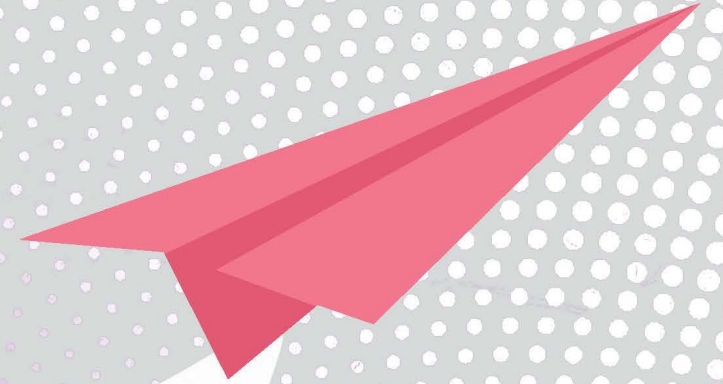


Vulnerabilities in front of scientific misinformation



Paolo Volonté, Politecnico di Milano



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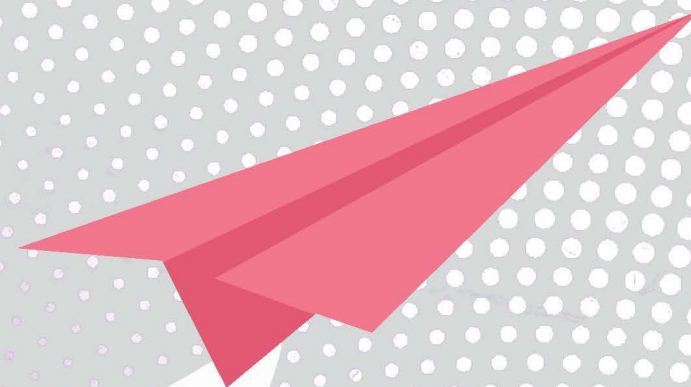
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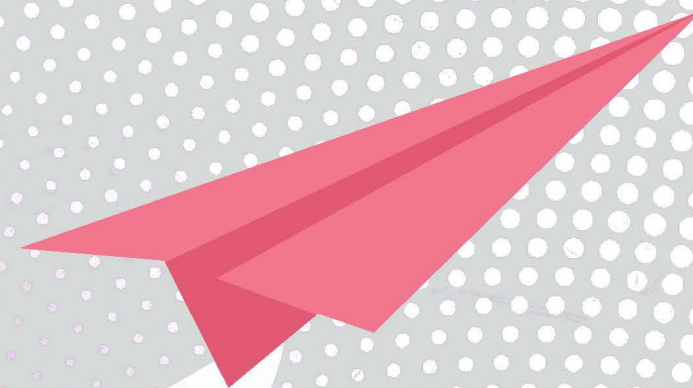
Addressing high school students' vulnerability to scientific misinformation:

The contribution of Science and Technology Studies



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Step 1

Field research

How do adolescents deal with scientific information?



Step 2

Training experimentation

How to counter vulnerabilities to scientific misinformation?

Results

Misinformation in itself is not the main threat

1. In order to have misinformation, there must be a framework of **interest in information**
2. Most adolescents are **well aware** that fake news is a topic of concern and think that online gullibility is a problem for adults
3. Most adolescents have **good skills** in managing the formal elements of media messages and able to recognize the most suspicious ones

Deference to scientific authority and scientism

- In contemporary Western societies science enjoys particular influence and **authority**
 - The Idea of Science, however, is widely held in respect
 - Scientific institutions hold the authority to establish **what counts as credible or true** and provide it to those who speak in their name
- Extreme forms of deference to scientific authority are usually called “**scientism**”

Deference to scientific authority and scientism

«**Scientism** is a kind of over-enthusiastic and uncritically deferential attitude towards science, an inability to see or an unwillingness to acknowledge its fallibility, its limitations, and its potential dangers»

(Haack 2012: 76)

Deference to scientific authority and scientism

Lukic and Zezelj (2023) “**uncritical trust in science**”

- A set of beliefs characterizing scientism
- Including claims that
 - “science can discover absolute truths”
 - “scientists always know what they are doing”

Deference to scientific authority and scientism

Our sample's high-school students:

- Believe that science is capable of **systematically producing true knowledge** to the extent that it remains faithful to its own method
 - “If science claims so, I’m almost sure it’s so”
 - “Precisely because he’s involved in science, I don’t think a researcher spreads fake news”
 - “If eventually something comes out to be true, claimed by an expert, everybody starts acknowledging it as true”
- Fail to acknowledge the **socio-historical features and limitations** that characterize science

Naïve scientism

= Uncritical faith in the infallibility of science

↳ “naïve” because it is based on a simplistic conception of science dully aligned with the ideal of the scientific method and **unaware of the real social processes** that allow scientists to produce, in the long term, reliable knowledge

Naïve scientism

Naïve scientism is **a major vulnerability to scientific misinformation**

Naïve scientism results **not in a solid trust** in institutional science, but in the **weakening of such trust**, because science-in-action feeds on practices that naïve scientism considers unscientific:

- the development of fierce **controversies**
- the endemic **temporariness** of results
- the inevitability of **subjective** interpretation of results
- the “experimenter’s **regress**” (Collins)
- a pervasive reliance on the **reputation** of researchers and scientific institutions
- the need to base one’s beliefs on **trust** (“epistemic dependence”)

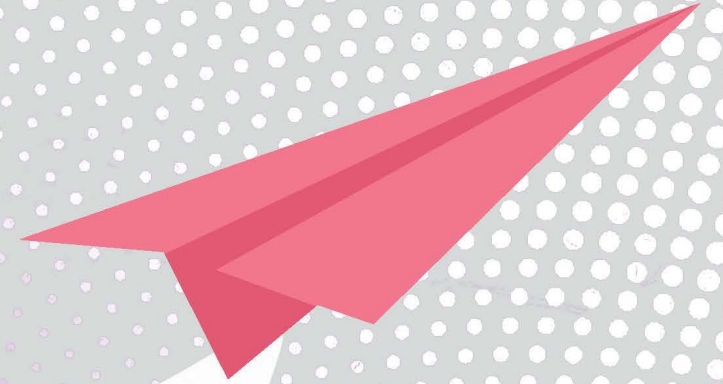
Naïve scientism

The **risk of losing trust in science** in general

Naïve scientism can lead, **in the face of the failures** and uncertainties of science, to **seek certain answers** in alternative directions: the multifaceted forms of **refused knowledge**

An uncritical trust in ideal science – a kind of science which does not exist in reality – can easily **turn into a radical distrust of real science.**

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Thank you!

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