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Getting to impact at scale: A dynamic model to guide scaling of climate change education

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In order to successfully address climate change, society needs education that scales rapidly, transmits scientific information about its causes and effects, and motivates sustained commitment to the problem and science-based action to address it. The gap in public understanding and motivation to address climate change is not caused by a lack of information or educational resources that are effective. Systems thinking and simulation-based learning have been shown to deliver gains in knowledge, affect, and intent to take action and learn more about climate change. But, in order to have impact at scale, an educational innovation must be adopted at scale. Most of the time they are not: uptake from dissemination, active outreach, or word-of-mouth diffusion among educators usually falls short. Here, we describe and apply a simple system dynamics model to explore why propagation efforts often fall flat. We then use the model to explore how rapid scaling could be achieved in higher education. We rely on prior studies and expert opinion for model structure and parameterization. Our analysis shows that outreach has limited impact and does little to accelerate word-of-mouth adoption under conditions typical in higher education. Instead, widespread adoption is fueled by encouraging and supporting adopters' efforts to reach, persuade, and support potential adopters through community-based propagation. We explore faculty incentives and cultural shifts that could enable community-based propagation.