Ludic Language Pedagogy Playground
#7 (2025)
https://www.llpjournal.org/

The games and education iceberg: Going beyond the surface to deeper learning

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Item Details

History:
Submitted: 2025/09/11
Open peer reviewed: ✔️
Published: 2025/11/18

Keywords:
Connected Learning,
Critical Game Literacy,
Game-Based Learning,
Gamification,
Game Design,
Iceberg Model,
Ludic Language Pedagogy,
Memes,
Pedagogy of Multiliteracies,
Playful Pedagogy

***Peer reviewers*:**
Mark Johnson
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Key points

- **What is this?** This framework offers a robust lens for understanding the potential of games in educational settings. It begins with well-established "surface-level" applications familiar to educators, researchers, and policymakers. However, as we delve deeper, less apparent and more impactful approaches emerge. These deeper levels represent a greater potential for transformative learning but are currently underutilized. Significantly, Level 6, "Wrap games in pedagogy," serves as a foundational principle, informing and enhancing all other levels.
- **Why did you make it?** To empower teachers, researchers, and policymakers with a comprehensive understanding of the diverse and effective ways games can be integrated to achieve meaningful learning outcomes.
- **Who is it for?** As detailed above, this framework is specifically designed for teachers, researchers, and policymakers.

Tweet synopsis

The games and education iceberg model is a framework for understanding games' educational potential. Beyond surface-level gamification, it explores deeper applications like playing, talking about, learning about, making, and achieving transformative experiences with games, all wrapped in rigorous pedagogy.

View at the LLP Playground: https://llpjournal.org/2025/11/18/york-iceberg.html

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Introduction

The “Iceberg Model” is a widely recognized metaphor that illustrates how only a small portion of something is visible, while a much larger, often more significant, part remains hidden beneath the surface. The model has been used in various fields, with a famous example originating in psychology and Freud’s (1915) Iceberg Theory to describe the conscious mind and its connection to invisible, unconscious processes which cause conscious thoughts and behaviours. The “Know Your Meme” page (Know Your Meme, 2016) states that iceberg charts or iceberg tier lists, are images of icebergs where the visible section depicts what is generally known to newcomers or novices in a specific field, context, or fandom, but that the larger, underwater section conveys the total knowledge of a particular topic which is available to more dedicated fans, users, or, as in our case, teachers and researchers. Iceberg charts appear on a dedicated Subreddit (r/IcebergCharts), website (https://icebergcharts.com/) and YouTube videos. As an example related to games, Figure 1 outlines a “video game console” iceberg which introduces well-known consoles on (or above) the surface (PS4, SNES), but increasingly more niche consoles as it goes deeper under the water (from common consoles like the PlayStation and Switch at the top, to the Ouya, and the Atari Cosmos at the deepest level).

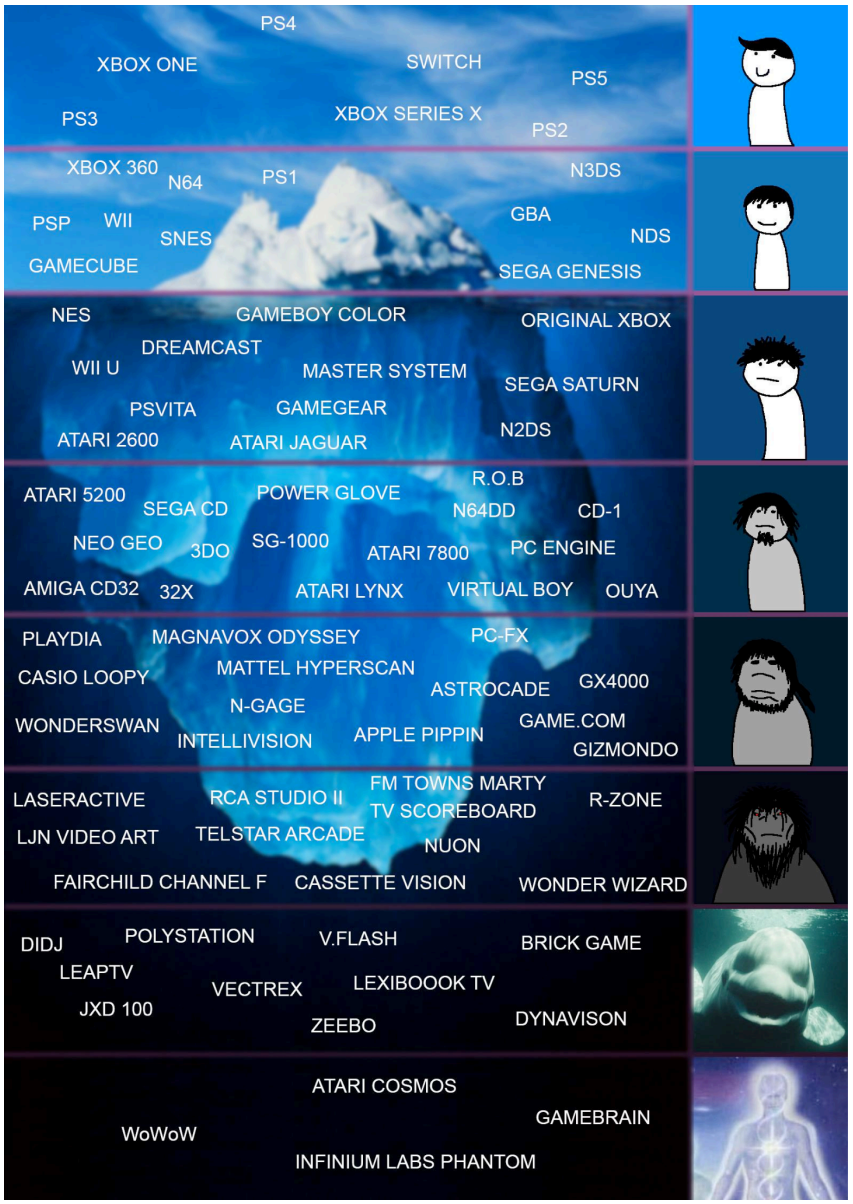


Figure 1 Example of an Iceberg Chart, this one for game consoles.

Explaining the iceberg meme for the purpose of this paper

In this paper, I used imgflip.com as the source for generating an iceberg chart on the topic of games in educational contexts (Figure 2). I made this iceberg to increase the conversation around games in education in a playful, multimodal, and hopefully, eye-opening way. However, I have made some adjustments, and I want to be clear about the goal of this chart for those unfamiliar with the iceberg model.

