UNIVERSITY OF AMSTERDAM
Institute for Interdisciplinary Studies

Netzwerke und Kooperationen -
als inter- und transdisziplinaere Aufgabe

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Netzwerke und Kooperationen DENKEN, Innovation in der Hochschullehre

- online Diskussionsbeitrag, 5. Mai 2021

INSTITUTE FOR LOGIC, LANGUAGE AND COMPUTATION

amsterdam brain & cognition

Kooperation: gemeinsam, doch mit Unterschieden

Bratman on joint action:

- shared goal
- separate purposes/aims
- meshed plans
- acknowledging differences re actions and goals/norms
- some stability is necessary

Vesper et al. Joint Action

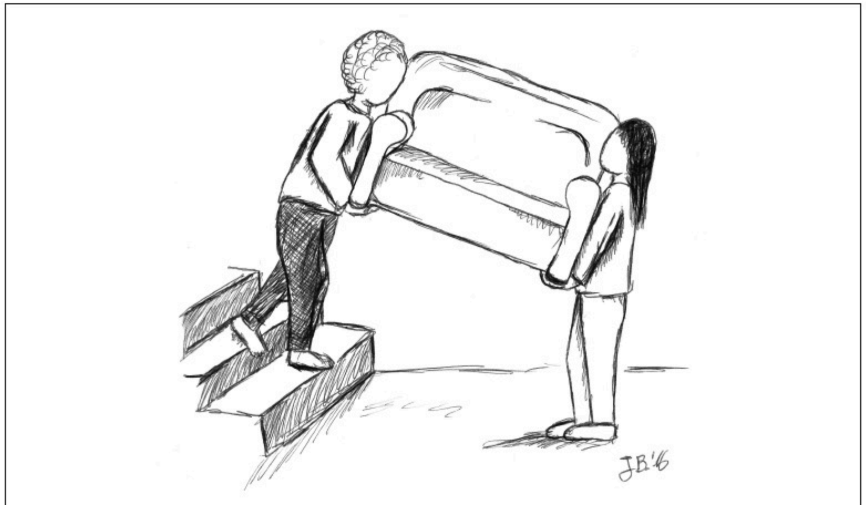


FIGURE 1 | Two people carrying a heavy sofa together face the challenge of coordinating their actions in a temporally and spatially precise manner.

Pluralism can be maintained!

(cf. Bratman, 1992; 2007 Structures of Agency; fig. Vesper e.a., in Front. Psych. 2018)

Metakognition als Bedingung der Kooperation

Self-knowledge, monitoring & regulating one’s cognition:

– awareness of one’s own representations, stragies etc.

– recognition of differences in representation & cognition

– preparedness to subsequently employ this pluralism

(Keestra 2017: https://tinyurl.com/Keestra-Metacognition)

Figure 2 from **“Meta-cognition and Reflection by Interdisciplinary Experts: Insights from Cognitive Science and Philosophy” by Machiel Keestra, in** *Issues in Interdisciplinary Studies (35) 2017*, 121-169

Figure in color, with B/W version being published on p. 142:

