

LEARNING BENEFITS OF *Student-Led* GAME MAKING

Build strategic thinking and collaboration skills, playfully

Challenging students to design learning games creates rigorous, memorable learning. After teachers and students align on learning objectives, how work will be assessed, and timelines for the project, most other decisions are made by student teams. They research issues, acquire new vocabulary, assign tasks, hold team members accountable for responsibilities, and strategically plan the game's rules and mechanics. Designing games and then teaching them to others intrinsically motivates students. They dive deep into the content, figuring out how to make the game require knowledge, rather than luck, to win. These experiences build a growth mindset; students learn from mistakes. No one expects to win every time a game is played. This venue naturally involves learning how to do better in the next round. When the game is a student-made original design, learning can include big ideas like making a game collaborative instead of competitive so that players are rewarded for helping each other.

Understanding Learning As a Playful Pursuit

How do principals convince parents and teachers that something that looks so informal can be among the most impactful of learning experiences? How can school leaders challenge classic notions around

play and work? Home-work. School-work. We talk about education using the language of labor and industry. We measure *time-on-task* as if children were clocking in to a job. Learning is not a chore. In fact, the word *school* has nothing to do with toil. It comes from the ancient Greek *σχολή (skoli)*, which means *self-directed leisure time*. We can bring the classic notion of *σχολή* into 21st century classrooms by challenging students to design original games. Learning can be viewed as structured curiosity. Similarly, student-designed games are systems structured by mechanics and rules that teams envision, debate, test, and modify.

Of course, there is nothing new about learning games. Teachers have been using them in classrooms for a long time. When I was a kid, we enjoyed a homespun version of television's *Jeopardy!* every Friday afternoon in biology class. Much more engaging than flashcards, this game created a lasting memory of learning the basic elements of photosynthesis while one side of the room competed fiercely against the other. Even if we neglected our assignments the rest of the week, we were intrinsically motivated to win. So, we studied extra on Thursday nights.

Likewise, my most memorable history classes sometimes featured intricate role-playing games. On one occasion, the entire elementary school student body ran around



the building's first floor, acting out scenes from a textbook lesson on the Underground Railroad. Classrooms became "safe houses" where we sang spirituals with a teacher who strummed an acoustic guitar. I'll never forget how the principal, fully dressed in a period costume, delivered an Oscar-worthy performance as Harriet Tubman.

Student-Designed Games— an Investment in Time

Educators ask whether it is the act of playing games or making them that engages students. Making original

games, even if they are hybrids of other games students have already played, takes time. Consider the phases that include idea generation, research, defining the game's objectives and role of components, group decision-making, prototype building, testing, and revising. Is it worth that investment in class time? A Latin proverb, "By teaching, we learn," is derived from Seneca, a Roman philosopher. The process of designing learning games involves teaching others. Annie Murphy Paul has written about what scientists call the "protégé effect." When students take on the role of teachers, they "score higher on tests than pupils who are learning only for their own sake." Game making drives inquiry and solution finding as students teach others what they discovered.

The valuable time spent on strategically planning the game's design and teaching subject content to peers makes these projects a worthwhile investment. These steps cultivate a growth mindset, build genuine collaboration skills, and engage students in authentic assessment as they evaluate their learning progress. Game making not only impels kids to delve deep into a specific subject area, but also provides them with opportunities to practice self-regulation and executive-function metacognitive skills. As game designers, students think about cause and effect. They realize rules are not only limitations, but also the boundaries that make it possible to achieve goals.

Games as Systems

Game making teaches systems thinking. All games are systems with components and boundaries. They depend on the existence of a *magic circle*, a term coined by the Dutch cultural historian Johan Huizinga who proposed that play is the primary formative element in human culture. In his classic book, *Homo Ludens: A Study of the Play-Element in Culture*, he compares ritual and play. He points out that religious rites and imaginative games both depend on *magic*

circles, which Huizinga describes as "temporary worlds within the ordinary world." A chessboard, a Twister® mat, and a playground might not be as sacred as a house of worship, but nevertheless, these are spaces where we act out our reverence to a specific set of rules. Within the *magic circle*, people perform in ways that are distinct from the routines of everyday life. Hence, the *magic circle* is a safe space for particular ways of being. It is similar to what art therapists call the *temenos* space—based on the Greek word for sanctuary. Both terms describe a defined area that is apart from the ordinary.

One of the best things about student-led game making is that it doubles up on the *magic circle* experience. Children build their game's boundaries, the sacred space governed by the rules and way of being within the system they create. And they do this work within a *temenos* (artistic-sanctuary)—a magical place where it's okay to suspend other conventions, experiment, explore, and iterate.

Game making results in deeper comprehension and better retention than traditional learning activities. Why? Because to create a game's *magic circle*, students need to think hard about the relationships between elements in a system. For example, middle school chemistry students designed a variation of the Milton





Bradley classic, Battleship®. One group immediately recognized that many parts of their chemistry curriculum could be expressed as a simple resource management game in which each peg represented an atom and the goal was to build molecules. Another group designed a map-based strategy game using their research about world history and thinking about how resources and geography shape international geopolitics.

Getting Started

The best part of this teaching strategy? It is much easier to get started than you might think.

1. Teachers set the learning objectives that align with curriculum standards and other goals, such as building team collaboration

skills. When students know the standards their games need to address and are involved in establishing the assessment rubrics, they rise to the occasion.

2. Students combine their creativity with online inquiry and traditional ways of gathering and sharing ideas. There is no polarization between the virtual and the tangible worlds in game making. If students are tasked with building card games in which animals need to be matched to their natural ecosystems or plants need to be matched to their biomes, the internet is a tool that facilitates research and emboldens ingenuity. When students build civics board games with dice and challenge cards to help them understand political processes, they read the news on handheld digital devices. Current events and realism are woven into their originally designed game systems.
3. Teams follow a scaffolded game design process that provides time for planning the game's objectives. Game board prototypes are then drafted before finalizing how the board will guide game play. Another period might focus on sculpting game pieces (their avatars) and building backstories for each character. Game cards can incorporate contextual information, actions, or events that lead to cause-and-effect

outcomes. Ultimately, the mechanics of a student-designed game should communicate the systematic relationships among all the game's components.

4. Students teach their games to others. They assess the game's design and mechanics along the way and evaluate their collaboration process.

Imagine a classroom full of kids who have designed their own games. They beam with pride as they teach classmates to play. As they explain the rules, they receive immediate feedback and respond with more clarity as needed. They won't realize that this presentation process demonstrates their subject mastery and leadership skills. Teacher observations will document this—a perfect opportunity for stealth assessment. The class is so excited that they visit other rooms to teach additional students how to play their games. They invite families to school and host a schoolwide Family Game Night.

The game-making process is a far more effective way to strengthen skills and test understanding than teacher lectures and old-school worksheets. And best of all, it won't feel like work.

If you or the faculty want to learn more about this topic, suggested reading resources include:

- Huizinga, Johan. *Homo Ludens*. London: Routledge, 2000.
- Salen, Katie, and Zimmerman, Eric. *Rules of Play: Game Design Fundamentals*. Cambridge, Massachusetts: The MIT Press, 2010.
- www.instituteofplay.org/resources

Jordan Shapiro, Ph.D., is senior fellow for the Joan Ganz Cooney Center at Sesame Workshop. He teaches in the Intellectual Heritage program at Temple University in Philadelphia.