

A teaching experiment

*Addressing high school students' vulnerability to scientific misinformation:
The contribution of Science and Technology Studies*

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22nd November 2024



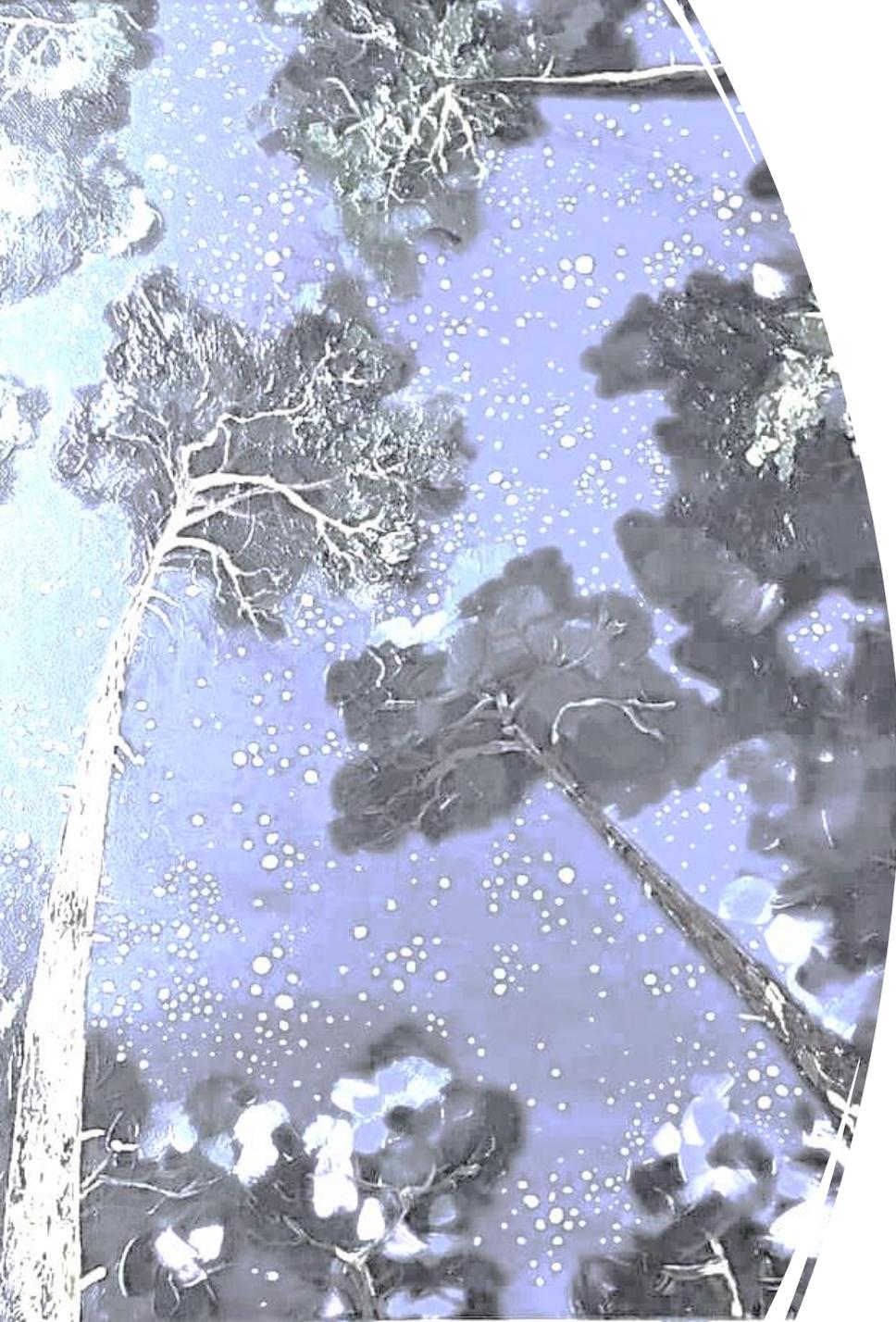
Sociological perspective on science

Teenagers:

- uncritical trust in science
- superficial idea of how science works
- idealized view of the scientific method