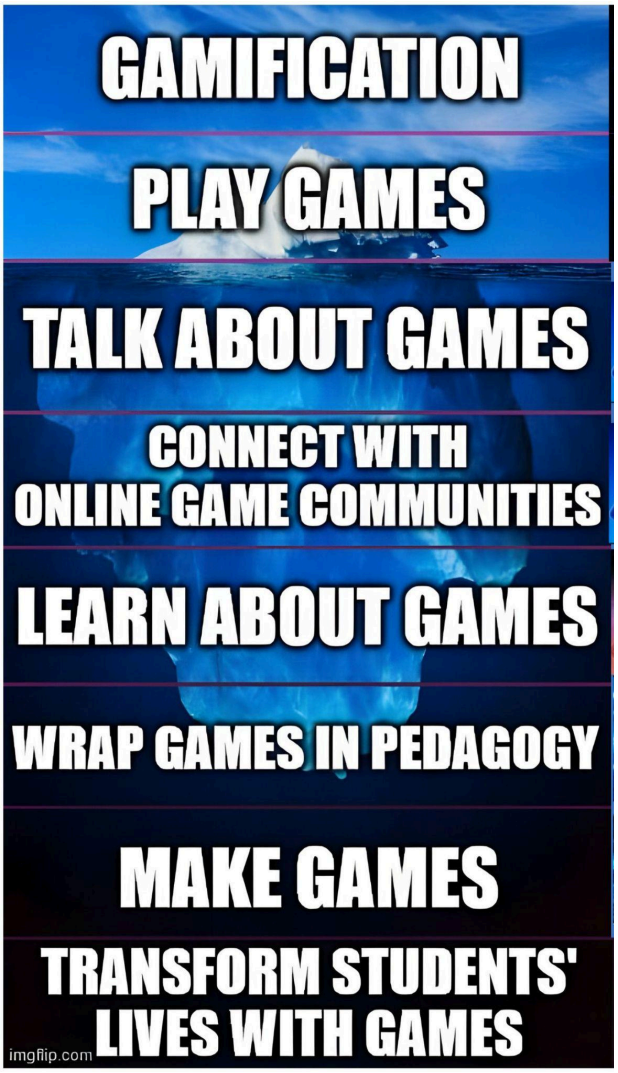


Figure 2 Iceberg model of games in education

I have removed the images of the young man on the right of the meme as it does not add anything to the conversation, and as reviewers to this paper pointed out, he looks increasingly depressed as the iceberg goes deeper with two "happier" images towards the end. Again, a reviewer[1] pointed out that this makes the meme look like "you are saying that gamification is very good, transforming student lives with games is the best, but all the rest in between is either meh or crap." This is totally *not* the image I wanted to portray with this meme, hence the removal of the faces.

The main point of this paper is to argue that while educators are aware of some simple ways to incorporate games into the classroom, such as gamifying a class, using icebreakers like "Two Truths and a Lie," or employing tools like Kahoot! for testing, there is a vast, deeper potential for using games towards educational goals. As we explore

[1] Thanks to Fabio Spano

further down the iceberg of gaming in education, the methods become progressively less known and more challenging to implement, yet they offer exponentially greater rewards for both the teacher and the students.

As we explore further down the iceberg of gaming in education, the methods become progressively less known and more challenging to implement, yet they offer exponentially greater rewards for both the teacher and the students.

The paper is a theoretical positioning piece. It is also *not specific to* language teaching. I propose the Iceberg Model as a framework for understanding and designing educational practices around games in general, building on my prior work in York and deHaan (2021) where deHaan and I introduced the concept of **M**ethods, **M**aterials, and **M**ediation as three core aspects for teachers to consider when teaching with games; and York (2023d) and deHaan and York (2025) which outline the "**SPACE to play**" metaphor which again provides different lenses for teachers to consider how their context may give students *safety* to experiment with ideas, promote *participation* in various social, cultural and academic domains, give students *agency* over their own learning as well as helping students be *critical* of media used in the class, and finally respect students' *experiences* as well as giving them gratifying experiences as part of their learning. The current ***iceberg*** framework may be considered an additional level of zooming out, where we look at the depth and variety of ways in which games and play may be integrated in the classroom. These three levels then interact in such a way that teachers can shift between **micro-level pedagogical choices** (methods, materials, and mediation), **meso-level conditions for learning** (SPACE to play), and **macro-level perspectives on the depth of game integration** (the iceberg, here).

I acknowledge that several sections of this paper draw more heavily on digital game examples. This is not intended as a bias toward the digital, but reflects the fact that much of the existing research on critical game literacy and multimodality has centred on digital contexts. Nevertheless, **the iceberg framework itself is not digital-first**. In my previous work, I have emphasized the particular affordances of analog games for language pedagogy, especially their accessibility, low technical requirements, and built-in opportunities for meaningful interaction and co-present communication. Analog games map naturally onto every layer of the iceberg: reading and interpreting rulebooks (Surface 2), discussing strategies and game states (Levels 3-4), analysing tabletop game systems and cultures (Level 5), and engaging in analog game design or remixing as constructionist practice (Level 7). Rather than privileging one medium, the framework invites teachers to consider how both analog and digital play can be wrapped in pedagogy to achieve deeper learning.

The paper is a theoretical positioning piece. It is also not specific to language teaching.

I invite newcomers to try something more than just gamify their classroom. Furthermore, I also argue that the true depth and potential of games in education lies beneath the surface layer, which includes actual gameplay sessions, game literacy focused classes, connection and participation in game communities, and game creation.

Structure of sections

I introduce the content for each section in the following way:

1. Outline of the approach
2. Examples of the approach in action (highlighted with this emoji: 👉, and with indented paragraphs)
3. [OPTIONAL] A "Going deeper" section asks how we could improve the approach or what we could do differently within the approach.

Audio/visual version of this talk

I spoke about this concept with Jonathan deHaan at the latest DiGRA Japan conference, and a Japanese audio version is available here: https://youtu.be/HrWIdT-abzc.

1. Surface Layer 1: Gamification and its limits

Gamification is described as the use of **game elements** in **non-game contexts**. In these non-game contexts (mostly marketing, health, and education), it is typically implemented through the incorporation of a narrow range of elements that appear both in *and* outside of games: the reward structures. Common rewards being badges, leaderboards, achievements, and points. Nicholson (2015) referred to this approach as "BLAP" gamification, emphasizing the negativity of this through English onomatopoeia (similar to *yuck*, *splat*, or *blam*). As I have argued elsewhere (York et al., 2022), rather than fostering a game-like, enjoyable environment, these reward elements fail to alter the underlying control structures of educational institutions and are instead used as tools to manipulate student behaviour through superficial incentives which students quickly become bored or resentful of as the novelty effect wears off (Almeida et al., 2023; Rehaan23, 2025).

Taking a focus away from rewards, Kishimoto (2023) notes six core principles of gamification:

1. Active participation
2. Achievable goal-setting
3. Giving praise
4. Just in time feedback
5. Visualization of progress
6. Acceptance of individuality

It is important to recognise that neither the reward elements mentioned above nor Kishimoto's core principles are exclusive to games. External rewards, clear goals, and feedback long predate digital or tabletop games, emerging instead from psychological frameworks such as behaviourism and self-determination theory (Deci & Ryan, 1985) as tools for shaping or motivating behaviour. If gamification is merely the renaming of grades as points or group work as quests, educators must critically ask whether anything has truly changed. If the underlying pedagogical structure remains intact, and only the terminology is altered, then one must question whether using the term "gamification" amounts to anything meaningful at all. As Brougère (2021, p. 17) writes, "gamification is not a transformation of the world into a game, at most [it is] a new trick using play and game as bait." Who is being baited here, though? For me, I think it is the teachers that think they have found a magic bullet in gamification that will blast open the door to student engagement.

