Science & Climate teaching in the Post-Truth era

The social acceptance of reality

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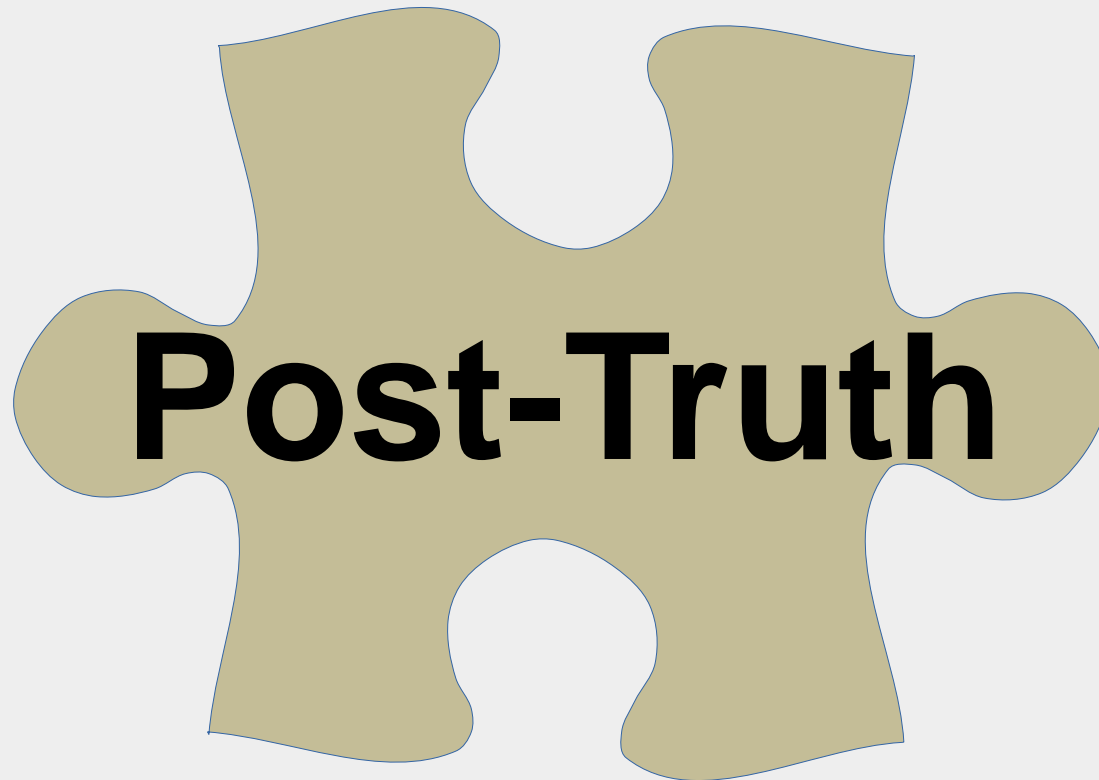
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Science & Climate teaching in the Post-Truth era

Post-Truth

What is the Post-Truth era?

"post-truth"
international word of the year in 2016

Oxford Dictionarie

What is a Post-Truth era?

Pre-Truth era
Decisions depend on astronomy, religious beliefs, oracels etc

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Age of Enlightenment

science's authority

irrevocable discoveries

Sciences is the motor of economic and social
progress and the basis for political decisions

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What is a Post-Truth era?

Pre-Truth era

Decisions depend on astronomy, religious beliefs, oracels etc

Age of Enlightenment

Politics, which does not contain theology or metaphysics,
thus of course also morality, ultimately remains business.
Max Horkheimer (1895-1973) DER SPIEGEL 1970

What is a Post-Truth era?

Pre-Truth era
Decisions depend on astronomy, religious beliefs etc

Age of Enlightenment
irrevocable discoveries

Post-Truth era
Michael Andrew Gove (BREXIT):
„I think people in this country have had enough of experts"

Marks of post-truth

Post-truth is a manifest trust in one's emotions as trustworthy.