Naive scientism





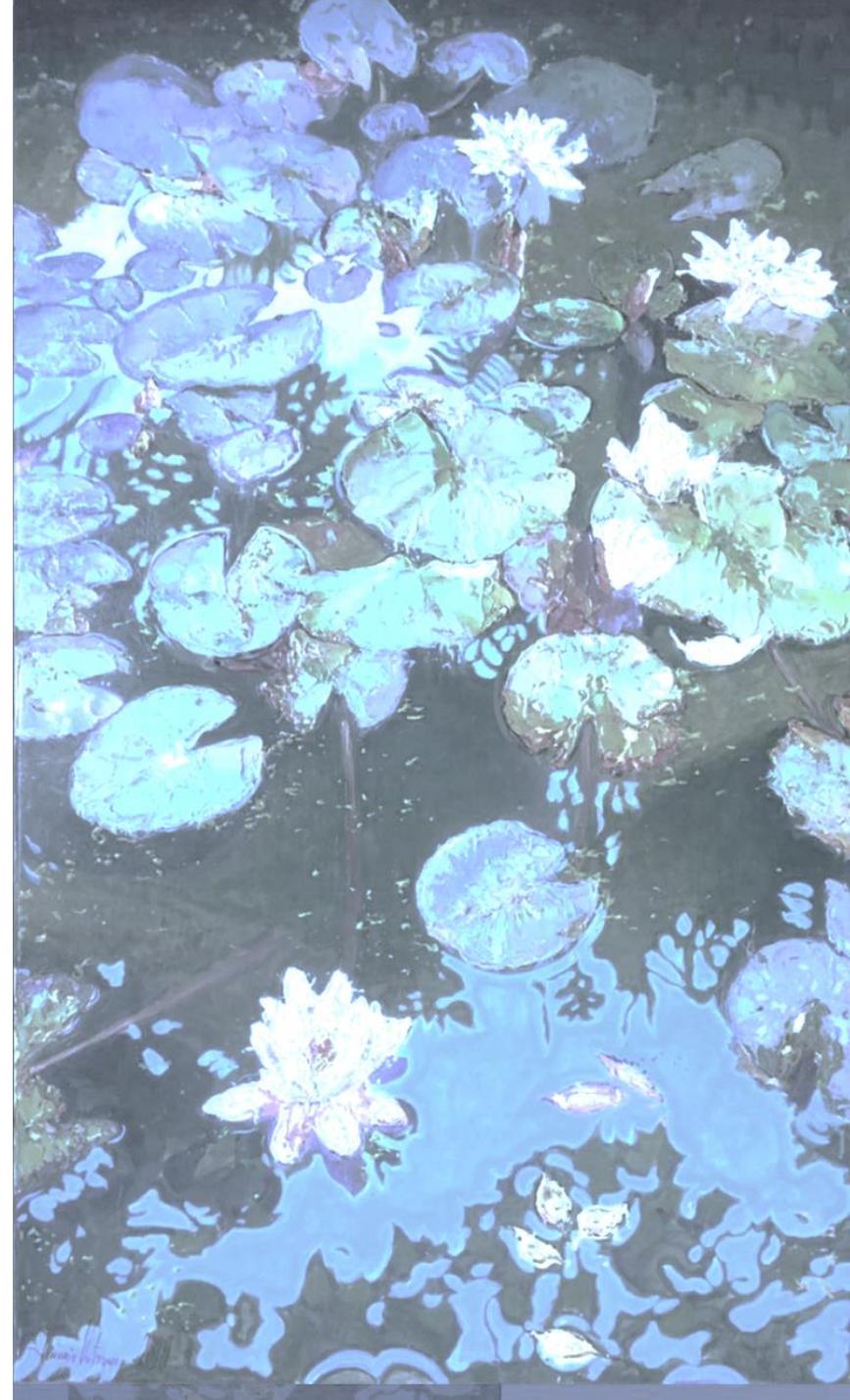
Teaching module contents

Critique assumptions of naive scientism:

1. experiments verify reality
2. science evolves consensually and cumulatively
3. scientific knowledge is the sum of individual or single groups performance

