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Ma Terre en 180 Minutes: a transition support system to build decarbonization scenarios in the academic community.

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A growing portion of scientists realized the need to not only alert about climate change, but also change their professional practices. A range of tools have emerged to promote more sustainable activities, yet many scientists struggle to go beyond simple awareness-raising to create concrete transition actions. This study proposed the use of a new game-based transition support system called "*Ma Terre en 180 Minutes*", which is, to our knowledge, the first tool developed by and for the academic community. It has been designed to build scenarios of greenhouse gases (GHG) emissions reduction in the academic community, and present its deployment during the year 2021, including six hundred participants from 9 countries and 50 cities.

After the phase 1, called awareness, that aims to build a common scientific background about the context (global warming, its causes and consequences, planetary boundaries) and challenge (50% reduction of our carbon budget by 2030), the participants, with the phase 2 called role-playing, immerse themselves into fictional characters, to simulate the behavior of real research groups. Phase 1 and 2 are separated by a few days interphase helping participants to embody their fictional characters and be comfortable with the virtual research group they will simulate, as well as having time to perform their personal carbon footprint. Finally, an important final phase after the game-playing phase 2 take place to discuss, analyze and assess the results of phase 2.

Results show clear pathways for GHG reductions between 25 and 60%, and a median reduction of 46%. The alternatives allowing the greatest reduction are video communication tools (36%), followed by mutualization of professional activities and voluntary cancellation or reduction, that represents 22 and 14% of reduction, respectively. The remaining 28% of reduction is composed by the use of trains as a transport alternative, the relocation of professional activities, the duration extension of some missions, etc... In addition, the analyses pointed out the importance of guided negotiations to bring out some alternatives such as relocation, local partners and computing optimization. An added value of this transition support system is that the information it collects (anonymously) will be used to answer pressing research questions in

climate change science and environmental psychology regarding the use of serious games for promoting changes in attitudes and behaviors towards sustainability, and including broader questions on how network structures influence “climate behavior”, knowledge, and the governance of the commons.

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