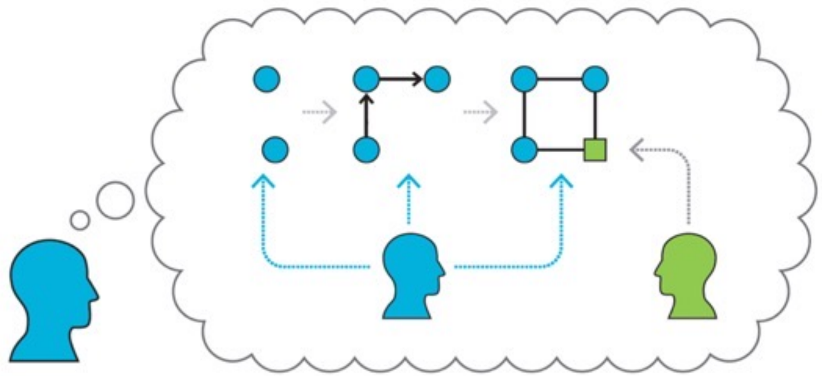
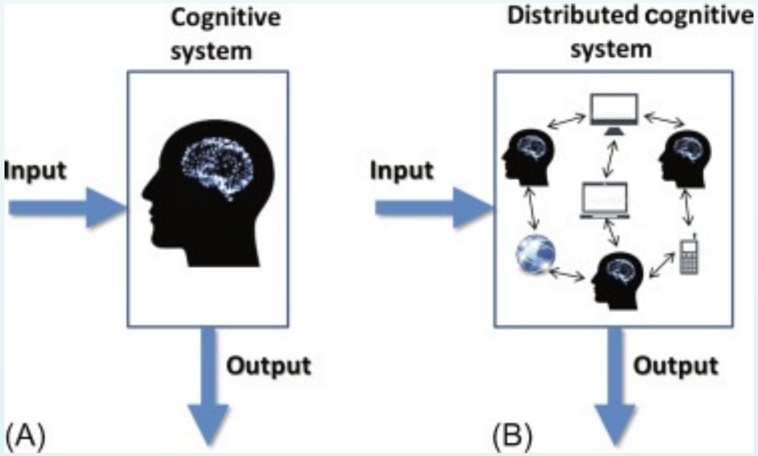


Figure 2. An expert engages in metacognition and philosophical reflection about his or her thinking. The expert reflects specifically about a learning process (in the cloud) and the set of representations it has yielded. Such second-order reflections also prepare the expert for the integration of an additional insight from another expert incorporated into the complex mental representations, such as the grey square added here.

Von individuellen zum team Kognition und Representationen

- Bratman on 'joint action': shared distribution & coordination of tasks & knowledge

- Distributed across members of a group
- Distributed across internal & external structure
  - (space, organization, artifacts, etc.)
- Distributed through time, with interactions
  - (Hutchins, 2000, 'Distributed cognition' in *IESBS;*
  - Vesper e.a. 2018; fig. D'Angelo 2018)



Akademiker des 21. Jhdts: kooperierend und netzwerkend

WORLD ECONOMIC FORUM
COMMITTED TO IMPROVING THE STATE OF THE WORLD

Top 10 skills

in 2020	in 2015
1. Complex Problem Solving	1. Complex Problem Solving
2. Critical Thinking	2. Coordinating with Others
3. Creativity	3. People Management
4. People Management	4. Critical Thinking
5. Coordinating with Others	5. Negotiation
6. Emotional Intelligence	6. Quality Control
7. Judgment and Decision Making	7. Service Orientation
8. Service Orientation	8. Judgment and Decision Making
9. Negotiation	9. Active Listening
10. Cognitive Flexibility	10. Creativity

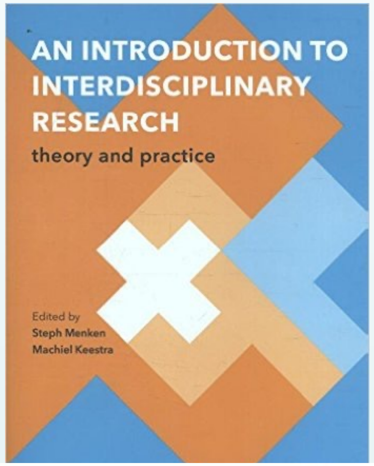
Source: Future of Jobs Report, World Economic Forum

Table from https://workfutures.substack.com/p/10-work-skills-for-the-postnormal

Interdisziplinaritaet: Integration als Kennzeichen

"Interdisciplinary research is a mode of research in which an individual scientist or a team of scientists integrates information, data, techniques, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge, with the objective to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice."