- Misinformation/Disinformation

- Fake news

- Fact-free argumentation

- Conspiracy theories

- Rumor Bombs

- Gullibility and skepticism

- Invented controversy

- Media as Tribune: Attack, Blame and Defame

Marks of post-truth

mathematical truths,
scientific truths,
philosophical truths
and *facts*

Hannah Arendt.
(1906-1975)

Function: To serve as common ground, giving every person the opportunity to their experiences and create meaning

Problem: facts are fragile

Facts are always in danger from politics, as politics is not primarily concerned with truth but with action

Liars aim not just to replace a part of the truth with a falsehood. Actually, they want to undermine reality

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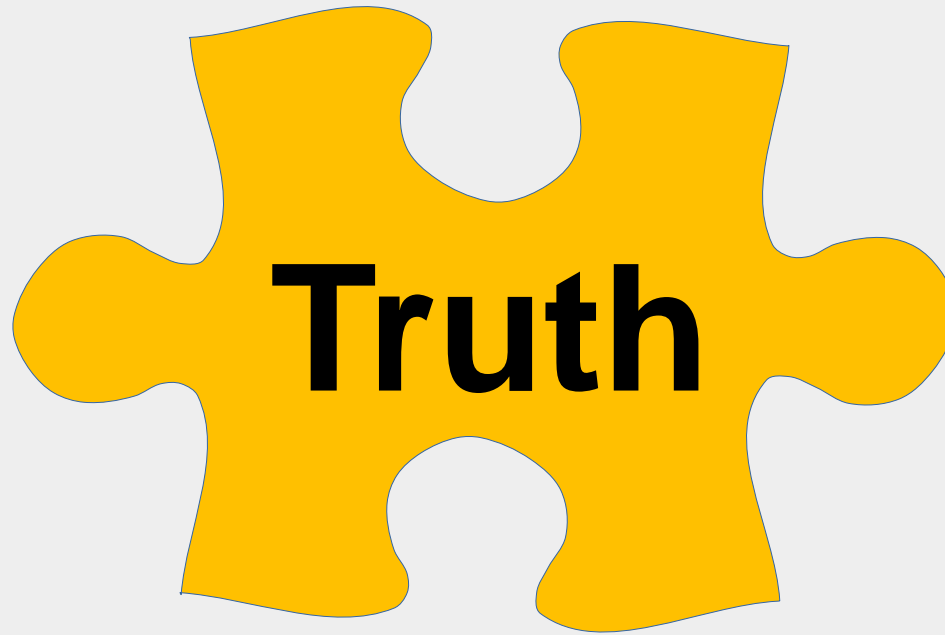
Truth

Why do we need the truth?

To survive in nature

**according to William James:
truth gives orientation**

(1842-1910)

Truth is a tool

How truth is generated?

How truth is generated?

Truth is build by intersubectivity

people's agreement on the shared definition of a concept, feelings, beliefs and observations

Consensus theory of truth

Gillespie, Alex; Cornish, Flora (March 2010).
"Intersubjectivity: towards a dialogical analysis".
Journal for the Theory of Social Behaviour. 40: 19–46

How do we deal with the truth?

How do we deal with the truth?

Humans create the concepts through which they define the good and the just, thereby replacing the concept of truth with the concept of value

Friedrich Nietzsche: On Truth
and Lie in an Extra-Moral Sense
1873

How do we deal with the truth?

Truth is always filtered through individual perspectives and shaped by various interests and prejudgments

"There are no facts, only interpretations."

Friedrich Nietzsche: On the
Genealogy of Morality (1887)

How do we deal with the truth?

Every society has its own order of truth, its "general politics" of truth

**Michel
Foucault**
(1926-1984)

How do we deal with the truth?

Truth, according to William James, is determined by usefulness

William James (1842-1910)

Truth gives orientation: ones the orientation is set, one mostly accept new facts/informations supporting the orientation (avoiding error)