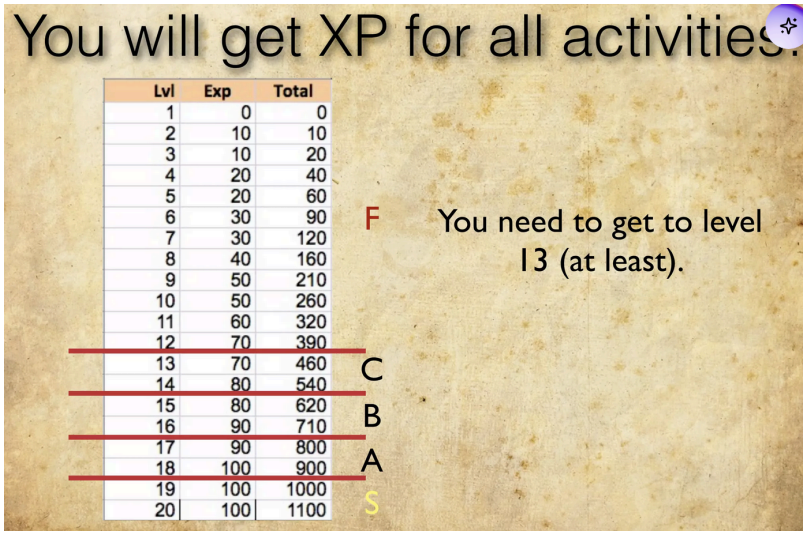


Figure 3 A slide from my presentation on gamifying my classroom (source)

👉For an example from language education, I experimented with gamification in 2011 (York, 2012) where I had students gain experience points (XP) for the activities that they did in class. They needed to get a certain amount of XP to pass the class, but they could also grind their way up to an S if they wanted (Figure 3). In other words, I made it explicit that their grade was in their hands, based on how much work they chose to do. I gave them the choice of activity (tapping into the autonomy part of self determination theory) and made their current XP scores visible by showing a leaderboard (a Google Sheets document) on the projector to promote competition between them. Students would also get points for raising their hand in class (which I accumulated and displayed with Class Dojo). Tasks were also levelled, meaning that they got progressively more difficult (5 XP for an easy task, 10XP for a more difficult one, etc.). All information regarding tasks was presented to them via a custom built wiki.

How is this approach to managing classroom behaviour and activity informed by games? Yes, I introduced a few terms that relate to games, but I could have framed it another way: as students working on activities to fill their portfolio in a formative assessment context. Echoing the sentiment expressed by Bogost (2014), I suggest that the term gamification is invoked in such cases because no educator is particularly eager to say they are implementing smart dashboards or portfolio-based assessment in their classroom. The term "game," however, carries far more appeal, serving as a kind of catnip for student motivation, and for the educators hoping to harness it.

What else could we borrow from games?

Instead of merely importing the reward elements of games into classrooms, deeper levels of our iceberg prompt teachers to think about other, more holistic ways in which games may inform their teaching. If gamification appears to be the only option, consider other ways that games may influence pedagogical choices, not just in terms of rewards. For example, York (2023b) was inspired by pro-gamers' montage video creations and introduced a summative portfolio assessment criteria where students submit their "best performances" during group work (see Figure 4 for a screenshot of a student's video). Whilst not a "game element" itself, the assessment criteria was influenced by gaming culture and related practices. Nicholson also writes of "meaningful" gamification (2015) which is based on self-determination theory, incorporating play, exposition, choice, engagement and reflection.

Figure 4 A screenshot of a student's montage video featuring colour-coded subtitles[2].

[2] Videos can be viewed here https://youtu.be/2NG8lgz1LFk

Consider other ways that games may influence pedagogical choices, not just in terms of rewards

I also invite teachers to consider their classrooms as *playgrounds* where their pedagogical choices are a form of play and where learners and teachers play together towards course goals. Teachers may be considered game designers in that they are creating gratifying, educational experiences for their students. One useful framework I propose for designing such experiences is the SPACE metaphor, which emphasizes the core conditions for meaningful education (deHaan & York, 2025).

Safety
Participation
Agency
Critical
Experiences

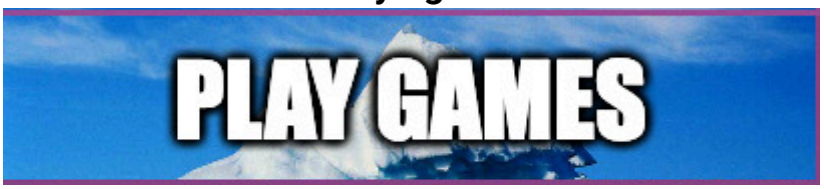
These keywords appear in research on literacy teaching (Cope & Kalantzis, 2015); playful pedagogy (Mardell et al., 2023); and critical or progressive pedagogies (Postman & Weingartner, 1969; hooks, 1994). Thus rather than increasing surveillance and behaviour manipulation through gamified grading (Manolev et al., 2019), by embracing SPACE and pushing back on educational, pedagogical, financial constraints in their contexts, teachers can create playful, engaging, meaningful experiences for their students (deHaan & York, 2025).

by embracing SPACE and pushing back on educational, pedagogical, financial constraints in their contexts, teachers can create playful, engaging, meaningful experiences for their students

Going deeper

Finally, much like we use textbooks, (YouTube) videos and movies, music, and comics as part of our teaching, games are another medium that can be harnessed towards learning goals. And, if gameplay is not possible in a certain context (I am intimately aware of the difficulties of trying to bring digital games into the classroom) consider crafting worksheets based on the games students like to play, talking about them (see more in Level 3) or learning about them critically (more in Level 5) instead. Regardless, if games are to be used within the classroom, teachers' pedagogical choices are paramount in ensuring learning occurs (Level 6) (see Marklund & Taylor, 2017; deHaan, 2019; deHaan & York, 2025).

2. Surface Level 2: Playing Games



While gamification draws on isolated rewards, actual gameplay engages learners through coherent systems of rules, choices, and consequences that form microcosms or condensed models of reality (Huizinga, 1955; Zimmerman, 2013). Unlike gamification's reliance on external incentives to shape behaviour, gameplay invites players into meaning-making experiences that foster intrinsic motivation, identity exploration, collaboration, and problem-solving (deHaan & York, 2025).

Using games as content delivery

A common starting point in discussions of gameplay in educational contexts is the design of educational games that function as stand-alone teachers. This model assumes that the game contains everything the learner needs to acquire knowledge or competence (for a discussion, see de Freitas, 2018; Zeng et al., 2020). Teachers commonly introduce games into their classrooms with the expectation that the games themselves will serve as instructional tools for students. This reflects a behaviourist or associativist approach to gameplay intervention, where the game delivers stimuli intended to shape learner responses which lead to assimilation of material based on positive or negative feedback (Filsecker & Bündgens-Kosten, 2012).

> 👉Examples of this include the work of Fukuyama et al. (2017), who developed a digital game incorporating gamified principles to help elementary students practice mathematical equations. In their study, 70 first- and second-year students played the game for about 15 minutes daily over two weeks, reinforcing basic arithmetic through repetition and reward cycles. The game play was not interrupted or supported by teacher mediation, and thus represents an ideal example of having students play a(n educational) game towards learning specific content.

> 👉A language focused example is Zhang et al. (2025) who created a game in RPG Maker to help students learn vocabulary. They investigate the effect of the game on learner engagement and vocabulary mastery. 50 Chinese university students played. Data was gathered through an eye-tracker, pre-post-delayed assessments, and semi-structured interviews. The findings revealed that in-game challenges significantly captured learners' attention and engagement in fantasy elements positively influenced the development of vocabulary knowledge. **In sum, they created a game, had students play it, and measured their vocabulary gains.**

Using games in whole-class, duo, and solo set-ups

However, the educational-commercial game divide complicates this vision. As Dixon et al. (2022) observe in the language learning literature, commercial off-the-shelf (COTS) games often outperform purpose-built educational games in achieving learning gains. This suggests that, rather than focusing solely on creating educational games, educators might better help learners by integrating commercial games and structuring meaningful interactions *around* them (again, a Level 6 topic). In practice, teachers have several ways to incorporate gameplay into the classroom:

Whole-class play via one console or device: A single device streamed to a shared screen allows for collective observation and discussion.

> 👉For instance, a class might play *The Walking Dead* (Telltale Games, 2012-2019) together, negotiating strategies or choosing options in a dialogue tree (Staaby, 2015).

Paired or small-group play: Dyadic or small-group configurations foster organic collaboration and communication. This can happen naturally or be enhanced through teacher-provided supplementary materials that guide reflection or analysis.

