

# MAKING CHANGE!

transformative science and learning for  
empowering the youth amidst the climate crisis

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## Introduction

The world is in a phase of profound upheavals, all of which are a direct or indirect result of human interventions in the Earth system. Overcoming these Global Grand Challenges requires not only scientific and technological advances but a deep and enduring socioeconomic and cultural paradigm shift. This is particularly true for the climate crisis and its manifold, complex drivers and interlinked consequences, which constitute together the most existential global challenge in the 21<sup>st</sup> century. As the rise of social-climate movements like #FridaysForFuture has shown, particularly young people represent a powerful force for deep social change in the context of the climate crisis<sup>1,2</sup>. Research and higher education institutions have a crucial role in developing theoretical foundations and applicable methods for transformative learning. Therefore, science itself must become transformative by introducing transdisciplinarity and integrating the normative aspect of sustainable development<sup>3</sup>. In this research we empirically explore the role of transformative science in supporting effective sustainability education that enables real transformative action.



## Methodology

The empirical study describes the co-development of the transdisciplinary makingAchange (mAc) peer-to-peer approach for transformative sustainability education in Austria and comprises two closely interlinked dimensions. First, we establish an Austria-wide peer-to-peer education program, that enables school students (secondary level I and I) to act as "sustainability change makers" in their respective schools and broader social systems. This has been co-designed by researchers, civil society organizations, teachers and students. Second, we establish mAc buddy programs at Austrian universities that aim at providing theoretical and methodological skills to university students for acting as low-threshold scientific partners for the peer-to-peer education program.



## Results

115 school students from 23 schools across Austria have been participating in this program so far and became peers within their own schools. The training program provided the school students not only with solid scientific facts but also with soft skills that are needed for passing on this knowledge to their peers and for building up their own climate initiatives in their schools and municipalities. Specific formats that we have implemented to this end consist of a positive story-telling workshop using stop-motion videos, co-creating a raised-bed garden for growing local and organic produce, blog writing workshops, and art of hosting workshops. Moreover, 45 buddies have been trained at Austrian universities. The first promising insights after one year of makingAchange indicate that our transformative learning approaches can support students' critical thinking and awareness of the climate crisis, enable them to reflect about their own stakes in the context of sustainability transformations, and provide them with a new sense of agency and empowerment towards real transformative action at both personal and societal levels.

## Conclusions

Establishing scientific facts about climate change and offering scientific projections of future change on its own does not drive political and societal change. Truly inter- and transdisciplinary research is needed to support the complex transformation towards a sustainable society. The makingAchange peer-to-peer approach constitutes a long-term science-society transformative education format, with a high potential to (1) raise awareness for the complexities of the grand challenges of the 21<sup>st</sup> century, (2) enable young people to shape their own sustainable living space in collaboration with other societal actors, and (3) stimulate the translation of the willingness to act into real transformative actions that make a difference.

Several research institutions are involved in this project: University of Natural Resources and Life Sciences (BOKU), Technical University Graz, University of Innsbruck University of Applied Arts Vienna, University of Vienna – Botanical Garden, Austrian Educational Competence Centre Biology, forum n.

### References:

<sup>1</sup> Fisher, D.R. (2019). The broader importance of #FridaysForFuture. *Nat. Clim. Chang.* 9, 430–431.

<sup>2</sup> Schinko, T., 2020. Overcoming Political Climate-Change Apathy in the Era of #FridaysForFuture. *One Earth* 2, 20–23.

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<sup>3</sup> Anne, B., Bornemann, A.B., Förster, R., Getzin, S., Klay, A., Sägesser, A., Schneider, F., Wäger, P., Wilhelm, S., Zimmermann, A.B., 2020. Sustainability-Oriented Transformative Learning and Teaching in Higher Education: Eight Propositions on Challenges and Approaches.

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