(Nat. Academies of Science, 2005; in Menken & Keestra, eds., Introduction to Interdisciplinary Research, 2016)



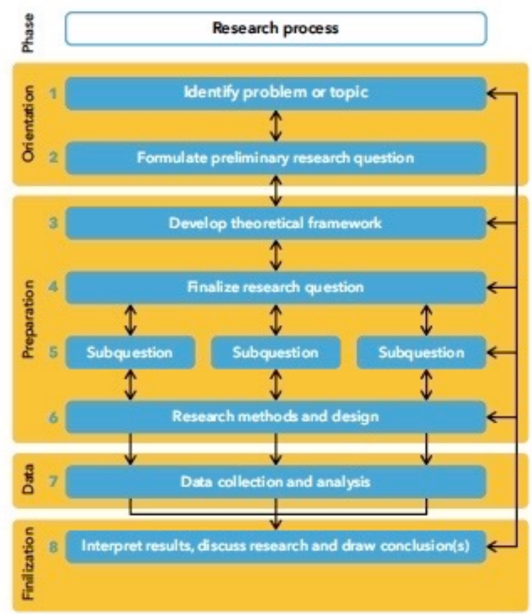


Figure 9 The IIS model for interdisciplinary research

Integration und Interaktion sind ko-dependent

What Is a Scientific Research Team?

...think of it as a continuum...

Low ← ***Level of Interaction and Integration*** → ***High***

Independent Research

- Investigator works largely independently on a research problem with his or her lab.

Collaboration

- Each group member brings expertise to address the research problem.
- Group members work on separate parts of the research problem, which are later integrated.
- Data sharing or brainstorming among lead investigators varies from limited to frequent.

Integrated Research Team

- Each team member brings specific expertise to address the research problem.
- Team meets regularly to discuss team goals, individuals' objectives, and next steps.
- Team shares leadership responsibility, decision-making authority, data, and credit.

From: Bennett e.a. 2010: Starting to think about Team Science

Unterstuetzung der Kollaboration durch mentale Modellen, Repräsentationen

"… delineating various types of mental models (…), we posit that the existing constructs represented in the literature can be categorized as team-level mental representations focused on four basic types of knowledge content:
-task related
-team related
-process related, and
-goal related."
(Wildman e.a. 2012, 92)

→ Metacognition applies to cognition of these types of content

TEAM KNOWLEDGE RESEARCH

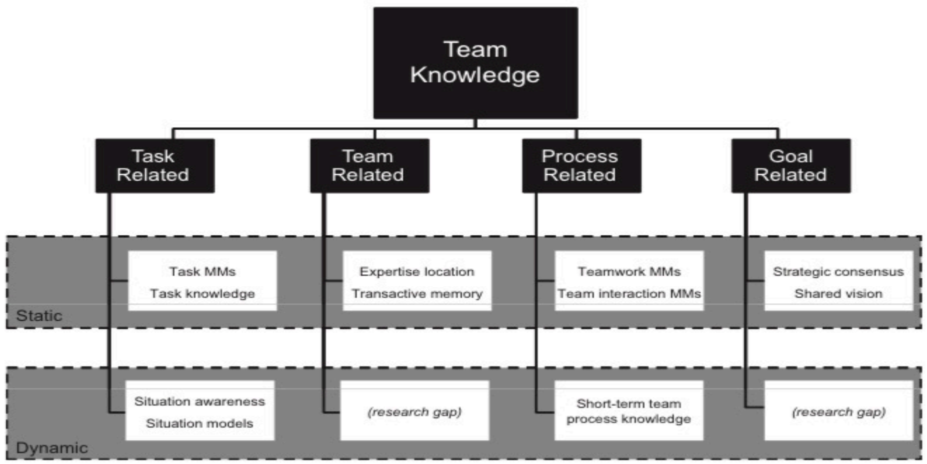


Figure 1. Organizing framework of team knowledge.

Kollaboration in unterschiedlichen Phasen - bedingt durch Koordination

Cf. coordinated collaborations in transdisciplinary research project with different parties in phases of:

- problem framing
- research
- integration & implementation of results

(cf. Scholtz 2017)

