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Games for Higher Education

100+ Games for Academic Training

ZMS Series 17

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GAME-DIDAKTIK

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Johannes Katsarov, Saskia Sterzl, Lucian Jueterbock, Hannes Hamester & Leon Sumfleth

Editorial – In Search of the Invisible

Dear Readers,

Thank you for your interest in Games for Higher Education!

In introducing this book, we would like to start by pointing out two fundamental truths about game-based education. Let's start with the good news: There is ample evidence that serious games can have a highly positive impact on learners' motivation and achievement. For example, a meta-analysis from 2006 found that digital games and simulations generally led to higher cognitive gains (i.e., knowledge acquisition) than conventional methods – as long as students played the games themselves and didn't receive meticulous instructions (Vogel et al., 2006). This finding has been reproduced by several meta-analyses since (Sitzmann, 2011; Wouters et al., 2013; DeSmet et al., 2014; Mayer, 2014; Clark et al., 2016; Karakoç et al., 2022). Generally, these studies converge on the finding that game-based learning can have a similarly large positive effect on students' learning as other modes of interactive teaching. This is largely due to experiential learning: The more that games provide learners with meaningful feedback, the more students tend to learn (Clark et al., 2016). Experiential learning without the use of digital games, for example in using roleplay, tends to be even more effective than (digital) simulation games (Sitzmann, 2011). Thus, using game-based learning in the classroom tends to lead to a higher engagement of students and improved learning outcomes.

This brings us to the less favorable truth: Finding suitable games for higher education can be a nightmare. First, searching for suitable games can be an immensely time-intensive task. And secondly, games that have been designed for educational purposes are not necessarily good or suitable for your target group. At the outset of the Game-Didaktik project (2024–2026), we assumed that university teachers could find it challenging to identify serious games with the potential of enriching and improving their classes. When we began to search for suitable games for teachers at Leuphana University in Lüneburg, we were still shocked about just how difficult it was, however. Searching for games related to scientific methods for one course (see lead article) turned out to be time-consuming detective work, where we constantly had to come up with new ideas and pursue new leads. Often, when we thought that we had finally come across a game that sounded promising, we never managed to retrieve it. And when we did manage to find a game, it often did not serve our purpose: Some games were too long, others were not suitable for our target group, some were simply bad.

With this volume, we want to help teachers in higher education find suitable games more easily. With the help of dozens of authors from around the world, we have put together a collection of more than one hundred games. In compiling this volume, we have expanded our own horizons massively. Although we do not cover many of the subjects in our own teaching, learning about the many games and how they work has been inspiring for us as educators and game designers. We hope that this volume helps you in finding suitable games to enhance your teaching and that you will find it equally inspiring.

What must be clear though is that this collection is only the tip of the iceberg. We were not even capable of covering all the games that we are aware of, or which we have used ourselves. There are hundreds of other games that could be used in higher education. For this reason, we are very thankful that all of the articles from this volume will also be published in the Serious Games Information Center (<https://seriousgames-portal.org/games>), a new hub for sharing knowledge about serious games that is published by the Technical University of Darmstadt. We hope that our cooperation will help the Serious Games Information Center to grow substantially and arouse wide interest.

Anybody can publish information about serious games on this platform (for any group of learners). If you have not published your games there yet, please do so. As a community of practice, we need to establish a shared platform for the visibility of our work.

How to use this volume

In this book, you will find 100+ games that can be used in higher education – including board and card games, simulation games, digital and hybrid games. You will find games for small and large groups, short mini games and games that can take days to play. In the alphabetically ordered articles, the authors have compiled all the information that we find most relevant in deciding whether a game *could* be suitable for a certain course. It must be clear, however, that each of the descriptions remains a personal assessment of the game, and that many of the articles were written by the creators of the games themselves. As the editors of this volume, we took care to organize a rigorous peer review of each of the articles. In many cases, we asked for additional information or asked authors to choose more neutral language in describing the games. However, despite all these efforts, we cannot guarantee that each of the games is represented correctly and completely. This responsibility rests with the authors.

We hope that the articles now offer a good first idea, how each of the games works. In what groups and settings can it be used? How could teachers prepare the use of the game in the classroom? What could students learn from playing the game? And are there any problematic aspects to be considered? We hope that this information will help you decide whether to have a closer look at certain games. In any case, we strongly recommend that you test the games yourselves before using them in the classroom. Particularly with respect to the effectiveness of games, most of the articles can only summarize some indicative evidence. Research on the effectiveness of educational games requires substantial efforts for which game designers rarely have the capacity. We encourage you to test serious games in your courses and to conduct and publish relevant research, if this is of interest to you.

To identify suitable games, we have marked each of the games with a set of keywords (e.g., ethical decision-making). Many of these keywords can also be found in the index at the end of the book. We hope that this index will help you in identifying interesting games more quickly. Additionally, the book has been customized to that you can run full-text searches.

Acknowledgements

Numerous people and organizations have contributed to this publication. First, we would like to thank the many authors who have contributed one or several articles. Thanks to you, this volume includes such a diverse array of educational games from around the world. Second, we would like to acknowledge the great work of the many authors who also served as reviewers for this volume: Together, you identified hundreds points for improvement in the manuscripts and helped the authors optimize their articles. Third, we thank four people for major contributions to the quality of this publication: Lucian Jueterbock, who copy-edited the entire manuscript in addition to his role on our team, Martin Zimmermann, who produced the publication, Timon Freyer, who helped us with many of the translations, and Jonathan Sierks, who was one of the first editorial assistants on our team, and who contributed many great ideas to realize this outcome.

Next, we would like to extend a warm thank you to the organizations who backed this publication: The German foundation for innovation in higher education (Stiftung für Innovation in der Hochschullehre) provided the funding of the Game-Didaktik project, which enabled all this work (see lead article). Leuphana University in Lüneburg has been a wonderful organization to work for in realizing this project: Many of the games described in this article were identified in consulting professors on ways to use game-based education in their courses. In particular, we are also very grateful to professors Hannah Trittin-Ulbrich and Paul Drews for their strong support of the Game-Didaktik project, and to Annette Schimming, who has been an immense help in administering the project. The Swiss-Austrian-German Simulation and Gaming Association (SAGSAGA) and DHBW's Center for Management Simulations (ZMS) loved the idea of publishing this collection of game critiques in a dedicated volume and have been wonderful partners to work with. Moreover, we would like to thank NiedersachsenOPEN for funding this open-access work.

A special thank you goes to Torben Schmidt and the students of the interdisciplinary course "Game-based Education for Ethics and Sustainability": About twenty of the articles in this volume have been dedicated by students of this course, who first wrote them as term papers. Finally, we would like to use this opportunity to thank all of our colleagues in the Game-Didaktik project for the great collaboration over the past years, and our vibrant Game-Didaktik community at Leuphana University in Lüneburg for dozens of inspiring discussions, game-testing sessions, and conversations.

Now, we wish you a wonderful adventure in exploring the educational games covered in this volume. For us, editing this volume has been incredibly insightful. We have felt inspired to try out new games, we have gained deep insights into a wide range of fascinating subjects, and we have substantially widened our perspectives on the nature of good educational games. We hope you will find the articles in this book as valuable as we do.

Sincerely,

Johannes Katsarov, Saskia Sterzl, Lucian Jueterbock, Hannes Hamester & Leon Sumfleth

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Johannes Katsarov & Saskia Sterzl

Establishing Game-based Teaching at Universities – A field report from the Game-Didaktik Project at Leuphana University Lüneburg

1 Introduction

“The evidence is clear: good educational games can achieve significant learning outcomes within a short period of time. Although hundreds of educational games exist for the higher education context, they are rarely used.”

With these words, we promoted a university-wide survey on the use of game-based education at Leuphana University Lüneburg in autumn 2024. This observation was not only the starting point for our communication but also reflected a key insight that would run through our entire Game-Didaktik project. The Game-Didaktik project, funded by the Foundation for Innovation in Higher Education (Freiraum 2023), pursued the ambitious goal of promoting game-based education across all faculties at Leuphana University from April 2024 to March 2026. What began as a systematic approach to disseminating serious games developed into a multi-layered learning journey about the challenges and opportunities of change in higher education.

Four Strategies for Change

Based on first insights from a previous project on game-based ethics education, the project was conceived to pursue transformation – the adoption of serious games in teaching – through a combination of four strategies.

- **Lighthouse Projects:** We implemented serious games in selected courses with high visibility as flagship projects to win influential voices at Leuphana for game-based learning, demonstrate the potential of serious games and communicate this effectively.
- **Games for Higher Education:** By establishing a systematic collection of serious games for university teaching (including this encyclopedia), we wanted to address the problem that it is usually very time-consuming to find suitable educational games for academic courses.
- **Community Building:** By connecting interested teachers within Leuphana and establishing a community of practice, we pursued the goal of anchoring knowledge about serious games as broadly as possible and creating structures for long-term exchange about this method.
- **Training Offers:** Through specialized courses on game-based education, we ultimately wanted to break down barriers to working with interactive teaching methods and develop teachers' skills in facilitating game-based learning.

These four strategies were expected to reinforce each other: the lighthouse projects would attract broad interest, the game collection would reduce friction, the community would promote exchange, and the training courses would impart necessary skills.

Action Research Approach

Our undertaking was based on Kurt Lewin's (1952) principles of action research: a cyclical process of planning, acting, observing, and reflecting. This iterative approach proved particularly valuable, as it enabled us to continuously learn from our experiences and adapt our strategies accordingly.

This action research approach shaped our project from the outset. In the initial planning phase, we first developed concrete hypotheses to guide each of the sub-projects. The action phase encompassed the practical implementation of our strategic plans, e.g., the acquisition and realization of the lighthouse projects. In the observation phase, we systematically collected feedback from participants, documented participant numbers and analyzed responses to various formats. The reflection phase then led to adjustments: For example, we gave up holding weekly community-building lunches towards the middle of the project and replaced them with topic-specific events.

Being open to adapting our original approach proved to be one of the key factors for the project's success. This book was not part of the project's original plan, for instance. The original vision was to build up a wiki that presented at least 100 games for higher education in German and English, and we planned to write all the entries ourselves. One of our early insights was, however, that building the wiki and writing the articles ourselves would not be possible with the available resources – at least not at the quality that we wanted to achieve. Moreover, we worried that the wiki would receive little attention. Hence, we adapted our strategy to involve international colleagues in putting together the wiki. Additionally, we built a collaboration with the Swiss-Austrian-German Simulation and Gaming Association (SAGSAGA) and DHBW Stuttgart's Center for Management Simulations (ZMS) to publish the articles in an open-access encyclopedia. To our great delight, NiedersachsenOpen liked the idea and decided to support the book publication with additional funding.

An additional opportunity arose shortly after our call for contributions to the encyclopedia and wiki when Stefan Göbel from the Technical University of Darmstadt reached out to us. Unknown to us when we applied for the project, he had recently set up the **Serious Games Information Center** (SGIC, TU Darmstadt, n.d.), a collection of articles on serious games to which everyone can contribute. When he invited us to join forces and integrate our collection in the SGIC, we were thrilled. We knew that one of the major risks of our undertaking was that all the efforts in setting up a wiki could be lost after the end of the project. This fear was one of the main motivators of the book project. The SGIC's open architecture and long-term support through Darmstadt's Serious Games Group make it far more likely for it to stay available over a longer course of time. Moreover, once the games from our encyclopedia are included in the SGIC, it will cover more than 250 entries, enlarging the scope of the platform significantly, attracting considerable attention, and increasing the chance that the longevity of the platform will be supported in the future. Thankfully, the German Foundation for Innovation in Higher Education agreed with our reasoning and supported the migration of our wiki into the SGIC. Again and again, we were impressed with the flexibility of the foundation to embrace opportunities and facilitate change for the sake of maximizing the impact of our project.

2 Lighthouse Projects: From the Laboratory to Reality

The lighthouse projects formed the core of our approach. Here, game-based teaching was not to be discussed theoretically, but tested in practice. In total, we dedicated ourselves to six lighthouse projects. Additionally, we supported numerous colleagues in smaller game-based education initiatives.

2.1 Scientific Methods Lighthouse: When 1,400 students become researchers

Our first lighthouse project took us right to the heart of Leuphana teaching: the course “Scientific methods – different pathways to knowledge” in the Leuphana Semester – a first-semester course taken jointly by all new Bachelor students at our university. Together with Henrik von Wehrden and Charlotte Gohr, we integrated digital games into a large lecture with around 1,400 first-year students – a logistical and educational challenge.

The project spanned most of the winter semester of 2024/2025 and comprised eight specially designed sessions, which conveyed complex concepts and theories related to scientific methodology. Our goal was to make complex theoretical concepts tangible and meaningful through the targeted use of games – practical exercises took place in adjacent seminars, which focused on specific research methods. In addition to ourselves, Timon Freyer, Marit Klinge, Dustin Thulke, and Johanna Willich conducted related research.

- In a session on the History of Methods, we had students play **Cranky Uncle** (Cook et al., 2020; see Hamester, 2026 in this volume), a game building resilience against misinformation. The game playfully introduces students to diverse techniques of science denial and explains the shortcomings of the faulty explanations for false beliefs. Against this backdrop, the importance of rigorous scientific methodology becomes clear.
- In a session on Data & Methods, students played **Survival of the Best Fit** (Csapo et al., 2019; see Willich, 2026 in this volume), a digital game about algorithmic bias. The game explains how artificial intelligence can draw false conclusions based on statistical procedures and faulty data. The game exemplifies how data can be used in practice, and how easily false conclusions can be drawn from them.
- In a session on Experiments & Hypotheses, we had the students play **DocDuck: Scientific Method** (Havana24, 2022). In this short digital game, students develop and test hypotheses about the growth of plants. We chose this exercise to provide a lively experience of experimentation and hypothesis-testing.
- In a session on Causality & Correlation, students played **Guess the Correlation** (Wagih, 2016). In this mini game, players gain points by guessing the R^2 for a scatter plot filled with data points, while they lose lives for making wrong guesses. The game facilitates an intuitive understanding of correlation coefficients and the interpretation of scatter plots.
- In a session on Bias & Critical Thinking, we asked students to play **A Quick Puzzle to Test Your Problem Solving** (New York Times, 2015). In this game, people are supposed to guess what rule a sequence of numbers obeys. They can enter further sequences of numbers to test their hypothesis. The game teaches about the danger of confirmation bias and the need

to search for information that could disconfirm a hypothesis (instead of only seeking confirmatory information).

- Before a session on the Emergence of Agency, students played the Financial Times' **Climate Game** (2022). In this game, players are given the authority to save humanity from the worst effects of human-induced climate change. In each round, players select several political measures to invest their resources. Based on scientific evidence, the game informs players about the effects of these measures. We used the game to teach students the basics of systemic thinking, including the possibility of positive feedback effects.
- Finally, since many students of the course traditionally made diverse mistakes in preparing for the final exam, we created a quiz game using **Particify** (ARSnova, 2022; an alternative to **Kahoot** (Kahoot!, 2012), which is featured in this volume). We devised this quiz to check whether students had understood the main requirements.

2.2 Agile Methods Lighthouse: Lego4Scrum and the Art of Team Development

In the field of computer science education, we took a particularly innovative approach together with Debayan Banerjee, Martin Kohler, and Ricardo Usbeck. In two AI project courses during the winter semester of 2024/2025, students learned agile project management through the targeted use of serious games such as **Lego4Scrum** (Krivitsky, 2009). In addition to ourselves, Nilufar Ernazarova and Ivelina Karaatansova conducted relevant research and development for this project.



Figure 1. A sustainable city built by students from one of the AI project courses (Saskia Sterzl).

The basic idea was as simple as it was effective: instead of just teaching Scrum methods in theory, the students worked together to build Lego constructions in time-limited sprints – and in doing so, experienced all the typical challenges of agile collaboration. From backlog prioritization and daily stand-ups to sprint retrospectives, they went through the entire Scrum cycle while working on their AI projects.

In one of the courses, we additionally used **Cards Against Agility** (Play4Agile Community, 2017; Karaatansova, 2026, in this volume) and a playful exercise called **Experi-**

ence Corner (Böhmer, 2025). **Cards Against Agility** allowed students to reflect on their understanding of agile principles in a humorous manner. The **Experience Corner** helped students to recognize their talents and to assess their joint competences and weaknesses as a team.

Both courses received very good ratings from the participants. In both courses, the students eagerly engaged in the **Lego4Scrum** exercise and found it valuable, exclaiming their appreciation for the method and its messages. Remarkably, the added value of using game-based learning was most strongly emphasized by those students who were exposed to several games throughout their course. In their feedback, several students noted that they were thankful for the in-

corporation of the games in the class because they improved team spirit. The instructors also had the impression that the methods were helpful in eliciting fundamental insights among the students about the need to coordinate work carefully in teams.

Based on the positive experience with the methods, the colleagues involved are continuing to employ them in their courses. Additionally, the Lego4Scrum method has also been integrated into the seminar “AI-based Applications” now (BA Wirtschaftsinformatik) and is used in Leuphana’s newly founded Experience Lab. Overall, we believe that our project can serve as a good example of how to increase the competence-orientation and interactivity of courses at Leuphana with engaging methods, which also have a positive impact on student achievement.

2.3 Serious Games for Ethics & Sustainability: When Students Develop Games

A particularly creative approach emerged in the collaboration of Johannes Katsarov and Torben Schmidt in the winter semester of 2024/2025. In this course, students did not only experience serious games in learning about ethics and sustainability. Additionally, they analyzed serious games that had been developed for related purposes and developed educational games of their own in teams. The course was offered as part of Leuphana’s complementary studies, which require students of all degree programs to engage with the perspectives of other disciplines and topics beyond their core curriculum.

The course activated the participants from the very beginning, asking them to introduce their favorite games to each other. Then, we had them try out various games about ethics and sustainability in groups, including **Buffalo** (Resonym, 2012), **Erd Effekt** (Demoela, 2023), and **Trial by Trolley™** (Cyanide & Happiness et al., 2019; see Rebecchi, 2026 in this volume). We used these exercises to help students identify a variety of game mechanisms and strategies for game-based learning. Later, we tested and discussed persuasive game-design strategies looking at **Black Closet** (Hanako Games, 2015), **September 12, A Toy World** (Newsgaming, 2003), **SweetXHeart** (Small, 2019), **The Climate Game** (Financial Times, 2022), and **uFood** (Katsarov et al., 2023, 2025; see Kim, 2026 in this volume).