When our intellect cannot solve genuine options, emotionally we must decide
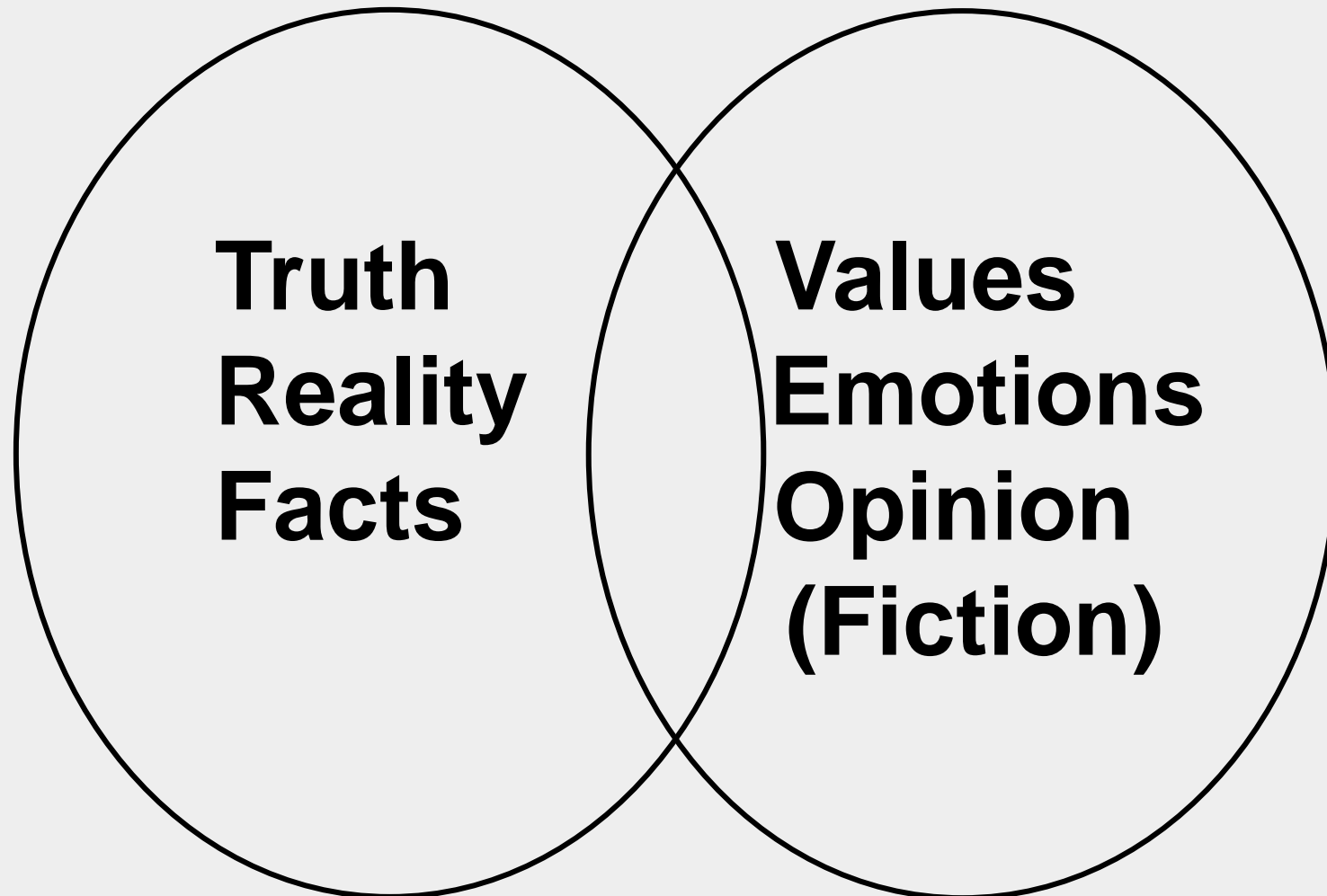
The simpel belief in a fact can help that fact come true

How do we deal with the truth?

