Teaching with Astrobiology

Enhancing Science and Technology Awareness in Humanities and Social Science Students

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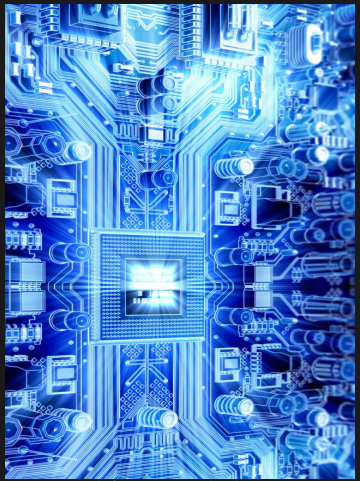
- approx. 100 students in teacher-training-programs in sociology and theology
- Knowledge of and about technology and science subjects
- Assessment of societal impact and ethical issues
- Standardized questionnaire study

Concepts	Know about this
NASA	76%
GPS	83%
Robotics	55%
...	...
ESA	38%

Items less than 10% of the students have knowledge about

Mars One, Hyperloop, Human Enhancement, SETI, Break Through Starshot

Positive connotation



Information Technology

Aerospace Technology

Innovative Transportation

Negative connotation

Healthcare Robots

Computer Implants

Nuclear Energy

Technology	Ethically questionable
Artificial Intelligence	77%
Robotics	76%
Nuclear Technology	74%
Brain-Computer-Interface	70%

'Innovative Technologies'

About 40% connotate 'Innovative Technologies' neutral, negatively or strongly negative.

Technology Awareness - the good, the bad and ...

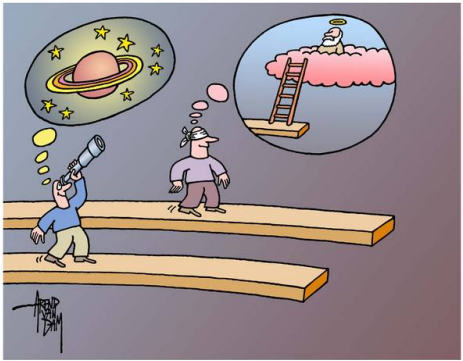
- The students have knowledge about specific STEM topics
- They are interested in learning more
- They already ethically evaluate (even unknown) STEM topics
- Certain concepts and areas are unknown to the students
- The students are not interested in learning more about certain concepts and areas.

Unfortunately...

... the last two areas are identical!

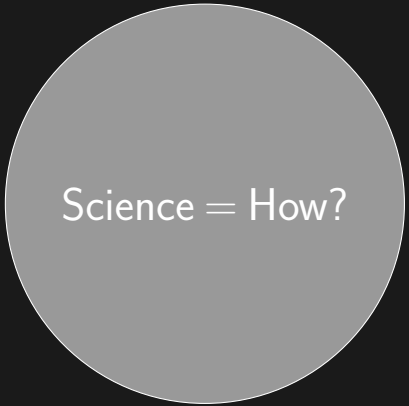
The NOMA Model

... and why it is wrong



science and religion


Religion = Why?


Science = How?


Religion = How?


Science = Why?

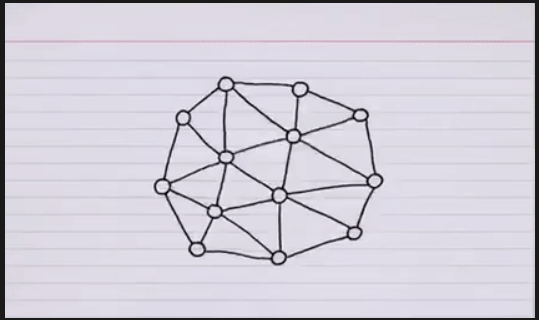
Student NOMA Worldview

Academic disciplines as social systems

- Inherent sets of rules and norms
- Transgression as deviant behaviour
- Deviance is negatively sanctioned
- Sanctions re-establish social order

Paradox

The deviant among us hold the system together!

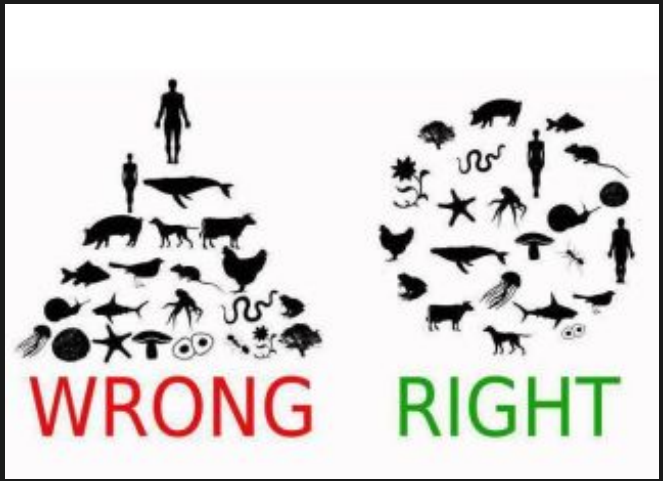


Interpretation

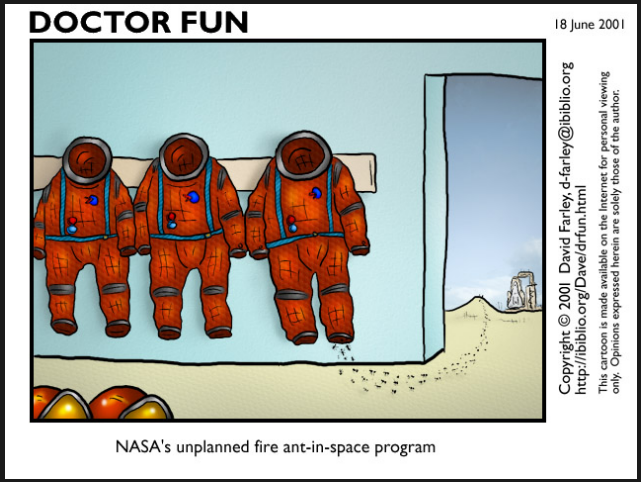
Analysing interdisciplinary academic work as deviant behaviour helps us understad how the NOMA Model is constantly self-reproducing

Dilemma

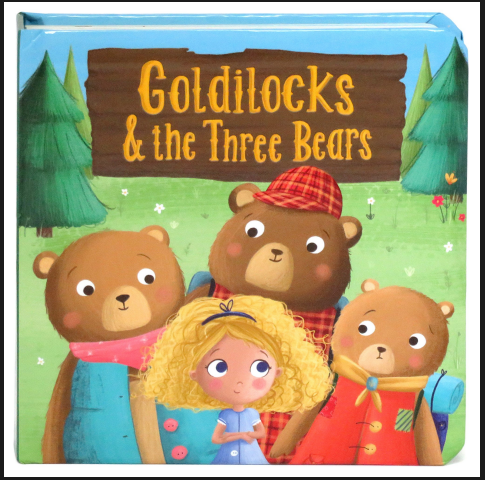
- coherent disciplines and disciplinary expertise
- socially pressing need for work across boundaries of disciplines



Evaluating life: What assumptions stand?



Rethinking biodiversity for human space exploration.



Habitability: Communicating against social preconception