The 28 students in the course had to fulfill three major assignments. First, each of them was tasked with writing a systematic critique of a serious game related to ethics or sustainability, which could potentially be published in this volume. The students used the same template that guided other authors and received credit points and grades on four quality dimensions of their work. More than 20 of the original contributions were published in this volume, which is why we have a strong focus on ethics and sustainability. Students’ second and third assignments were to develop a concept for a serious game and to build a prototype in teams of 3-5 people. In an iterative process, students identified topics that they wanted to work on, set up teams, identified



Figure 2. Five cards from Game Mechanics for Transformation (Katsarov et al., 2024).

their individual strengths, assigned roles and responsibilities, and conducted research on their topics of interest, and how to change learners' attitudes through game-based learning.

To support this process, we developed **Game Mechanics for Transformation** (Katsarov et al., 2024), a card game where players pitch ideas on how to combine a wide variety of game mechanisms to transform people's attitudes about issues related to ethics or sustainability. The game is available as an open-access resource via our project website – a concrete example of how lighthouse projects can have an impact beyond their original boundaries. Other teachers can download the game, print it out and use it in their own classes. It is based on a review of more than 80 empirical studies on the effects of games on the development of ethical sensitivity (Katsarov, 2023).

The evaluation of the seminar by 19 participants confirmed the success of the educational approach: with an average recommendation rate of 8.7 out of 10 points, the students rated the format very positively. The playful and practical approach, the diverse methods, and the open and encouraging learning atmosphere were particularly appreciated. The freedom to develop their own game was highlighted as particularly valuable. At the same time, the evaluation revealed important areas for development: many students wanted more theoretical input and concrete examples of game development processes. This feedback was directly incorporated into the further development of the format and highlighted how important the balance between practical experimentation and theoretical foundations is for learning success. Based on the success of the course, it has also been adopted as a module in a new certificate program on EdTech Product Management at Leuphana.

2.4 School Improvement & Leadership Lighthouse

In this lighthouse, we supported the TriCo Innovation Community "School Improvement & Leadership", led by Marc Kleinknecht and Marcus Pietsch, in developing a serious game called **Transform.Ed** for the training of school directors. The TriCo innovation community engages many school directors in networking and further education with a focus on organizational development and change management. In this lighthouse, we had the opportunity to support two scientists, Ninja Mueller and Dennis Wohlfeil, in developing a serious game of their own. Primarily at the beginning of the project, we provided advice and guidance in the development of the game's concept and design. Additionally, Johannes Katsarov and Johanna Willich supported the team in programming key components of the game with the software **Virtual Training Suite** (SeriousFactory, 2016).

In Transform.Ed, players slip into the role of a school director and decide on change initiatives that they want to realize. To facilitate successful organizational development, they need to put together a supportive team and identify the right people to take on important tasks.

The development of this game is ongoing. Once the game is finished, it will be used in teacher-training courses offered at Leuphana and in further education for school directors. In first tests with the TriCo network, the game has received a very positive response.

2.5 Ways of Knowing Lighthouse: Tailored Games to Develop Key Competences

Leuphana offers a liberal education program called “Studium Individuale” (Bachelor of Arts), which gives students the freedom and the responsibility to design their own tailored Bachelor’s curriculum. “Ways of Knowing” is the major-specific methods course of the Studium Individuale – additionally, all students participate in a general introduction on scientific methods in the Leuphana Semester (common first semester for all Bachelor students at Leuphana, see above). Since the Studium Individuale is highly interdisciplinary, allowing students to combine all sorts of courses, “Ways of Knowing” pursues a highly foundational and critical approach to methods: The goal is to learn to “know how to know”, how to ask good questions, understand how different methods will lead to different forms of knowledge, and how to interpret them critically, thus fostering a continually reflective outlook within the pursuit of self-directed learning. The focus lies on instilling the basis of methods and skills which can then be honed and developed through practical application and ongoing experiment, e.g., in reading and interpreting scientific texts, in counting and analyzing numerical data, in observing and describing phenomena, etc.



Figure 3. Students playing “Explain It Like An Acrobat” (Marit Klinge).

In the “Ways of Knowing Lighthouse”, Johannes Katsarov and Marit Klinge worked closely with Steffi Hobuss, the course director, in designing tailor-made games for the seminar (approximately 40 students per year).

- In one of the first sessions on Reading, our goal was to train students in skimming articles and texts, instead of reading them thoroughly (which is typical for students who choose this major). For this purpose, we adapted the *Skim, Scan, and Run* game by Kevin McCaughey (2018). In teams, students had to answer 20 questions related to 10 scientific posters within 15 minutes. Instead of short English prose, we identified 10 scientific posters, applying qualitative, quantitative, and normative methods across 10 different disciplines (e.g., environmental studies, economics, gender studies, and law).

- For a course on Describing, we developed a variation of the classic game **Taboo** (Hersch, 1989) called **Explain It Like an Acrobat** (Klinge et al., 2025; see Klinge, 2026 in this volume). Players are challenged with describing everyday objects like “door” without using 10 words related to the term. The game effectively requires students to define things in terms of their functions, instead of relying on related concepts. We chose this exercise as a playful entry into a discussion of what constitutes a good description or definition.
- For a session on Counting, we devised an exercise called **Counting Discomfort**. Students viewed a video called “Disorganized Attachment” (CARE Inc, 2012) twice: a first time to observe and understand, a second time to mark each instance where they felt that one of the two women exhibited discomfort. The exercise triggered an excellent discussion on the need to define and operationalize concepts before quantifying them, on the risk that people measure different things due to disagreements, etc.
- For a session on Analyzing Numbers, we finally devised a **Popular Science** game where teams of students competed in deriving a catchy, click-worthy headline from a statistical graph. In their pitches, the teams also presented a hypothesis about what conclusions could be drawn from the statistic, and a political statement, what kinds of actions policy makers should take based on the findings. Unbeknownst to the students, the teams had received contradictory evidence on the risks vs. benefits of violent video games or alcohol consumption. After voting on which headline was the most click-worthy, students easily drew the main conclusions intended by the exercise, e.g., the need for several studies, the danger posed by conflicts of interest, the ease with which statistical data can be manipulated and misinterpreted, etc.

Overall, the games employed in the Ways of Knowing lighthouse received very positive evaluations, much like the entire course. Steffi Hobuss, the course owner, intends to continue working with all of the games in the future.

2.6 Consulting Students Lighthouse: Digital Training for Mentorship Projects

Advising students on projects like Bachelor theses is an important task of academics. In this lighthouse project, we are developing a serious game, currently called **BeratungsGame**. It aims at sensitizing academic teachers to some of the main challenges in advising students, and at developing good practices.

Developing the game is a joint project with Anke Brehl and Judith Gurr from Leuphana’s Teaching Centre (Lehrservice), and student advisory experts Claudia Nounla, Nils Helge Schebb, and Thies Reinck. From the side of the Game-Didaktik project, this effort was led by Johannes Katsarov and involved Saskia Sterzl, Timon Freyer, Marit Klinge, Dustin Thulke, and Johanna Willich.



Figure 4. Screenshot from BeratungsGame.

The digital game places players in the role of a new academic teacher at Leuphana. The game revolves around the Bachelor thesis project of one student, with a focus on setting the right conditions and providing the student with adequate support. Players interact with the student via email and in conversations and make diverse decisions about how to structure the cooperation with the student, and what guidance to offer the student at what point. Their approaches are rated in terms of efficiency, building a trusting relationship, and contributing to the motivation of the student. The game is intended for use in academic teacher trainings and self-study courses on academic supervision and will be available open-access soon for learning management systems and as a desktop version.

In the first test with academic teachers, Nils Helge Schebb observed that the game stimulated important discussions about good mentorship practices. While many suggestions for improvement were made, the participants of the two-day course on academic supervision agreed that the game was a valuable educational tool. We will report on the completed game and its evaluation in future publications.

2.7 Small Lighthouse Initiatives

Unexpectedly, more than a dozen colleagues reached out to us over the duration of the project, asking for advice in selecting, embedding, or developing serious games for their activities. Since supporting them in these activities matched the mission of our project, we offered this kind of support readily, e.g., by searching for suitable games. A few examples:

In the transdisciplinary Master seminar led by Pia Redenius, students of the Master's program in Sustainability Sciences developed a climate-related game in cooperation with the district of Lüneburg. The game takes approximately 20 minutes and addresses the district's climate pro-

tection efforts, exploring what a district administration can actually do in terms of climate action. We supported the student group developing the serious game through two consultation sessions, providing feedback on game design and answering questions. The student project is available on Pub-Data (<https://hdl.handle.net/20.500.14123/9813>).

Franziska Josefine Kößler sought a brief consultation because she wanted to use an icebreaker in her teaching that would allow diverse students to get to know each other both personally and in relation to their subject. She has successfully adopted the “Get-to-Know-You Bingo” method from the **Facilitation Toolkit** (Sterzl, 2025a; see Sterzl, 2026a in this volume).

In January 2026, we supported the use of the game **Stop Disasters** (UNDDR, 2007/2019) in an online course on Crises as Motors of Change, offered to 170 students at our Professional School by Iris Seidemann and Lukas Wiggering. The game demonstrated how difficult it is to prepare for disasters, and how much expertise is needed. In a follow-up workshop, we will teach a subset of the students crisis management skills with the help of games like **Pandemic** (Z-Man Games, 2008; see Carlgren, 2026 in this volume) and **The Game of Floods** (Marin SLR, 2019).

Additionally, we facilitated the live-action role game **Monumental Consequence** (Looney, 2022) in a course for future teachers of religion in collaboration with Thomas Kück. The game has students take the role of villagers who are conflicted about whether to risk their lives to preserve valuable artifacts, or to burn down the church, where the artifacts are stored, and where an enemy army has taken refuge.

3 Training and Workshops: Between Ambition and Reality

To design our training offerings according to needs, we conducted a university-wide survey among teachers at the beginning of the project. We used personalized emails, a university-wide newsletter to attract participants, and a lottery of five vouchers from a local game store and contacted more than 500 teachers working at Leuphana.

The participants gave us valuable insights into their interests and preferences: The highest interest was expressed in overviews of educational games (79%), gamification methods (63%), and escape game design (38%). Regarding time preferences, there was a balanced distribution between afternoon sessions, short meetings, and longer workshops (33% each). Based on these findings, we developed a diverse program: escape game workshops, an introduction to gamification, an overview on serious gaming, and workshops on the facilitation of game-based learning, and debriefing methods. Here is a short overview of the offers we developed ourselves:

The Power of Game-based Learning. In this webinar of 90 minutes duration, designed by Johannes Katsarov, we focused on providing participants with an introduction to research on the effectiveness of game-based learning and a hands-on experience with one of two games: **SweetXHeart** (Small, 2019) or **The Climate Game** (Financial Times, 2022). Moreover, we engaged participants in a structured reflection on their best and worst experiences in education and training. Based on this reflection, we demonstrated how the elements of game-based learning connected to the elements that characterize the best learning experiences: interactivity, immersion, a protected space for exploration, feedback, etc. Feedback on the workshop was

positive. The main recommendation was to try out more interactive games in the future instead of single-player games.

Gamification Strategies and Techniques for Improved Learning: Design and Implementation.

This three-hour in-person workshop with Johannes Katsarov and Erik Senst offered a perfect bridge between theory and application of gamification in education. Based on current research, participants learned to deploy gamification elements strategically and develop a concrete gamification concept for a course of their own. The course began with a getting-to-know-each-other game from the **Facilitation Toolkit** (Sterzl, 2025a; see Sterzl, 2026a in this volume) and a playful reflection with the digital tool **FreeQuizDome** (Senst, 2019) before participants were introduced to the theory behind gamification. In the second part of the workshop, participants first played **The Gamification Quest** (Jueterbock *et al.*, 2025; see Jueterbock, 2026 in this volume), a game that was specifically developed for this course, and which introduces dozens of gamification elements that can be used to spice up classes. At the end of the course, participants teamed up to consider, how their own courses could be gamified. The course received an overwhelmingly positive evaluation. Participants mainly expressed the hope to extend the duration of the course in the future and to have more time to work on their own courses.

Mastering Facilitation. This two-day in-person workshop with Saskia Sterzl focused on building core competences for all interactive teaching formats. The workshop employed a multi-level approach based on *frame games* (Thiagarajan, 2004), reusable game structures that can be filled with different content. Participants acquired practical skills in the professional facilitation of various learning formats and the purposeful adaptation of existing methods. Through hands-on experience with different interactive formats and the development of a personal facilitation guide, they developed the assurance needed for confident application in their teaching practice. Throughout the workshop, the participants applied several methods from the **Facilitation Toolkit** (Sterzl, 2025a; see Sterzl, 2026a in this volume) themselves and evaluated many others. The evaluation confirmed the effectiveness of the intensive format: All participants rated the workshop as helpful and would recommend it. Particularly appreciated were the participatory elements, the playful approach, and the practice-ready outputs. Participants took away concrete tools, from a “versatile methods toolkit” to the awareness that “preparation is everything.” Constructive feedback focused on time management aspects: the wish for more time for reflection phases and a more balanced distribution between smaller exercises and larger tasks was directly incorporated into the further development of the format.

Mastering Debriefing – Structured Reflection as a Key Competence. This half-day workshop on structured reflection with Saskia Sterzl focused on an often neglected but crucial phase of the learning process (Crookall, 2010). Participants developed practical skills in classic debriefing methods for in-person events, innovative reflection techniques for digital learning formats, and the targeted application of different debriefing formats depending on the learning situation. Following Kolb’s (1984) experiential learning cycle, the workshop began not with theory but with a direct game experience and a live debriefing, before participants analyzed the underlying structure. Trying out different debriefing techniques at learning stations made the acquired competences immediately applicable. A key technique applied during the workshop was the game **Method Choice** (Sterzl, 2025b; see Sterzl, 2026b in this volume) in combination with debriefing techniques from the **Facilitation Toolkit** (Sterzl, 2025a; see Sterzl, 2026a in this vol-

ume). The evaluation emphatically confirmed the success of the format: All participants rated the workshop as helpful and would recommend it. Participants emphasized the insight that reflection and debriefing are essential components of learning and took away the practical insight that emotions should be debriefed first. The variety of methods, the playful and gamified approach, as well as the agile responsiveness to participants' needs were highlighted. The workshop conveyed not only helpful theory and excellent techniques but also underscored the central message that having fun immensely contributes to learning success. Suggestions for improvement focused on the wish to dedicate more time on planning own courses, and to be able to try out all presented methods in full.

In addition to these courses that we designed ourselves, and for which the materials are freely available, we were also honored to host training sessions by Jonna Kassner in 2024 and Dave Carlgren in 2025. An expert in designing educational escape games, Jonna Kassner introduced her audience to the design, planning, and integration of escape games in teaching. Additionally, participants tried out puzzles and tasks themselves and developed their first creative puzzle concepts. The workshop demonstrated how complex didactic concepts can be conveyed through practical experience. Dave Carlgren's webinar focused on using a broad variety of existing games, including classic board and card games like **Pandemic** (Z-Man Games, 2008; see Carlgren, 2026 in this volume) in the classroom. Jointly playing **Codenames** (Chvátíl, 2015) online, participants from across Germany discovered for how many different educational purposes some games can be used in teaching. Participants appreciated both of these courses very much.

Lessons Learned

Despite the needs-based planning and the excellent evaluations of all of our training offers, we were confronted with a university-wide challenge: generally low registration numbers for professional development courses, particularly for multi-day formats. While all of our workshops and training offers received very positive evaluations, we never managed to attract more than 10 participants for a course. In fact, the only course with 10 participants was Dave Carlgren's webinar, which also involved people from outside of our university. In two cases, we even had to cancel course offers because there were too few registrations – despite personalized marketing, our website, personal recommendations, and advertisement in newsletters read by hundreds of colleagues.

The main lesson we learned from our experience in offering trainings was that there is a very limited willingness of academic teachers to take up training offers – even when they are for free and recommended by peers. The main problem appears to be a general lack of time for further education, coupled with a relatively low priority on providing academic training of high quality.

As one respondent of our survey noted: *"Who thanks you for putting extra effort into teaching? Unfortunately, there are simply no incentives to make the effort. I planned a highly interactive seminar with games and other innovative elements, putting my heart and soul into it. Unfortunately, the seminar was scheduled for 8:15 a.m. – of the 27 students who registered (with a waiting list because the concept was actually well received), only 4-5 students attended the sessions in the end [...] To be honest, I am now very demotivated."*

More and more, positive teaching evaluations are required for academic positions nowadays. However, they rarely count for more than a “bonus” in selecting people for senior roles in academia. What really matters in appointing professorships is usually how much a person has published, and how widely their research is recognized. Although academic teachers are expected to dedicate a large portion of their work to teaching hundreds and thousands of students, there are few incentives to make much of an effort, let alone to engage in further education in higher education. Even when professors perform poorly in teaching for years, there is rarely any demand for them to improve.

Our experience convinced us that the educational offers we developed are valuable and that they could benefit many academic teachers. We will continue to offer them in the future. However, this will not solve this structural issue on the demand side of the equation. If universities want to increase the quality of academic teaching, measures will be needed to increase the demand and participation in further education and related efforts, e.g., through financial incentives, honorary awards, general requirements, or extra vacation for further education.

Due to this finding, we gave up the original idea of also establishing a self-study course on the value of serious games for teaching. It became clear that only a small minority of colleagues would take this sort of course. The expected return could not justify the considerable effort that would have been required to achieve an attractive self-study course. Instead, we focused on providing the information that colleagues were seeking in more easily accessible formats, including a database of games (see below) and a podcast accessible via our website (Cooperate Culture, 2026).

4 Community Building: The Search for the Optimal Format

Expecting that it could be difficult to mobilize academics to learn more about educational games via formal training offers, part of our original strategy was to invest in community building and to inspire colleagues through the experience of testing educational games with colleagues. Building on brownbag lunches that are successful in drawing academics to educational events in Switzerland, we had actually acquired funding to pay for colleagues’ lunches while they tried out games together. However, our university’s finance department ruled against the provision of free lunches, since this would have constituted a monetary benefit for public agents. Subsequently, we decided to focus on triggering colleagues’ curiosity and promising them a valuable experience while getting to know colleagues and building their network.