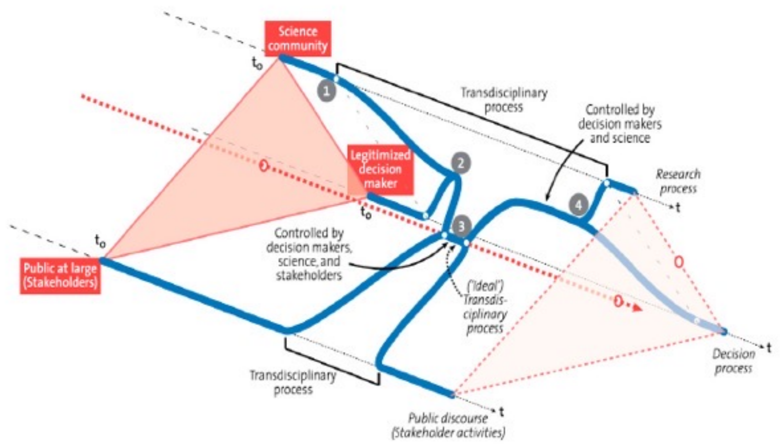


Figure 2. Science, legitimized decision makers, and the public at large (civil society, including different stakeholders) follow different objectives (see right end of the time scale) involved in a transdisciplinary process (figure modified from [28]).

Zur inter-, trans-disziplinären und Aktionsforschung brauchen wir selbst- und team-reflektierende Akademiker

Collaboration requires team metacognition, reflection, and communication on e.g.:

– Project goals

– Different cognitive processes

– Differences in norms, interests

– Mutual expectations

– etc.

(Keestra 2017: https://tinyurl.com/Keestra-Metacognition)

Figure 3 from **"Metacognition and Reflection by Interdisciplinary Experts: Insights from Cognitive Science and Philosophy"** by **Machiel Keestra**, in *Issues in Interdisciplinary Studies (35) 2017, 121-169*

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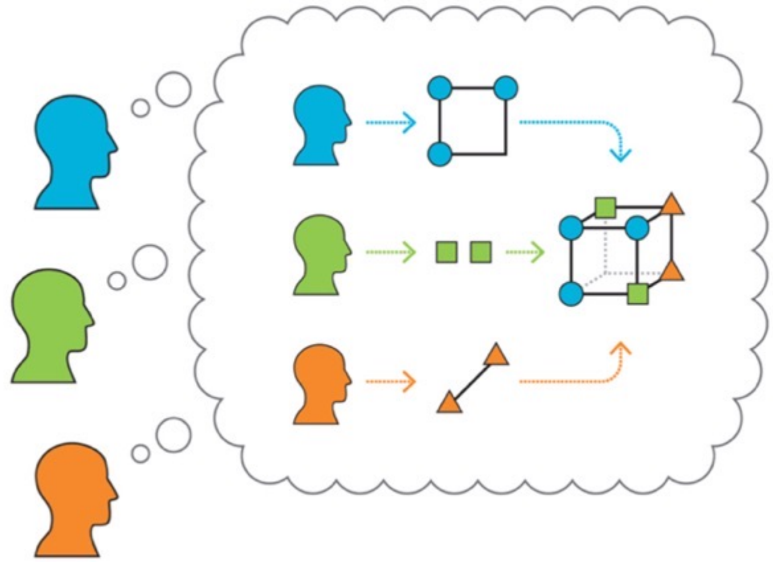


Figure 3. An interdisciplinary team of experts develops together a more comprehensive understanding of a phenomenon – represented by the three-dimensional cube composed of different elements each of them contributes. Their joint or team metacognition and philosophical reflection upon their interdisciplinary collaboration facilitate the process of their development of an interdisciplinary integration of their distinct mental representations of the phenomenon.

Diversitaet als Bedingung und Herausforderung

Diversity policies must attend to:
- composition of team/community
- reflection upon different positions
- ensuring an trusting, safe environment
- conditions for equal participation
- allowing individuals' belongingness & uniqueness

(Cf. Brewer's optimal distinctiveness theory; Shore e.a. 2011; Settles 2019 'Team climate mediates the effect of diversity'; fig. Garrison 2010)

