

Climate Change Education from the Perspective of Social Norms: A Systematic Review

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PITCH

This study¹ reviews the interplay between climate change education (CCE) and social norms among children, adolescents and young adults around the globe.

The reviewed articles focus on scientific studies that either measure real behavior or elicit the beliefs about the prevalence or appropriateness of environmentally desired behaviors in a society or a group.

It compares CCE interventions in developed vs. developing countries, providing information on the adaptability and scalability of the interventions.

CONTEXT & MOTIVATION

Social norms may help accelerate the adoption of environmentally desired behaviors by increasing people's acceptability of formal institutions and policies, and by promoting desirable behaviors through measuring and revealing "what others do" (i.e., descriptive norms) and "what others are ought to do" (i.e., injunctive norms).

Despite the increasing number of scientific studies on CCE, there is no clear assessment and guidance on which educational interventions are most effective in instigating positive norm changes. Many CCE studies focus on knowledge, attitudes or psychological constructs instead of assessing norms. This study provides the first systematic review that investigates the effects of CCE on descriptive and injunctive norms.

METHODS

We apply a systematic review approach offering a comprehensive qualitative and quantitative analysis of studies published between 1998 and Q1 2023, in 21 databases and 5 different languages, encompassing only studies published in peer-reviewed journals or as working papers.

All these studies deal with CCE interventions (curricular and extracurricular) that target children, adolescents and young adults (aged 3 to 24 years old), worldwide, with a particular focus on studies that explicitly measure injunctive and descriptive norms.

After a rigorous search, 86 studies evaluating CCE interventions were identified. In terms of methods, most of them employed pre-post evaluations, which are more susceptible to social desirability bias (e.g., implicit pressure to report an attitudinal change) and demand effects (i.e., cues about the expected responses or behavior). 31 studies used a comparative analysis between multiple treatment interventions (treatment vs. control comparisons included), without necessarily being randomized studies.

While CCE interventions are geographically widespread, the majority is concentrated in high-income countries, which could be a limitation of the current research. Only 5 studies were conducted in multiple countries, allowing for direct cross-country comparison.

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Geography Multi-country

Key words Climate change education, social norms, behavior, systematic review

Themes Education, Climate change, Experimental and behavioral economics

Find out more about this project: <https://www.afd.fr/en/carte-des-projets/assessing-impacts-education-climate-change>

RESULTS

Most CCE studies on norms focus on mitigation and only a minority on adaptation or conservation, though the distinction between these terms is not always clear-cut.

Studies measuring injunctive and descriptive norms. Only 19 studies are concerned with measuring the effects of CCE interventions on social norms. Of these, 3 focus on injunctive norms, while 16 examine actual behavior.

There is heterogeneity in outcomes and intervention types. In terms of outcomes, interventions encompass a wide range of behaviors, including energy use, recycling, food waste, infrastructure provision, and interactions with nature. While many of

