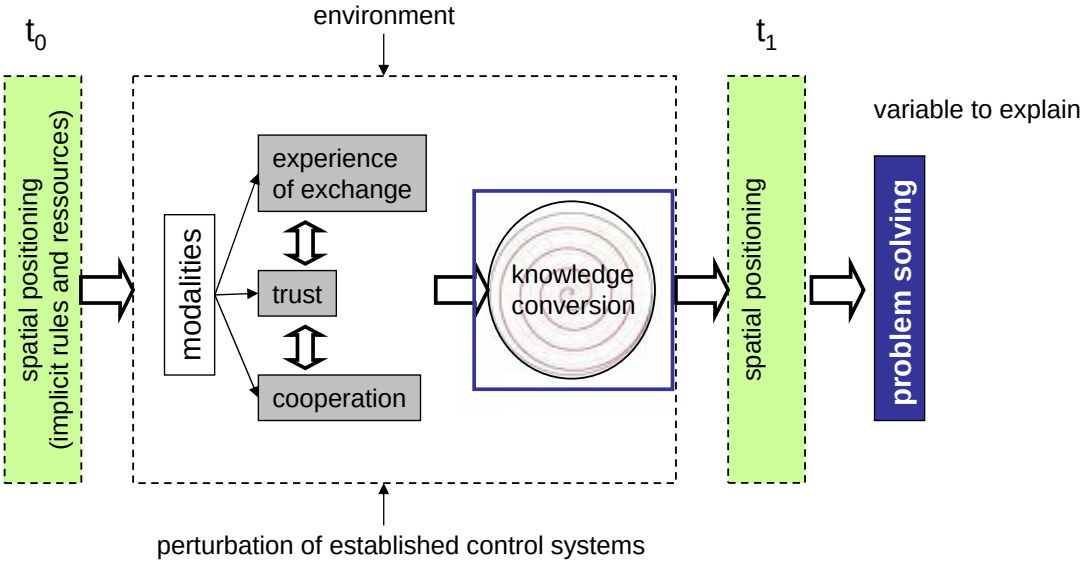
The Project „Schulen im Team“

- Project funding: Mercator Foundation
- Project management and research: Institute for Research on School Development (TU Dortmund)
- Project period: 3,5 years (02/2007 – 07/2010)
- 10 networks of 3-5 schools (a total of 40 schools)
- Professional support from Institute for Research on School Development
- Budget for innovation (20.000 Euro a year/ network)

(Berkemeyer et al. 2008a)

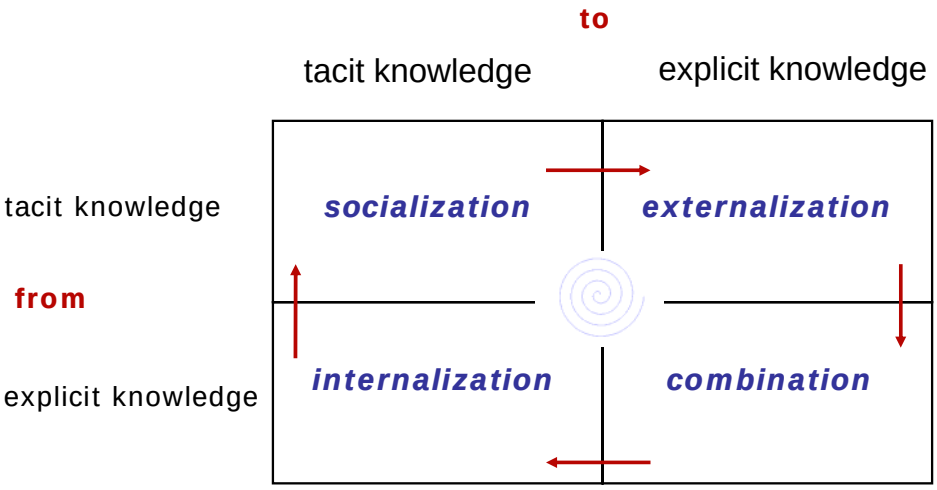
A Framework Model for Analyzing Innovation Networks



(Berkemeyer et al. 2008b)

Spiral of knowledge creation (Nonaka 1994)

„knowledge-creation metaphor of learning“
(Paavola, Lipponen & Hakkarainen 2004)



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Central research questions

1) Can learning processes in school networks be descibed and reconstructed on the basis of Nonakas spiral of knowledge creation?

