

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



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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)

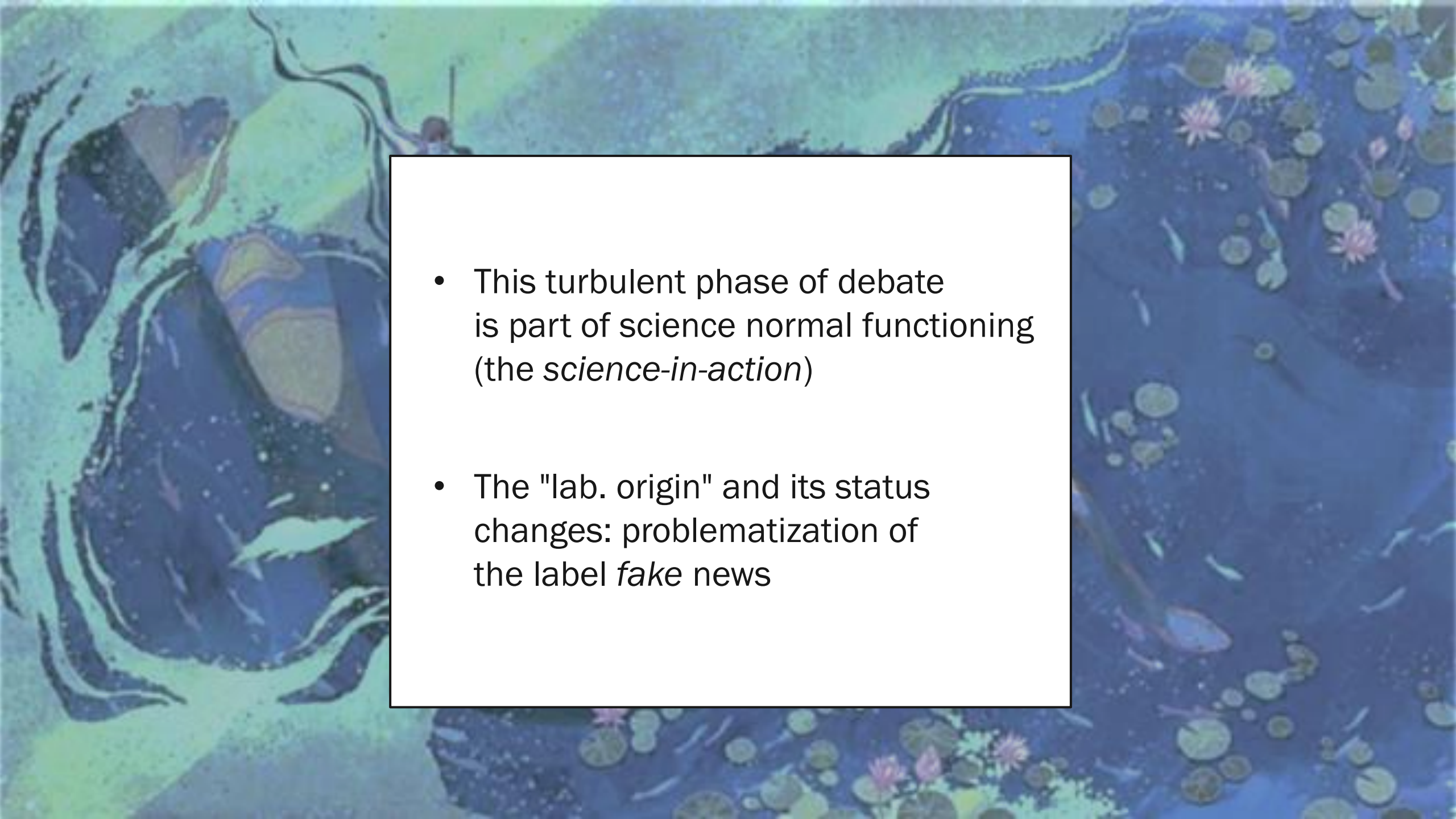


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- Variability of judgments and multiple evaluation criteria:
 - Quality
 - Competence
 - Authority
 - Honesty
 - ...
 - Social process of negotiation closes the controversy
 - Critical mass produces a majority consensus

(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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- 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



La nicotina riduce dell'80% il rischio Chi fuma non prende il Covid

Studio di un importante ospedale parigino: su 343 pazienti ricoverati appena il 4,4% è tabagista
La sostanza contenuta nelle sigarette blocca il morbo. Cerotti sperimentali sul personale medico

- 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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