Inspired by successful communities of practice, we began by offering regular “playful lunches”, i.e. weekly meetings every Thursday from 12 to 1 pm, where teachers could jointly test educational games and exchange experiences at a restaurant on campus. The idea was simple and compelling: low-threshold, regular encounters in an informal atmosphere. Experience quickly showed us that this approach did not provide the sustained attraction we were hoping for. The fixed weekly slot did not fit into many teachers’ schedules, and the willingness to regularly commit a full hour to a general format was limited. The colleagues who did come often voiced an interest in games that were more strongly related to their specific interests.

Based on these insights, we developed a focused, topic-specific approach. Instead of broad community events, we organized thematic game collections, specific interest groups, and demand-oriented sessions. This adaptation proved significantly more successful and led to a series of well-attended and appreciated event formats.

Teaching Day: Serious Games in the Gallery Walk

The first major success of our adapted community approach came on 15 January 2025 at Leuphana's Teaching Day on the theme "Examinations — Cultures in Transition." Our games corner in the Gallery Walk became a vibrant meeting place where numerous visitors tried out our serious games and discussed innovative examination formats. The strong interest confirmed our assessment that game-based learning is an important building block for the future of higher education, particularly in times of AI and digital transformation. The informal atmosphere of the Gallery Walk proved ideal for initial encounters with serious games. Interested visitors spontaneously tried games and developed interest in further formats.

The Game-Didaktik Summer Festival: Mid-Term Celebration as a Community Catalyst

As a special highlight of our community activities, we organized the Game-Didaktik Summer Festival — a mid-term celebration after the first successful project year. The format was deliberately designed to be low-threshold and inviting: All Leuphana members and other interested parties were warmly invited to try out our best educational games from the first project year. The relaxed atmosphere with a shared buffet created ideal conditions for informal exchange and networking. Particularly valuable were the casual conversations about successes and learnings. The Summer Festival showed us that community building at universities works particularly well when one plans targeted events (even longer ones) rather than weekly meetings and presents many games so that there is something for everyone.

Thematic Workshops: Focus on Specific Needs

After the Summer Festival, we began to organize two workshops per month that were dedicated to specific topics like "Games for STEM Education", "Games related to Arts and Culture", or "Games related to Politics". Through these events, we were able to attract numerous colleagues whom we had not met before. In addition to our mailing list that already covered about 100 colleagues interested in game-based learning, we also sent personalized emails to unknown colleagues who taught about subjects related to the games we were offering.

Insights on Successful Community Formats

The various event formats taught us important lessons about successful community building in higher education: A low threshold proved decisive, as the most successful events were those where participants could join spontaneously without prior experience. Thematic focus prevailed over breadth, as workshops on specific topics were more successful than general introductions. Teachers invested time when they saw a direct connection to their own courses or scientific interests. Personal encounters proved particularly valuable, as a relaxed atmosphere created connections that went beyond purely professional conversations and led to lasting collaborations. A key factor in success was also that we and our team were prepared to introduce the games to participants informally, without expecting them to read the rules themselves. Finally,

the success of our community-building activities depended on significant efforts in finding and purchasing a large number of educational games – the fourth strategic effort of our project.

5 Finding Suitable Games for Higher Education

In the opening survey of our project, we asked colleagues what barriers they perceived in employing game-based education. Forty-one people participated in the anonymous part of this survey (see Figure 4). Interestingly, their opinions converged around three main obstacles: A lack of time, a lack of money to buy relevant games, and – most importantly – a lack of knowledge of relevant games. There were a couple of participants who felt a general discomfort in using games in the classroom or who questioned their value, but these were a minority (although we must assume that the sample of our survey is not representative).

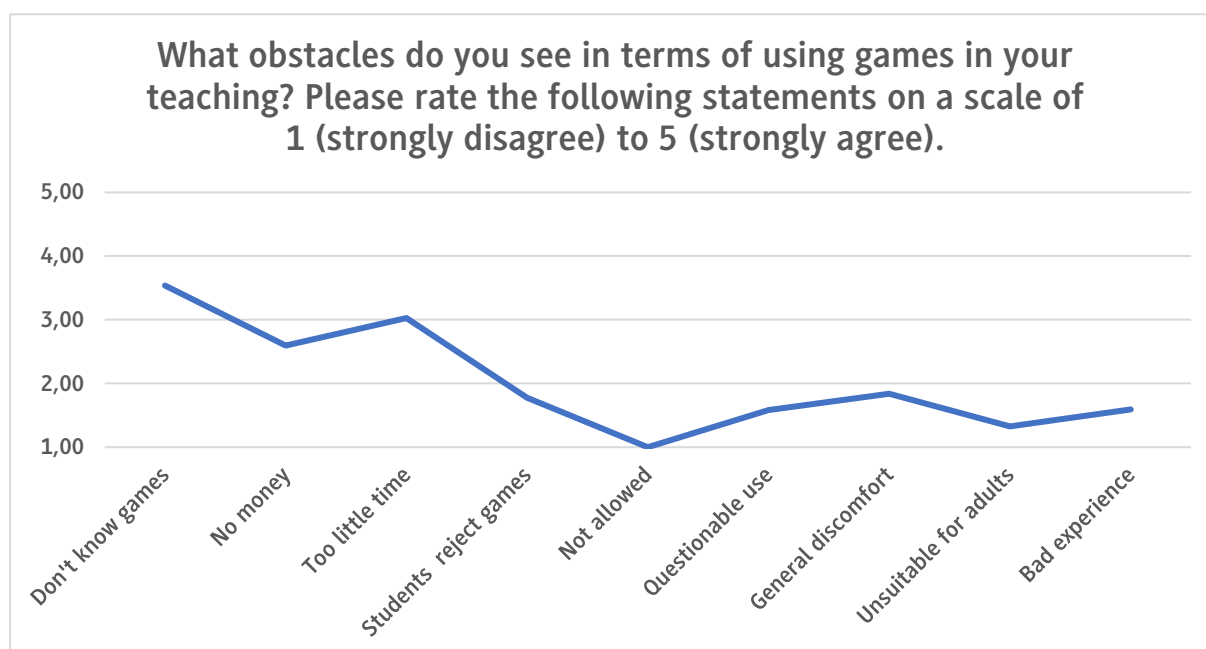


Figure 5. Perceived obstacles in using games for higher education, as shared by 41 teachers from Leuphana University in Lüneburg.

This finding emphasized the importance of identifying and purchasing educational games for our community as part of the Game-Didaktik project. Moreover, it amplified the importance of putting together this book, and of contributing to the **Serious Games Information Center** (TU Darmstadt, n.d.).

As we have discussed in the editorial, finding suitable serious games for higher education proved quite difficult in many cases. It was easy to find serious games related to some fields of application, e.g., agile project management or sustainability, thanks to existing books (e.g., Bless & Wagner, 2024; Böhmer, 2025) or databases (e.g., <https://games4sustainability.org/>). In other cases, it was strenuous detective work, where efforts of many hours did not lead to the identification of suitable games (e.g., related to data protection). Through the work on this

volume, we were able to identify more than 100 serious games of interest for higher education with the help of our international community and many students from Leuphana. Through additional searches, we were able to expand our internal database to 238 entries – many of which we have purchased for our local game library, or which are available for free (we will publish this database soon).

Building this database and game library proved to be essential for the success of our project in promoting game-based education at Leuphana. Numerous colleagues consulted us in selecting games that they could use in the classroom, and many colleagues borrowed our games for their classes once we had established a collection. Additionally, the game collection was the foundation of our community-building efforts. Having a large selection of about 70 games ready to demonstrate and play significantly contributed to the attractiveness of our community-building events.

6 Insights for Future Projects

Our initiative was not a sure-fire success: it was difficult to attract Leuphana teaching staff to our offerings via rather “anonymous” channels such as Leuphana’s regular newsletter, email campaigns, and the teaching service. Personal relationships, some of which we had already established before the game didactics project, as well as personalized approaches (with reference to topics that are of interest to the individuals in question) were essential to the success of our initiative. Through our work, we have now been able to establish many contacts who regularly take advantage of our offerings and recommend them to others. However, establishing these contacts requires a lot of time, e.g. for personal consultations. We therefore recom-

end that the promotion of innovative university teaching should be linked to relationship building and should be owned by long-term employees with a high competence in consulting colleagues of all hierarchical levels on matters of innovative training.

Overall, we have observed that professors in particular are primarily interested in the format of lighthouse projects and are hardly interested in further training or community-building measures. The lighthouse projects were particularly attractive to them because they provided them with tailored advice that was geared towards their specific goals and visions. The lighthouse projects were perceived as a great asset and source of support and led to a sustainable improvement in teaching. Despite their interest, professors rarely found the time for community building and further training. When they did register for events, they often did not show up. We believe



Figure 6. Part of our serious games library at Leuphana University in Lüneburg.

that the lighthouse projects were particularly helpful because they did not come with additional work for the professors, but actually reduced their workload to some extent, or made it more fun. We focused on improving the exact features of courses that the professors were currently unhappy with, searching for new methods and games that they liked. This personal support through consulting, research and development led to a situation where the professors involved perceived the lighthouse projects as gifts, which they cherished greatly. Our second recommendation is therefore to promote innovative teaching and game-based education through functions that are perceived as relief, rewards, or support.

Where our support was accepted, it was met with enthusiasm. The personal guidance and support provided as part of the lighthouse projects was gratefully accepted and led to the use of innovative methods in courses that are offered on a regular basis. The courses offered received top marks. Our community-building offerings are enjoying increasing popularity. As a result of our work, educational games have been integrated into at least 10 additional courses. Additionally, we have become aware of dozens of colleagues who already embrace game-based education in their courses at Leuphana. Making this known will help to normalize the use of educational games in academia and reduce doubts about the appropriateness of these methods.

Our final recommendation for future projects concerns the need for long-term support. Game-Didaktik was a grassroots project with a lot of freedom and solid financing. Supported by the teaching service and central communication channels of the university, we were able to actively engage more than 50 colleagues. In terms of longitudinal change, we believe that the lighthouse projects were most effective because they led to substantial improvements in courses that are offered regularly. Additionally, we hope that this book and the Serious Games Information Center will help to make serious games known to wider audiences and to ease the burden of finding suitable games for large numbers of teachers in the future. Through our game library, our courses, and the community that we were able to build at Leuphana, we hope that many colleagues will feel empowered to offer game-based education in the future. However, we doubt that these efforts will lead to sustainable change in the way that higher education is offered at large. If universities are interested in unleashing the power of game-based education and other innovative educational technologies, we would recommend investing in long-term support structures and strategies. One strategy we recommend is to embrace simulation- and game-based learning in curriculum design, e.g., as part of accrediting and re-accrediting degree programs. A second strategy is to establish serious games labs that aid teachers in identifying and implementing serious games in their courses, or which actually develop new serious games for courses, as we did. Last but not least, we recommend measures to increase academic teachers' demand for coaching and training in higher education. Only when high-quality training is recognized and valued as highly as research performance, will the majority of academics feel free to dedicate their precious time to train future generations of professionals more effectively.

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The Games in Alphabetical Order

tent in practice-oriented scenarios, with peer-learning and immediate feedback playing central roles. The game is primarily aimed at bachelor's students of business administration who wish to refresh or deepen their knowledge of quality management. Through its interactive design and group discussions, a motivating learning atmosphere emerges that prepares players for real-world challenges.

Facts

Release date:	2019
Developer:	Siegfried Zürn
Game type:	Analog
Number of players:	2–4 companies (players)
Format:	Synchronous
Time frame:	60–150 minutes, depending on the scenario
Languages:	German
Environment:	Laptop or PC with internet access
Material:	Game board, cards (question, action, and event cards), company controller, QM store
Price:	Free for public educational institutions (raw data for game elements)

Resonance & Criticism

Since its introduction in 2019, *Ab durchs QM* has been successfully used in various courses (foundational study programs at Esslingen University of Applied Sciences and part-time programs at Aalen University). Students report increased motivation and a better understanding of complex topics in quality management. The ability to identify knowledge gaps and close them through discussions with peers was particularly highlighted. Some participants, however, felt the competitive elements were challenging, especially in heterogeneous groups with varying levels of prior knowledge. Nevertheless, the overall reception is positive, and the game is seen as a valuable addition to traditional exam preparation. Empirical results showed improved exam performance (Zürn et al., 2019).

Game Principle & Process

Ab durchs QM places players in the role of companies competing for a demanding major contract in quality management. Each company begins with defined product and process quality values as well as an employee competence level, all displayed on an individual company controller. At the beginning, the group—in consultation with the instructor or game leader—chooses one of three scenarios that differ in number of rounds, target quality level, and game duration:

The short game runs for 8 rounds and takes about 60 minutes; the medium game uses 12 rounds and lasts around 120 minutes; and the long game extends to 16 rounds with a total duration of roughly 150 minutes.

In each round, players complete tasks, collect resources, and make strategic decisions. Dynamic events and a QM store offer additional challenges and opportunities. At the end of each round,

players review the results using a peer-review process, and the company controllers are updated. This mutual evaluation with immediate feedback integrates collaborative learning and reflects the audit concept of quality management.

After the final round, an end event is resolved. The company (player) that reaches the required minimum quality level—or, in case of a tie, has the highest combined product, process, and competence level—wins. With more than 100 randomly combinable cards, each playthrough creates a new, realistic situation that fosters curiosity and competitive spirit.

Learning Objectives & Educational Fields of Application

After the game, participants should be able to use key QM tools (e.g., Ishikawa diagrams, House of Quality, control charts) effectively to assess and initiate quality and process improvements in a simulated business environment. Through repeated decision-making under time pressure, they train their competence in knowledge transfer—also relevant for exam questions—by translating theoretical models into concrete actions. The competitive character challenges them to conduct critical analyses and assess the short- and long-term effects of their decisions. Simultaneously, the peer-review phase strengthens communication and teamwork skills, as learners provide feedback and justify potential improvements.

Learning objectives are achieved as follows within the game: Specific knowledge is applied through technical terms and indicators on the cards, enabling learners to translate theory into language and decisions immediately. By acquiring and applying QM methods from the QM store, the transfer of competence of theoretical concepts into operational measures is strengthened. Event cards create goal conflicts (cost vs. quality), requiring option evaluation and critical thinking. The collaborative processing of main events and mutual audits anchors collaborative problem-solving and promotes teamwork.

The game is suitable for exam preparation in quality management courses, knowledge refreshers in workshops, and application in part-time study programs.

Effectiveness

Comparative studies showed that participants who used *Ab durchs QM* achieved, on average, 0.3 to 0.6 grade levels higher results than those who prepared traditionally for the same exam (Zürn et al., 2019). Participants emphasized the strong learning effect resulting from the combination of fun, competition, and direct feedback.

Potentially Problematic Aspects

Different levels of prior knowledge within a group can affect the dynamics. When prior knowledge varies significantly, some players may feel over- or underchallenged. The competitive drive may discourage players with lower levels of previous knowledge. However, a cooperative mode (teams working together against a fictional competitor) or bonus points for constructive peer feedback can help mitigate this.

The physical game material is designed for up to 4 players. When multiple groups play in parallel, the facilitation becomes increasingly complex, making it advisable for larger groups to use

rotating player roles (observer and player). Setting up the game board and learning the rules takes about 15–20 minutes, which must be factored into tight seminar schedules. Learning success strongly depends on the instructor or game leader who explains the rules, stimulates discussion, and asks transfer-oriented questions.

Reviewer: Christian A. Zimmermann

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Argument Wars

Developed by: iCivics, Filament Games

Article contributed by: Ashley Rezvani

<https://doi.org/10.5281/zenodo.17169808>

Keywords

Civic Action, Constitutional Law, Constitutional Politics, Critical Thinking, Political Science, Rhetoric, U.S. Constitution, U.S. History



Screenshot from Argument Wars, developed by iCivics and Filament Games. Image used for educational review; all rights remain with the creators.

Introduction

Argument Wars (see Figure) is a card-based web browser game about historic U.S. Supreme Court cases, released in 2010 by iCivics and Filament Games. The game features two difficulty levels: a “normal” mode for younger audiences and a “high” difficulty mode appropriate for university students.

Players adopt the role of a lawyer, select one of nine landmark cases, pick a side to defend, and then play against a computer-controlled opponent. Players are dealt cards representing potential supporting arguments, such as previous Supreme Court judgments, to construct their argument. Not all cards will be relevant, so players must think carefully about which cards to use.

To win the game, players practice interpreting the U.S. Constitution to effectively argue their side of the case.

Though all cases in the game are based on real U.S. Supreme Court cases, the game is not a reenactment. The outcome of each case is dependent on the player's ability to construct a persuasive argument using constitutional law and previous precedents. Regardless of the player's success, the game will provide information on the real-world outcome of the selected case at the end of play.

Facts

Release date:	May 3, 2010
Developer:	iCivics, Filament Games
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	15–30 minutes
Languages:	English, Spanish
Environment:	Browser, iOS, and Android
Material:	There is an extensive selection of optional material provided on the iCivics website, accessible to educators if they make a free iCivics account
Price:	Available for free

Resonance & Criticism

Argument Wars received a positive reception from players and teachers. As of 2025, Argument Wars is rated 4.2/5 on the App Store and 4/5 on the Google Play Store, where the game boasts over 500,000 downloads.

TeachersFirst writes that the game “is a great way to review the amendments to the US Constitution.” Common Sense Education rated Argument Wars at 4/5 stars (“Highly Recommend”) in 2020. The reviewer praised the game for its engaging gameplay and robust supplemental material for teachers but criticized the relatively low number of choices for players to make (Bristol, 2020).

Game Principle & Process

Players select a historic case, pick a side to defend, and construct an argument over four rounds to convince the justices. Players may read a brief description about each case, but they are not told the real outcome until the case concludes.