> 👉*Walden, a game* (Fullerton, 2017) serves as a prime example of an educational game that includes supplementary resources to facilitate learning. The game's creators provided lesson plans, enabling teachers to maximize its educational value within their specific teaching environments. Since the game is an adaptation of a book by Thoreau, it allows students to experience the text through a different medium. Moreover, the accompanying educator materials permit teachers to integrate the game into lessons focused on subjects like English Language Arts or geography.

Individual play: In settings where resources allow, students can engage in solo gameplay, either during class or as an at-home assignment. Follow-up activities such as journals, presentations, debriefing sessions, or group

discussions can build on these experiences and enhance learning as students bolster their experiences with guided reflection sessions. However, it is important to note that such post-play activities align more closely with deeper levels of the educational iceberg model and are discussed further in Level 6.

> 👉In my TBLT Gaming classroom (York, 2019), where students use gameplay as an avenue for improving their speaking skills, although most students play games in groups (*Werewolf* (Davidoff, 1987), *Among Us* (Inner Sloth, 2018), *Pandemic* (Leacock, 2008), etc.) some students choose to play alone (I've had *League of Legends* (Riot Games, 2009), *Clash Royale* (Supercell, 2016), and *Pokemon Unite* (Timi Studio Group, 2021) as examples). In these cases, students either talk as they play, or (as I'll introduce in more depth in Layers 3 and 4) they talk about the game that they love, introducing the characters, weapons, how to play, or other lore about the game).

Going deeper

As alluded to above, as we go deeper, we'll see that gameplay *plus* teacher intervention, mediation, and pedagogical integration can improve learning outcomes (Jong et al., 2017; Dixon et al., 2022). This can help students engage with the content provided by games in more critical and meaningful ways. In a Deweyan fashion, consider incorporating a post-play debriefing section to point students towards what they did, how they felt, and connect gameplay to learning outcomes. We shall explore this topic more in Level 6.

3 & 4. Shallow-depth: Talking about games

Given that gaming is a prevalent activity among students in developed countries, it is reasonable to assume that many have acquired knowledge and built social connections through gaming practices. Consequently, there's a growing appeal for educational institutions to capitalize on this interest. Proponents of this shift often emphasize the importance of linking education to the dominant texts in students' lives, helping them understand the world through texts that are familiar to them, and, at the same time, understand how games are created as well as their place in society (Bacalja, 2020; Blume, 2022).

Bacalja (2023) extends this argument by examining how digital game literacies that are developed in social, online community settings can be harnessed within classrooms to bridge students' out-of-school gaming practices with formal disciplinary literacies. This then positions students' gaming expertise as an asset rather than a distraction. Building on this, research in STEM education highlights how children's metagame practices such as strategizing, designing, and knowledge sharing, develop computational thinking and problem-solving skills that can be transferred into classroom learning (Kahila et al., 2020; Jenson & Droumeva, 2017).

However, getting digital games, even educational ones, into the classroom is difficult due to financial, cultural, and pedagogical barriers (Haynes, et al. 2016). As I am based in Japan, looking at a recent survey from *Gemutore* (ゲムトレ, 2024), the most popular games for elementary students in Japan are:

- *Minecraft* (Mojang Studios, 2011) 29.35%
- *Splatoon* (Nintendo, 2015) 13.45%
- *Fortnite* (Epic Games, 2017) 6.42%
- *Animal Crossing* (Nintendo, 2001-) 5.81%
- *Mario series* (Nintendo, 1981- 5.55%

How do we get these popular digital games into the classroom? Do teachers have access to PCs, consoles, or other digital devices? In Japan, the answer is largely yes. The Ministry of Education, Culture, Sports, Science, and Technology (MEXT) launched the GIGA School Initiative, which aimed to provide every elementary school child with a tablet PC (MEXT, 2019). According to a recent survey by MEXT (2023), 99.9% of the 1,810 council boards assessed had achieved this goal. This means that, at least in terms of basic digital infrastructure, most schools are well-equipped.

How do we get these popular digital games into the classroom?

However, the availability of devices does not necessarily translate into access to consoles or high-spec PCs capable of running the commercial games discussed above. This gap raises the question of how teachers can still make use of such games. One possible approach is to integrate these games indirectly, using them as sources for lesson materials or as frameworks to support curricular objectives rather than relying on direct in-class play.

3. In the classroom

One way to connect students' out-of-school gaming practices with classroom learning is by designing educational materials that borrow themes or contexts from popular games. For instance, a mathematics worksheet might explore trajectory and velocity through a *Rocket League* (Psyonix, 2015) scenario, asking students to calculate angles and distances as a car moves across a soccer field. Likewise, *Minecraft*'s (Mojang Studio, 2011) block-based world can provide a familiar context for exploring geometry concepts such as volume and area. Recent work has also highlighted the use of generative AI to personalize such materials to individual students' interests, with examples appearing in academic research (Chen et al., 2024; Jauhiainen & Garagorry Guerra, 2024) and teacher practice blogs (Keeler, 2022). Additionally, gameplay could be allocated as an extracurricular activity, where discussions about such gameplay form the content of a subsequent class.

> 👉As a concrete example, see Steinkuehler and King (2009), who documented how after-school gaming clubs for struggling readers leveraged students' participation in massively multiplayer online games (MMOs) to develop literacy practices that were later brought into classroom discourse. Their work illustrates how out-of-school gaming activities can cultivate complex reading, writing, and critical thinking skills that teachers can then harness for academic purposes.

> 👉Students might also be asked to write diary entries from the perspective of a villager in Animal Crossing (Hourdequin & Hughes, 2022), analyse persuasive language in advertisements for *Fortnite* (Epic Games, 2017) character skins, or reflect on moral choices in narrative games like Undertale or *The Walking Dead* (Telltale Games, 2012-2019) (see Staarby, 2015 for an in-class adaptation of this game). These tasks not only draw on students' familiarity with game worlds but also provide opportunities for exploring character voice, point of view, and rhetorical strategies.

