

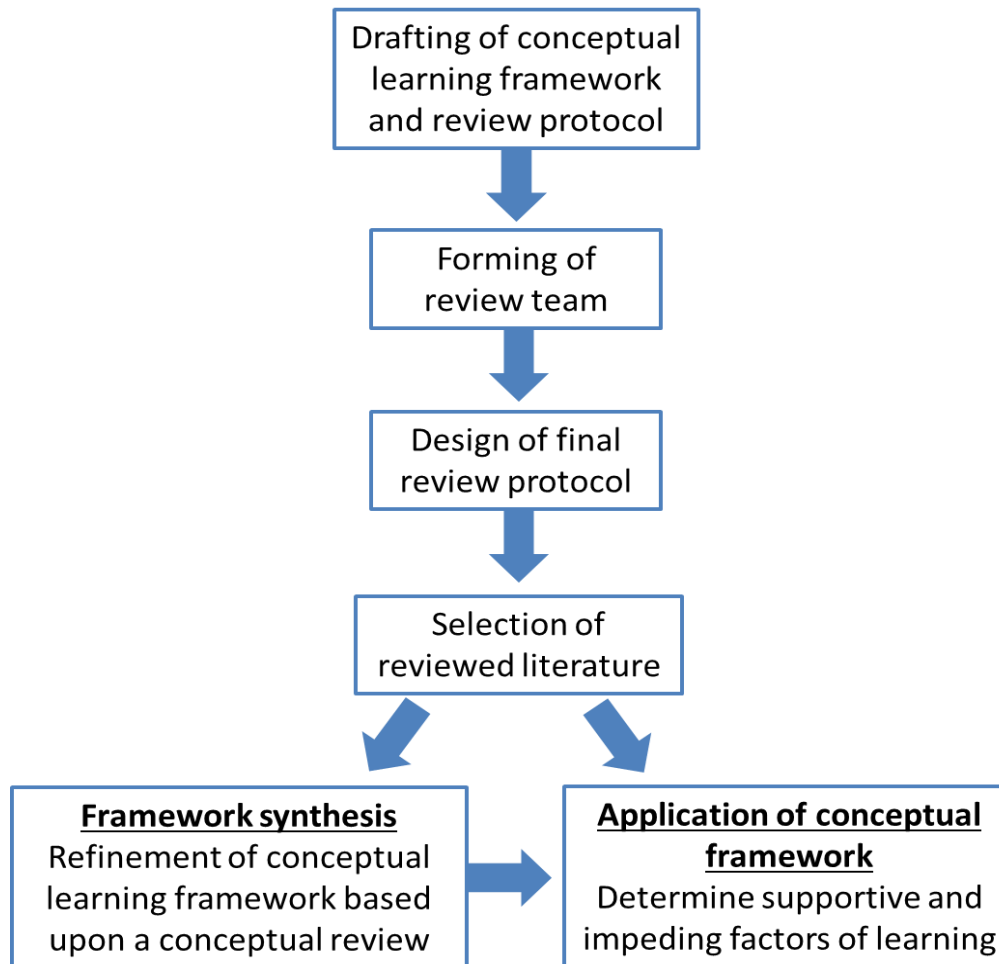
Learning in the governance of sustainability transitions - A systematic review

Johannes Halbe¹, Claudia Pahl-Wostl¹, Geeske Scholz¹, Hannes Thomsen¹,
Joanne Vinke-de Kruijf¹, Uwe Schneidewind²

¹ Institute of Environmental Systems Research, University of Osnabrück

² Wuppertal Institute for Climate, Environment and Energy

Methodology of the systematic literature review



[Halbe et al., submitted]

Conceptual learning framework

Learning objects and outcomes

Learning Intensity	Learning objects	Outcomes
I: Routine learning	Iterative improvement of strategies and actions	e.g., build more dams
II: Reframing	Reconsideration and revision of strategies and assumptions	e.g., water pricing
III: Paradigm change	Reconsideration and revision of values and beliefs	e.g.: participatory water management

[Halbe et al., submitted]

