



Perspectives on a Pipeline for Geoscience Game Development, Play, and Evaluation

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The Integrated Groundwater Modeling Center is a small research center with a focus on hydrological modeling and a mission to develop and promote education and outreach in our community. Outreach efforts are generally focused in hydrology, but a number of funded research projects have also directed our program content. Using the research findings from such projects as teaching topics, we have established a pipeline for participants to develop, play, and evaluate geoscience games.

The initial piece of the pipeline is an undergraduate course on science communication and the impacts of bark beetle infestation on water in the Rocky Mountain west. Project PIs and researchers taught undergraduate students about the various climate drivers that lead to bark beetle infestation, the connections to climate change, and various impacts to water resources. These undergraduate students were then tasked with developing games to teach these ideas to middle school students. Next in the pipeline are the community and classroom events where developed games are played and evaluated by primarily K-6 (primary) students. The games developed in the previously described course have been played in traditional and non-traditional classroom settings, allowing for evaluation of the games as they are implemented. K-12 (primary and secondary) continuing education workshops represent the last piece of the pipeline. These workshops allow participating educators to learn the content, play the games, and assist us in the evaluation and improvement process. In our experience, using games to teach complex and often hard to communicate science content allows students of many ages to learn through development of games, playing games, solving problems, and helping their peers to better understand the topics. We hope to discuss further our experiences, successes and shortcomings, as well as our current and future plans to continue geoscience game development to inspire future scientists.