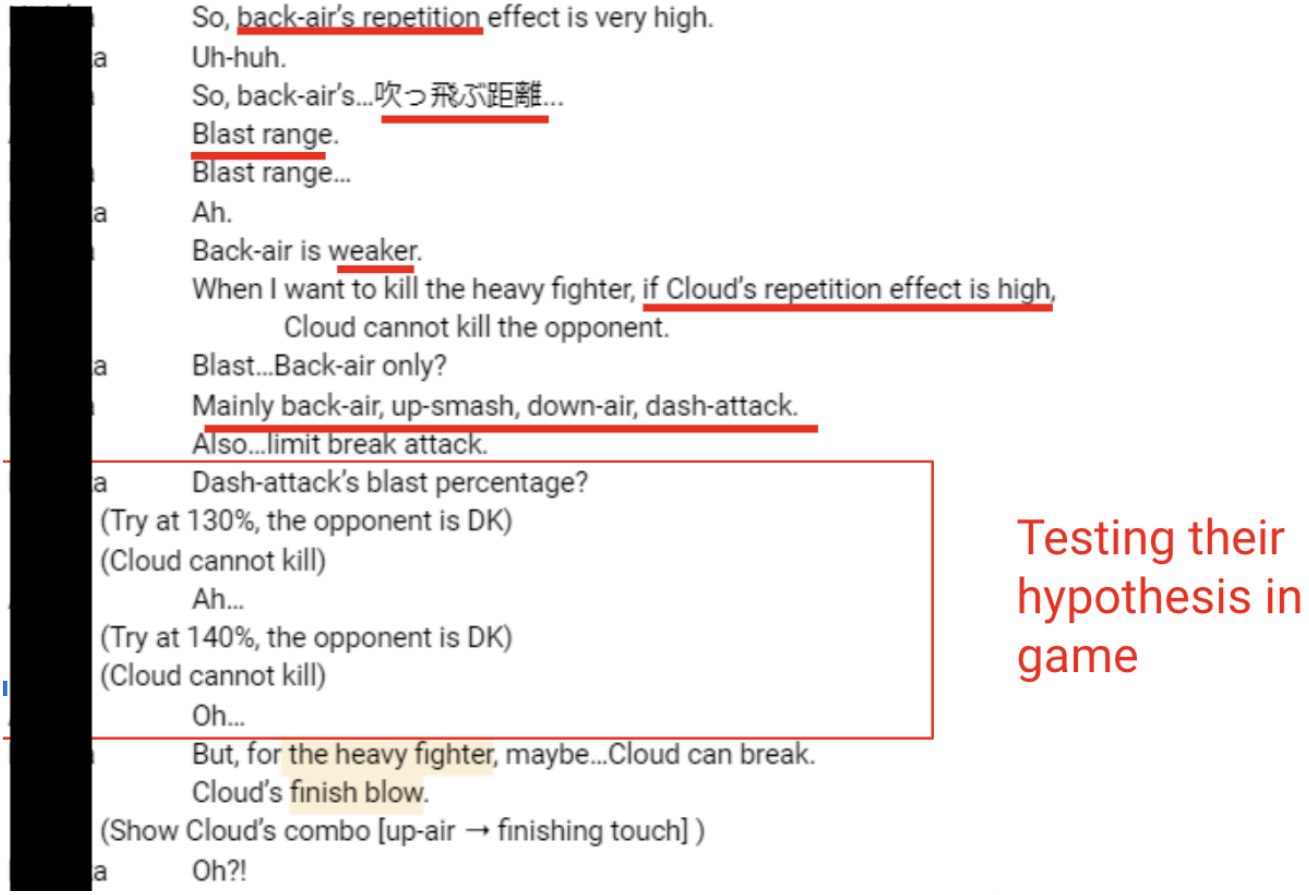


Figure 5 Students talking about Smash Bros. as part of an English communication activity

👉York (2023c, 2024) provides a concrete example of talking about a game in the classroom. Instead of playing *Smash Bros*. (a game demanding intense concentration and limiting verbal interaction), students in his English communication class discussed the game to practice speaking English (Figure 5). The students created a "tier list" (another popular ranking meme) for their favourite characters, only opening up the game to test their hypotheses in training mode.

4. In online-communities

Another pedagogical approach, whilst not being specifically about the use of video games, is the Connected Learning movement, which emphasizes the integration of learners' interests, peer culture, and academic achievement through meaningful participation in shared practices (Ito et al., 2013; Ito et al., 2020). Connected Learning argues that learning is most effective when it bridges students' informal and formal experiences, such as those cultivated in online or extracurricular gaming communities, and aligns them with academic goals (Kafai & Peppler, 2011; Livingstone & Sefton-Green, 2016). As a result, teachers may consider tapping into online gaming communities as resources for learning, both to validate students' lived experiences and to create authentic pathways for engagement and knowledge transfer between game-based practices and curricular outcomes.

👉One example of tapping into online communities as part of classroom-based instruction is seen in York (2023a), where students were directed to join online forums (Reddit) to engage in discussion around their favourite franchises as part of a connected learning approach to education. Students observed Subreddits

that related to their interests, analysing posts, commenting, and then finally creating their own posts sharing quizzes, memes, questions, creating tournaments, and, in some cases participating in online, extracurricular gameplay sessions with community members (Figure 6).

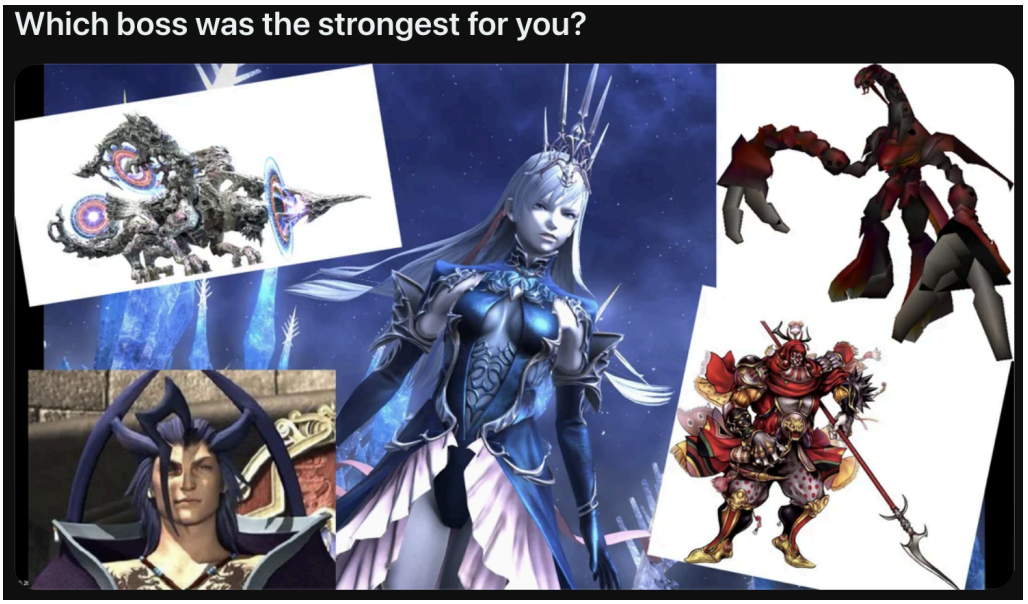


Figure 6 An example of a student's participation in a game-related Subreddit (source).

👉In comparable research, Sundqvist and Nilsson (2024) presented an example where games served as discussion material rather than for play. The main goal of their intervention was to encourage students to orally share insights about a preferred video, board, or card game with peers. Participants were tasked with introducing key game features and new vocabulary. Each oral presentation also needed to include either a live demonstration or a brief video showcasing gameplay. The intended learning outcomes emphasized both oral and written proficiency, particularly vocabulary acquisition. Anecdotally, the project was successful, creating a relaxed and motivating atmosphere. The authors were also surprised by students' use of uncommon vocabulary (though perhaps typical for games), such as "parry," "somersault," and "arcane."

5. Mid-Depth: Learning About Games

As mentioned in the previous section, scholars are increasingly exploring the value of teaching *about* games, rather than using them solely as instructional tools. This perspective treats games as cultural texts (akin to novels, movies, music, etc.) that can be analysed, critiqued, and situated within broader social and historical contexts.

A foundational framework for this is Zagal's (2010) notion of ludoliteracy, which highlights three interconnected competencies. The first is the ability to **play** games fluently, understanding their mechanics and conventions. The second involves **understanding** games: comparing them to one another, situating them within cultural and technological contexts, and deconstructing their rules and components. Finally, students can **make** games, applying their understanding of design principles to create new works. These competencies collectively encourage learners to approach games as dynamic systems that both reflect and shape culture. This focus on understanding and critique aligns with broader shifts in literacy education.

Walsh (2010) argues that classroom practice must move beyond a narrow focus on print-based reading and writing to encompass multimodal literacy, interpreting and producing meaning across images, video, sound, and interactive media. **Digital games, which merge narrative, visual, and procedural elements, exemplify these hybrid texts** and reflect the kinds of media that students increasingly engage with in everyday life.

