



Exploring Myths in Sustainability Education: An Expert Interview Study

Dr. Stefan T. Siegel, University of St.Gallen, Switzerland

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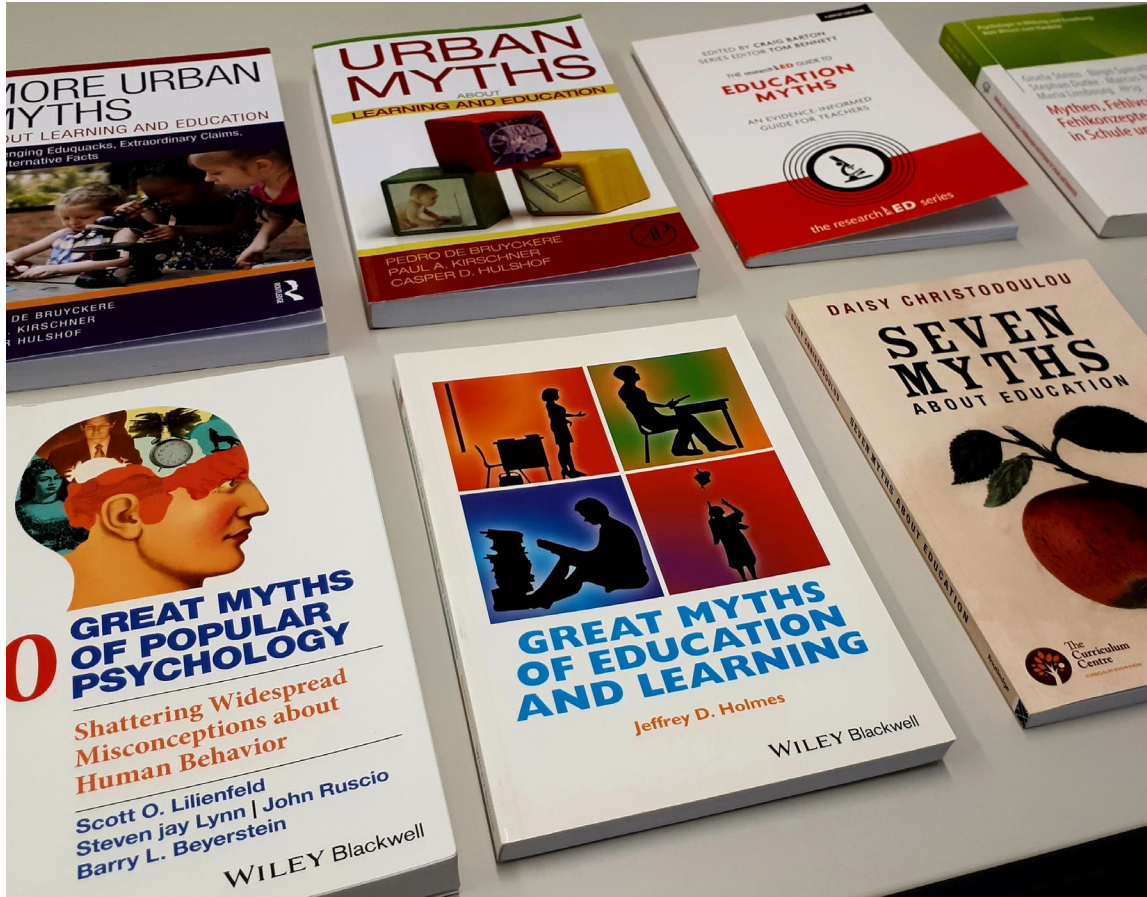


What You Can Expect

1. Theory: Educational Myths and Sustainability Education
2. Methods: Podcast-based Expert Interviews & Qualitative Text Analysis
3. Results: Overview of the Main Findings
4. Discussion: Strengths, Limitations & Future Research



Educational Myths and Sustainability Education Are Hot Topics, However *MYTHSE* are Underexplored



(e.g., De Bruyckere et al., 2020; Lilienfeld et al., 2010; Siegel, 2025)



(e.g., Jones et al., 2010; Macintyre et al., 2025)

What are Myths in and about Sustainability Education?