Conceptual learning framework

Learning processes

- Direct experience and active experimentation
- Social interactions

Learning contexts

- Individual context
- Group context
- Organizational context
- Policy context

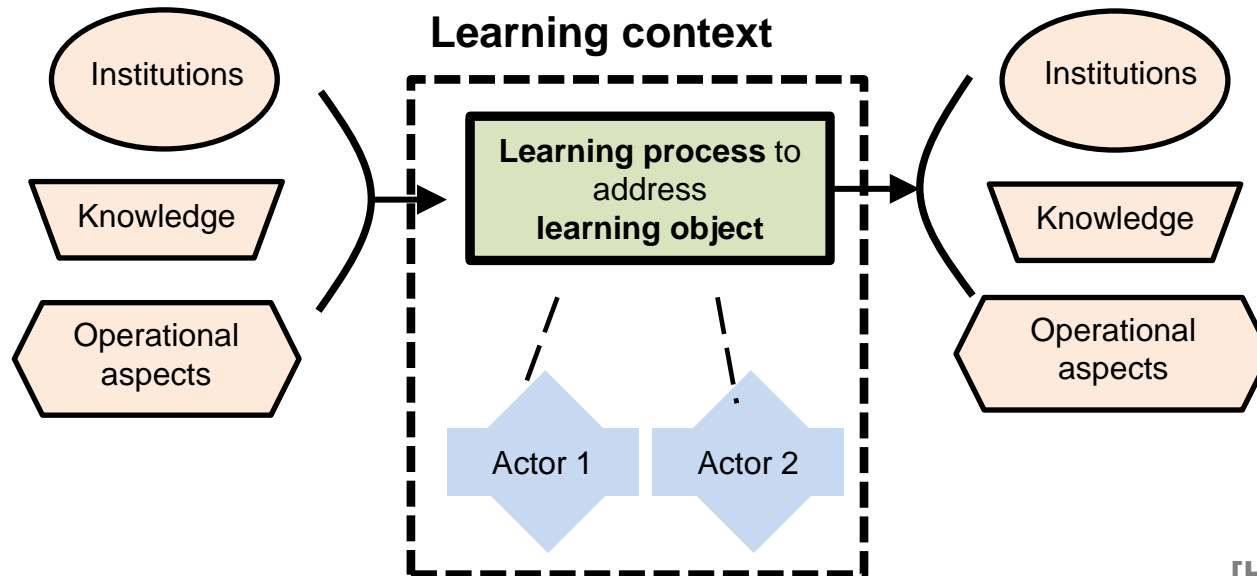
Conceptual learning framework

Supportive or impeding learning factors: institutions, knowledge, operational aspects

Visualization using the Management and Transition Framework (MTF)

[Pahl-Wostl et al., 2010]

Learning factors



[Halbe, 2016]

Comparison of main factor categories across learning contexts

	Sup/ Imp	Individual Context (Total #: 6)	Group Context (Total #: 16)	Organiz. Context (Total #: 18)	Policy Context (Total #: 38)
Disturbance or crisis					
Disturbance or crisis	Sup	o	o	+	+
Change of government					
Change of government	Sup/ Imp		o		+
Societal values that favor sustainability					
Societal values that favor sustainability	Sup	o		++	+
Sustainability oriented institutions					
Sustainability oriented institutions	Sup			++	++
Provision of a leading sustainability vision					
Provision of a leading sustainability vision	Sup	o		+	+
Commitment (awareness and responsibility)					
Commitment (awareness and responsibility)	Sup		o	+	+
Existence of forerunners					
Existence of forerunners	Sup	+		o	+
Externalities and lock-in effects					
Externalities and lock-in effects	Imp			o	
Experimental and social interaction process					
Design of participatory processes					
Design of participatory processes	Sup	+	++	+++	+++
Process facilitation					
Process facilitation	Sup		+++	++	+++
Leadership					
Leadership	Sup		+	+	+++
Resources					
Physical resources					
Physical resources	Sup	+	++	++	+++
Information and knowledge					
Information and knowledge	Sup	o	+++	++	+++
Trust					
Trust	Sup		o	o	++

[Halbe, 2016]

low number (o) := 1-2 references; medium number (+) := 3-5 references; large number (++) := 6-10 references; very large number (+++) := >10 references).

Thank you!

In case of any question or comment, please contact me:

E-Mail: jhalbe@uos.de

Phone: +49 541 969 2297

- Halbe, J., 2016. Governance of Transformation towards Sustainable Water, Energy and Food Supply Systems – Facilitating Sustainability Innovations through Multi-Level Learning Processes. Dissertation, University of Osnabrück.
- Halbe, J., Pahl-Wostl, C., Scholz, G., Thomsen, H., Vinke-de Kruijf, J., Scheidewind, U., submitted. Learning in the governance of sustainability transitions – A systematic review. Research Policy.