(1)
*Interpretative
flexibility
of results*

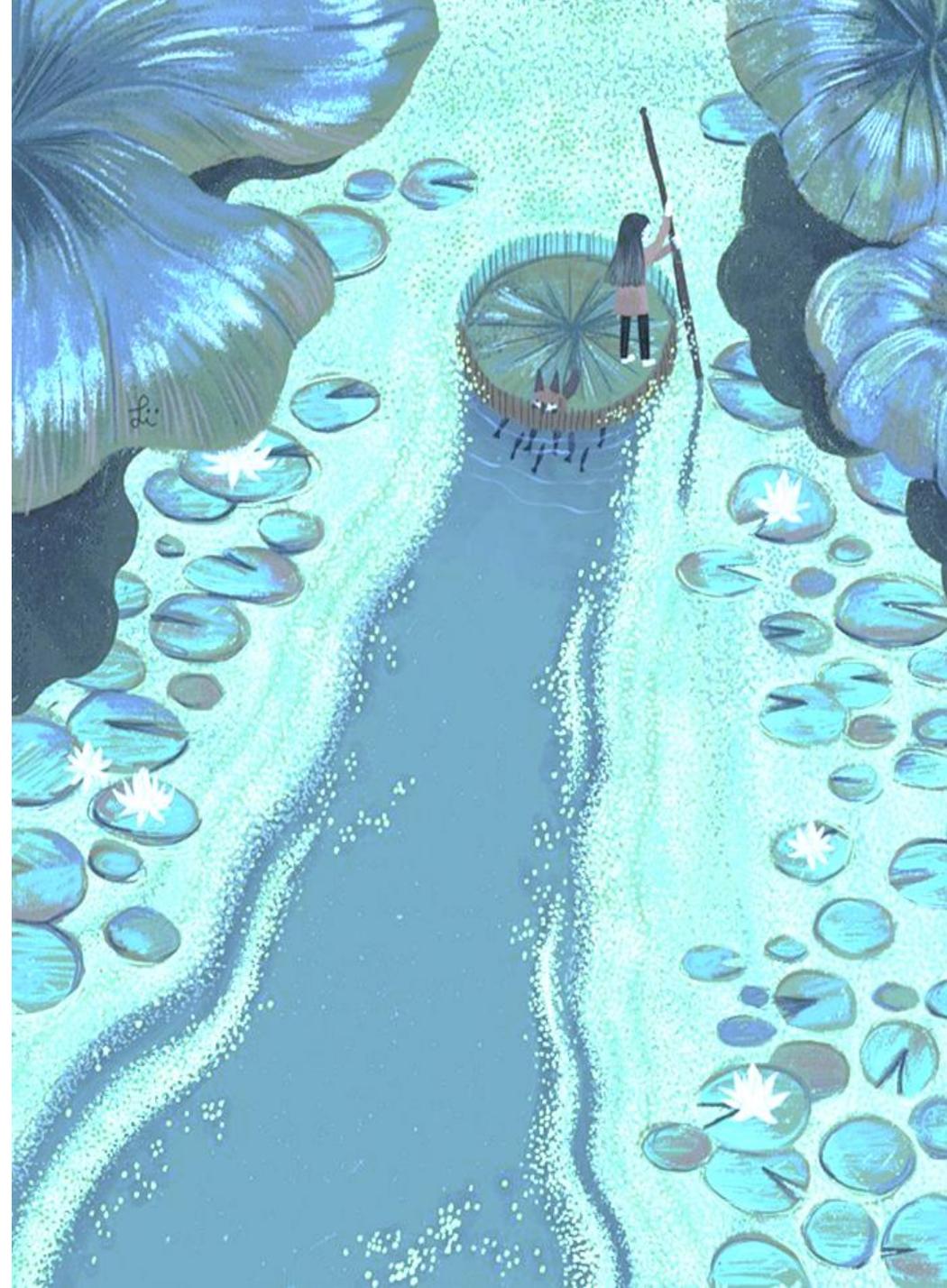
- Collins and Pinch (1993):
The Golem
- The problem: detection of
gravitational waves
- Weber and his first
experiment (1969)
- The controversy (1970s)