Educational Myths

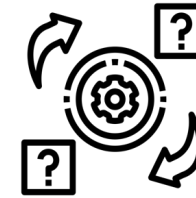
= “beliefs [about teaching and learning phenomena] that are held contrary to known evidence” (Taylor & Kowalski, 2004, 15; Insertion St.S.)

Key Characteristics:

- common and enduring beliefs
- reasonable at first glance
- not scientifically sound (e.g., Lilienfeld et al., 2010; Steins et al., 2021)

Sustainability Education

= a certain kind of education that ‘aims to foster competencies, which include attitudes, skills, and knowledge, among learners so that they can think integratively and responsibly and act for the benefit of our environment, society, and economy’ (Siegel & Dilger, 2023, translation)



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Project MYTHSE

Identifying, Understanding, and Challenging Myths in and about Sustainability Education

Dr. Stefan T. Siegel, IWP-HSG

Background & Relevance

- **Relevance:** Growing importance of the hot topics: *sustainability education* (e.g., Jones et al., 2010) and *educational myths* (e.g., Christodoulou, 2014; de Bruyckere et al., 2020)
- **Research Gaps:** The field and phenomenon of myths in and about sustainability education (MYTHSE) remain largely unexplored with multiple research gaps (Miles, 2017) unaddressed (Siegel, i.p.)
- **Object of Research:** MYTHSE, i.e., a) misconceptions b) about teaching and learning phenomena concerning sustainability that are c) widespread, d) often persistent, however e) not backed by research and (scientific) evidence (Lilienfeld et al., 2010; Sinatra & Jacobson, 2019; Siegel, i.p.)
- **Examples:**
 - Sustainability (education) has nothing to do with me and my subject area (e.g., refutation by Sterling, 2012)
 - The higher educated people are, the more they act sustainably (e.g., refutations by Berry, 1987; Orr, 1994)

Overall Aims:

- Developing a research agenda (Zawacki-Richter & Anderson, 2014) with multiple studies for generating evidence on the field and phenomenon of MYTHSE
- Effectively address MYTHSE by identifying, understanding, and challenging questionable beliefs using evidence-informed protocols and tools
- Create an SE-Mythology, i.e., a collection of MYTHSE and their refutations (e.g., Lilienfeld et al., 2010)

"Science must begin with myths and with the criticism of myths"
(Popper, 1963, 63)

Identifying, Understanding, and Challenging (Potential) MYTHSE is Crucial for an Evidence-informed, Effective, and Ethically-responsible Sustainability Education



Studies of the Project MYTHSE

Study 1

- Preregistered scoping review to map, describe, and understand the field, identifying key publications, authors, and misconceptions.

Study 2

- Preregistered qualitative interviews with experts to explore the concept of MYTHSE and establish the research strand, including a podcast for data collection and analysis.

Study 3

- Development of a MYTHSE inventory through surveys with university instructors to assess psychometric properties and explore relationships with critical thinking and other relevant factors.

From Insight to Impact

- Establishing a new strand of research, providing insights into the landscape of educational myths in sustainability, and informing evidence-based practices for educators, researchers, and policymakers.
- Push the boundaries of theorizing (sustainability) education and expand educational myth research.

More Information



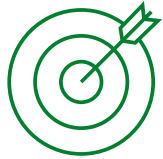
Selected References

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Kontakt

Dr. Stefan T. Siegel, stefan.siegel@unisg.ch
Institut für Wirtschaftspädagogik (IWP), HSG

Research Objectives



Questions



Assumptions



O1: Conceptualize MYTHSE through deference to experts

Q1: How do experts conceptualize MYTHSE?