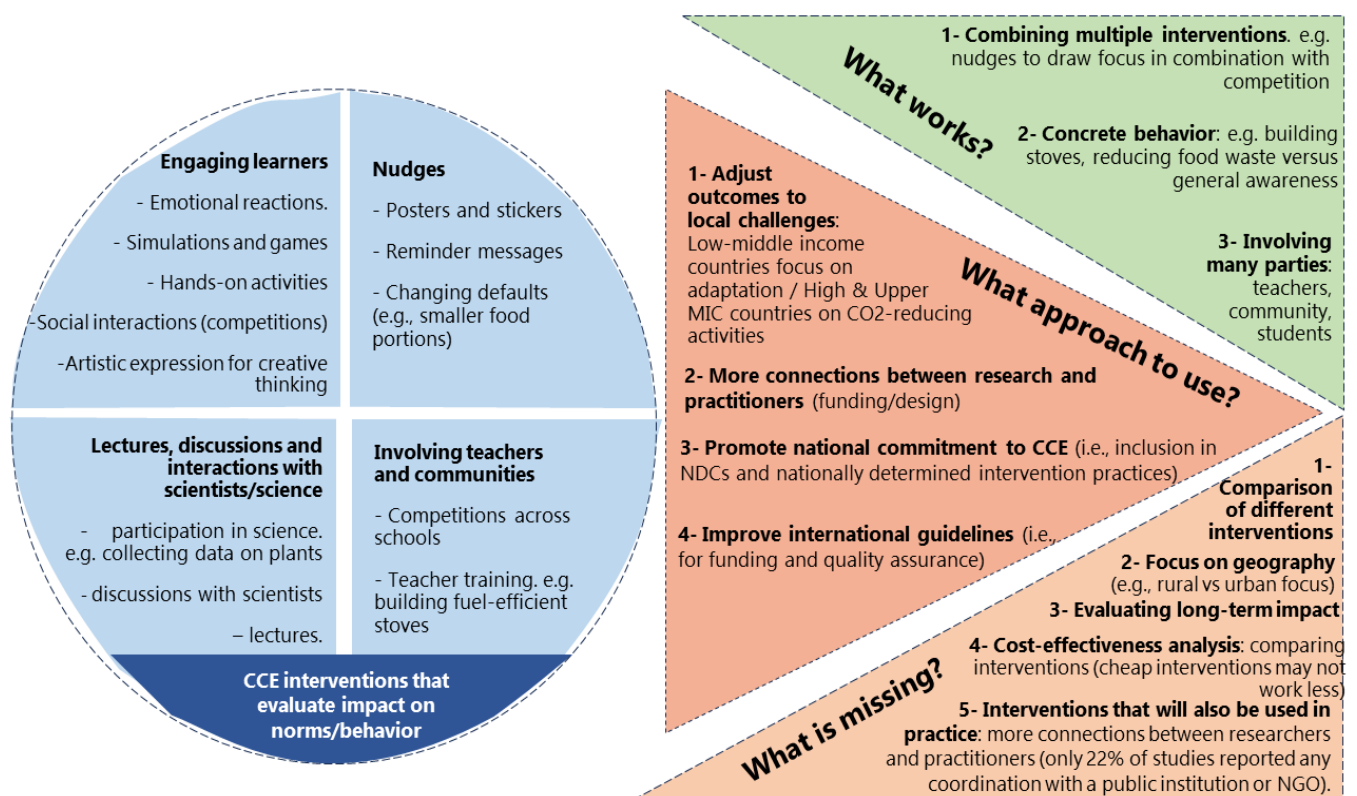
these behaviors may not have the greatest impact on greenhouse gas emissions and, consequently, on CC, they offer the advantage of being easily observed and directly “manageable” by young people. This contributes to fostering a “green” mindset, that is, a state of mind that motivates individuals to be more eco-friendly and environmentally aware. Recycling and clean-up behaviors are commonly the target of interventions conducted in developing countries. Energy and electricity usage reduction is more the target of interventions in developed ones.

Intervention types include engaging learners, lecture-based activities that promote interactions with science, fostering community involvement, and nudges.

The most innovative approaches, based on nudges, competitions, and collective activities, are more prevalent in developed countries, while interventions in developing countries are based more on traditional lecture-based methods.

There are several key insights (Fig.1). Developing countries should focus more on norms leading to adaptation, tailoring interventions to the local context. As target outcomes, activities or social interactions, like interschool competitions, or incorporating innovative and cost-efficient strategies, like employing nudges, seem to be more effective and should be privileged. International initiatives should require more quality design in their support of CCE interventions, to better understand both failures and good practice.

Figure 1 – CCE research capturing revealed behavior: what works and what is missing?



Source : Figure 9, Gaelotti, Hopfensitz & Mantilla (2023).

RECOMMENDATIONS

- ▶ **Promote a new measurement paradigm based on injunctive and descriptive norms**, which emphasizes the importance of examining real behavior and people's perceptions of what others do or believe one should do. With the current paradigm, based on knowledge and attitudes, all interventions seem to work, hiding the fact that often, interventions in the education sector have little impact in addressing CC.
- ▶ **Conduct studies comparing directly different types of interventions** at national level, including both complex and simple interventions, to assess “what works best” and what are the most effective approaches in a given context.
- ▶ **Combine multiple interventions** so to exploit their synergic potential and increase effectiveness.
- ▶ **Review incentives** encouraging teachers, communities, and scholars to participate in more extensive and ambitious projects: consider direct recognition (for teachers) and offering benefits to schools.
- ▶ **Strengthen the cooperation between researchers, practitioners and educational institutions**, combine their knowledge and expertise to improve the design, long-term implementation and evaluation of effective interventions.
- ▶ **Provide inputs to share with practitioners and schools' stakeholders**. Produce an easy-to-follow guide explaining: (i) how to substitute before-after with treatment-control designs, and (ii) how to measure and effectively disseminate social norms.

¹ Galeotti, F., Hopfensitz, A., and Mantilla, C. (2023), “Climate change education from the perspective of social norms: a systematic review”, AFD Research Paper no 297.