> 👉In my History of Video Games class (Meiji University, 2025), for instance, students research key milestones in game development and present their analyses to industry professionals. Such projects not only deepen students' **understanding of games as complex multimodal forms** but also cultivate transferable critical skills for navigating the media ecologies of the twenty-first century.

As Jewett (2008) notes, learners already **participate in rich media practices** outside school: playing games, watching Let's Plays on YouTube, joining gaming forums, and reading walkthroughs, highlighting a need for curricula that connect these informal literacies to academic inquiry.

> 👉Courses like Pedercini's Playful Theory (2024) respond to this need by positioning games as cultural texts for critical analysis rather than mere entertainment. Students in his course explore topics such as labour, subversive play, and aesthetics through **readings, screenings, and creative assignments like misplaying games or producing video essays**, situating play within broader historical and social contexts.

Scholars including Gee (2003), Bacalja (2023), and Buckingham and Burn (2007) extend these ideas through the notion of **critical game literacy**: the capacity to interrogate how games construct meaning, reinforce or challenge social norms, and position players within specific identities. Apperley and Beavis (2013) likewise contend that recognizing the literacy practices inherent in gaming and redesigning curricula around them can bridge students' out-of-school experiences with formal disciplinary goals.

> 👉This approach aligns with Bacalja et al. (2024), who document teachers integrating digital games into L1 English classrooms. Their study reveals how educators balance engagement and access with explicit links to disciplinary knowledge, framing games as vehicles for developing **critical thinking, analytical skills, and textual comparison abilities** valued in English education.

Taken together, these examples illustrate how a pedagogy grounded in game and critical game literacy can transform students' everyday gaming practices into rich opportunities for analysis, reflection, and creative inquiry.

6. Deep level: Wrap games in pedagogy

Although the previous sections have *hinted* at the value of teacher mediation, the deep layer of the iceberg here focuses on how deliberate pedagogical design before, during, and after gameplay can transform games from mere experiences into rich learning opportunities (deHaan & York, 2025). As deHaan (2019, p. 36) reminds us, "it's not just a game as a product, but a game and its culture, and what one does throughout a class or project with all of that, before and during and after playing games, that can matter."

Note: This layer is the most important.
All layers before and after benefit from rigorous pedagogical intervention to maximize learning.

Before Playing

Preparation before gameplay helps frame the experience and build background knowledge. Teachers can consider some (or ALL) of the following for their students:

Reading and analysing rulebooks

If using board games, the act of reading a rulebook before play has been compared to taking a test before playing. Indeed, if students are not able to understand the rules from reading the rulebook (or watching a YouTube video), then they will not be able to play the game. This activity alone, then, is an authentic literacy practice. In addition, students may be guided to analyse the structure, content, and purpose of the rulebook.

> 👉 In my context, I have created simpler versions of rulebooks, elaborating or simplifying where necessary. I also create slideshows of the rules, which is another way for students to be exposed to the language necessary to play and acts as an additional mode of instruction (i.e., simplified rulebook = reading, slideshow = listening).

Provide critical framing

Students can be prompted to research game developers, studios, or production processes to situate the game culturally and historically.

> 👉 See Baclaja et al. (2024) for examples of how four different teachers implemented games in their English teaching contexts. The paper details how teachers Ben and Mark, in particular, successfully designed digital game-centred curricula that encouraged students to situate games culturally and historically. As a single example, Ben centred the unit on the game Never Alone (Upper One Games, 2014), which is based on a creation story of the Iñupiat people of Alaska. This led students to study the Iñupiat people and their culture, which was then extended to a broader focus on Australia's First Nations Peoples and the importance of oral history and Dreamtime and Creation stories. The unit's summative assessment required students to explain how traditional stories can be communicated through 21st-century modes, effectively bridging historical narrative forms with modern digital media.

Preview play

Watch YouTube playthroughs or livestreams, not just to learn how to play, but also to examine the identities and practices of streamers and their communities. This kind of activity can help in answering questions such as: "who is represented in this game," or "who plays this game," or more critically "who is not represented in this game," or "who doesn't play this game" (see also Apperley & Beavis, 2013 for more questions to prompt students to think critically about games).

> 👉 In my TBLT Gaming class, students watch YouTube videos of target language speakers (English) playing the same game. During this activity, I give students a worksheet which asks them to think beyond the linguistic component of the video (in other words, looking beyond the question "What are they saying") to focus on the background of the players more critically in order to position their speech socially and culturally: Who are they? Where are they? Does their age/location affect *how* they talk? Why are they playing?[3]

During play

One aspect that is often overlooked is what *teachers* can do during student gameplay sessions. This is especially the case in educational research, which has attempted to emulate clinical trials and thus reduce teacher input (influence) as much as possible (See Biesta, 2013 for a critique). In contexts that utilize games as teaching tools,

[3] I wrote about this as a multiliteracies approach to learning online, but the site has since been retired. A version is available here on archive.org https://web.archive.org/web/20181008194402/http://www.japangamelab.org/2017/06/24/multiliteracies-pedagogy-and-the-kotoba-rollers-framework/

teachers often take on multiple interwoven roles that go beyond traditional instruction (Molin, 2017; deHaan & York, 2025), some examples are provided here.

Learning facilitator
They act as facilitators of learning, guiding students' progress without taking over the gameplay and using open-ended questioning to stimulate deeper thinking and reflection.

> 👉 Warner et al., (2019) guided students **as they played** to focus on the speech acts used within their games and facilitated communication between the students and other online gamers. **Post-gameplay**, they prompted the students to maintain a collaborative vocabulary list online (using a wiki).

Play participant
In many cases, teachers may also join the play session, adopting fictional roles within the game narrative to help maintain the magic circle of play, preserving immersion and reinforcing the game's context and objectives. At the same time, they *may* serve as gatekeepers of information, controlling the timing and release of in-game clues or resources to maintain both challenge and engagement (Magnussen, 2007). However, as outlined in Johnson (forthcoming), **teachers can dominate gameplay discourse** when they participate. They propose that this dominance could be mitigated by tasking students with playing and instructing a game unfamiliar to the teacher.

Coach or hint-giver
Teachers also function as supervisors or coaches, observing group interactions, ensuring equitable participation, and providing targeted hints when students become stuck (Allsop & Jessel, 2015). This role requires balancing intervention with allowing autonomy, so that students remain actively engaged in problem-solving. But again, consider the point from Johnson and communication dominance.

Data collector
Teachers can also act as data collectors, documenting student progress, challenges, and collaborative dynamics during gameplay. These observations can inform subsequent debriefing sessions and help tailor instruction to individual or group needs. Such data can also inform future iterations of the curriculum, lesson plan, or materials development to better match the needs of the students. Similarly, that data can be used as observational data for your ludic language pedagogy research agenda (see deHaan & York, 2025 Chapter 8[4])

After Playing
Post-play activities consolidate learning and connect gameplay to broader contexts. Sample activities are provided here in a short list format as above. For more detailed examples of HOW to implement such post-play activities, I invite you to read deHaan and York (2025).

Structured debriefing
Guided reflection on what was learned, how strategies emerged, and how experiences compare across players. Debriefing, whether through discussion, writing, or worksheets, is a crucial bridge between play and learning (Crookall, 2010).

> 👉 As a concrete example, consider the following debriefing worksheet by deHaan (Figure 7). Students write about:
> 1. What happened in the game, plotting their comments along a timeline.
> 2. What thoughts or feelings they had during play
> 3. Their observations
> 4. Questions they have
> 5. Satisfaction with their performance
> 6. Anything they have learned about games, language, society and other topics.