2) Which learning processes and knowledge dynamics can be detected in the networks within approx.1 year?

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Research Design for Knowledge Creation

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Data set:

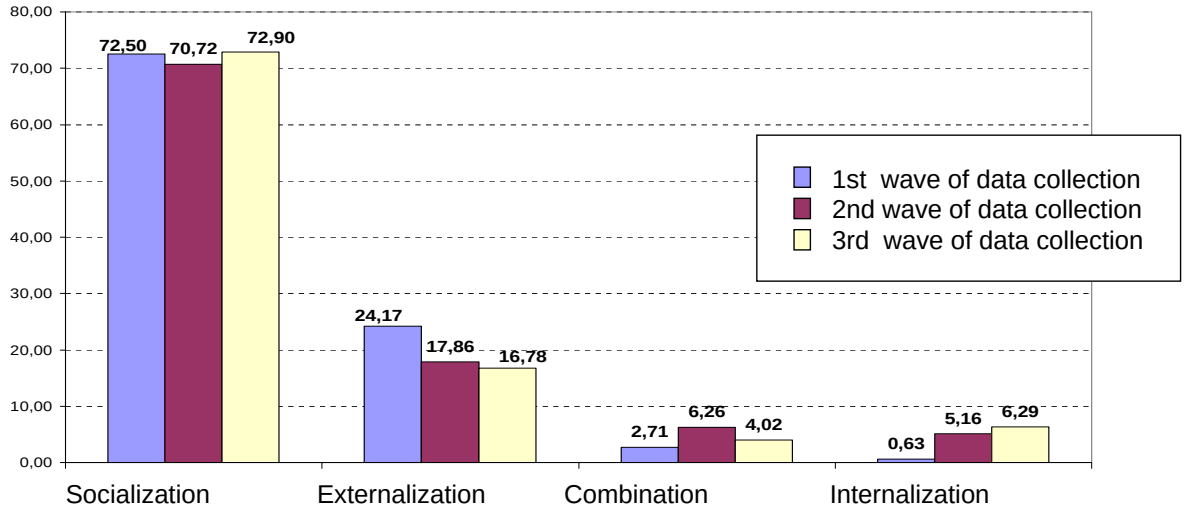
- Semi- structured interviews with the network coordinators in the project „Schulen im Team“, n= 116
- Three waves of data collection: Sept. 2007, Jan. 2008, June 2008

Method:

- Content Analysis (Bos & Tarnai, 1989, 1999; Mayring, 2000)
  - Deductive categories of analysis (Nonaka, 1994)
    - Socialization
    - Externalization
    - Combination
    - Internalization
  - + deductive AND inductive sub-categories of analysis

Findings

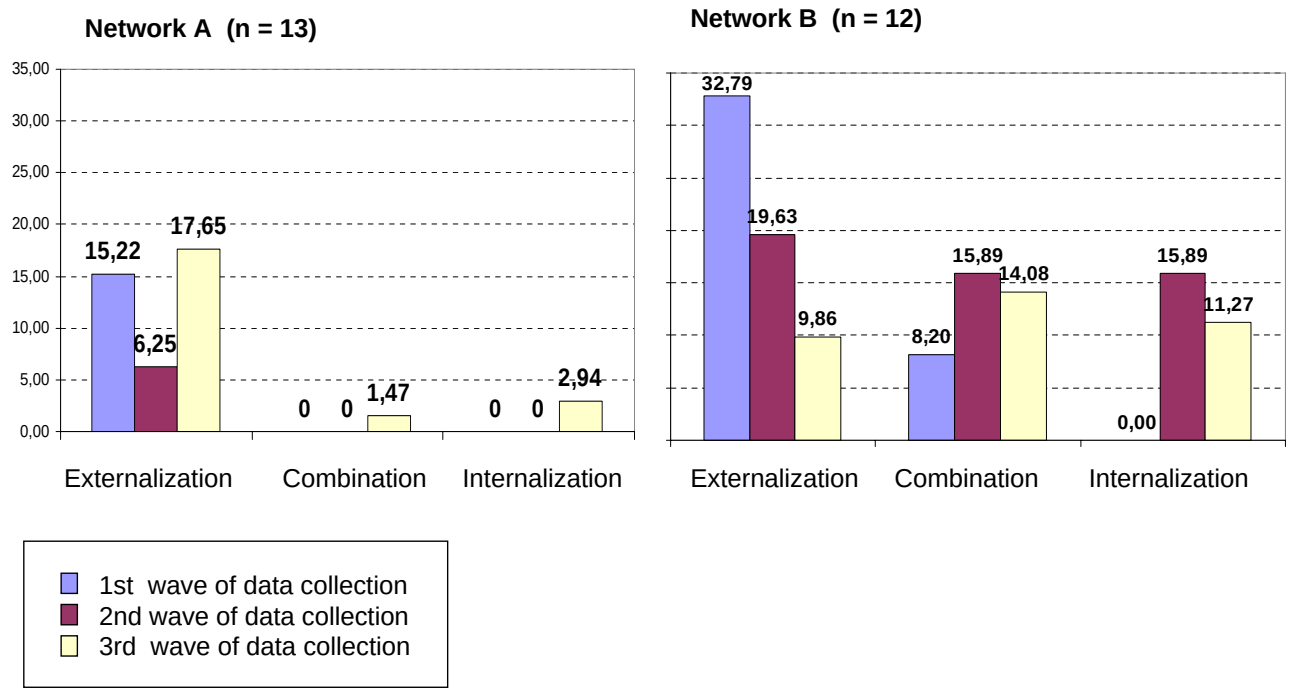
Coding decision regarding the main categories of analysis (in %)



