

Watershed Game Train-the-Trainer: Insights on Comfort & Relevance

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Introduction/Lit Review/Conceptual Framework

Gamification is the utilization of game design elements and game mechanics in non-game contexts (Caponetto et.al, 2014). The intention of gamification is to engage people and solve real-world problems (Kovács, et al., 2017). By using educational games in various career fields, users learn how to work in team-based, experimental, and problem-centered learning experiences (McKim et al., 2020).

Gamification is a beneficial method to use within education to increase learner's motivation and engagement in real-world problems (Aguiar-Castillo et al., 2020). It has been found that gamification in an educational setting can not only change student's behavior but promote new and positive habits such as better attitude towards learning, development of budgeting skills, making the learning process more attractive, and shifting to a more active role in learning (Kirillov et al., 2016).

The purpose of this research study was to investigate the effectiveness of a Watershed Game training workshop. The Watershed Game (WSG), developed by the Minnesota Sea Grant and University of Minnesota Extension, was created to be used by individuals such as local leaders (non-formal educators such as Extension professionals, Watershed Management Districts, etc.) and formal educators (i.e. classroom teachers).

The conceptual framework for this study included the innovation-decision model (Rogers, 1995) and the adult learning theory (Knowles, 1980). Rogers' (1980) model was used to move participants through the five stages: knowledge, persuasion, decision, implementation, and confirmation. The innovation-decision model is used in research to guide participants through adoption or rejection of an innovation (Schmidt & Brown, 2007). In this study, the model led participants to the use and adoption of the WSG. Andragogy, "the art and science of helping adults learn" (Knowles, 1980, p. 43), assisted in the workshop format and design. In this study, andragogy recognizes strategies that are experimental, problem-based, and allows participants to learn in a community environment (Lee, 2003).

Methods

Participants were recruited to participate in a training workshop via email, listserv, and personal phone calls. During the training, participants learned of the benefits of the WSG and gamification in educational settings, played the game itself, developed networks of other individuals working in a field with water, and built their capacity to use the game in their own educational settings. Two objectives guided this study, 1.) evaluate participant preparedness and comfort and 2.) determine the perceived usability of the Watershed Game.

After the training was completed, participants completed a paper survey consisting of nine questions. The survey was created by the Watershed Game developers and approved for use by the Kansas State University Institutional Review Board. The survey included questions regarding quality of training, comfort level with using the game in each respected field, the level of technical information, and intention to use after training. In addition, this survey examined the benefits of gamification and overall benefits of the Watershed Game.

The local leader survey was administered after the seven-hour training, and the classroom version was administered after the two-hour training. The surveys were very similar and only differed to distinguish the group completing the survey. To analyze the data from the surveys, results were transferred to a Microsoft Excel sheet and compared. This research was University IRB approved.

Results

Twelve local leaders and 15 educators completed the post-workshop evaluation. An analysis of participants' preparedness and comfort with the Watershed Game (RO1) reveals generally positive outlooks from both educators and local leaders. Educators ($n = 15$) reported a higher average readiness score of 8.6 out of 10 ($SD = 0.97$), suggesting strong confidence, while local leaders ($n = 12$) indicated a fair degree of confidence with an average readiness score of 7.67 ($SD = 1.07$). A difference emerged between educators and local leaders in their comfort levels. Among educators, 56% reported they were comfortable using the game independently, while only 16.7% of local leaders selected this option. In contrast, the majority of local leaders (66.7%) preferred to co-facilitate the game, a preference shared by just 22% of educators. Additionally, 6% of educators preferred additional training, compared to 16.7% of local leaders.

RO2 investigated participants perceived usability of the Watershed Game. When asked to rate the level of science or technical information presented in the game, both groups reported a combined average rating of 5.87 ($SD = 1.33$) on a 1–10 scale, where 5 indicated “just right.” Additionally, participants responded to whether the game would support the educational goals of their classrooms or community programming. Among classroom educators, 86.7% ($n = 13$) strongly agreed that the game would help meet their educational needs, while the remaining 13.3% ($n = 2$) moderately agreed. Local leaders showed similar enthusiasm, with 75% ($n = 9$) strongly agreeing and 25% ($n = 3$) moderately agreeing. Notably, no participants from either group disagreed.

Conclusion

For RO1, despite relatively high scores for readiness and comfort, both groups indicated they would benefit from additional practice. These results suggest that while the initial training instills a foundational sense of readiness, additional hands-on practice and co-facilitation opportunities would be valuable in boosting the confidence and comfortability of both groups.

Participants consistently perceived the game's content as balanced between simplistic and technical for their intended audiences in reference to RO2. These responses indicate that both educators and local leaders recognize the value of the Watershed Game as a relevant and useful teaching tool within their respective educational and outreach settings.

Gamification can have a positive impact in enhancing an education workshop for users (Aguiar-Castillo et al., 2020). By using tools such as the Watershed Game, individuals are able to learn new information and skills in a fun and hands-on experience.

Recommendations

The survey data suggests that participants left the workshop with a strong foundational understanding of the Watershed Game and an appreciation for its educational relevance. The results also point to several key areas for further exploration. Future research should investigate the long-term adoption (Rogers, 1995) and use of the Watershed Game. Follow-up studies could examine to what extent educators and local leaders are using the game after the workshop and in what contexts. This will help assess whether participants' initial confidence translates into actual use over time. Future studies should collect feedback from students or community members who participate in the Watershed Game to gain a deeper understanding of watershed management. Additionally, focusing on how adults prefer to learn (Knowles, 1980) can inform the refinement of future workshop designs and support the more sustained integration of the game across diverse settings.

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