

Ripple Effect: Empowering Educators Through the Watershed Game

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Introduction/Need for Innovation or Idea

The idea of gamification is becoming more common as it is used with the intention of improving engagement and learning outcomes. Game-based learning also allows for goal-oriented and experimental learning opportunities to solve challenges (Pavlenko et al., 2024). Using games allows learners to compare the relevance of a game to real-world scenarios and problems being faced in their community (Speelman et al., 2014). Gamification uses reward-based learning to motivate students and enhance learning outcomes (Alomari et al., 2019). In addition, gamification allows participants to fail without fear in a trial-and-error process. It utilizes elements that provide feedback, offers visual progress, and uses competition to encourage motivation (Sánchez-Mena & Martí-Parreño, 2017).

Innovative agricultural education programs are essential to help educate communities about a wide variety of topics. In Kansas, water is one of the major challenges facing communities. Novel programming and gamification in an agricultural setting can help demonstrate how to navigate complicated issues related to water management.

The Watershed Game (WSG), developed by the Minnesota Sea Grant and University of Minnesota Extension, was created for use by individuals such as local leaders (non-formal educators such as HOA, Extension, Watershed Management District, etc.) and formal educators (i.e. classroom teacher). The goal of the Watershed Game is to enhance hands-on learning techniques in classroom and community settings (Minnesota Sea Grant, n.d.). This teaching method encourages problem solving and critical thinking, which are essential skills for all learners to develop (Aguilar-Castillo et al., 2020).

How it works

In Spring 2025, the Kansas Water Institute (KWI) launched an initiative to expand watershed literacy by introducing the Watershed Game (WSG) to Kansas educators and local leaders. The WSG is a simulation-based board game designed to help participants understand the relationships between land use, water quality, and decision-making at the community level. With distinct versions tailored for local leaders and classroom settings.

Rather than sending a single staff member out-of-state for training, SWI proposed a more scalable approach: invite a certified facilitator to Kansas and train a broad audience of professionals and educators through on-site workshops. Recruitment strategies were customized for each group of learners. Participants signed up through a Qualtrics survey linked in the recruitment email and were then sent a set of pre-workshop materials.

The workshops, held at Kansas State University on March 6–7, 2025, were structured into two tracks: one for Local Leaders and one for Classroom Educators. Participants in both workshops received meals, Continuing Education hours, and a complimentary game board of their choice (Stream, Lake, River, or Coastal). The two tracks of the Watershed Game training were intentionally designed to meet the unique needs of their respective audiences. The Local Leader Version was more extensive, totaling approximately seven hours of training spread across two days. In contrast, the Classroom Version training was more concise, lasting 2.5 hours on Friday evening.

Results to Date

To assess the effectiveness of the training program, participants completed a post-workshop survey. Among classroom educators, 86.7% ($n = 13$) strongly agreed, while 91.7% (n

= 11) of local leaders strongly agreed that the train-the-trainer session provided them with additional tools and knowledge to support their work.

To gather additional feedback, participants were invited to provide open-ended comments and suggestions for improving future workshops. Classroom educators offered suggestions to enhance the game's relevance, including adding a grasslands or aquifer module and incorporating more native prairie habitats to better emulate Kansas ecosystems. Several also praised the game's design, referring to it as "amazing," "solid as a co-op game," and noting they "can't wait to use it." Local leaders shared similarly positive feedback with one requesting access to the PowerPoint presentation to revisit key points. Others suggested ideas to improve the structure of the training. These responses demonstrate strong engagement from participants and suggest a high level of enthusiasm for the game, along with constructive input to further enhance the training experience.

Over 80% of educators and 90% of local leaders, intend to use the game within the coming year, with a notable portion of local leaders ready to implement it even sooner. Local leaders were also asked to identify which version(s) of the Watershed Game they plan to use. The Stream Model was the most frequently selected with 66.7% ($n = 8$).

To better understand how the game would be used in educational settings, classroom educators were also asked to indicate the grade levels they teach. A majority (53.3%, $n = 8$) reported teaching across the full range of Grades 3–12, followed by 33.3% ($n = 5$) who teach Grades 9–12, and one who teaches Grades 3–8. These responses reinforce the game's adaptability and relevance across a broad spectrum of grade levels, with particular emphasis on middle and high school instruction.

Future Plans/Advice to Others

The overarching goal of this initiative was to create a ripple effect across Kansas by equipping educators, local leaders, and Extension professionals with the tools and confidence to integrate the WSG into their programming. Partnering with Minnesota Sea Grant was essential to ensure training quality. Each participant received a complimentary game, and the Kansas Water Institute (KWI) maintains a statewide lending library with three versions of the game. Where full distribution may not be feasible, offering shared access through a lending system is a practical alternative. Additionally, offering Continuing Education (CE) or Professional Development hours served as a valuable incentive. Future implementers should consider partnerships with licensing or accrediting bodies to align CE offerings with participant needs. Each workshop concluded with a structured Action Plan to help participants reflect on when, where, and how they would apply the WSG. The KWI plans to follow-up with participants to evaluate program success and inform future expansion.

Cost & Resources Needed

Implementing a successful Watershed Game (WSG) training workshop requires both logistical coordination and thoughtful budgeting. Key budget items included: travel for lead presenter (\$700), room and board for lead presenter (\$510), workshop room (\$0), participant food (\$1,100), and the WSG (\$195/each). The facilitator provided other materials at no additional cost (slide decks, markers, flip charts, participant folders, etc.). With thoughtful planning, institutions can effectively deliver impactful WSG training experiences that equip participants to integrate watershed education into their communities.

References

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