A total of coding decisions= 1595
Number of Interviews: n= 116
Inter-coder reliability: .76

A Comparison between networks A and B

Coding decisions regarding the main categories of analysis (in %)



Key Findings

- ✓ The Spiral of Knowledge Creation provides a possible theoreretical orientation for empirical research on learning processes in (school) networks.
- ✓ The findings indicate a spiral development of knowledge.
- ✓ Different dynamics of knowledge creation can be detected in the analyzed networks.
- ✓ However, the findings provide only little information about the quality of the learning process and the depth of the knowledge generated.

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Future Prospects

- How can the quality of the knowledge generated be assessed?
- Examination of further elements of the framework model
- Can the procedure be adapted for other (not school-to-school) innovation/ learning networks?

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Thank you for your attention!

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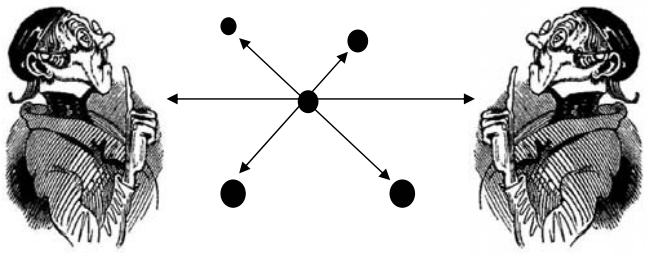
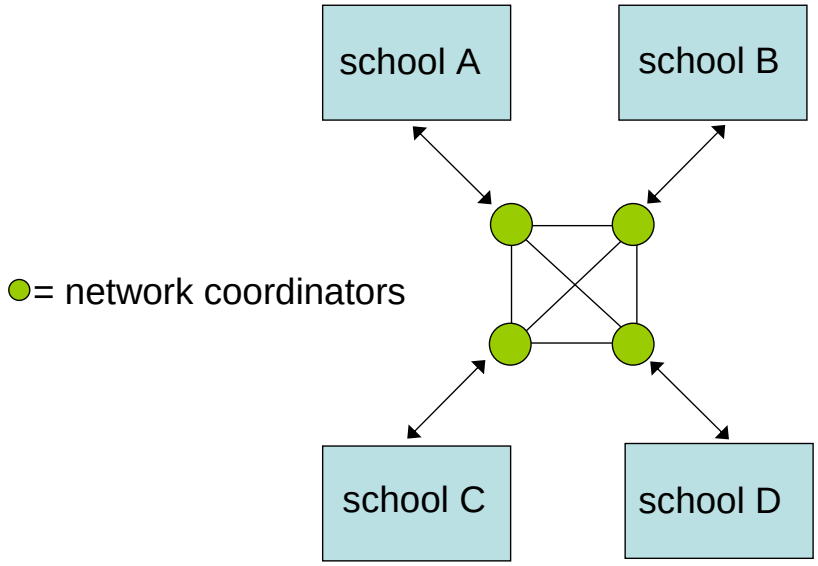
"It is one of life's great ironies: schools are in the business of teaching and learning, yet they are terrible at learning from each other. If they ever discover how to do this, their future is assured." (Fullan, 2002)



