Inclusive Interactive Simulation: Stakeholder Empowerment in Design

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Abstract. Solution generation in transdisciplinary engineering is increasingly buttressed by computational modeling and simulation tools implemented by highly skilled experts. As powerful as these tools may be, they tend to exclude non-technical stakeholders from the solution design process. With this concern in mind, we discuss the method, implementation, and preliminary results for an experiment designed to measure the efficacy of "inclusive" computational modeling techniques that allow non-technical stakeholders to participate more actively in solution generation. In the experiment, we asked individuals to play the role of an empowered citizen who must choose the final and best design for a real estate development in their city. Participants accessed a browser-based digital design tool to view, edit, and create building scenarios. Ultimately, we asked participants to specify a single solution as their final choice, while also reporting their levels of satisfaction and confidence regarding that choice. We found that non-expert participants are quite willing to exercise their own personal discretion to make decisions, even to the point of overriding or ignoring existing professional recommendations. This work may have important implications for technology-enabled participatory design processes in transdisciplinary engineering.

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