To begin, players select their desired difficulty level and avatar. They must choose one of nine U.S. Supreme Court cases, such as *Brown v. Board of Education* or *Gideon v. Wainwright*. After listening to the opening statements, players must select two constitutional bases for their argument. If they choose the correct constitutional bases, the player is awarded points; card-based play then begins. Players draw cards at the beginning of each round, choosing from two decks: blue Support cards and red Action cards.

Support cards provide the player with potential arguments for their case. Some Support cards are relevant and support their argument, scoring the player points. Other Support cards are irrelevant, and some will actively work against the player's argument; playing irrelevant or unhelpful cards will cause the player to lose points. If players are confused, they can request more information about a particular Support card and its relevance to their argument by clicking on the magnifying glass.

Red Action cards give players special abilities. For example, the Objection action card can be played on the opponent's turn to challenge a weak argument. If the objection is sustained, they gain points; if it is overruled, the player will lose points.

Players may only play one Support and one Action card per round. Once they have played their cards, the justices will give them feedback about how well the card supported their argument, and the player may receive additional points. After four rounds, the lawyer with the highest score wins the case, and the player learns what the outcome of the historic case was in real life.

Learning Objectives & Educational Fields of Application

iCivics intentionally designed the game to fulfill three learning objectives: analyzing arguments and outcomes of landmark Supreme Court cases, evaluating available arguments to assess whether reasoning is sound and support is relevant or irrelevant, and recognizing the significance of the Constitution and Supreme Court precedent in deciding cases (Argument Wars, iCivics). Overall, the game provides students with a sense of how government mechanisms operate within the Supreme Court of the United States (Blevins et al., 2014). Since the outcome of each case depends on the student's ability to construct an argument by playing relevant cards, the game centers student inquiry as the primary mode for learning and asks players to practice building evidentiary claims (Argument Wars, Educating for American Democracy). The game establishes a constructive environment for experiential learning, consistently giving students feedback on their performance through the comments the simulated justices provide.

While Argument Wars can be played as a standalone assignment or in-class activity, educators and facilitators can contextualize the learning experience by utilizing the free curriculum resources provided by iCivics on their website. The supplemental material includes a game guide and how-to-play, a pre- and post-game assessment quiz, a teacher's guide that includes a lesson plan and activities, a student worksheet, and a Google Slides presentation for a lecture. All supplemental material is available in both English and Spanish.

For university-level students, the "high" difficulty mode is recommended.

Effectiveness

Blevins et al. (2014) explore the game's alignment with the College, Career, and Civic Life (C3) curriculum framework for U.S. Social Studies State Standards. The authors highlight the game's ability to show students "the reflective process of decision-making at the highest level as a law is evaluated on its constitutional merit. Players learn not only how to argue a case on legal grounds but also how the actual case was decided and its effect on jurisprudence since the decision" (para. 26). Although there have been no empirical studies on the educational effec-

tiveness of Argument Wars specifically, research on other Filament Games/iCivics learning games has proven their effectiveness at engaging students, facilitating their understanding of civics and U.S. laws, and empowering students as citizens of democracy (Lewis et al., 2013).

Potentially Problematic Aspects

While players may choose either a male or female avatar, and the game presents a variety of avatar races, all cards use he/him masculine pronouns, which may alienate female players.

Reviewers: Hannes Hamester, Johannes Katsarov

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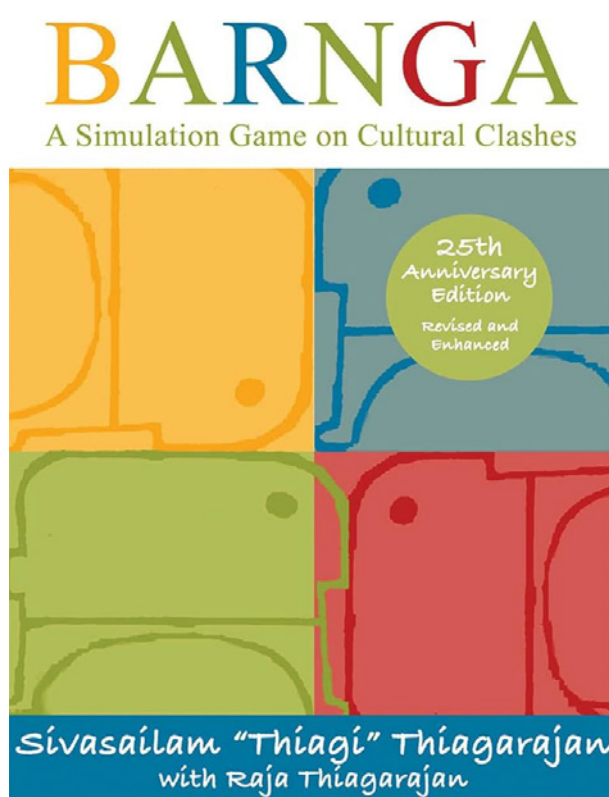
Barnga

Developed by: Sivasailam Thiagarajan
Article contributed by: Jonathan Sierks

<https://doi.org/10.5281/zenodo.15924977>

Keywords

Conflict Management, Culture, Diversity, Inclusion, Intercultural Communication, Sociology, Team Development



Cover of Barnga (25th Anniversary Edition) by Sivasailam Thiagarajan. Used for educational review. Rights remain with the creators.

Introduction

Barnga is an intercultural simulation game developed by Sivasailam Thiagarajan in 1980 (see Figure). The first official Barnga game manual was created in the 1990s by Barbara Steinwachs and is now available in its 25th edition (Thiagarajan, 2006). The aim of the game is to raise participants' awareness of cultural differences and misunderstandings in communication. The game conveys the experience of a "culture shock" by showing how different understandings of rules can lead to confusion and conflict. It is aimed at people who work or study in intercultural teams, and is also well suited to sensitizing inexperienced individuals, such as young students,

to this important topic. Barnga's game concept is offered in various levels of complexity by different institutions. These range from simple PDF instructions to fully developed games with game materials. In addition, there are also online versions of the game, such as the one by Ohmura et al. (2008).

Facts

Release date:	1980
Developer:	Sivasailam Thiagarajan
Game type:	Analog card game, intercultural simulation game
Number of players:	at least 12 players, the more, the better.
Format:	Synchronous
Time frame:	One round, including debriefing, takes between 40 and 70 minutes
Languages:	The game is available in several languages, depending on the materials used.
Environment:	–
Material:	1 deck of cards for each of at least three groups, different rule sets for each group, a flyer with identical game guidelines for each group
Price:	freely available, though some versions cost a small amount of money

Resonance & Criticism

The game's methods are widely regarded as simple yet effective; however, it has not won any official awards. Critics emphasize that the effectiveness of the game strongly depends on the debriefing and reflection phase, which experienced facilitators should lead.

Game Principle & Process

Participants are divided into three groups; ideally, each group has four to six players. In the original version, the card game "Five Tricks" is played within each group, but other card games can also be used as long as their rules allow variations. Each group receives a deck of cards, identical game guidelines about the general gameplay, and a specific set of slightly differing rules. After a short introductory phase, during which the guidelines are explained and players familiarize themselves with their specific rules, the players may no longer speak, and the facilitator collects all the rule sets. The only permitted form of communication is gestures. Different rules then apply at each table, without this being visible from the outside. Once a round of the card game is completed, players rotate between the groups without knowing the others' rules.

The rotation is determined at the beginning. It is advisable for winners and/or (depending on group size) losers to switch groups. The encounter with different rules often leads to confusion, frustration, and conflict, as participants realize that their familiar strategies no longer work, but the exact reason is not immediately apparent. Since the game provides little direct feedback, Barnga's effectiveness largely depends on a well-executed debriefing, reflection, and transfer phase. Here, observations are summarized, interpreted, and re-evaluated. It is advisable to begin by letting individuals describe their experiences, thereby starting a discussion guided by the instructor.

Learning Objectives & Educational Fields of Application

Barnga aims to sensitize participants to the dynamics of cultural differences and their impact on communication. It promotes understanding of different behavioral strategies and reflection on unconsciously assumed rule systems. The game is particularly suitable for intercultural training and seminars to increase sensitivity and competence when dealing with cultural diversity.

As previously mentioned, there are different versions of Barnga. A clear, simple version is provided in the University of Michigan's PDF instructions.

Effectiveness

No purely empirical studies on Barnga exist. However, Fowler & Blohm (2004) highlight in their Handbook of Intercultural Training that participants often experience an "aha moment" that stimulates reflection on cultural assumptions. The extent to which the game's difficulty aligns with players' abilities depends entirely on how they handle the unfamiliar situation and the discrepancy between the familiar and the unfamiliar—and the misunderstandings that arise from it. Achieving a flow state may be limited by the game's deliberate creation of frustration through rule deviations. This does not typically lead to gameplay enjoyment, but the resulting cognitive dissonance (Festinger, 1957) supports involvement and thus promotes the learning goal.

Potentially Problematic Aspects

Barnga deliberately induces confusion and frustration, which can be emotionally challenging for some participants, particularly those with low tolerance for ambiguity or prior negative experiences in group conflict. Without careful facilitation and a structured debriefing, participants may focus on irritation rather than reflection, potentially reinforcing stereotypes or interpersonal tension instead of promoting intercultural understanding.

Reviewer: Johannes Katsarov

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Before I Forget

Developed by: 3-Fold Games

Article contributed by: Brittany Westlund

<https://doi.org/10.5281/zenodo.17169812>

Keywords

Cognitive Science, Dementia, Empathy, Gerontology, Identity, Mental Health, Psychology, Trauma



Screenshot from Before I Forget (2020). © 3-Fold Games. All rights remain with the creators.

Introduction

Before I Forget (see Figure) is a first-person 3D narrative game created by Chella Ramanan and Claire Morwood in 2020, developed and published through their micro-studio, 3-Fold Games. Players explore life as Sunita, a woman living with early-onset dementia. Developed in consultation with medical professionals and the UK-based charity Gaming the Mind, the game applies credible insights to deliver an authentic experience (3-Fold Games, n.d.; Wen, 2018). As players traverse Sunita's monochromatic home, household items trigger memories, coloring her surroundings and impacting her self-identity and perception of reality.

While not intended as a standalone educational resource, *Before I Forget* offers an intimate portrayal of the psychological and social effects of dementia through Sunita's memories and inner monologue. In higher education, the game complements formal curricula as an active learning exercise that provides insight into the lived experience of dementia. Moreover, *Before I Forget* encourages reflection and critical analysis, fosters empathy toward people living with dementia, and allows students to practice integrating emotional understanding with disciplinary expertise.

Facts

Release date:	2020
Developer:	3-Fold Games
Game type:	Digital
Number of players:	Singleplayer
Format:	Hybrid
Time frame:	Approximately 1 hour; designed for a single sitting
Languages:	Available in five languages on Steam, six on Xbox and Nintendo Switch
Environment:	Computer, Xbox One, or Nintendo Switch
Material:	N/A
Price:	USD \$7.99

Resonance & Criticism

Critics and players praise *Before I Forget* for its environmental storytelling, nuanced voice acting, and its focus on Sunita's individual experience. Reviewers often highlight that its short, hour-long playtime offers an impactful narrative that effectively conveys the effects of dementia on Sunita's memory, identity, and perception.

Before I Forget has a critic score of 88 on Metacritic and 82 on OpenCritic. Metacritic's audience score is 7.1, and it has a "Very Positive" rating on Steam. The game received early recognition at the XX+ Games Jam in Bristol, UK, in 2016, where it won the Audience Choice Award. It was nominated for "Game Beyond Entertainment" at the BAFTA Games Awards (2020), the "Off Broadway Award – Indie Game" by the New York Game Critics Circle (2020), and "Most Innovative" at the Games for Change Awards (2021).

The game may not appeal to players expecting conventional game goals or structure; the experience is not about winning but about portraying an intimate story and simulating player experiences. Additionally, criticism has targeted its limited interactivity and fixed narrative, which reduces replay value.

Game Principle & Process

Before I Forget uses environmental storytelling and visual metaphors to convey the effects of dementia on memory, identity, and perception. The game reveals Sunita's memories and emotional state through illustrated vignettes and voice-over. Photographs, documents, and notes spark memories that reveal Sunita's story and restore colour to her desaturated home. Still, some areas remain grey, representing permanent memory gaps.

Sunita's foremost pursuit is to find her husband, Dylan. Her memories provide glimpses of their relationship, revealing the story in fragments. For example, Sunita finds an umbrella that prompts a scene of the couple caught in the rain. Later, a brochure reveals Dylan's music career, accompanied by a piano melody and an inner monologue. Each memory has a unique emotional impact on Sunita, which is represented both visually and through sound.

While continuing her search, Sunita loses her way, often wandering into dark closets. In other instances, she experiences visual distortions, reflecting common challenges associated with de-

mentia. Eventually, Sunita finds a news article that brings devastating clarity to her world. The experience concludes once the player uncovers Sunita's full emotional arc.

Learning Objectives & Educational Fields of Application

The main goal of *Before I Forget* is to examine the emotional impact of dementia from a first-person perspective. The creators aim to highlight the complexity of the condition, with Sunita reliving even happy memories throughout the game, dispelling tropes of "darkness and despair" associated with the condition (Wen, 2018).

Through Sunita's backstory and reflections, students can explore the complex relationship between memory, identity, and perception, recognizing how cognitive changes impact her emotional landscape. The game also invites students to reflect on how narrative and metaphor can convey individual experiences and to critically analyze the role of storytelling in fostering empathy and understanding.

The game's versatility makes it relevant across multiple disciplines. In higher education contexts such as psychology and cognitive science, health humanities, gerontology and aging studies, and narrative medicine, *Before I Forget* supports learning objectives by helping students make sense of abstract concepts through a patient's lived experience. Instructors can promote critical analysis by asking students to connect symptoms and in-game experiences to professional knowledge. The game encourages evaluating current strategies for educating students about dementia and exploring how storytelling could impact understanding and approach across various fields. Furthermore, the game inspires insights into care strategies, educational plans, and original projects that synthesize student learning. By engaging learners in these higher-order thinking skills, the game not only deepens subject knowledge but also cultivates empathy, critical reflection, and applied problem-solving.

Effectiveness

There are currently no empirical studies on the effectiveness of *Before I Forget* in educational settings. Instead, the game is most effective when used in active learning strategies that combine gameplay with guided reflection. Instructors can integrate the game into lessons by pairing it with structured discussion questions, writing prompts, or creative assignments that allow students to process and articulate their experiences.

Drawing on dementia research and outreach, the game's narrative offers a clinically informed and ethically responsible portrayal that invites critical reflection on memory and identity. Sensory cues and visual metaphors make abstract symptoms more tangible, while the story's emotional impact can spark rich discussion beyond clinical case studies (Campbell, 2018). Additionally, students with no prior gaming experience can access and engage meaningfully with its content because the controls are simple and the hour-long playtime fits into a single class session.

Potentially Problematic Aspects

While *Before I Forget* offers a powerful, emotionally resonant portrayal of dementia, its strong emotional triggers may be complex for those personally affected by dementia (Campbell, 2018).

The narrative arc is intense, particularly in the final scenes, which may be challenging for some audiences. The singular narrative also risks being interpreted as representative of all dementia experiences.

Some visual and navigational mechanics may pose challenges for players with disabilities. To move and interact with objects on a computer, players must rotate the mouse and click the left mouse button. Furthermore, the player must align objects with a centered reticle, which may present challenges for players with motor limitations. Since the game relies heavily on color and sound cues, players with color vision deficiency or hearing impairments may need supplemental descriptions or discussion to engage fully.

Importantly, the developers describe *Before I Forget* as an “impressionistic” experience rather than a formal educational tool (Wen, 2018). Instructors should supplement with information and context from trusted sources.

Reviewer: Johannes Katsarov

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Beyond the Chalkboard

*Developed by: Technische Hochschule Köln –
University of Applied Sciences, Spoonful Games*

*Article contributed by: Jasmin Alfeld,
Klara Groß-Elixmann, Maike Kaul*

<https://doi.org/10.5281/zenodo.17679691>

Keywords

Accessibility, Anxiety, Depression, Educational Ethics, Empathy, Inclusion, Mental Health, Psychology, Trauma

Introduction

Beyond the Chalkboard is a browser-based serious game released by TH Köln, University of Applied Sciences, in September 2025 (ZLE, n.d.). It aims to make higher education accessible by raising awareness of the structural and emotional challenges faced by students with mental health issues (Alfeld et al., 2025a). The game is designed primarily for university staff – especially lecturers, professors, and others involved in teaching students. The point-and-click game allows players to experience three days in the life of Sam, a student struggling with a mental illness. You make decisions such as whether to go to university or stay at home, study for an exam or meet up with friends, take a walk or take a shower—shaping Sam’s everyday life. However, players’ choices and experiences are limited by systemic conditions, the behaviour of teachers and fellow students, as well as Sam’s fears and depressive feelings.

Facts

Release date:	09/2025
Developer:	Technische Hochschule Köln-University of Applied Sciences & Spoonful Games
Game type:	Digital
Number of players:	Single player
Format:	Synchronous
Time frame:	30–45 minutes
Languages:	English, German
Environment:	Access to a computer (Using a mouse/touchpad and ideally sound/headphones). Playing on a tablet is also possible, but not ideal.
Material:	All important instructions can be found on the website. There is a didactic guide you can use to implement the game in workshops.
Price:	Available free of charge

Resonance & Criticism

As the game was only released in September 2025, player feedback is still limited. However, students with mental illnesses were involved in the development process as experts by experience. They tested the game at three different stages, provided feedback, and shared their personal experiences to help shape the game content. It was made clear that a game cannot fully capture the life of a student with mental illness, but the experts appreciated the insights it offered.

Game Principle & Process



Screenshot from Beyond the Chalkboard (2025). © Technische Hochschule Köln – University of Applied Sciences & Spoonful Games.

The setting of Beyond the Chalkboard is Sam's apartment (see Figure) and places on the university campus. Players see Sam in a seminar room, in a lecture hall, and socializing with other students at the benches. By left-clicking, players can move Sam, interact with objects and people, and respond in text-based dialogues. A central gameplay mechanic is the mind space, where Sam's thoughts and feelings are visually represented. These thoughts move around the mind space and change size depending on their urgency. Sam's current emotional state affects the accessibility of the mind space, which appears as a fog that shrinks the active area. Thoughts and feelings hidden in the fog cannot be reached, meaning the player cannot select corresponding actions. Positive experiences help to reduce the fog. Players can also move thoughts and feelings around using a drag-and-drop function. An introductory tutorial provides further details about this mechanic. The mind space feature illustrates how events, interactions, and player choices affect Sam's state of mind. Depending on the decisions made, the game features multiple possible endings.