A1: Recurring features of MYTHSE can be identified across views

O2: Define and classify potential key myths in sustainability education

Q2: How can MYTHSE be systematically categorized?

A2: MYTHSE can be grouped by belief object (e.g., goal, content, actors)

O3: Examine prevalence, causes, consequences, persistence, and responses to MYTHSE

Q3: What are the characteristics, causes, impacts of, and responses to MYTHSE?

A3: MYTHSE dynamics mirror those of educational-psychological myths



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Methods

From insight to impact.

Research Design

Data collection:

- Pre-registered,
- problem-centered,
- podcast-based qualitative expert interview study (Döringer, 2021; Von Soest, 2023; Witzel & Reiter, 2012; Worsnip et al., 2025)
- with (currently) 7 international experts in, among others, sustainability education, cognitive psychology, and misinformation research



Data analysis:

- Qualitative content analysis,
- employing a mix of inductive and deductive coding to identify recurring themes
- (Kuckartz & Rädiker, 2023)



Listen to the Podcast
<https://sustainabilityeducation.captivate.fm/>



SCAN ME

Sample Description: Interviewed Experts, Affiliation, Areas of Expertise, Duration of the Interview

	Interviewed Expert	Affiliation	Country	Academic Discipline / Expertise	Interview Duration (min)
1	Prof. Dr. David Orr	Oberlin College	USA	Environmental Studies and Politics	84
2	Prof. Dr. Gale Sinatra	University of Southern California (USC)	USA	Educational Psychology	47
3	Prof. Dr. Kerry Shephard	University of Otago	New Zealand	Higher Education / Sustainability Education	68
4	Dr. John Cook	University of Melbourne	Australia	Psychology	75
5	Prof. Dr. Marco Rieckmann	University of Vechta	Germany	Higher Education Development	78
6	Assoc.-Prof. Melanie Trecek-King	Massasoit Community College	USA	Biology / Science Education	74
7	Prof. Dr. Daniella Tilbury	St Catharine's College, Cambridge	UK	Geography Education / Sustainability Education	61



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Results

From insight to impact.

Coding System

Memo of a (Sub-)Category

Codes	402
MYTHSE	0
1. Conceptualization of MYTHSE	48
2. Prevalence and Examples of MYTHSE	127
3. Origins and Sources of MYTHSE	58
4. Persistence of MYTHSE	27
5. Consequences of MYTHSE	23
6. Dealing with MYTHSE	101
7. Future of MYTHSE Research	6
Best Quotes	12
Sets	0

Examples of (Potential) MYTHSE

Research Question(s) for the Category:

- RQ1: How do experts from sustainability, education, and psychology view sustainability education (MYTHSE)?
- RQ2: How can MYTHSE be systematically categorized or classified?

Definition of the Category:

- This category captures **concrete examples, recurring claims, and/or methods, assumptions, or effectiveness** of sustainability education (MYTHSE).

Anchor Example(s):

- sustainability education being only about the environment ([5 Transdisciplinary Sustainability Science](#))
- sustainability is sometimes seen as being indoctrinating or telling the truth ([Tilbury, S. 3 - 4](#))

Theoretical Framework:

- Sterling (2012), Siegel (2025)

Coding Rules / Additional Notes:

- Include:
 - Specific claims identified by experts as myths or misconceptions
 - Statements where experts explicitly reject a common belief
- Exclude:
 - Sustainability myths, general educational-psychological myths
 - Underlying cognitive and socio-affective drivers and foundations

Generation of the Category:

- deductive

The Results at A Glance - 1

1. Terminology & Nature (O1, RQ1, A1)

- Experts **differ in framing MYTHSE** yet **converge** on seeing them as **widely held but unfounded beliefs about teaching and learning in and about sustainability education** – often containing a “grain of truth” (e.g., Rieckmann; Tilbury)
- **Distinctions** are highlighted between **myths, misconceptions, or misinformation** (e.g., Sinatra; Cook; Trecek-King).
- Some experts are **ambivalent about** using the term “**myth**” or even refrain from it (e.g., Shephard, Sinatra)

