

PERSIST: a pre–post study to assess an educational methodology to enhance youth climate literacy and systems thinking ability

Doris Zjalic, Alessio Perilli, Lorenza Nachira, Gaia Surya Lombardi, Chiara Cadeddu



Abstract

Background Education has a pivotal role in preparing society to address the forthcoming health impacts of the climate crisis. Education provides the tools necessary to instil both individual and collective attitudes for mitigating climate change, fosters the development of adaptive skills and mindsets, and promotes a critical understanding of climate change. The aim of the PERSIST project was to assess the effectiveness of a school educational intervention to strengthen literacy on the climate crisis, pro-environmental behaviours, and systems thinking in high school students (aged 14–18 years).

Methods Three meetings were carried out in a scientific high school in the suburbs of Rome (Italy) between March 21, and April 12, 2023, using complex systems models, group activities, and collective discussions. Pre-intervention and post-intervention questionnaires were administered to students to record knowledge, climate-related emotions, and pro-environmental behaviours. Questionnaires that were complete were considered valid. The anonymously collected data were processed using descriptive statistics and *t* test.

Findings A total of 273 students in ten different classes attending between grades 1 and 4 took part in the project. 78 (36%) participants were female, 133 (62%) were male, and four (2%) did not disclose their gender. The mean age was 15 years. We received 211 pairs of valid pre-intervention and post-intervention questionnaires. The preliminary analysis showed an average increase of 19% in correct responses to knowledge questions, a 21·2% increase in pro-environmental behaviours, and no discernible differences in climate-related emotions between pre-intervention and post-intervention questionnaires.

Interpretation An interactive approach and the use of complex systems might improve students' literacy and attitudes towards the climate crisis, without increasing negative ecological emotions. This pilot project can guide similar, repeatable programmes in other schools and countries and it represents the first measure of climate-related emotions after school intervention.

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Contributors

DZ, AP, LN, and CC conceived and designed the study. DZ, AP, LN, and GSL prepared and structured lessons and used materials. AP and LN analysed the data. DZ and GSL wrote the abstract. CC supervised the project. All authors provided critical feedback and helped shape the research, analysis, and manuscript.

Declaration of interests

We declare no competing interests.

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Section of Hygiene, Department of Life Sciences and Public Health, Università Cattolica del Sacro Cuore, Rome, Italy (D Zjalic MD, A Perilli MD, L Nachira MD, G S Lombardi MD); Erasmus School of Health Policy and Management, Erasmus Universiteit Rotterdam, Rotterdam, Netherlands (C Cadeddu PhD)

Correspondence to:

Dr Doris Zjalic, Section of Hygiene, Department of Life Sciences and Public Health, Università Cattolica del Sacro Cuore, Rome, Italy
doriszjalic@gmail.com