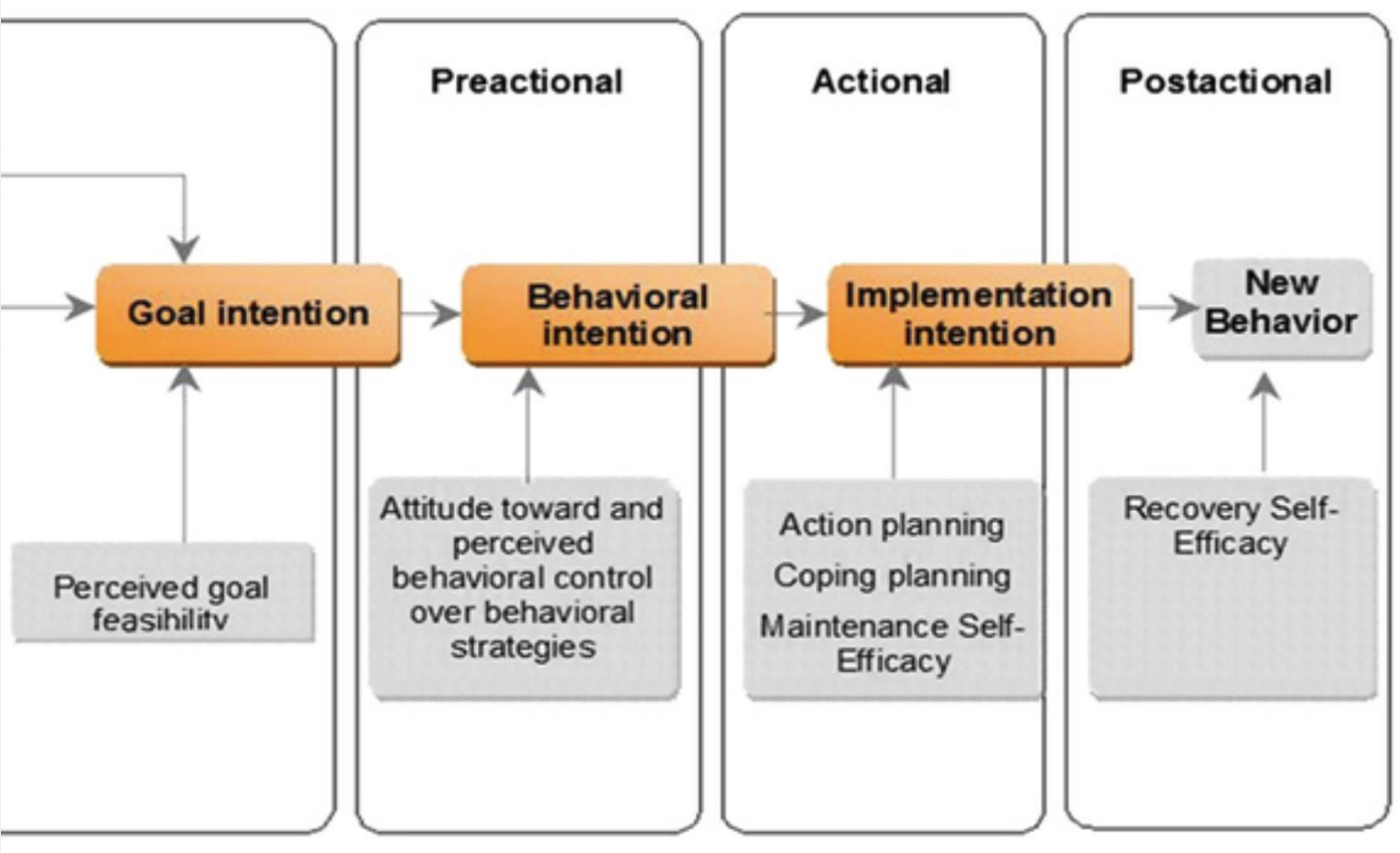**"Values are not anchored in reality"**

Jeschajahu Leibowitz 1903-1994

The unwanted truth

P
R
O
B
L
E
M

The unwanted truth

Changing environmentally harmful behaviors: A stage model of self-regulated behavioral change
Bamberg, S. (2013) Journal of Environmental Psychology 34:151–159

Final remarks

Are we, as a society, able to engage in public discourse while also being willing to critically examine and deconstruct our own positions and identities?

You should ask:
Who is making a claim?
What are their interests?

The more eyes, different eyes, we …. bring … on the same matter, that much more complete will be our "concept" and "objectivity" of this matter.

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Teaching

Neurobiological few on learning:

Neurobiological view on learning:

12 principles of **brain-based learning:**

- The brain is a living system—a collection of parts that functions as a whole.
- The brain/mind is social.
- **The search for meaning/sence is innate.**
- **The search for meaning occurs through patterning.**
- **Emotions are critical for patterning.**
- Every brain simultaneously perceives
  and creates wholes and parts.
- Learning involves both focused
  attention and peripheral perception.
- Learning always involves conscious
  and unconscious processes.
- We have at least two ways of
  organizing memory—static memory and dynamic memory.
- Learning is developmental.
- Complex learning is enhanced by challenge and inhibited by threat associated with a sense
  of helplessness or fatigue.
- Every brain is uniquely organized.

Caine, G., Caine, R., & Crowell, S. (1999). Mindshifts: A brain-compatible process for

professional development and the renewal of education. Tucson, Arizona: Zephyr Press**.**

Neurobiological view on learning:

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Neurobiological view on learning:

3. The search for meaning is innate: "[T]he brain's/mind's search for meaning is very personal. The greater the extent to which what we learn is tied to personal, meaningful experiences, the greater and deeper our learning will be" (Caine and Caine 1994, 96).

Enthusiasm

Neurobiological view on learning:

3. The search for sence is innate:

Warning:
1. Sence is context dependent

2. This does not necessarily have much
to do with the truth

Neurobiological view on learning:

4. The search for meaning occurs through patterning: "The brain is designed to perceive and generate patterns, and it resists having meaningless patterns imposed on it" (Caine and Caine 1994, 88).