[4] Preview here https://ludic.space/freedom-to-play/chapter-8-assess-your-ludic-language-pedagogy/

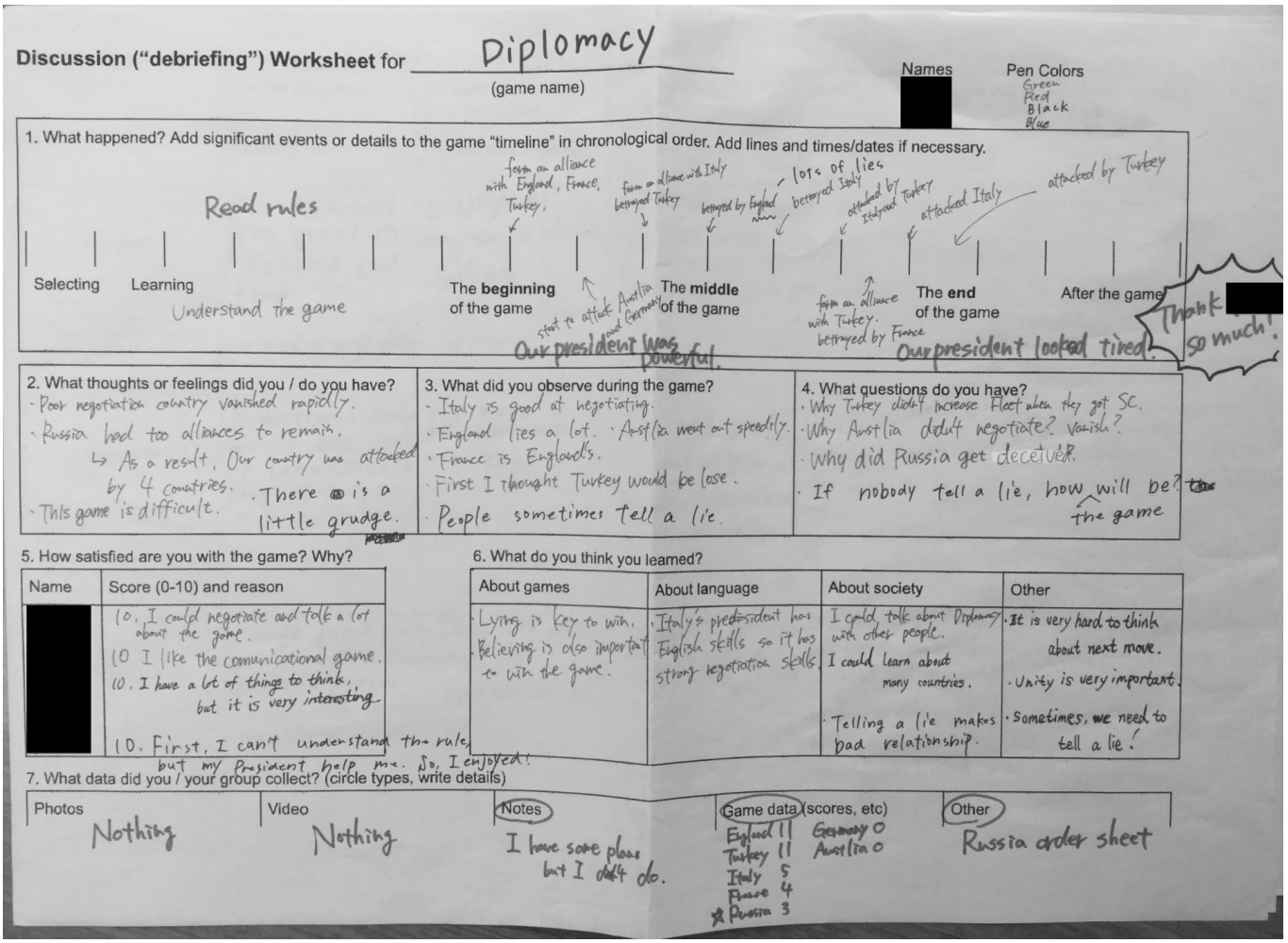


Figure 7 An example of a debriefing worksheet for use after gameplay. Source

Critical analysis

Apply theoretical lenses (Apperley & Burn, 2013; Bacalja, 2023; deHaan & York, 2025) to unpack gameplay themes, mechanics, and cultural meanings. While it may not seem directly related to second language teaching, having students discuss and analyse what they played is a necessary step in assuring they develop their critical game literacy. As example "lenses" of criticality, consider the following:

- How the game interfaces with **culture** and **society**.
- The **structure and components** of game play (verbs and nouns of the game).
- Position the game in **comparison** to other games.
- Compare the game to **other media**.
- The game as **product**, within the **game industry**, and wider **economic** factors

  👉 In classroom research, Bacalja (2020) had his students engage directly with commercial video games as objects of study rather than only play: students were asked to analyse how game design, narrative and mechanics shape player choices and identity work. For example, one student observed that while the game initially "felt fun," closer discussion revealed how the game's structure "push[es] you to do what 'it' wants… it's got that power over you," a comment Bacalja uses to show how games both position players and invite projective identity work. Bacalja's study demonstrates a practical model for critical game literacy in the classroom: guiding learners to unpack who a game positions them as, what the verbs and nouns of the

system demand, how cultural assumptions are reproduced through design, and why this critical reflection matters for language and identity learning.

Intertextual connections

Situate the game within Zagal's (2010) ludoliteracy framework by comparing it to other games, identifying influences, and tracing its inspirations to other games[5], as well as culture, politics, environmental issues, etc.

> 👉 In my History of Video Games class, I give a specific lecture which focuses on Zagal's ludoliteracy framing and Bogost's idea of Procedural Rhetoric (Bogost, 2007), two ways of thinking critically about games. During the class I ask students to think about a game in terms of the four strands of Zagal's "understanding" level:
>
> - Situate games in culture
> - Compare games to other games
> - Understand the technology behind games
> - Deconstruct games and their components
>
> An example for the game Super Mario Bros. is provided:

Table 1 An example of critically "understanding" Super Mario.

Area	Description
Culture	- Inspired by Japanese and Western culture. - Damsel in distress story → Stereotyping women, objectified as goal, not participant. - Hero's Journey → Stereotyping everyman, middle-class masculine aspiration.
Other games	- Mario = mechanical precision and play-centric. Encourages mastery and exploration. - Sonic = speed and visual spectacle. Performance over precision. - Zelda = narrative and spatial puzzle-solving. Identity construction through lore. - Mega Man = pattern recognition, trial and error.
Tech	(S)NES versions - Simple side scrolling -- mimics a linear story design (book/movie). - Limited colour palette -- lends to the "theme." - Limited sound -- we do not perceive the sound effects to be "wrong" or "computer beeps" though because of context. Sounds are linked to actions, which forms a relationship/association between them. (Semiotics)
Structure & exp.	- No tutorial required. The first level is the tutorial. - Increasing challenge -- keeps us in a "flow" state. - Game over promotes us to try again. - Simple mechanics of jumping and running, but with more sophisticated options as games and technology develops -- Changing into other creatures, flying, collecting stars, etc.

Community engagement

Explore broader game culture via internet shopping sites, BoardGameGeek reviews, gaming journalism sites, Reddit threads, blogs, and other fan spaces. Students may also become participants in such communities (deHaan, 2019).

> 👉 DeHaan's study utilized a Pedagogy of Multiliteracies approach, which structured the activities for his student. The student first played the game "Railways of the World" and then engaged in post-gameplay

[5] (in Zagal's case, specifically other video games, but the same thought process can be used with analog games or other ludic objects)

activities. These subsequent activities included discussing her personal thoughts on the game and reading reviews on the "BoardGameGeek" website. The sequence (starting with play and then moving to community engagement) was intentionally ordered according to the chosen teaching structure.