Learning Objectives & Educational Fields of Application

The aim of Beyond the Chalkboard is to raise awareness among lecturers and other university staff about the challenges faced by students with mental health issues, thereby helping make their teaching more accessible (Alfeld et al., 2025a). Playing the game allows participants to immerse themselves in the world of such a student and gain deeper insight from the student's perspective. The game can be played independently but is ideally accompanied by a workshop (Alfeld et al., 2025b). In the suggested workshop, participants are encouraged to reflect on possible actions to improve accessibility. After playing, ideally, they understand to what extent barriers are systemic rather than individual. From this perspective, they explore ways to design inclusive teaching practices that contribute to a more accessible higher education environment for students with mental illnesses. Accompanying the game website is a facilitator's guide offering several adaptable elements that can be customized to suit different workshop needs (Alfeld et al., 2025b):

- Introduction and Goals
- Playing Beyond the Chalkboard
- Personal Reflection on the Gaming Experience
- Exchange and Discussion: Mental Illness in Teaching
- Studying with a Mental Illness
- Developing Action Strategies
- Consolidation and Conclusion

Effectiveness

No empirical studies on the game's effectiveness have been conducted yet.

Potentially Problematic Aspects

Beyond the Chalkboard is designed to help players empathize with a student experiencing depression and anxiety. This may be triggering for some players. Players are advised to be mindful of their needs while playing and seek support if necessary. If playing in a group, players should be mindful of the topic's sensitivity. The game's website provides links to German-language support resources. This information should be shared when using the game in an educational or didactic setting.

Reviewer: Saskia Sterzl

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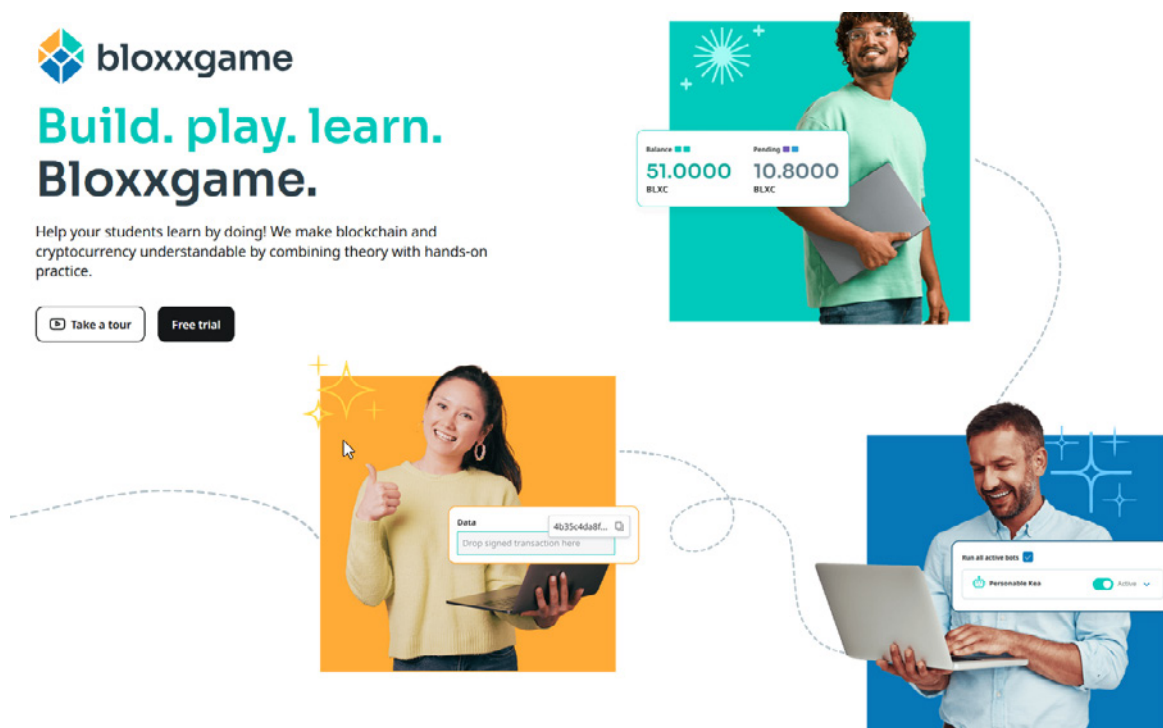
Bloxxgame

*Developed by: Visilize GmbH, Walter Dettling, Thomas Breitler
Article contributed by: Walter Dettling, Frazen Tolentino-Zondervan*

<https://doi.org/10.5281/zenodo.15824643>

Keywords

Bitcoin Mining, Blockchain, Cryptography, Digital Signatures, Economics, Group Learning, Hashing, Self-study, Wallets



Promotional image for Bloxxgame (Visilize GmbH). Used for educational review. Rights remain with the creators.

Introduction

Bloxxgame (see Figure) is a digital education platform for higher education students and teachers. It teaches blockchain fundamentals in an interactive, risk-free environment—no technical background needed. The platform is tailored for teachers who want to introduce students to key blockchain concepts, including hashing, digital signatures, crypto wallets, coin creation, blockchain transaction processing, Bitcoin mining, and block verification. In Bloxxgame, users actively participate in the blockchain simulation by performing activities such as sending and receiving virtual coins, mining new blocks, and adding and validating transactions. Students are progressively exposed to blockchain mechanisms across seven levels of interface complexity, allowing them to build their knowledge gradually. Additionally, teachers can deploy bots to

create transactions and blocks. This feature can be used to demonstrate how a blockchain grows by user activity or to provide students with a realistic, dynamic experience as they interact with a live blockchain simulation.

Facts

Release date:	Version 1.0 (2019), current version 3.6 (2025)
Developer:	Visilize GmbH, Walter Dettling, Thomas Breitler
Game type:	Digital
Number of players:	Singleplayer & Multiplayer (No Limits)
Format:	Hybrid
Time frame:	60-minute demo up to a 2–4 week exploration project
Languages:	English
Environment:	Laptop or PC with internet access
Material:	Online help, additional resources online
Price:	Teacher master account: \$69.30/year or \$7.70/month. Student account: \$18.90/year or \$2.10/month. Free trial version, subscription for teaching institutions with a 30% discount. Class bundle with a discount.

Resonance & Criticism

Bloxxgame is a novel approach to teaching complex blockchain mechanisms in an accessible, practical way, primarily used in higher education, workshops, and professional training. The game requires a game leader who understands the basics of blockchain to achieve a positive learning outcome for students. Despite positive student feedback, only a few teachers incorporate Bloxxgame into their lessons. Feedback from interested educators indicates that the game's rules, which strictly mirror the protocol rules of a blockchain, can make it challenging to use effectively as a teaching tool.

Game Principle & Process

Bloxxgame does not have a pre-defined course of play. Teachers can use Bloxxgame as a demonstration tool before allowing students to explore it independently. Only minimal preparation is required: the teacher should be confident in basic blockchain concepts and review the admin settings in advance.

In class, students can work alone or in groups, each managing a node. The teacher can assign tasks such as signing a message, creating a coin transaction, or building a block, and use demonstration mode to show how it works. Once students grasp the basics, they can switch to play mode—competing to create the next block, earn the most points, or generate coins. Bloxxgame remains accessible between lessons for self-study. Each player acts as a node—creating transactions, building blocks, and mining—learning core concepts like consensus through hands-on experience. The game breaks down key mechanisms such as hashing, signing, and block building, and provides tools for classroom or online use. Seven levels of difficulty let teachers match the game to students' prior knowledge.

Through the game, students can experience both basic blockchain principles as well as the application of in-depth cryptographic theory. More examples of teaching scenarios can be found in Dettling (2020) and on the Bloxxgame resource page (bloxxgame.io).

Learning Objectives & Educational Fields of Application

Bloxxgame is a web-based simulation tool that replicates the core functions of a public Layer 1 blockchain, incorporating features similar to those of Bitcoin, Ethereum, and Cardano.

Bloxxgame aims to make the complex mechanisms of public blockchains accessible to students without programming skills. It offers a hands-on experience with key concepts, such as decentralized consensus. It empowers teachers without a computer science background to effectively introduce blockchain fundamentals before exploring real-world applications across sectors such as finance, healthcare, and supply chains (e.g., Tolentino-Zondervan et al., 2023). Through interactive learning, it goes beyond theory by letting students actively participate and explore how a blockchain works.

This approach ensures that students not only learn blockchain concepts but also actively engage with them in a practical, accessible way.

Effectiveness

Baez's (2021) master's thesis shows that Bloxxgame improves students' understanding of blockchain concepts such as blocks, consensus, and transactions, and that students rate their Bloxxgame experience highly (4.18 out of 5.0). Systematic debriefings have also clearly confirmed that using Bloxxgame made students more aware of the opportunities and risks associated with a lack of knowledge in the field of cryptocurrencies.

Potentially Problematic Aspects

By 2025, over a thousand students will have gained hands-on blockchain experience with Bloxxgame, with consistently positive feedback. However, teacher involvement remains low. Although the game has been publicly accessible since 2024, website traffic and research downloads have not yet translated into widespread educator adoption.

Experimental teaching methods continue to be underestimated compared to traditional theory-driven approaches, and blockchain education faces additional challenges. Public perception often focuses heavily on cryptocurrencies and their negative associations, leading to the broader relevance of blockchain being overlooked in most university curricula. As a result, even in technical disciplines, teachers have significant gaps in the fundamentals of blockchain. Using Bloxxgame as a teaching tool does not require teachers to have specific technical knowledge; instead, it requires a basic understanding of blockchain mechanisms.

Reviewers: Xenia Zeiler, Lucian Jueterbock

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Brick Motors: A LEGO-Based Design Sprint

Developed by: Kerstin Schickendanz

Article contributed by: Kerstin Schickendanz

<https://doi.org/10.5281/zenodo.15828529>

Keywords

Collaborative Problem-solving, Cooperation, Engineering, Entrepreneurship, Innovation Management, Product Development, Project Management, Prototyping, Strategic Decision-making, Teamwork

Introduction

Brick Motors is a serious game developed by Kerstin Schickendanz, a Lecturer in Entrepreneurship at TH Köln, to teach students the principles of product development and innovation management. The game is grounded in the Stage-Gate® process (Cooper, 2022) and challenges participants to design and build a LEGO® vehicle, navigating iterative development stages while making strategic decisions about resource allocation, performance optimization, and creative design.

The game is tailored for university students across various innovation-related disciplines, including business, engineering, and information technology. It has been specifically developed to integrate seamlessly into a regular course structure or game-based learning environments, offering a structured, hands-on approach to mastering complex decision-making frameworks. Through this simulation, students gain practical insights into real-world product development dynamics, fostering both strategic thinking and collaborative problem-solving skills.

Facts

Release date:	2023
Developer:	Kerstin Schickendanz
Game type:	Analog
Number of players:	9–24. The ideal number of players per team is 3–4, with the recommendation of 3–6 teams per class.
Format:	Synchronous
Time frame:	90-minute Session. Keep phases on schedule with concise evaluations. 120-minute Session: Extend the scoping and development phases to allow for more iteration or add a fifth category like “Sustainable Car”.
Languages:	Any language
Environment:	Classroom or workshop setting with space for car testing
Material:	To conduct this activity, a sufficient number of LEGO® bricks and wheels is required. The equipment used includes the LEGO® Identity and Landscape Set, the LEGO® Connections Kit, additional LEGO® wheels, a cardboard ramp for testing, three to five heavy books for weighing, a timer (a

smartphone is sufficient), a measuring tape, and tape. It is recommended to prepare a presentation and print a Development Log for each team to complete.

Price: Depends on material availability; the LEGO® Identity and Landscape Set costs about 700 EUR (<https://www.lego.com/de-de/product/identity-and-landscape-kit-2000430>), the LEGO® Connections Kit costs about 550 EUR (<https://www.lego.com/de-de/product/connections-kit-2000431>)

Resonance & Criticism

Brick Motors has received positive feedback from both instructors and students for its interactive and engaging approach. The game has been implemented in two degree programs: Innovation Management & Data and Information Science (B.A.) and Sustainable Engineering (B.Eng.) at the Technische Hochschule Köln and the Hochschule Bonn-Rhein-Sieg, both universities of applied sciences.

While there are no documented awards or ratings, feedback indicates the program's effectiveness in illustrating the differences between project management approaches.

Some challenges include reliance on LEGO® materials, which may not be accessible to all institutions, and the need to keep all students actively engaged throughout the various phases.

Game Principle & Process



Photograph of a LEGO® vehicle prototype created during a Brick Motors (Kerstin Schickendanz) session. Used for educational review. Rights remain with the creators.

The game is structured into five phases following the Stage-Gate® process. It begins with a 10-minute introduction that sets the context and explains the Stage-Gate® process using slides or a visual diagram, outlining the stages of concept, scoping, development, testing, and launch, as

well as the gates as decision points for evaluation and adjustment. Teams are then introduced to the challenge of designing and building a LEGO® car that competes across several goals: most creative design, longest distance, fastest car, strongest car, and optionally the most sustainable car using the fewest bricks (see Figure).

In the 10-minute concept phase, teams engage in creative brainstorming. Each team member sketches an individual car idea, while the team documents concepts and predicted performance metrics in a development log. This is followed by a 5-minute Gate 1 evaluation, during which teams present their concepts for feedback on feasibility, creativity, and alignment with the goals, and then select one idea to move forward.

The scoping phase lasts 20 minutes and focuses on building and testing an initial prototype. Teams conduct preliminary tests for speed, distance, and strength, recording results for later refinement. During the 5-minute Gate 2 evaluation, prototypes are presented and assessed for stability, functionality, and improvement potential, after which teams decide whether to refine or pivot their design.

During the 20-minute development phase, teams iteratively improve their prototype based on feedback, optimizing aspects such as weight, structure, and axle alignment. Additional tests are conducted to confirm improvements. A 5-minute Gate 3 evaluation follows, focusing on measurable improvements, robustness, and continued alignment with the original goals.

The testing phase takes approximately 30 minutes and evaluates the final cars in four to five categories, depending on available time. Rankings are recorded after each test, for example, by scoring teams from best to worst. The most creative design is evaluated first to avoid bias, with each student receiving three stickers to vote for other teams' cars. The longest-distance test involves releasing cars from the ramp and measuring how far they travel, followed by the fastest-car test, in which cars are timed over a marked distance. The strongest car test is conducted second-to-last, using progressively heavier books to determine load capacity. If included, the sustainable car category requires dismantling the cars and counting the number of bricks used, with the fewest bricks winning.

The final launch and reflection phase lasts about 15 minutes and is led by the facilitator. Teams reflect on role distribution, challenges encountered during testing, unexpected results, decision-making throughout the process, real-world applications of the Stage-Gate® approach, and key takeaways from the activity. Optionally, certificates or prizes may be awarded for each category.

Learning Objectives & Educational Fields of Application

The integration of Brick Motors into an educational setting provides students with a comprehensive understanding of structured innovation methodologies as applied to real-world product development. Using an experiential learning approach, students work within a systematic framework that mirrors standard industry practices. The game develops key competencies aligned with Bloom's Revised Taxonomy by enabling students to understand and remember the sequential phases of innovation and the decision-making logic underlying successful product development. Through iterative prototyping, testing, and refinement, students apply principles of agile development and user-centred innovation. They are also required to analyze and eval-

uate their products objectively, optimize designs under resource constraints, and address challenges typical of product development and strategic management. Finally, students engage in creative problem-solving by designing and constructing innovative products, defining threshold criteria, integrating feedback, and making difficult trade-off decisions.

The instructor serves as a facilitator, guiding discussions, providing formative feedback during gate evaluations, and ensuring learning objectives are met. No specialized training is required beyond a basic understanding of the Stage-Gate® process, making the approach broadly accessible for educators in innovation and management contexts.

Effectiveness

Despite the lack of formal empirical studies on Brick Motors, feedback indicates that the game effectively engages students, enhances their understanding of structured product development methodologies, and facilitates the development of a new product. According to Jensen et al. (2019), players experience a flow state due to the game's hands-on nature and competitive elements. The iterative learning cycle ensures students internalize key concepts, rendering the game an effective learning tool for innovation and engineering education.

Potentially Problematic Aspects

The game does not present significant ethical concerns or problematic content. However, access to LEGO® materials may be a limiting factor for some institutions. The game promotes inclusivity by encouraging teamwork and diverse problem-solving approaches.

Reviewers: Anna Sorgatz, Lucian Jueterbock, Damien Marage

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Business Challenge Essentials

Developed by: TOPSIM GmbH
Article contributed by: Robert Galiard

<https://doi.org/10.5281/zenodo.15924653>

Keywords

Accounting, Business, Financial Management, Human Resource Management, Marketing, Process Management, Production Management, Project Management, Sales, Strategic Decision-making



Graphic from Business Challenge Essentials. Rights owned by TOPSIM GmbH; used here for educational review.

Introduction

Business Challenge Essentials (see Figure) is a digital single-player business simulation in which participants take on the role of management in a medium-sized company. The thematic focus lies on teaching basic business administration concepts and entrepreneurial decision-making. The goal is to steer the economic success of a backpack manufacturer through strategic and operational actions.

The simulation is aimed at beginners in business administration—particularly students, young professionals, and individuals in continuing education. As a serious game, Business Challenge Essentials combines playful learning with realistic challenges, enabling practice-oriented learning without real-world risk. The game uses round-based decision-making across finance, production, marketing, and personnel. The simulation builds on the well-established TOPSIM business simulations, which have been used for over 40 years. Version 1.3.0 of Business Challenge Essentials was first released in the TOPSIM Cloud in 2022.

