

Introduction: Games, Gamification, and Virtual Environments

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WELCOME

Welcome to the games, gamification, and virtual environments special issue of the *Journal of Technology-Integrated Lessons and Teaching (JTILT)*. Why a special issue on games? Because games have merit! Games can be played by anyone, can provide safe ways to practice essential skills, and can adapt to various interests and settings.

To borrow a quote from the 2007 documentary chronicling the *Donkey Kong* World Record race, “Everybody, even Grandma, games – meaning checkers, cards – if not now, in the past” (Gordon, 2007). Games have existed for thousands of years and are found in all societies. Whether ancient games like Go, chess, and dice or modern examples like *Catan*, *Dungeons and Dragons*, and *Minecraft*, games permeate societies, vying for our time and attention. Games appear on our personal devices, are the focus of friends’ and family nights, and provide safety and social interaction at German crosswalks (HAWK Digital Environments, 2012).

As more states and nations require computational thinking skills in P-12 education, connections between games and problem solving, algorithmic thinking, decomposition, and abstraction become visible. Players demonstrate these problem-solving skills when considering the probability of success with certain moves, character placement to minimize damage, or fine-tuning resources to maximize gains. The variation in complexity, type, genre, time requirements, player interactions, and so forth helps make games so popular. Individuals can locate the exemplars that match their interests.

Consider, for example, the variety in the following games. Mastering golf or chess can take a lifetime. Some tabletop role-playing games require hundreds of pages of rules across multiple volumes to get started. Yet, other games are simple. The pen-and-paper role-playing game [RISUS](#) requires only four

pages of rules (Ross, 2021), and games like tic-tac-toe and rock-paper-scissors, are readily accessible, nearly all the time, with minimal rules.

For decades, video and computer games garnered attention in media outlets. Companies strove for high-end graphics, robust sound, and tight game controls. Monochrome pixels gave way to colorful images, and then to photorealism. Creating these games can cost millions of dollars and require large development teams. However, such games need not be complex or graphically intense (remember *FlappyBird*)! With basic training in Hopscotch, Scratch, or other programming environments, all learners can develop games. Even board and role-playing games have seen a recent social renaissance and can provide formats for student development to showcase skills and learning.

Games play a significant role in education. Games like *Jeopardy* and *Quizlet* help students review for upcoming assessments. Digital edutainment games like *The Oregon Trail* and *Funbrain.com* help students learn and review assorted topics. Even NASA recently launched a free tabletop role-playing game, “[The Lost Universe](#),” to promote learning and applying science skills by considering what would happen if the Hubble Space Telescope disappeared (National Aeronautics and Space Administration, n.d.).

THIS ISSUE

This issue of JTILT features seven lessons where games, game elements, and/or game creation provide integral methods for promoting learning outcomes in PK-16+ settings. Three articles focus specifically on game-based learning for high school students. The other four focus on university students at either the undergraduate or graduate level.

The first article “Learning game design while playing games” by Hamid Nadir describes a five-week, online seminar for graduate students in a library and

information sciences program where learners build board and video games through the help of various scholarly readings, videos, synchronous sessions, and maker tools. The second article “Preparing educators to navigate the social-emotional terrain: A game-based approach” by Erin Wachter and WeiHsuan Lo leverages game-based learning to help pre- and in-service teachers consider how to overcome classroom management challenges.

Games used to support learning are also discussed in the articles “Digital escape room: Agency, personalized instruction, and flow theory” by Cecil Short and “Cask of Amontillado digital escape room” by Tabitha Cowley and Cecil Short. In the former, a digital escape room was used in a hybrid practicum course to model technology-rich, agentic instruction. In the later article, a classroom teacher who had completed said practicum course developed and implemented her own digital escape room to help 10th grade students review major themes in Edgar Allan Poe’s “The cask of Amontillado.”

The fifth and sixth articles also focus on high school learners. In “Motion to immersion: Combining computer science, virtual asset design, and motion capture for high school students” by William Tai and DeniRobb Arnett, low income and/or potential first-generation college students completed a 15-day summer camp to learn about coding and digital asset creation. The lessons overview the camp and focus on coding loops and locating digital assets for use in virtual environments. In “Using Roblox to explore natural selection” by Aishat Balogun and Amber Dehner, learners leveraged pre-existing games within Roblox to explore principles of natural selection. Afterwards, learners created their own natural selection-based games in Roblox.

Finally, “Visual mnemonics and gamification: A new approach to teaching muscle physiology” by Tyler Bland and Meize Guo focus on using game assets to teach first-year medical students. The article features instruction on muscle physiology via *Medimon* game assets to reduce student burnout and improve concept retention.

GET INVOLVED

We hope you will get involved with JTILT. Share this issue with others; submit your own lessons using the journal’s [submission procedures](#); or sign up to review

manuscripts in various subject areas (e.g., mathematics, social studies, language arts, world languages, science, the arts, physical education, business). We welcome your involvement and help, regardless of your prior experience. Contact Craig Shepherd (cshphrd2@memphis.edu) or Cecil Short (cshort5@emporia.edu) for more information or to volunteer.

REFERENCES

Gordon, S. (Director). (2007). *King of Kong* [Film]. New Line.

HAWK Digital environments (August 30, 2012). Streetpong. Vimeo. <https://vimeo.com/48514003>

Ross, S. J. (2021, June 7). *Risus: The anything RPG*. DriveThruRPG. Retrieved May 7, 2024 from <https://www.drivethrurpg.com/en/product/170294/Risus-The-Anything-RPG>

National Aeronautics and Space Administration. (n.d.). *The lost universe: NASAs tabletop role-playing game adventure*. Retrieved May 7, 2024 from <https://science.nasa.gov/mission/hubble/multimedia/online-activities/the-lost-universe/>

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