2. Prevalence & Potential Examples (O2, RQ2, A2)

- MYTHSE are **perceived as pervasive** in both discourse and practice
- Examples range from “sustainability education is just environmental education” to “sustainability education will save the planet” and “individual actions of teachers don’t matter” (e.g., Orr; Rieckmann, Tilbury)

3. Causes & Origins (O3, RQ3, A3)

Drivers include:

- **Cognitive:** biases, intuitive reasoning, illusory truth effect (e.g., Cook, Sinatra)
- **Socio-affective:** identity protection, motivated reasoning, solution aversion (e.g., Cook, Trecek-King)
- **Cultural:** foundation myths, i.e. pervasive societal and/or educational narratives (e.g., human-nature separation; Orr)
- **Structural:** siloed disciplines, lack of educator resources, media amplification (e.g., Sinatra; Shephard; Trecek-King)

The Results at A Glance - 2

4. (Negative) Consequences (O3, RQ3, A3)

- At the educational level: perpetuation of ineffective practices, reduced learning impact (e.g., Rieckmann; Tilbury)
- At the societal level: delayed sustainability transformation, erosion of trust in science and (sustainability) education, reinforcement of harmful narratives (e.g., Orr; Tilbury)

5. Persistence (O3, RQ3, A3)

- MYTHSE are **reinforced by interconnected “webs of beliefs,” “zombie concepts”** that (Sinatra; Trecek-King) **“die hard”**; coming back as shapeshifters
- They persist through social reinforcement, emotional investment, and resistance to worldview change

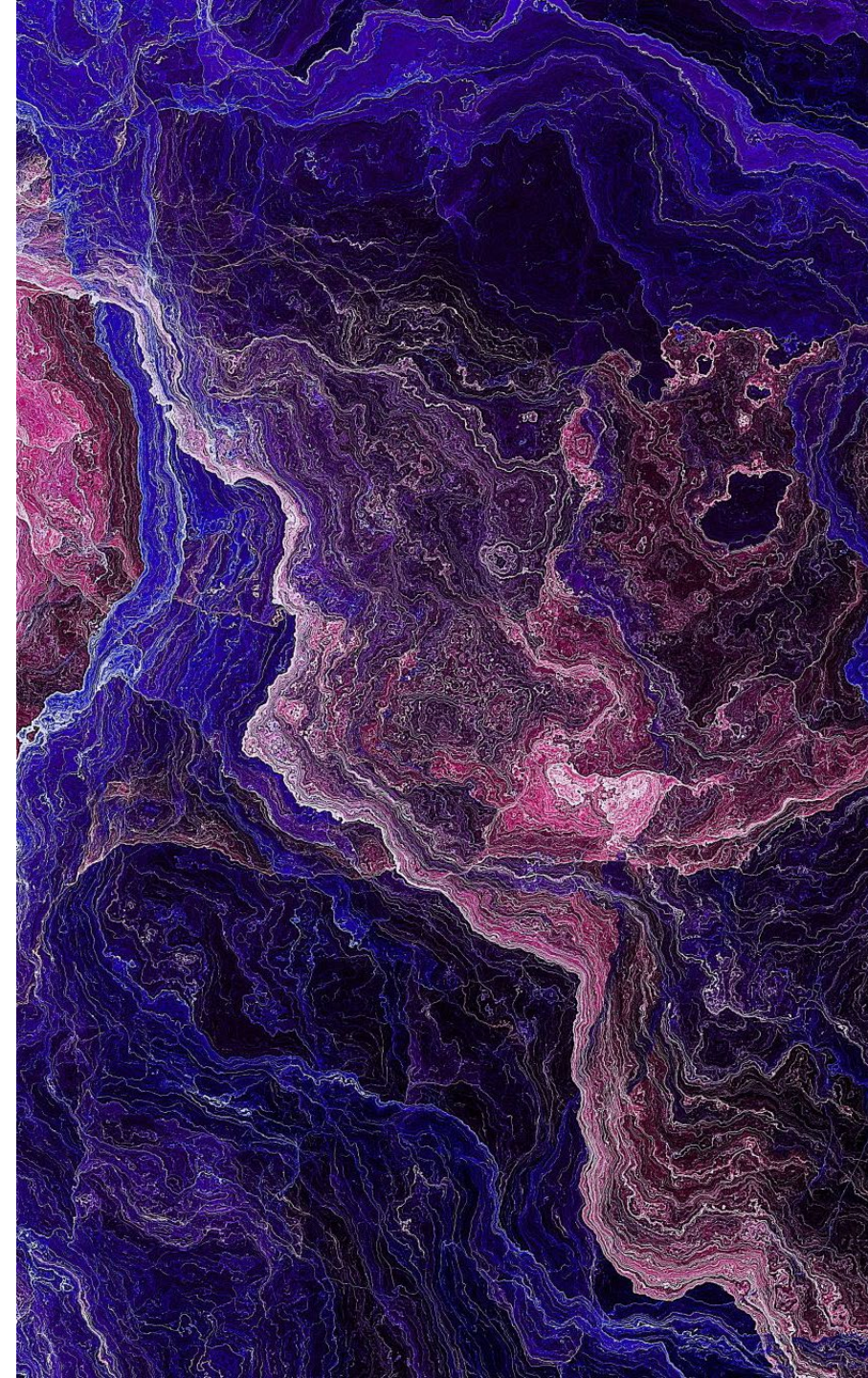
6. Addressing MYTHSE (O3, RQ3, A3)