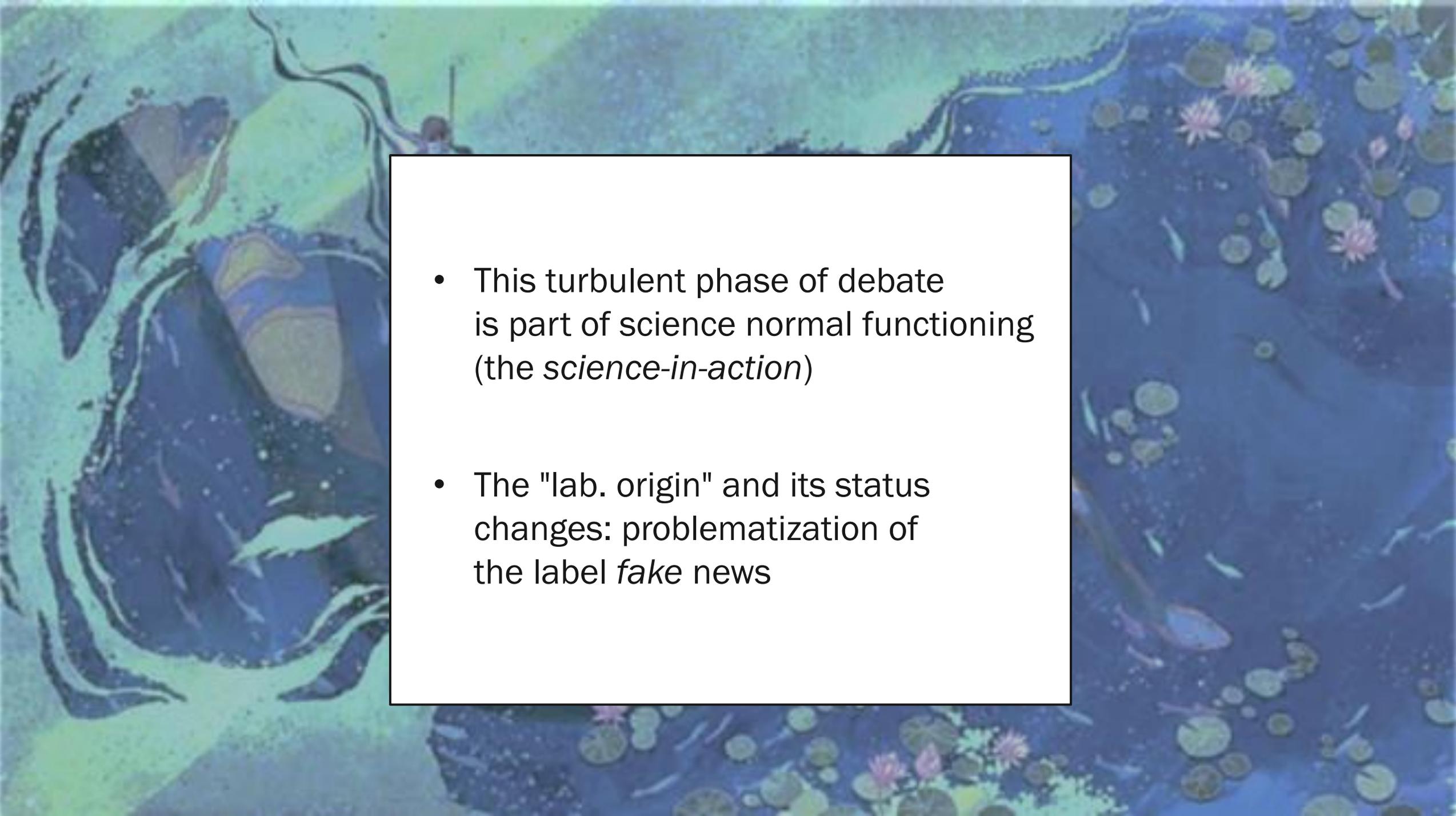


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- Variability of judgments and multiple evaluation criteria:
 - Quality
 - Competence
 - Authority
 - Honesty
 - ...
 - Social process of negotiation closes the controversy
 - Critical mass produces a majority consensus

(2)
*Controversy
is part of
science*

- Article from the *Swiss Public Broadcasting Ass.* (2021)
- The problem: origin of the coronavirus
- Different hypotheses
- Reasons supporting each hypotheses