C.S. Wagner et al. / Journal of Informetrics 165 (2011) 14–26

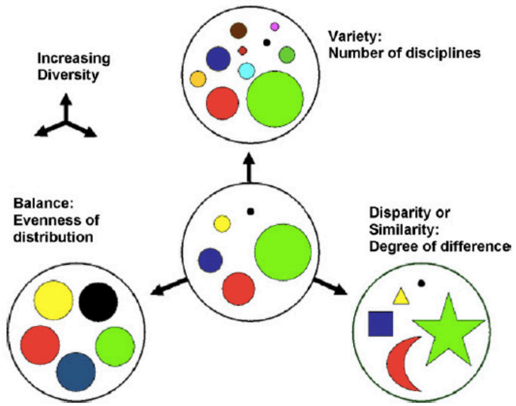
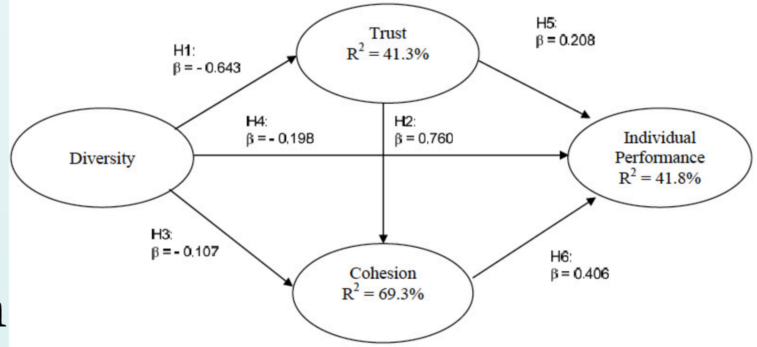


Fig. 2. Schematic representation of the attributes of diversity, from based on Stirling's conceptualization (2007).

Figure 2 Research Model of Diversity and Individual Performance in Globally Distributed Teams



The results provide support for H1 and H4 indicating a significant negative relationship between diversity and trust ($\beta = -.643$; $p < .01$), and diversity and individual performance ($\beta = -.198$; $p < .05$), respectively. A significant positive relationship was indicated between trust and cohesion (H2; $\beta = .760$; $p < .01$), trust and individual performance (H5; $\beta = .208$; $p < .05$), and cohesion and individual performance (H6; $\beta = .406$; $p < .01$). The relationship between diversity and cohesion (H3) was not supported. Additionally, the model explains 41 percent of the variance in trust, 69 percent in cohesion, and 42 percent in individual performance.

influence on individual performance, and it also contributes to a break-down in trust. Trust is a critical component of performance, especially in distributed teams. Trust has been shown as a key factor for successful teamwork and the negative effects from a lack of trust are well-documented in the virtual team literature (e.g., Piccoli and Ives, 2003; Jarvenpaa et al., 1998; Jarvenpaa and Leidner, 1999). If members harbor doubts about other team members' and/or their abilities, they are more likely to become distracted from the task and unable to develop a high level of commitment to the project. Trust creates an environment in which the members have

Persoenlicher Dialog zur Auswechselung und Bildung des Vertrauens

Dialogue is effective as it entails:

- Voluntary inter-group contact
- Perspective taking
- Decreased intersubjective anxiety
- Building trust
- Empathy

Schema of Keti Koti Table dialogue structure

Preparation
1 Forming couples
2 Topic presentation and dialogue question
3 Silence - *for 1 minute*

Dialogue part I
4 First speaker - *for 3 minutes*
5 Silence - *for 1 minute*
6 Listener speaks - *for 2 minutes*

Dialogue part II
7 Second speaker - *for 3 minutes*
8 Silence - *for 1 minute*
9 Listener speaks - *for 2 minutes*

Conclusion round of dialogue
10 Shared reflection - *for 5 minutes*
11 Plenary discussion
12 Goodbye - and possibly change of dialogue couples

If possible
Next round of dialogue
Repeat from step 2 with next dialogue question

(Allport 1954; Keestra 2004; cf. Broekroelofs & Keestra [report] 2018; https://www.ketikotitafel.nl/keti-koti-table)

Structured dialogue:
- silent reflection
- equal speaking time
- listening is essential
- sharing feelings

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Dialogue question(s) #1

- Have you ever experienced a feeling of loneliness, or being excluded, within the context of the university/ UvA?
- Can you share the emotional impact of that experience?

Dialogue question(s) #2

- Did you ever feel connected with someone really different from you - yet not daring to reach out to her/him?
- What made you hesitate about making a connection?

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