Effective strategies include:

- Strengthening **educational research & teacher education**
- **Inoculation** and **prebunking** approaches
- Misconception-based teaching and **debunking**
- **Values reflection** and belief and bias awareness
- **Multi-format, audience-tailored myth-busting**, ideally using trusted messengers
- Systemic changes in educational structures (e.g., Sinatra; Cook; Trecek-King; Tilbury)

Discussion

From insight to impact.



Discussion: Strengths, Limitations, and Future Research

Strengths

- Multiperspective and multidisciplinary approach
- Innovative podcast-based format enabling open science practices & societal impact (Cook, 2023; UNESCO, 2021)
- Opening a new line of inquiry respectively a “research agenda” (Zawacki-Richter & Anderson, 2014)

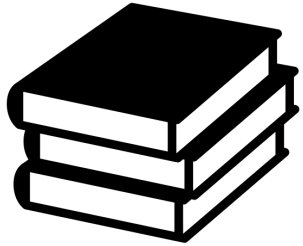
Limitations

- Cross-sectional study (Döring & Bortz, 2016)
- Small and selective sample, however experts from different disciplines
- Potential bias, however also expertise through deference to experts (Worsnip et al., 2025)

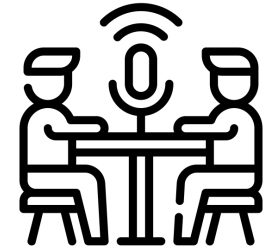
Future Research

- MYTHSE: Mapping a Complex, Evolving, and Undertheorized Field - A Scoping Review (preregistered study, in progress)
- Developing a MYTHSE-Navigator (Siegel, 2025; Siegel, 2026)

For More Information Visit: Evidence-informed Sustainability Education (EvSusEd)