Facts

Release date:	Initial release in the TOPSIM Cloud: Version 1.3.1 (April 2022). Current version: 1.4.0 (May 2022)
Developer:	TOPSIM GmbH
Game type:	Digital, hybrid (at least one player per team needs internet access)
Number of players:	The number of players is infinitely scalable.
Format:	Asynchronous, Hybrid
Time frame:	Approx. 4–6 h, depending on how many of the four periods are played, the structure of the simulation, and whether evaluations or additional tasks are included. The time requirement also depends on the intended learning outcomes.
Languages:	English, German
Environment:	Device: tablet, PC, or laptop (minimum 720p). Browser: Chrome, Firefox, or Safari. Internet access required.
Material:	No additional materials are required. Short description: https://www.topsim.com/wp-content/uploads/2024/05/Business_Challenge_Essentials_Flyer.pdf ; Blog article: https://www.topsim.com/blog/individuell-und-unabh%C3%A4ngig-lernen-mit-business-challenge-essentials/
Price:	TOPSIM simulations are not free. Licensing costs depend on the specific simulation, number of participants, and usage model. Costs are calculated individually by TOPSIM.

Resonance & Criticism

Business Challenge Essentials is primarily used in educational institutions, such as schools and universities, to teach basic business administration in a practice-oriented manner. It is aimed at beginners in business management and enables self-directed learning through a single-player mode in which players compete against a computer opponent.

Concrete user numbers or detailed evaluations are not publicly available, making it difficult to assess its overall reach and reception. The simulation has been well received across various educational contexts, as its technical design and virtual advisor require minimal preparation and instructor supervision. No public awards or detailed reviews are currently available.

Game Principle & Process

The simulation is divided into four periods (game rounds), each representing one fiscal year. At every point, decisions must be made across research and development, finance, production, marketing, sales, personnel, and administration. Participants analyze market and company data to make informed decisions. A technical onboarding explains the user interface and reduces preparation time for instructors.

The main objectives of the simulation are the successful marketing of the backpacks produced and the increase in company value. These goals are clearly defined and transparent to players. A ranking system allows participants to compare their performance with others, fostering competition. A virtual advisor supports decision-making by providing analytical reports.

The simulation can be played either in single-player mode against computer opponents or in teams. In team mode, the game promotes communication and cooperation, as decisions must be made jointly.

Business Challenge Essentials is based on experiential learning, in which theoretical concepts are applied in practice to deepen understanding. By simulating real business processes in a risk-free environment, participants develop a solid understanding of economic interrelationships.

The integrated technical onboarding and virtual advisor reduce preparation and supervision time for instructors, allowing one instructor to oversee multiple teams. Nonetheless, it is recommended that instructors familiarize themselves with the simulation beforehand to provide targeted support when needed.

Learning Objectives & Educational Fields of Application

Business Challenge Essentials teaches basic business administration concepts in a practice-oriented manner. The goal is to increase company success through strategic and operational decision-making.

The simulation strengthens business understanding by presenting realistic scenarios. Participants learn to analyze market and company data and make informed decisions based on these insights. The period-based structure with successive decision phases helps players recognize the consequences of their actions and develop long-term strategies. Additionally, the simulation enhances decision-making under uncertainty by requiring consideration of external factors.

The game can be played individually or in teams. In single-player mode, independent work and analytical skills are strengthened. In team mode, communication and cooperation are promoted.

A core learning mechanism is the integrated feedback system. A virtual advisor provides analytical reports each period, helping participants interpret business metrics. This direct feedback supports strategy adjustments and fosters a more profound understanding.

Instructors take on a supportive role. The interactive onboarding keeps preparation and supervision requirements low, enabling a single instructor to guide multiple teams simultaneously. Instructors moderate reflection phases and assist in analyzing results and strategic decisions.

The simulation is based on experiential learning, where practical application deepens theoretical knowledge. Through realistic representation of business processes, participants develop entrepreneurial competencies in a risk-free learning environment.

Effectiveness

There are currently no specific empirical studies on the effectiveness of Business Challenge Essentials. However, general research indicates that serious games can foster flow experience, leading to higher motivation and improved learning outcomes. For example, a study showed that participation in a serious game designed to teach information-handling skills led to better learning outcomes compared to traditional classroom teaching (Eckardt et al., 2017). A meta-

analysis by Wouters et al. (2013) further demonstrated that digital games offer cognitive and motivational advantages over traditional learning methods.

Although direct studies on Business Challenge Essentials are lacking, these general findings suggest that the simulation's interactive and practice-oriented design can support flow and practical learning.

Potentially Problematic Aspects

Business Challenge Essentials contains no problematic content such as violence, stereotypes, or sensitive subjects like mental illness or drug use. Its content remains strictly business-oriented. However, the exclusive economic focus may feel insufficient for those expecting sustainability or social responsibility considerations.

Because the simulation is digital, accessibility may be limited for individuals with limited computer access or physical or visual impairments. A fully accessible version is not explicitly mentioned. There is no indication of discriminatory content or exclusion of specific groups.

Reviewers: Saskia Sterzl, Hannes Hamester

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Business Management

Developed by: TOPSIM GmbH
Article contributed by: Robert Galiard

<https://doi.org/10.5281/zenodo.15924540>

Keywords

Business, Financial Management, Human Resource Management, Manufacturing, Production Management, Project Management, Strategic Decision-making, Supply Chain Management



Graphic from Business Management showing the main instructional topics. Rights owned by TOPSIM GmbH; used here for educational review.

Introduction

The Business Management simulation (see Figure) recreates the leadership of a medium-sized bicycle company. Participants assume the role of executive management and make decisions across production, marketing, human resources, and finance. The goal is to generate sustainable growth and remain competitive in the market.

The simulation is aimed at students, professionals, managers, and decision-makers in companies who want to learn about economic relationships in a practice-oriented manner. It teaches business knowledge and fosters strategic thinking.

As a serious game, Business Management combines interactive learning with realistic challenges. Participants analyze market conditions, implement strategies, and directly experience the consequences of their decisions.

The simulation is based on the established TOPSIM business simulation concept, which has been in use for over 40 years. Version 3.5 of Business Management was first released in the TOPSIM Cloud in 2018 and is continuously updated to reflect economic developments.

Facts

Release date:	Initial cloud release: Version 4.1 (March 2018). Current version: 4.9.0 (September 2024)
Developer:	TOPSIM GmbH
Game type:	Digital hybrid (at least one player per team requires internet access)
Number of players:	Optimum: 9–25 (3–5 groups of 3–5 persons each). Multiple markets are possible. The number of players is infinitely scalable.
Format:	Asynchronous, Hybrid
Time frame:	Approx. 16–24 hours, depending on how many of the six periods are played, how the simulation is conducted, and whether evaluations or additional tasks are included. The time requirement depends on the intended learning objectives.
Languages:	English, German
Environment:	Device: Tablet, PC, or laptop (minimum 720p). Browsers: Chrome, Firefox, or Safari. Internet access required.
Material:	Participants receive an introduction, a participant handbook, business news, and other seminar materials. Facilitators receive a seminar handbook. Short description: https://www.topsim.com/wp-content/uploads/2024/05/Business_Management_Flyer.pdf ; Blog article: https://www.topsim.com/blog/den-mittelstand-kennenlernen-mit-business-management/
Price:	TOPSIM simulations are fee-based. Costs depend on the simulation, number of participants, and usage model. Direct inquiry with TOPSIM is recommended.

Resonance & Criticism

Business Management is an established simulation used for training and education in business administration. It is utilised in universities, companies, and adult education institutions to teach practical business competencies. Exact user numbers are not publicly available.

Participants and experts appreciate the realistic simulation and the ability to make strategic decisions without risk. The simulation supports teamwork and the understanding of complex business processes. However, some criticism relates to the simulation's complexity and time requirements (Feiter & Redeker, 2024).

No awards are currently known, but the simulation is considered a respected management tool.

Game Principle & Process

In the Business Management simulation, participants lead a medium-sized bicycle manufacturer and experience industry dynamics firsthand. The round-based simulation spans up to six periods (financial years), with teams making up to 38 operational decisions per period across sales, research & development, procurement, finance & accounting, production, and human resources.

The simulation realistically models industry-specific market dynamics, including rising raw material and labour costs, price pressure from low-wage competitors, and optimal product-market

positioning. Market changes are communicated via business news, reports, and diagrams in the TOPSIM Cloud, helping mitigate disruption and volatility.

The goal is sustainable growth in market share, revenue, and profit. Specific performance targets (e.g., sales volume, contribution margin) are communicated at the beginning. After each round, the system generates automated reports with financial indicators and benchmark analyses, supporting iterative learning through data-driven feedback.

Teams consist of three to five persons, with four to six groups competing in parallel to ensure competition. Total playtime is 16–24 hours, typically spread across two to three seminar blocks.

TOPSIM provides extensive training materials: a seminar leader's handbook with guidelines for structure and moderation, a participant handbook explaining decision processes and key metrics, demo scenarios, live webinars for facilitators, and technical and content support. This ensures instructors become familiar with the interface, analytics tools, and didactic applications.

Learning Objectives & Educational Fields of Application

The Business Management simulation develops entrepreneurial competencies by immersing participants in corporate leadership. They plan investments across the product life cycle, analyze procurement conditions, and create strategies to meet goals. Participants evaluate company data and consider sustainability from economic, ecological, and social perspectives. A key focus lies on making efficient team decisions under time pressure. They must adapt rapidly to market changes to remain competitive.

The round-based structure simulates several business years, requiring participants to react to market developments. Regular reports provide financial and competitive analyses, forming the foundation for strategic decisions and enabling continuous feedback. The simulation bridges theory and practice, enhancing strategic thinking and economic understanding.

Instructors introduce the simulation, support reflection, and help identify optimisation potential. They guide participants through decision-making and collaboratively debrief results. The structured format allows one instructor to oversee multiple groups. Provided training materials facilitate preparation and flexible implementation in teaching contexts.

Overall, Business Management offers a realistic, interactive learning experience that conveys economic interrelationships and strengthens management competencies.

Effectiveness

No specific empirical studies on the effectiveness of Business Management are publicly available. However, TOPSIM simulations are widely appreciated for their realism and risk-free environment for strategic decision-making, enhancing teamwork and understanding of business processes (TOPSIM GmbH, 2025).

No long-term studies exist regarding the sustainability of learning outcomes. Nonetheless, practice reports indicate that applying theoretical knowledge fosters strategic thinking and a deeper understanding of business contexts (TOPSIM GmbH, 2023b).

No studies specifically investigate immersion or flow experience in Business Management. However, TOPSIM simulations are generally designed to be interactive, engaging participants through realistic scenarios that promote decision-making and teamwork (TOPSIM GmbH, 2025).

Potentially Problematic Aspects

Business Management contains no sensitive or problematic content such as violence or discrimination. It focuses on economic decision-making in an SME context and uses neutral language and realistic business scenarios.

Due to its business complexity, the simulation may be challenging for participants without prior knowledge. It requires strategic thinking and structured decision-making.

Sustainability is addressed, though the focus primarily lies on economic factors. Market data is regularly updated to ensure realistic scenarios aligned with economic conditions.

Reviewer: Hannes Hamester

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Cards Against Agility

Developed by: Play4Agile Community

Article contributed by: Ivelina Dimitrova Karaatanasova

<https://doi.org/10.5281/zenodo.15870057>

Keywords

Agile Project Management, Collaborative Problem-solving, Corporate Training, Facilitation, Guided Discussion Techniques, Innovation Management, Organizational Change Management, Product Development, Project Management



Image from Cards Against Agility (Play4Agile Community). Used for educational review. Rights remain with the creators.

Introduction

Cards Against Agility (see Figure) is a serious game designed to facilitate learning and reflection around Agile methodologies—adaptive frameworks for project management that emphasize collaboration, responsiveness to change, and continuous improvement. The game presents Agile-related scenarios and prompts players to discuss best practices, common challenges, and misconceptions in Agile environments. Inspired by the structure of Cards Against Humanity, it replaces spontaneous humor with scenario-based reflection. The game targets a wide range of learners, including Agile practitioners, corporate teams undergoing Agile transformation, and university students enrolled in courses such as Agile Project Management or Software Development Methodologies. Developed in 2017 at the Play4Agile event in Germany (Agile Gatherings,

n.d.), the game has become a widely recognized tool in Agile coaching and retrospective sessions.

Facts

Release date:	2017
Developer:	Play4Agile Community
	Co-creators: Daniel Hommel, Silvana Wasitova, Bruce Scharlau, Nils Bernert, Edward Dahllöf
Game type:	Hybrid
Number of players:	4–8 players (optimal), flexible for larger groups
Format:	Synchronous
Time frame:	30–60 minutes
Languages:	English, German
Environment:	A collaborative group setting
Material:	Printed or digital card deck
Price:	€32.95 per card deck (regular price), but available online for free.

Resonance & Criticism

As of 2025, Cards Against Agility continues to gain traction among Agile teams and facilitators, reflecting a steady rise in adoption across corporate workshops, retrospectives, and training settings. It is featured on platforms such as TastyCupcakes.org (Hommel et al., 2017) and AgileConnection.com (Husovsky et al., 2019), which further underscores its relevance within the Agile learning community.

However, because Cards Against Agility relies on humor, some scenarios may be misinterpreted by players. Its satirical tone effectively highlights Agile pitfalls but can also lead to misunderstandings if not properly guided. Effective facilitation is recommended to ensure discussions remain constructive and focused on learning outcomes rather than mere entertainment. When thoughtfully moderated, the game can be a valuable tool for fostering open discussions while ensuring that humor remains inclusive and purposeful.

To date, no major criticisms have been reported in published forums, although the importance of thoughtful facilitation is consistently emphasized.

Game Principle & Process

Inspired by Cards Against Humanity, the game introduces Agile-related scenarios that prompt players to reflect on best practices, challenges, and misconceptions in Agile project management. Its design is grounded in experiential learning theory (Kolb, 1984), which emphasizes learning through active participation, reflection, and iterative adaptation.

During gameplay, each player receives a set of response cards, while one participant takes on the role of the Scrum Master, who draws a scenario card and leads the discussion. Players submit their chosen responses face down, after which the Scrum Master reads them aloud. The group then discusses the responses in the context of real-world Agile challenges, reflecting on

Agile missteps and potential solutions. The Scrum Master selects the most relevant or humorous response, awarding a point to the player whose response is chosen (Agile Supplies, n.d.).

Facilitators are encouraged to guide these discussions, ensuring that entertainment remains aligned with learning goals. The game works best in collaborative settings and typically lasts 30–60 minutes per session, depending on group size and depth of discussion.

Learning Objectives & Educational Fields of Application

Cards Against Agility enhances participants' critical thinking, awareness of the Agile mindset, and communication skills through scenario-based prompts and structured reflection. Its discussion-driven format encourages active engagement and supports knowledge retention by prompting thoughtful reflection and stimulating debate (LitheSpeed, n.d.).

Its design draws on experiential learning theory, which emphasizes learning through concrete experience, reflective observation, and active experimentation (Kolb, 1984). Through gameplay, participants move through these stages by responding to Agile scenarios, reflecting on implications, and considering alternative approaches, thereby reinforcing key Agile principles.

Facilitators can guide discussions to ensure deeper insights, but the game can also function as a self-moderated activity. The game's flexibility allows it to be used in diverse contexts, including Agile training workshops, university courses, and corporate team-building sessions. Its replayability allows participants to continually deepen their understanding of Agile methodologies, making it a valuable resource for both beginners and experienced practitioners (Agile Supplies, n.d.).

Effectiveness

While no formal empirical studies have been conducted to evaluate Cards Against Agility, the game's impact is supported by widespread practical use and positive feedback within the Agile community. Its presence on platforms such as TastyCupcakes.org (Hommel et al., 2017) and AgileConnection.com (Husovsky et al., 2019) highlights its relevance in both in-person and virtual learning environments.

By creating an engaging environment, the game invites teams to explore Agile principles through humor, helping break down barriers to constructive feedback and promoting deeper reflection on Agile challenges. This aligns with experiential learning principles, which emphasize active involvement as a foundation for deeper understanding (Kolb, 1984).

Potentially Problematic Aspects

Although the game's satirical tone enhances engagement, it may lead to occasional misinterpretation if players are unfamiliar with Agile terminology or context. Facilitators should ensure that all participants understand the purpose of the scenarios and maintain a respectful, inclusive atmosphere.

Reviewers: Daniel Geist, Lucian Jueterbock

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Carlowitz-Planspiel

Developed by: Gabriele Wach, Martin Gerner

Article contributed by: Gabriele Wach, Martin Gerner

<https://doi.org/10.5281/zenodo.15828365>

Keywords

Sustainability sciences, sustainability management, forestry sciences, climate change, sustainability goals



Photographic documentation of the Carlowitz-Planspiel simulation game in educational settings. Images show gameplay materials, participant interaction, and facilitation contexts—photographs used for illustrative purposes only.

Introduction

The aim of the game *Carlowitz-Planspiel – growing with trees* is to handle wood skilfully and with a future-oriented perspective: cultivating trees in a value-enhancing way, brokering and trading wood in a tailored manner, and using wood to create meaningful benefits. The simulation is based on Carlowitz's guiding principle of sustainability and models economic decisions related to the cultivation, trade, and use of wood. Learning objectives include understanding selected mechanisms of sustainable forestry and timber management, as well as developing a sense of individual responsibility from the perspectives of forest managers and customers.

In its design, the approach integrates market- and competition-based approaches, as well as transformative approaches to strong sustainability, and is guided by scenarios and events. Ac-

tion-oriented and participant-centred principles lead to a combined didactic approach that integrates haptic-analogue and digital elements, enabling varied perspectives and promoting self-reflection. A debriefing phase for reflective critique concludes the game rounds.

The Carlowitz-Planspiel aims to convey knowledge, foster action competence, and encourage sustainable behavioural change in real life. It combines round-based gameplay with transformative learning objectives, employs methodological approaches from simulation-game didactics, and focuses on real-life problem situations to enable direct transfer of learning.