5. Emotions are critical for patterning.

Teaching climate

Most feelings prompt action: you can't want before you feel.

Dag o. Hessen: Natur (2008)

Does environmental education benefit environmental outcomes in children and adolescents? A meta-analysis

Judith van de Wetering [a] ✉, Patty Leijten [b], Jenna Spitzer [a], Sander Thomaes [a]

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Abstract

Young people can be agents of sustainable change. To this end, environmental education programs aim to promote their environmental knowledge, attitudes, intentions, and behaviors. We synthesized five decades of research into the effectiveness of environmental education for children and adolescents. We searched PsycINFO, ERIC, and Scopus and identified 169 studies (512 effect sizes; 176,007 participants) conducted in 43 countries, across 6 continents. Environmental education significantly improved environmental knowledge ($g=0.953$), attitudes ($g=0.384$), intentions ($g=0.256$), and—mostly self-reported—behavior ($g=0.410$). Heterogeneity in effect sizes was substantial;

Teaching climate

The challenge:

Next to the value-based teaching of knowledge and skills, it is necessary in the age of the Anthropocene that there is no gap between the teaching of basic, scientific aspects about nature and the curiosity and passion for nature.

Inga Bostad and Dag O. Hessen
Learning and loving of nature in the
Anthropocene
(2019)

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Conclusions

Conclusion for teaching science and facts on climate changes vs post-truth

We are how we are, because of what we have learned and what we remember

Eric Kandel
Nobel Prize
2000

- We remember that what is full of positive emotions.
- This generates values
- Values drive our action

- The truth and the nature (we depend on), should be seen as valuable tools

Conclusion for teaching science and facts on climate changes vs post-truth

How we achieve this?

- Education must therefore become more emotional and emphatic to motivate action.

You can only develop emotions about something you know

You can only develop emotions about something you know

Go with the students into nature

You can only develop emotions
about something you know

Go with the students into nature
For instance to the forest
to establish a social acceptance
of sustainability

Alexander von Humboldt

The most dangerous worldview is the worldview of those who have never viewed the world

Show and explain the truth beauty of nature

Noam Chomsky
1928

"(…) commercial advertising undermine markets.

(...) markets are supposed to be **based on informed consumers making rational choices**.

… you see TV and ask yourself … is that it's purpose?

No it's not.

It's to create uninformed consumers making irrational choices.

And these same institutions run political campaigns: **you have to undermine democracy by trying to get uninformed people to make irrational choices.**"

The rise and fall of rationality in language

Marten Scheffer[a,1], Ingrid van de Leemput[a], Els Weinans[a,b], and Johan Bollen[c,1]

[a]Department of Environmental Sciences, Wageningen University, 6700 AA Wageningen, The Netherlands; [b]Department of Industrial Engineering and Innovation Sciences, Eindhoven University of Technology, 5600 MB Eindhoven, The Netherlands; and [c]Department of Informatics, Cognitive Science Program, Indiana University, Bloomington, IN 47408

(…) This pattern (…) "I"/"we" and "he"/"they."
(…) All in all, our results suggest that over the past decades, there has been a marked shift in public interest from the **collective to the individual**, and from **rationality toward emotion**.

PNAS (2021) 118:1-9

FlashReport

The dark side of meaning-making: How social exclusion leads to superstitious thinking

Damaris Graeupner, Alin Coman

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Abstract

This paper tests a meaning-making model of conspiratorial thinking by considering how one's search for meaning mediates between social exclusion and the endorsement of conspiratorial (Study 1) and superstitious (Study 2) beliefs. In Study 1, participants first wrote about a self-selected personal event that involved a social interaction, they then indicated how socially excluded they felt after the event, and, finally, they rated their endorsement of three well-known conspiracy theories. In Study 2, participants were randomly assigned to a Social Inclusion, a Social Exclusion, or a Control condition, after which they indicated the association between improbable events in three scenarios. In addition, both studies mechanistically tested the relation between social exclusion and conspiratorial/superstitious thinking by measuring the participants' tendency to search for meaning. Both Study 1 (correlational) and Study 2 (experimental) offer support for the hypothesis that social exclusion is associated with superstitious/conspiratorial beliefs. One's search for meaning, correlational analyses revealed, mediated this relation. We discuss the implication of the findings for community-wide belief dynamics and we propose that social inclusion could be used to diminish the dissemination of superstitious beliefs and conspiracy theories.