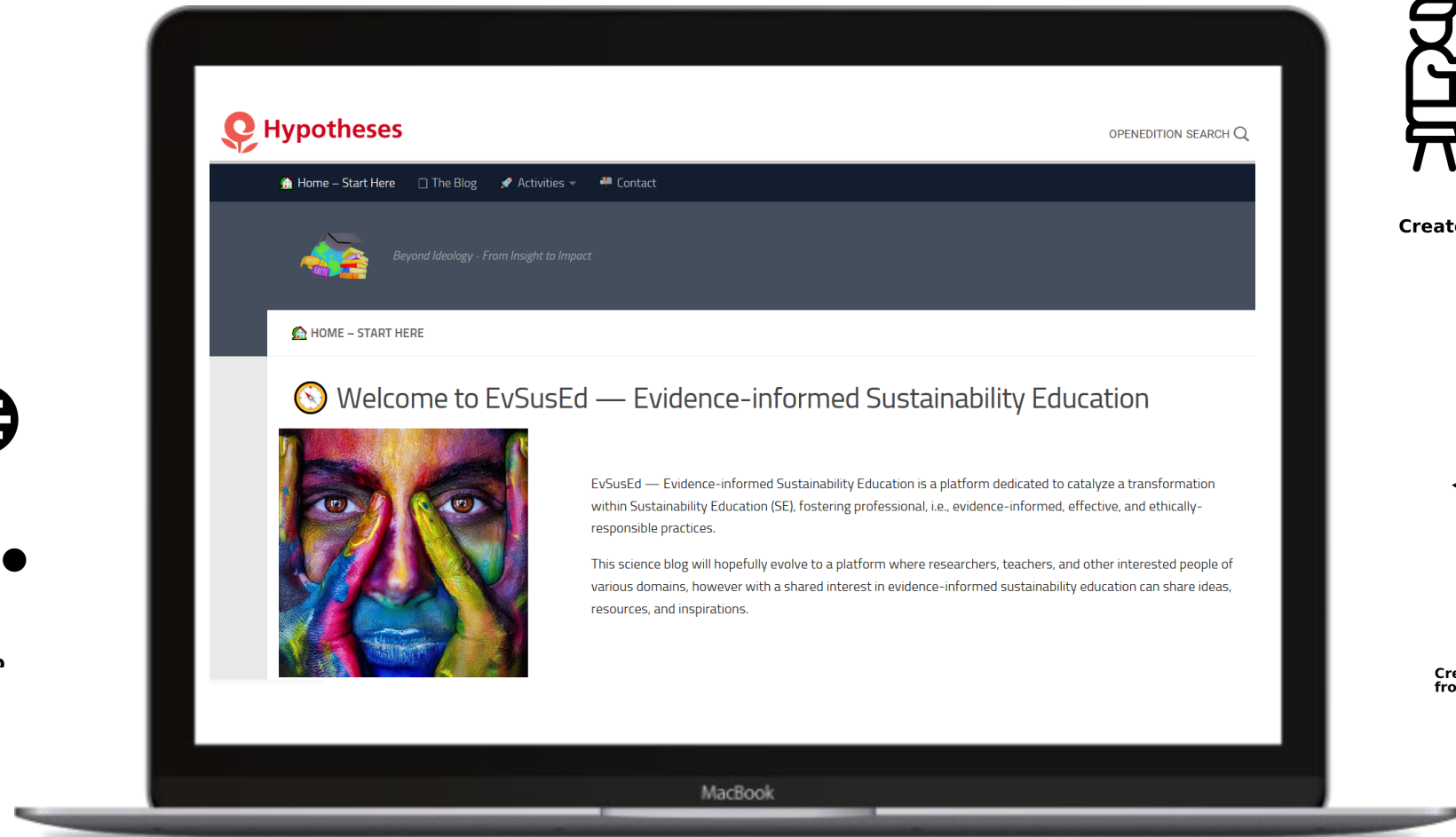
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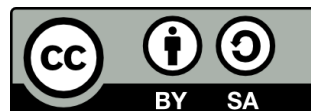
Universität St.Gallen

Institut für Wirtschaftspädagogik

Dufourstrasse 40a
9000 St.Gallen

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Dr. Stefan T. Siegel

✉ stefan.siegel@unisg.ch