„The most promising strategy for sustained school improvement is developing the ability of school personel to function as a Professional Learning Community."
(DuFour & Eaker, 1998)

Formal network structure



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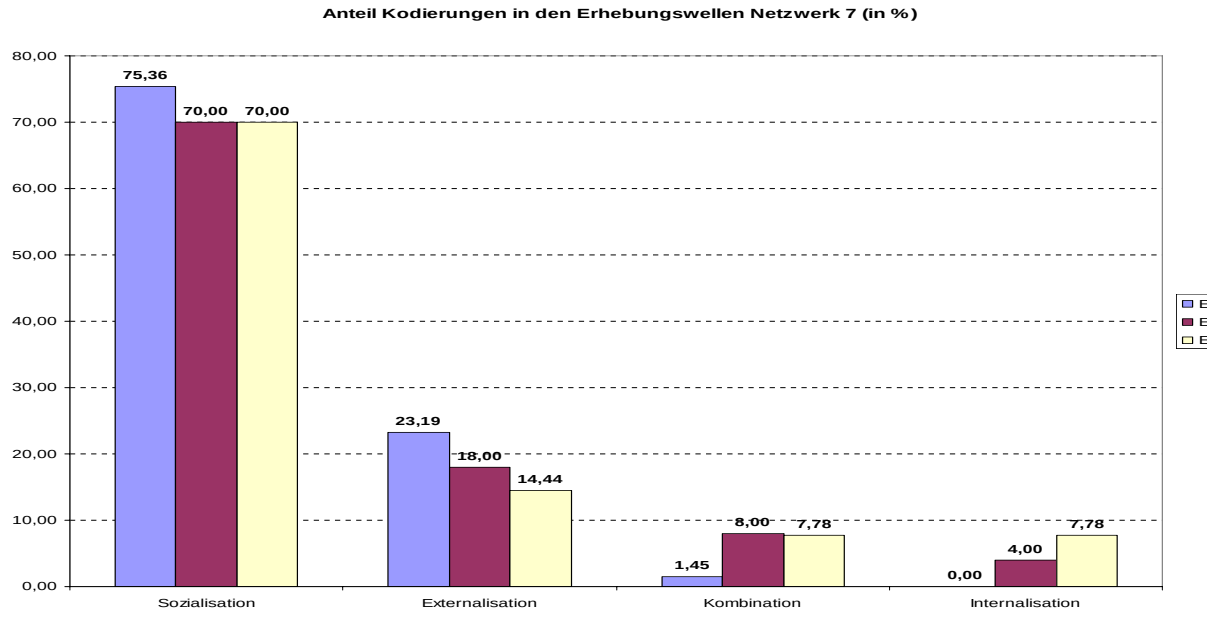

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Deductive categories of analysis (Nonaka 1994)

„***Socialization*** is the process of sharing experiences and thereby creating tacit knowledge such as shared mental models and technical skills" (Nonaka & Takeuchi 1995, 63-64). "Physical, face-to-face experiences are the key to conversion and transfer of tacit knowledge" (Nonaka & Konno 1998, 46)

Deductive categories of analysis (Nonaka 1994)

"Externalization is a process of articulating tacit knowledge into explicit concepts. It is a quintessential knowledge-creation process in that tacit knowledge becomes explicit" (Nonaka & Takeuchi 1995, 64). "Dialogue is key for such conversions" (Nonaka & Konno 1998, 47).

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Deductive categories of analysis (Nonaka 1994)

"***Combination*** is a process of systemizing concepts into a knowledge system. This mode of knowledge conversion involves combining different bodies of explicit knowledge. Reconfiguration of existing information through sorting, adding, combining, and categorizing of explicit knowledge can lead to new knowledge." (Nonaka & Takeuchi 1995, 67)

Deductive categories of analysis (Nonaka 1994)

"***Internalization*** is a process of embodying explicit knowledge into tacit knowledge. It is closely related to learning by doing." (Nonaka & Takeuchi 1995, 69)

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