Authentic Audiences and Student-Created Media

Another powerful way to deepen learning is to have students create artefacts for real audiences. Aleo et al. (2024) describe an English Language Arts project where students produced a podcast for Taylor Swift fans ("Swifties"), shifting their concept of audience from the teacher to a passionate, participatory community. This principle can be applied to game contexts by positioning students as game journalists (Hanghøj et al., 2020), literary critics (Berger & McDougall, 2013), or media producers (Burwell, 2017). Outputs might include Let's Play videos, zines, reviews, or podcasts, forms that demand students write, design, and compose for readers or viewers beyond the classroom.

7. Deeper level: Making games

Constructionist approaches to game-based learning emphasise that knowledge creation can be fostered through the development of games. By designing and building games, learners engage in personal, social, and cultural meaning-making that extends beyond gameplay alone. While much research on games and education has focused on the benefits of playing games, the learning potential of making them has been comparatively overlooked. A review of 55 studies of students making games by Kafai and Burke (2016) found that most examined coding and subject content acquisition, with far fewer addressing collaboration or the ways in which learners negotiate and express their identities during the design process. This suggests scope for further research and classroom interventions that view game creation as a space for fostering interpersonal connections and supporting self-expression (see Lotherington, 2012 for an example of students remixing media as a means of identity creation).

Some teachers may fear that their students (or themselves) may lack the technical skills to make videogames, but research also demonstrates that making games can be effective even for learners with differing technical skills. For instance, Puttick et al. (2024) asked three groups of students to design games about climate science. Regardless of programming ability, all groups produced engaging and conceptually accurate depictions of climate change. Similarly, Pedercini (2014) has argued from personal experience that designing games, particularly those tackling social issues, can be more transformative than playing them, offering greater creative and critical freedom.

[D]esigning games, particularly those tackling social issues, can be more transformative than playing them, offering greater creative and critical freedom.

Students can also share their creations with authentic audiences as part of **game jams**. Whether global or local, these game creation competitions provide opportunities for students to have their creations seen, rated, and commented on as part of a shared experience. For a detailed description of creating an educational game jam, Myers et al. (2019) proposed a framework grounded in critical pedagogy, encouraging participants to co-create knowledge, reflect critically, and design for social impact. Their case study on addressing everyday sexism suggests that such structured jams can foster inclusive participation, promote collaboration, and build critical awareness alongside design skills.

In this way, making games is not *just* a technical exercise. It can be a deeply social and reflective process, one that supports diverse learners in developing technical competencies, creative confidence, and the ability to connect students to authentic audiences for their creations.

> 👉 deHaan (2013) held an event known as "Game Camp," an intensive out-of-school language and literacy program in which Japanese high school students developed 21st-century skills such as creativity, critical thinking, teamwork, and multilingual communication through game development. Over six days, participants played video and board games to practice English and collaborated to design original computer games using the free tool *Sploder*. The jam also required students to create marketing materials, and prepare for English interviews at a public game show. The program combined play, design, and media production to foster both language and game literacy, offering a model for educators seeking innovative approaches to language and literacy education.

> 👉 In York (2021), I highlight the use of platforms such as Bitsy, Twine, and PICO-8 as low-tech, beginner-friendly tools for my educational game jams. For teachers who may feel unsure about their skills as programmers, these platforms provide accessible entry points into game jam participation. Instead of creating their own jams, educators can explore a wide variety of ongoing jams at https://itch.io/jams, with durations ranging from just a few days to a month or more. My evaluation criteria for the game jam also served as the class rubric. This allowed student grades to be based on their game jam results, thereby enhancing the authenticity of the jam.

> 👉 Finally, Oka and Bando (2021) introduced Scratch as a means to making games in an elementary school after school club, where 15 students created games of their own invention. Over seven sessions, the students went through phases of brainstorming game ideas, learning how to use Scratch, designing their characters, programming, and finally creating marketing materials for their games. The study highlights how game creation has the potential for students to become more creative, develop thinking skills required for programming, and the ability to become more agentive and goal-directed.

8. Deepest Layer: Transformative Experiences

At the deepest point of the iceberg, literacy is understood not simply as the ability to consume or understand, but as the capacity to **participate**: to act on experiences and ideas in meaningful ways. This can be instantiated across hobbies, school, civic life, work, and beyond. Participation in society is essential for students of any level to connect their academic experiences to authentic contexts, making tangible contributions to the world (Zhao, 2012). Without this participatory dimension, we risk educating students in a way that is detached from real purposes or consequences.

The way I approach participation in literacy teaching draws from diverse traditions and critiques. Dewey's (2007) insistence on connecting schooling to lived experience sits alongside Freire's (1985) call for literacy as a means of liberation. I am also informed by research warning that technology alone cannot guarantee educational improvement (Cuban, 2009; Toyama, 2011). For this layer, I promote the use of the **Pedagogy of Multiliteracies** (Cope & Kalantzis, 2015) to connect academic goals with students' personal aims, building purpose and agency. In such contexts, games can help students fundamentally reframe their relationship with learning.

> 👉 In a one-year extracurricular project, deHaan (2019) integrated the pedagogy of multiliteracies into an extracurricular course which consisted of gaming, textual analysis, academic concept exploration, and active participation on a gaming website. Careful alignment of goals, activities, and teacher mediation

supported literacy, intellectual, and participatory development. One important point of the intervention is that learning occurred primarily through teacher-mediated activities around games, not gameplay sessions themselves. For more examples of how this Game Terakoya evolved from a single participant experiment to a class of over 40, see deHaan (2022; 2023).

👉 Another large-scale example is Quest to Learn (Salen et al., 2010), a public school in New York City designed entirely around game-based and design-based learning principles. In this environment, students do not merely play educational games; they engage in sustained projects where game mechanics, narratives, and design processes are used to frame disciplinary learning and civic action. For instance, middle school students might investigate local environmental issues by designing location-based games that communicate their findings to the wider community, effectively turning gameplay into a platform for public engagement.

These projects merge academic literacy goals with students' personal interests, while giving them authentic audiences and real-world stakes, aligning with the pedagogy of multiliteracies' emphasis on agency, identity, and participation.

Conclusion

Looking beneath the surface reminds us that the value of games in education goes far beyond what happens during play. The iceberg model gives us a way to talk about and design for those deeper layers: critical framing, cultural connection, and participation in society, things that often go unnoticed but make learning with games more powerful (and gratifying!). I see this model as more than just a diagram; it's a practical tool for designing, reflecting on, and evaluating our work with games. It encourages us to think about what surrounds play, not just the play itself, and to make intentional choices that align classroom activities with broader educational and social goals.

This is an open invitation to experiment, adapt, and share. The more we explore these submerged layers together, the better we can understand and expand the full potential of games in educational contexts.

Helpful resources

Teaching the Game is a collection of syllabi around games as an academic subject, featuring two volumes of syllabi which cover game design, the history of video games, the games industry, as well as topics covering societal impact and ethics in and around games (Ferdig et al., 2021).

Game-Based Learning in Action by Farber (2018) is a comprehensive guide for educators looking to integrate games into their teaching practice. It covers theoretical foundations, practical strategies, and real-world examples to help teachers leverage the power of games for learning.

Ludic Language Pedagogy is an open access journal which publishes work on the intersection of games and play in literacy and language teaching contexts.

Freedom to Play online resources are provided by deHaan and York (2025) as a supplement to their book, containing resources for teachers interested in the pedagogical implementation of games and play in their classrooms. Contents include FAQs, extra essays, and links to a variety of materials such as worksheets, lesson plans, and further resources (Available here).

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