Facts

Release date:	September 2022
Developer:	Gabriele Wach & Martin Gerner
Game type:	Hybrid
Number of players:	12–40
Format:	Hybrid
Time frame:	120–240 minutes
Languages:	English, German
Environment:	Preferably a third learning space with at least two generously sized rooms, ideally with a connection to wood or nature; Wi-Fi required for app use
Material:	Simulation-game kit with extensive materials (for forest managers and customers), shared and provided within a tandem facilitation setting
Price:	The game involves costs. An expense allowance is charged based on the duration, number of players, and scale (number of runs); materials are provided at a materials fee. Freely accessible/playable within a tandem facilitation setting

Resonance & Criticism

The Carlowitz-Planspiel is an exploratory simulation format designed to experience and practice sustainability. It is primarily used in higher education and formative learning contexts. Players often show enjoyment and a strong willingness to engage. This behaviour is likely attributable to the haptic elements, which can be experienced only through direct interaction; their apparent simplicity often proves both surprising and intuitively accessible to players.

Criticism occasionally notes that complex interrelationships are didactically simplified; however, this is inherent to the simulation-game format.

The Carlowitz-Planspiel is continually accompanied by research, particularly regarding the transformative impact of an event-driven game dynamic.

Game Principle & Process

In the land of “Arboreacarlo”, everything revolves around trees. As a forest manager, you decide how they are cultivated and traded. As a customer, you have the choice of which wood products you purchase. Your skill level is determined via an app on the marketplace for wood and wood products. This is also where it becomes apparent how well prepared you are for incoming

events. Will your tree species withstand a storm without damage? Which timber distributor gives you a clear conscience? Which wood products do you prefer? According to which criteria do you select them?

The Carlowitz-Planspiel is a turn-based format that makes self-efficacy in sustainable action tangible. Players test selected mechanisms of sustainable forestry from different perspectives, guided by selectable scenarios. Core didactic principles – informing, planning, deciding, implementing, monitoring, and evaluating – are central. Social interaction is integral to the gaming experience.

The Carlowitz-Planspiel is based on a purely qualitative, interactive scenario model; digital elements (app) are on an equal footing with haptic components. In addition to the German standard version, an international English-language version is available. The Carlowitz-Planspiel is moderated by a tandem of facilitators with subject-matter expertise and methodological-didactic training.

Game objectives become tangible step by step and are made explicit. Success results from round outcomes, integrated performance curves, and moderated exchange. Returns and payouts encourage creative competition and enable diverse strategic approaches. Interfaces with evidence and impact are embedded in the research design and are continuously explored.

The game design is based on interactionist stakeholder models, including principal–agent theory, decision dilemma models, and theories of distribution, scarcity, and justice (Rawls, 2024).

Learning Objectives & Educational Fields of Application

Through gameplay, sustainability becomes concrete, experiential, and activating, shifting from an abstract concept to a practical application across the forest, forestry, and timber industries, as viewed from changing perspectives. Players discover the interfaces between timber production and processing. They understand interactions between forest managers and customers and can empathetically assume both roles. They identify ecological, economic, and social sustainability variables and combine them into viable business and consumption models. In doing so, communication and cooperation pathways are used strategically and autonomously to achieve goals. Players evaluate their performance according to sustainability criteria and examine how resources can be used economically and deployed in a future-oriented manner.

The following competencies are addressed: Subject-specific competencies focus on mathematics (calculation, estimation), economics (market mechanisms, supply and demand, consumer behavior, intermediaries), forestry, business model development, and biology (forest botany, tree growth, cultivation forms, uses, damage events). Methodological competencies include applying simulation game didactics, researching topics and preparing them in a user-oriented way, developing role profiles, thinking strategically, planning in a process-oriented manner, arguing creatively, negotiating purposefully, and organizing effectively. Social and communicative competencies include collaborating in teams, presenting, tolerating frustration, remaining open to criticism, regulating emotions, discussing spontaneously and eloquently, making decisions, prioritizing, and evaluating. Action-oriented competencies include fine motor skills in haptic handling (cutting, painting, assembling) as well as goal-oriented use of digital media (app).

Effectiveness

So far, no empirical studies on the effectiveness of the simulation game are available. Accompanying research on the effectiveness of the Carlowitz-Planspiel focuses on transformational aspects of players' behavior and actions (Gerner, 2022; Gerner, 2023). The resulting considerations and insights are regularly discussed with expert audiences and directly incorporated into the research design. Game progressions and round results are documented qualitatively (participant observation, wiki) and quantitatively (datasets, graphical processing), making them optimally usable for concrete reference during debriefing. In the future, the recording and evaluation system is intended to enable scientific assessment as well.

The research objective is to contribute to competency development through the Carlowitz-Planspiel, drawing on Brundiers et al. (2021), who propose a reference framework for key sustainability competencies in higher education (Sustainability Science, 16(1), 13–29). <https://doi.org/10.1007/s11625-020-00838-2>.

Potentially Problematic Aspects

Game intention: Addressing sustainability without limiting game options. On the one hand, simulation-game principles and the Beutelsbach Consensus require opening up option spaces during gameplay rather than intervening in a manipulative or overwhelming manner (cf. Federal Agency for Civic Education, 2025). On the other hand, it is an explicit normative learning objective to become familiar with and experiment with sustainable game strategies.

Game haptics: Supporting transformative learning through haptic experience. Access through manual, tangible activities across all target groups fosters creative resonance and enables open, engaged engagement with sustainability issues.

Game context: Creating connectivity through added value. Adapting to changing conditions opens up diverse access points; the boundaries between formal, non-formal, and informal educational contexts often blur. The aim is to strategically leverage a broad range of points of reference with complementary added values, without risking arbitrariness.

Reviewer: Johannes Katsarov

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Catan: Oil Springs

Developed by: Erik Assadourian, Ty Hansen

Article contributed by: Rosa Teves

<https://doi.org/10.5281/zenodo.15926880>

Keywords

Capitalism, Climate-change Education, Economics, Environmental Ethics, Ethical Decision-making, Natural Disasters, Resource Exploitation, Sustainability, Tragedy of the Commons

Introduction

Catan's expansion, *Oil Springs Scenario*, was created by Erik Assadourian and Ty Hansen in partnership with the Catan team and the Worldwatch Institute in 2011. This expansion introduces oil as a new resource, which adds a layer of complexity to the game. It balances the idea of economic growth with the environmental risks it entails, shifting the focus from growth alone to its ecological impact.

The game's primary goal is to expand players' settlements. Considering the environmental impact and promoting awareness of sustainable development helps to achieve this.

Its target group includes Catan enthusiasts aged 12+, especially those who have not yet learned a lot about climate change and planetary boundaries, making it suitable for casual gamers.

It qualifies as a serious game by integrating gameplay with educational objectives (Caserman, 2020, p. 3), raising awareness of the exploitation of natural resources, incorporating ethical choices, and encouraging eco-conscious decision-making.

The mechanics involve the base Catan rules with added oil resources. Players can use oil for faster growth, but risk natural disasters. At the same time, they can gain points by sequestering oil, emphasizing trade-offs between profit and sustainability.

Facts

Release date:	October 19th, 2011
Developer:	Erik Assadourian & Ty Hansen for Klaus Teuber (Die Siedler von Catan)
Game type:	Analog
Number of players:	3–6 players
Format:	Synchronous
Time frame:	30–60 min
Languages:	English
Environment:	Table in the middle & chairs for each player
Material:	To play this scenario, you need all game components of the CATAN base game.
Price:	\$5 (no longer available; more expensive second-hand)

Resonance & Criticism

Since the Catan game is well known, the Oil Springs expansion was widely played, but it is no longer produced (Catan GmbH, n.d.). Researchers examined “the actual impact of the scenario on people’s knowledge, attitude and behavior” (Chappin, 2017, p. 557). They concluded that the game could influence people’s awareness of sustainability issues and affect their behavior regarding them. Nevertheless, not all mechanisms work during play: in many rounds, the players who used the most oil won. Maybe the learning effect is therefore more about understanding capitalist mechanisms, moral choices, and their impacts, including the fact that the people exploiting the resources are often also the ones winning.

Game Principle & Process

Catan: Oil Springs builds on the classic Catan structure, while adding oil extraction mechanics and environmental consequences. Players trade, build, and expand as they manage oil, which offers fast growth but increases pollution risks. Players have moderate control over whether to exploit or conserve resources, though random dice rolls and natural disasters limit predictability.

The goal of the game is obvious: to achieve ten victory points by expanding settlements, cities, and roads, and (hopefully) managing oil wisely. The environmental aspect adds depth, as players must balance short-term gains with long-term consequences. Additionally, the game provides immediate feedback through resource acquisition and pollution tokens. Rewards include victory points for “cleaning up” oil, as well as opportunities to learn sustainability principles.

Disasters such as floods and environmental degradation highlight the consequences of unsustainable practices, including the overuse of oil. It also teaches capitalist mechanisms, showing that those who exploit resources and build monopolies are often also the ones winning and being less affected by natural disasters.

Social interaction is integral, as players trade resources, negotiate strategies, and collectively face environmental crises. Tension arises from competition for growth, as well as from frustration when other players use unsustainable production methods. Additionally, it shows how capitalist competition makes it more challenging to maintain sustainable production when other players opt out.

The game draws on ecological and economic theories, particularly the overexploitation of oil and its consequences. It models how individual actions can lead to collective consequences, underscoring the need for cooperation to sustainably manage finite resources.

Learning Objectives & Educational Fields of Application

The central learning objective of Catan: Oil Springs is to teach players the balance between economic development and environmental sustainability. It highlights the risks of overexploiting finite resources by including natural disasters, which can also cause the game to end without anyone winning. Players learn the need for sustainable decision-making and cooperative strategies to mitigate ecological damage.

The game's mechanics directly support these objectives. Oil offers an enticing opportunity for rapid development, but its use increases pollution, which can trigger natural disasters. Players face choices that reflect real-world trade-offs: prioritize short-term individual gains or adopt strategies that prioritize the long term and are better for the whole world population and nature. These mechanics effectively reinforce the learning objectives by creating tangible outcomes (disasters or rewards) tied to player actions.

The teacher primarily acts as a facilitator, ensuring players understand the rules and guiding discussions during or after gameplay to reflect on the lessons. If needed at all, one teacher is sufficient. Preparation time is minimal if the teacher is already familiar with Catan, requiring only a brief review of the Oil Springs scenario.

Apart from the mechanisms already mentioned, the game's interactive nature fosters critical thinking and discussion, encouraging players to internalize the challenges mentioned above.

Effectiveness

There is limited direct evidence or studies on the effectiveness of Catan: Oil Springs, but one paper (Chappin, 2017) investigates its efficacy. The research found four driving learning mechanisms in the game: competition, managing the commons, learning from disasters, and free-riding the commons. Over repeated play, players adapt to these mechanisms and change their strategies to more sustainable behaviors. The players seem to raise their understanding and awareness of sustainability issues. Although the players' knowledge of sustainability did not grow from playing the game, their attitude and, therefore, their behaviour changed. Nevertheless, the sample size of this research was tiny, which is why its results cannot stand alone as evidence (Chappin, 2017, pp. 264–265). No studies on the game experience were found, but since the Catan game's mechanisms did not change much and it is widely known and liked, one can assume the game experience remains fluid and exciting.

Potentially Problematic Aspects

The game's content is broadly appropriate, but younger players (under 12) may struggle with its abstract concepts or its strategic depth. Additionally, the game suggests that sustainability and economic growth can coexist. This can develop a false image, while it is actually necessary to reduce the demand for ever-increasing growth. Furthermore, the game only addresses the use of oil and not the exploitation of other resources. The fact that monopoly and exploitation of all natural resources lead to disasters is not made clear. Other problematic aspects were not found.

Reviewers: Torben Schmidt, Johannes Katsarov

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Celeste

Developed by: Extremely OK Games

Article contributed by: Robin Paul

<https://doi.org/10.5281/zenodo.15938152>

Keywords

Empathy, Inclusion, Mental Health, Philosophy, Psychology, Queer Studies



Celeste (Extremely OK Games). Cover artwork used for educational review. Rights remain with the creators.

Introduction

Celeste is a critically acclaimed platformer that explores themes of mental health, perseverance, and self-discovery (see Figure). Players take on the role of Madeline, a young woman climbing a mountain while confronting both external obstacles and internal struggles with anxiety and self-doubt. The game appeals to a broad audience, especially those interested in mental health narratives, challenging gameplay, and emotional storytelling.

As a serious game, *Celeste* raises awareness of mental health issues through its narrative and mechanics that mirror real-world challenges such as anxiety and self-acceptance. By combining these themes with precise platforming, the game encourages reflection on personal growth and resilience.

The gameplay is simple yet demanding: players navigate levels filled with hazards using intuitive controls and mechanics such as mid-air dashing and wall climbing. Success requires persis-

tence, skill, and learning from failure. Celeste was developed by Maddy Thorson and the team at Extremely OK Games and released in January 2018.

Facts

Release date:	January 25, 2018
Developer:	Extremely OK Games
Game type:	Digital
Number of players:	Single player
Format:	Synchronous
Time frame:	10+ h for the main story; 15–20 h for completionists.
Languages:	English, German, French, Spanish, Italian, Japanese, etc.
Environment:	A digital device (PC, console, or mobile)
Material:	None
Price:	approx. €19.50 (sometimes discounted)

Resonance & Criticism

Since its release in 2018, Celeste has built a considerable following, selling over 1.7 million copies on Steam alone (Adler, 2024). It has been highly rated by both users and critics, earning a Metacritic score of 91/100 and winning several awards, including Best Independent Game and Games for Impact at The Game Awards 2018.

The game is praised for its tight mechanics, emotional depth, and accessibility options that let players tailor the difficulty to their needs. However, some critics highlight its steep learning curve, which may frustrate those unaccustomed to challenging platformers, and its reliance on trial-and-error gameplay, which some find repetitive.

Game Principle & Process

In Celeste, players guide the protagonist Madeline as she climbs a dangerous mountain, confronting both physical obstacles and emotional challenges. The game is structured into multiple chapters, each with distinct environments, mechanics, and narrative developments. Core gameplay revolves around navigating platforming challenges using jumping, dashing, and wall climbing—mechanics that are easy to learn but difficult to master, offering a steadily increasing difficulty curve.

Players have complete control over Madeline’s movement through responsive, intuitive controls that reward mastery through practice. The main objective is clear: ascend the mountain by completing each chapter. Along the way, the story unfolds organically, linking Madeline’s journey to her inner struggles, symbolized by elements like her *doppelgänger*, “Part of Me”.

Feedback is immediate and encouraging. Failure results in an instant respawn, allowing players to retry without penalty and reinforcing a growth mindset. Optional collectibles, such as strawberries and crystal hearts, reward exploration and persistence. Assist Mode enables customizable difficulty, ensuring accessibility while preserving the game’s core challenge.

As a single-player experience, Celeste emphasizes introspection over social interaction. However, its relatable themes have sparked active discussions in gaming communities, promoting empathy and awareness around mental health.

The game reflects psychological theories, such as Carol Dweck's growth mindset, by encouraging players to see failure as part of the improvement process. Its narrative also aligns with Cognitive Behavior Therapy (CBT) (Beck, 1995), demonstrating how confronting negative self-talk and recognizing personal strengths can support emotional growth. Through this design, Celeste becomes a powerful metaphor for resilience and self-acceptance.

Learning Objectives & Educational Fields of Application

Celeste is designed to develop resilience, emotional intelligence, and problem-solving skills by immersing players in a gameplay experience that parallels real-life challenges. Its core learning objectives include:

1. **Developing Resilience:** Players learn to embrace failure as part of growth, supported by instant respawns and encouragement to retry difficult sections.
2. **Building Emotional Awareness:** Through Madeline's journey, players gain insight into mental health struggles such as anxiety and self-doubt, while exploring self-acceptance and perseverance.
3. **Fostering Critical Thinking:** Players must approach obstacles strategically, using trial and error to find effective solutions.

The game's mechanics reinforce these goals by offering challenging yet manageable tasks that reward persistence. Its narrative and gameplay are tightly interwoven, enabling players to internalize key messages as they progress.

The teacher's role is to introduce the game's themes and facilitate reflection on their real-world relevance. Minimal preparation is required—primarily familiarization with the game and its settings. A single teacher can effectively guide both individual and group sessions.

Celeste supports learning by modeling adversity and encouraging a growth mindset. Its forgiving respawn system and progressive difficulty allow players to practice resilience in a low-stakes environment. Optional objectives (e.g., collecting strawberries) reward exploration and thoughtful engagement.

The game is particularly suited for educational fields such as psychology, self-development, and gamification. It demonstrates how interactive media can nurture emotional resilience and personal growth, making it a practical tool for teaching students to overcome challenges with a positive mindset.

Effectiveness

Although no empirical studies focus exclusively on Celeste, its design aligns with established principles of game-based learning and psychological engagement, particularly in promoting resilience, emotional connection, and a state of flow.

Research on emotionally resonant games, such as Bopp et al. (2019), shows that such titles can foster empathy and self-reflection. Celeste achieves this through its mental health-focused narrative and challenging yet rewarding gameplay, which encourages persistence and learning through failure. This supports Carol Dweck's growth mindset theory, reinforcing the idea that effort leads to improvement.

The game's difficulty curve and instant respawn system support the experience of flow, as described by Csikszentmihalyi (1990). The balance between challenge and skill fosters deep immersion, while the emotional depth of Madeline's journey enhances the game's overall impact.

Though the long-term learning effects of Celeste have not been formally studied, anecdotal evidence from players suggests its messages of perseverance and self-acceptance endure beyond gameplay. Its thoughtful design offers a strong example of how games can create immersive and educational experiences.

Potentially Problematic Aspects

Celeste addresses sensitive topics such as anxiety, depression, and self-doubt with care, but its portrayal of mental health struggles may be distressing for individuals in acute crisis. Although suicide is not explicitly mentioned, the game's emotional depth can evoke strong reactions. Educators should consider participants' emotional readiness before use.

The narrative avoids stereotypes and includes a transgender protagonist (confirmed by the developer post-release), offering subtle but meaningful representation. However, this aspect may not be apparent without external context.

As a digital, single-player experience, the game poses no physical risks. Still, its great difficulty may frustrate some players, limiting accessibility despite the availability of Assist Mode.

Overall, Celeste treats its themes ethically and responsibly. With proper framing and support, it can offer a positive and impactful experience for a wide range of players.

