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# Can experiential learning enhance perceived behavioural control for climate adaptation? Experimental evidence from rural Namibia

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**Abstract**

As the frequency and severity of climate-related disasters escalate globally, the urgency to adapt to climate change has never been more pressing, particularly for vulnerable communities that are highly dependent on multifunctional agro-ecosystems in the Global South. In Namibia's Zambezi region, projected impacts include higher average temperatures alongside declining precipitation, intensifying heatwaves and aridity while also increasing the likelihood of extreme rainfall events. In such sparsely populated rural land-use systems, large-scale public adaptation can be costly and unevenly distributed, making community-based and individual efforts critical to filling gaps in public provision. These locally driven approaches are often more responsive to the specific needs, knowledge, and priorities of affected populations. However, individual and community responses depend on a range of behavioural and contextual factors, including how people perceive climate risks, their confidence in their ability to act, prevailing social norms, and the costs they associate with adaptation. Influencing such behavioural factors remains a challenge.

In the work presented here, we explore whether an experiential learning game intervention as a structured activities that let participants "learn by doing" through a cycle of direct experience, guided reflection, and active experimentation can enhance perceived behavioural control for climate adaptation. In 26 rural communities in Namibia's Zambezi region, participants played a game simulating resource trade-offs between current and future generations, followed by facilitated discussions on long-term adaptation strategies. Using between-subject comparisons of participants interviewed before, immediately after, and eight months following the intervention, we find that the intervention significantly increased self-efficacy and demand for climate-related information in the short run. While concern for future generations was already high, the intervention broadened participants' normative focus to include both current and future generations. At eight-month follow-up, initial gains in self-efficacy had faded, though information-seeking and perceived adaptation costs had risen. Community-level documentation reveals that some further worked on their adaptation prototypes they developed during the workshop, though many faced organisational and technical barriers. Our findings demonstrate that brief experiential interventions can shift key cognitive and motivational drivers of adaptation, particularly among marginalised groups, but sustaining these effects requires ongoing support and clear pathways to action.

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