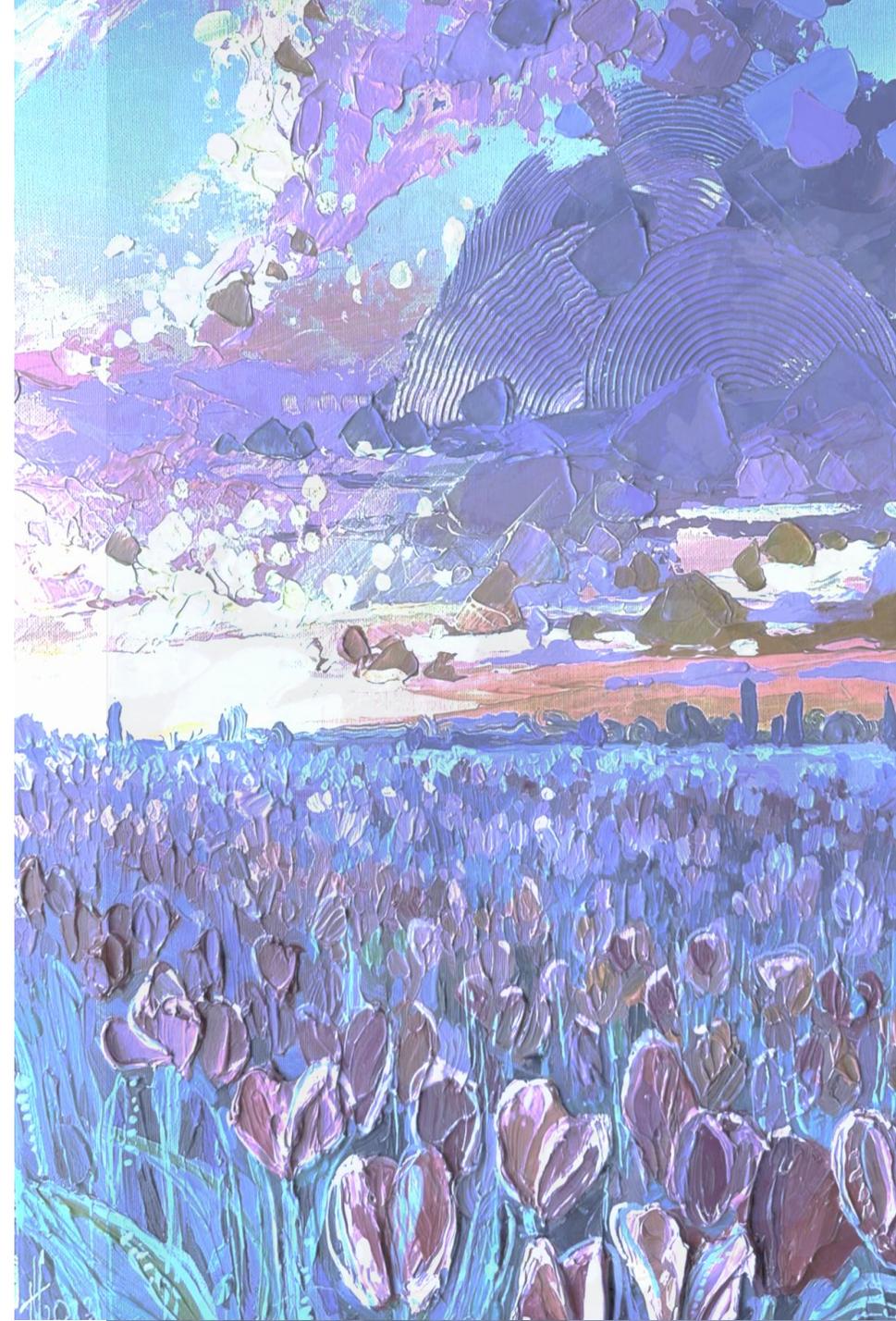


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- A stylized illustration of a river scene. On the left, a person in a small boat is navigating a turbulent, swirling section of the river. The water is depicted with dark, swirling patterns. On the right, the river flows more calmly, with several pink water lilies and green lily pads floating on its surface. The overall color palette is dominated by blues, greens, and purples, creating a serene yet dynamic atmosphere.
- This turbulent phase of debate is part of science normal functioning (the *science-in-action*)
 - The "lab. origin" and its status changes: problematization of the label *fake news*

(3)
*Science as a
collective
endeavor*

- The preeminence of the scientific community
- Our focus: scientific papers and the peer-review process

- Science journals VS. Journalistic magazines





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- The pre-print archives: not yet into the community's discursive space
- Peer review as a paradigm of science collective nature

Conclusions

- Self-assessment by the student at the end of the program
- Some limitations:
 - Contents accessibility
 - Teachers preparation
 - Integration in school curricula



Thanks!

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