7 Take-Away Points
with research needs

Werner Kuhn
University of Münster
Institute for Geoinformatics
Motto

“I have been thinking spatially all my life without knowing it”

(Molière, adapted)
1. concepts AND skills

a. tie skills to concepts (to organize them)
b. tie concepts to skills (to operationalize them)
2. beyond STEM

a. what specific abstraction and communication skills benefit from spatial thinking?
b. what problem solving strategies are spatial? (e.g., Pólya)
c. what skills do employers request and test?
3. physics envy → statistics

a. is there statistical thinking and what is it?
b. how is spatial thinking different or similar?
c. what (kind of) data should be used in spatial studies and spatial learning?
4. spatial concepts are moldable

a. **profile** spatial concepts (scale, distance, ...) for domains and applications

a. formalize and map the profiles through **ontologies**
5. simplify rather than complicate

a. demonstrate how spatial thinking simplifies problems (Pythagoras proof)

b. include simpler spatial technologies than GIS
6. outward-looking GlScience

a. *communicate* that GlScience is *the* spatial information science

b. work on *spatial theory* in domain problems
7. this is a global effort

a. what is *universal* to spatial studies programs?
b. what are national “implementation details”?
a. can we work together globally on a MOOC?
BUT FATHER, I DON'T WANT TO STUDY SPACE TIME TEMPORAL THEORIES IN RELATION TO COLLAPSING PULSARS, I WANT TO DO MY OWN THING!