Reviewer: Johannes Katsarov

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CodeCombat

*Developed by: CodeCombat Inc.
Article contributed by: Jonathan Sierks*

<https://doi.org/10.5281/zenodo.15925805>

Keywords

Algorithms, C++, Computer Science, Data Structures, JavaScript, Mathematics, Programming, Python, Software Development, Technology

Introduction

CodeCombat is a digital learning game for teaching software programming concepts and languages, first released by CodeCombat Inc. in 2013. The game teaches programming languages such as Python, JavaScript, C++, Java, and Lua, as well as the fundamentals of computer science. In CodeCombat, the player character is controlled through various levels by writing code. Progress in learning is supported by unlocking new items, which gives players direct feedback. By completing levels, the character can rise in rank, with learning playing a central role, as new levels and worlds can only be unlocked by acquiring new skills.

Facts

Release date:	First released in 2013, continuously updated
Developer:	CodeCombat Inc.
Game type:	Digital
Number of players:	Scalable
Format:	Asynchronous
Time frame:	A few minutes per level up to several hours per module; about 400 levels in total.
Languages:	Available in over 50 languages, including English, German, and Spanish
Environment:	Laptop or PC with internet access
Material:	All required materials are provided online; a subscription grants access to additional content
Price:	Free, subscription available

Resonance & Criticism

CodeCombat received a significant distinction when the College Board recommended it for the AP Computer Science Principles course during the 2019–2020 school year, an introductory college-level computer science course. The College Board, which also administers and develops the Scholastic Assessment Test (SAT), the U.S. college entrance exam, rarely issues such endorsements. In 2024, CodeCombat Inc. reported more than 20 million users.

Game Principle & Process

The core game principle is that players solve programming tasks by writing code that controls a hero's actions (see Figure). This character must defeat enemies, solve puzzles, and overcome obstacles — all by having players enter the correct lines of code into a text box. The game mechanics are therefore closely linked to programming: every character action depends directly on the player's code.



In-game programming interface of CodeCombat (CodeCombat Inc.), showing a player controlling a character by writing code. Used for educational review. Rights remain with the creators.

At the beginning, simple programming concepts are introduced, while the tasks become increasingly complex as the game progresses. Players must guide their hero to specific locations, attack enemies, or collect items. Over time, more advanced concepts such as loops, conditionals, functions, and data structures must be learned and applied. If a level is not completed successfully, players can analyze and correct their code, which is a central part of the learning process. This immediate feedback and the opportunity to fix errors encourage problem-solving skills.

In addition to the single-player mode, CodeCombat also offers a multiplayer mode in which players compete against each other. Here, they program their characters to fight in an arena. The player with the best code wins the match.

Learning Objectives & Educational Fields of Application

CodeCombat aims to teach students, especially beginners, fundamental programming skills and to make advanced concepts such as loops, conditionals, algorithms, Boolean logic, and nested conditions more accessible. A key aspect of CodeCombat is the stimulating and motivating

learning environment (see Karram, 2021), which is created through the game and facilitates programming learning.

In addition, CodeCombat offers specialized curricula for educational institutions that systematically teach programming skills. Teachers can monitor their students' progress and guide them through tailored lessons.

Overall, CodeCombat skillfully combines elements of an adventure game with the teaching of programming knowledge. Through the direct connection between the written code and the game's visible actions, the abstract subject of programming becomes more concrete and motivating. Players gradually develop their skills and are encouraged by the reward system and the increasing difficulty to deepen their programming knowledge.

Using CodeCombat is straightforward for teachers. A free account can be created on the platform to start working with the basic functions immediately. Access to extended features and learning materials via a subscription may be helpful, but it is not strictly necessary. The platform offers extensive resources and guides that help users get started, keeping preparation time manageable.

Effectiveness

A 2021 study by Kroustalli & Xinogalos examined the effectiveness of CodeCombat as a learning tool for teaching programming. The sample consisted of 59 lower-secondary students and was divided into an experimental (CodeCombat) and a control (traditional teaching) group. Knowledge development was measured using pre- and post-tests. The results suggest that the experimental group performed better in the post-test than the control group, although the difference was not statistically significant. Further studies are needed to determine whether and to what extent CodeCombat provides a statistically significant improvement over traditional methods — although studies such as Kroustalli & Xinogalos (2021) suggest that positive effects may indeed be demonstrable.

Potentially Problematic Aspects

One limitation is that CodeCombat does not offer specific adaptations for learners with disabilities. Additionally, individual levels cannot be skipped, which may frustrate players who already have basic programming experience.

Reviewer: Johannes Katsarov

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Codescape

Developed by: RWTH Aachen University

Article contributed by: Paul Gamper, RWTH Aachen University

<https://doi.org/10.5281/zenodo.15870072>

Keywords

C, Computer Science, Java, Javascript, Mathematics, Programming, Python, Technology

Introduction

The serious game Codescape, developed in 2016 at the RWTH Aachen University, is used in several introductory programming courses and is designed explicitly for self-regulated learning from home. Codescape is a 2D browser game with map-based levels where you control a dog by writing the correct code to complete each stage. The game supports the simultaneous use of multiple programming languages and is modular, allowing it to fit the specific needs of various usage scenarios or lectures. Codescape was developed to level out students' initially heterogeneous skill levels and provide beginners with a playful, small-stepped introduction to imperative programming without requiring a local toolchain setup.

Facts

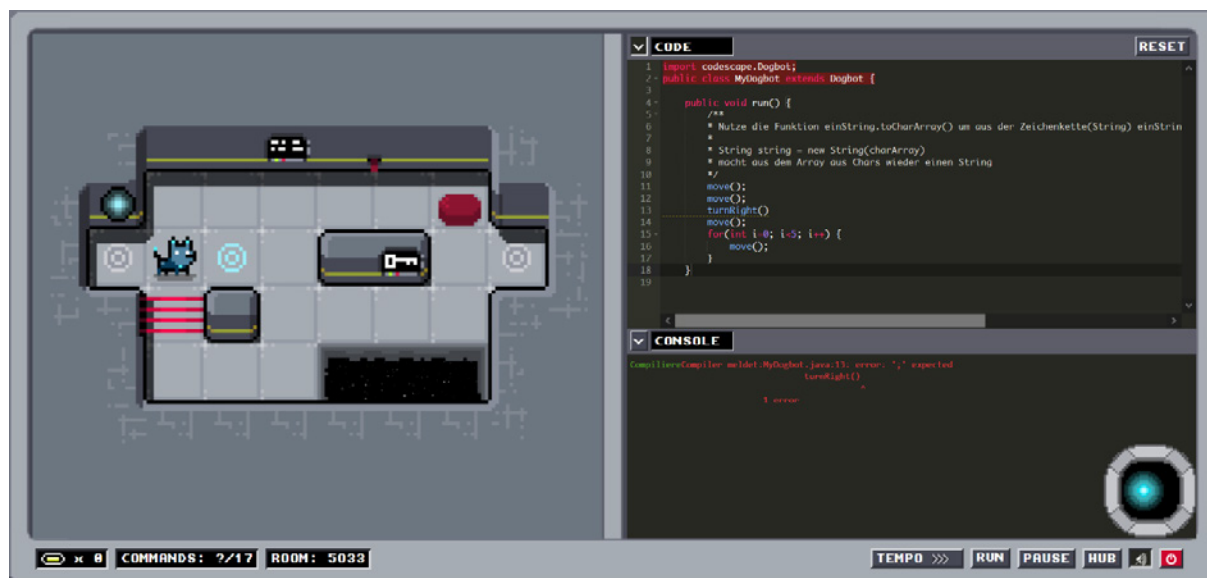
Release date:	14.10.2016
Developer:	RWTH Aachen University
Game type:	Digital
Number of players:	10,000 per installation
Format:	Asynchronous
Time frame:	A few minutes per level up to several hours per module, 32 levels in total
Languages:	English, German
Environment:	Tablet, Laptop, or PC with Internet connection
Material:	–
Price:	At RWTH Aachen University, it is part of the CLS's service offering; licensing for external universities is available.

Resonance & Criticism

The game has been around since 2016 and has generated over 2 million submissions. Player feedback was collected via an in-game questionnaire. The game was well-received overall. 73% rated the game's difficulty as spot-on. The graphics were also mostly rated positively. Most players (66%) stated that the game helps to understand the lecture material better. Most gamers (75%) found the space setting to be good, and 42% said they would like to play the game in their free time.

Game Principle & Process

As a player, you explore a runaway spaceship. In the Codescape level, the students guide a robotic companion (RB) in the form of a dog from a starting point to a target point (see Figure). The Codescape spaceship is divided into seven decks, each with 32 levels and mini games. The decks group the learning material by content and are unlocked as progress is made in the lecture to encourage continuous learning. As a challenge, they need to survive and stay within a command-line length limit that varies by level and programming language.



Example gameplay from Codescape, showing the combination of level-based navigation and text-based programming (RWTH Aachen University). Used for educational review. Rights remain with the creators.

There are obstacles to overcome, such as randomly turning on and off lasers and holes in the floor. Each time a start button is pressed, the program is compiled on the server, executed, and the RB's path through the level is visualized as an animation. To increase replay value and offer more challenges for experienced students, additional game elements are introduced: power cells are added as a secondary target. These cells are placed at the levels in such a way that they can only be collected using advanced programming constructs.

Not every programming concept is suitable for mapping as a game level. In this case, we offer additional tasks in the form of puzzles, drag-and-drop, and multiple-choice. The storytelling components, including the intro video, avatars, and dialogues, complete the serious game.

Learning Objectives & Educational Fields of Application

Codescape aims to give beginners a playful, step-by-step introduction to imperative programming concepts, including loops, conditions, algorithms, Boolean logic, and recursion. There are levels for special algorithms and programming techniques.

The serious game was developed to accompany an introductory programming class and is suitable for schoolchildren and students. The players usually play unsupervised from home and on their own devices.

Effectiveness

There are no studies on the effectiveness of Codescape.

Potentially Problematic Aspects

There is no support for object-oriented content yet.

Reviewers: Saskia Sterzl, Johannes Christian Mieth

Sources

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CO-BOLD

*Developed by: Johannes Katsarov, Paul Drews,
Hannah Trittin-Ulbrich*

Article contributed by: Johannes Katsarov

<https://doi.org/10.5281/zenodo.17679784>

Keywords

AI Literacy, Algorithmic Bias, Business Ethics, Ethical Decision-making, Gender Studies, Media Literacy, Moral Resoluteness, Responsible AI

Introduction

CO-BOLD was developed at Leuphana University in Lüneburg to address the main reasons why people often fail to detect and address ethical problems in the usage of artificial intelligence (AI). In this digital single-player game, players slip into the role of a quality assurance manager at a large tech company. Their mission is to assess the quality of an innovative AI assistant for investment consultants, CO-BOLD, before it is delivered to a large bank. While their team controls the design and performance of the AI, players learn to recognize eight ethical risks and problems common to AI applications. Moreover, they learn to assess the quality of AI applications across eight quality dimensions and to adopt a professional-skeptic stance in evaluating them. Finally, the game challenges learners to speak up and address ethical problems with AI against business pressures.

The game was primarily developed for students of business administration and information science. However, it has also been used in multidisciplinary courses on artificial intelligence, and students of other disciplines, e.g., psychology or sustainability science, have found it accessible.

Facts

Release date:	2023
Developer:	Johannes Katsarov, Tim Wagenbach, Oguzhan Demir, Paul Drews, Hannah Trittin-Ulbrich
Game type:	Digital game
Number of players:	1+ (can be played in classes with hundreds of students).
Format:	Asynchronous
Time frame:	2–3 hours
Languages:	English, German
Environment:	Desktop, learning management system, or online
Material:	Free educational materials available online
Price:	Free

Resonance & Criticism

In 2024, CO-BOLD received an “Innovations That Inspire” award from the Association to Advance Collegiate Schools of Business (AACSB, 2024), the global standard-setting body for business education. So far, CO-BOLD has been tested at the Universities of Kiel, Linz, and Lüneburg, as well as RWTH Aachen, with more than 2,000 students in total. On average, students from Lüneburg reported that they could identify with their role relatively well, that the situations were realistic, and that the experience was rewarding. With a couple of exceptions, the game’s usability was considered good. On average, students also agreed that they learned a lot about ethical problems and the risks of artificial intelligence from playing CO-BOLD. 90% of students from Linz had a (very) positive experience with CO-BOLD, and 75% (strongly) agreed that they had gained a deeper understanding of AI-related risks and challenges from playing the game. On average, a small percentage of students (about 5-10%) have disliked the game, partially due to bugs and, in some cases, also due to a dislike of game-based learning. The most frequently requested improvement was a voice-over, due to the large amount of text; some students struggled to maintain their focus for 2-3 hours of gameplay. The voice-over and other improvements, including a better save function, have been made recently.

Game Principle & Process

In CO-BOLD, players slip into the role of a newly appointed quality manager at a big tech company. The game can be played individually or in small groups. Players’ assignment is to control the design and performance of a new AI assistant called “CO-BOLD” before it is delivered to a major bank. In an introductory meeting, players learn how CO-BOLD is supposed to assist bankers in helping clients to make investment decisions by subtly prompting bankers to ask the right kinds of questions. Players then have a tight deadline to assess diverse quality aspects of CO-BOLD. Each day, they can appoint their two assistants to a wide variety of quality assessments (see Figure). This investigative learning strategy was chosen because research suggests that it could be invaluable in promoting awareness of complex ethical issues (Katsarov, 2023).

Players lack the time to pursue all possible investigations, which forces them to prioritize their actions strategically and scrutinize the evidence that they find. This mechanism makes it meaningful for learners to understand the scientific and statistical concepts shared through dialogues and to apply them in imagining possible risks. Moreover, players receive three types of points as immediate 360° feedback during the game. This feedback mechanism challenges players to (1) identify correct statements about AI, (2) display good leadership behavior, and (3) act responsibly by upholding ethical principles. By winning or losing points, in combination with responses from the game’s characters, players learn whether they applied concepts correctly. At the end of the game, players can propose several improvements to CO-BOLD. However, to persuade their boss and the development team, they need to propose appropriate measures and present sound arguments. The game culminates in one of four endings, depending on whether the AI assistant’s two major flaws were addressed appropriately.



Overview pages and example gameplay screen from CO-BOLD, a digital serious game on ethical risk assessment and responsible use of artificial intelligence in business contexts. © Johannes Katsarov, Paul Drews, and Hannah Trittin-Ulbrich. All rights reserved for the creators.

Learning objectives & Educational fields of application

CO-BOLD was designed to educate learners about eight general risks in using AI (O’Neil, 2016; Coeckelbergh, 2020): First, it demonstrates how algorithmic bias occurs and how it can lead to a (1) reinforcement of injustice and (2) exclusion from opportunity, ensuing (3) harm to some groups (economic harm, in this case). Second, the game illuminates how (4) the lack of transparency in how AI generates seemingly good outputs (“black box” problem), and (5) a diffusion of responsibility for AI-supported decision-making can lead to (6) an over-reliance on AI (suspension of judgment) in developers and users: problems in the dataset and goal-setting of AI systems may be ignored. This makes people prone to ignore the (7) possibility of errors, (8) manipulation, and deception. Players gradually learn about these risks, how and why they can occur through their investigation. This way, CO-BOLD aims to instill a professional-skeptic attitude in players, a critically constructive stance towards using AI for good purposes while keeping its limitations in mind (cf. Hurtt 2010). Concretely, they are trained to consider eight quality dimensions of AI (Tamboli, 2019) during their investigation, which guide their search. Sensitivity to AI-related risks is also coupled with training in speak-up competences (moral resoluteness), which are developed throughout the game as players address diverse risks and problems despite resistance from the developers (Gentile, 2010).

Educators can use a package of freely available teaching materials to implement CO-BOLD in the classroom. Since the game takes a long time to play, it is ideally assigned as homework. Completion of this assignment can be tracked through learning management systems like Moodle, which support CO-BOLD, or through reflective questions students must answer after play-

ing the game. After playing CO-BOLD, the first phase of the debriefing should focus on allowing players to reflect on the experience. For example, they can select emojis that best represent their impression from playing the game. In a subsequent analysis, think-pair-share could be used to have learners reflect on the question: what ethical risks of AI does the game address? The slides can be used for the final transfer phase of debriefing. They illustrate how different value dimensions must be considered in developing and using AI (Floridi et al., 2018) and present real-world cases to learners, including large-scale government scandals. Generally, educators should have played the game once before using it in class and understand the main ways the scenario can unfold (see the teaching materials). The insights from the scenario can then be used to dive deeper into questions of AI and business ethics, as well as moral psychology. Different debriefing activities are recommended for small and large groups.

Effectiveness

In a quasi-experiment with 95 management students, CO-BOLD yielded substantial effects on students' ability to recognize seven ethical risks related to AI during the final exam. On average, students identified 4 of these problems in the exam, whereas a comparison group without AI ethics training identified only 1–2 issues. It is still unclear, however, how much of this learning can be attributed to the game itself, since it was combined with other learning activities. In an online experiment with 100 business and IT professionals, no comparable effects could be found, despite participants' belief that they had learned a lot from playing the game. This finding is probably due to the qualitative test used: several participants reported not trying to describe all the risks and issues in the written test when there was no incentive. Based on players' general feedback, participants appear to learn a great deal about AI ethics through gameplay. However, combining the game with a structured debriefing and embedding it in additional activities probably adds significant value. We hope to publish the results from our diverse experiments with the game soon.

Potentially problematic aspects

A significant challenge in using CO-BOLD for purposes of teaching is its length and the large amount of text. Some students may not have the capacity to focus on the game for its entire duration in one sitting. Hence, we recommend assigning the game as homework and informing students that it can be played in several sittings. Also, the game requires a relatively new computer to run at normal speed. Allowing players to team up in groups while playing the game is a helpful solution here. Care has been taken to design CO-BOLD for all ages. Although it covers issues like algorithmic bias against women and foreigners and possible harm to different target groups, the story avoids violence and heavy forms of discrimination, focusing on an ironic portrayal of microaggressions instead. Due to the heavy reliance on text and the need for players to logically understand and apply scientific and statistical concepts (e.g., spurious correlations), the game is probably only appropriate for learners 14 and older. Players with visual impairments will need support with reading texts during the game.

Reviewers: Lucian Jueterbock, Saskia Sterzl

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Connect Rollout

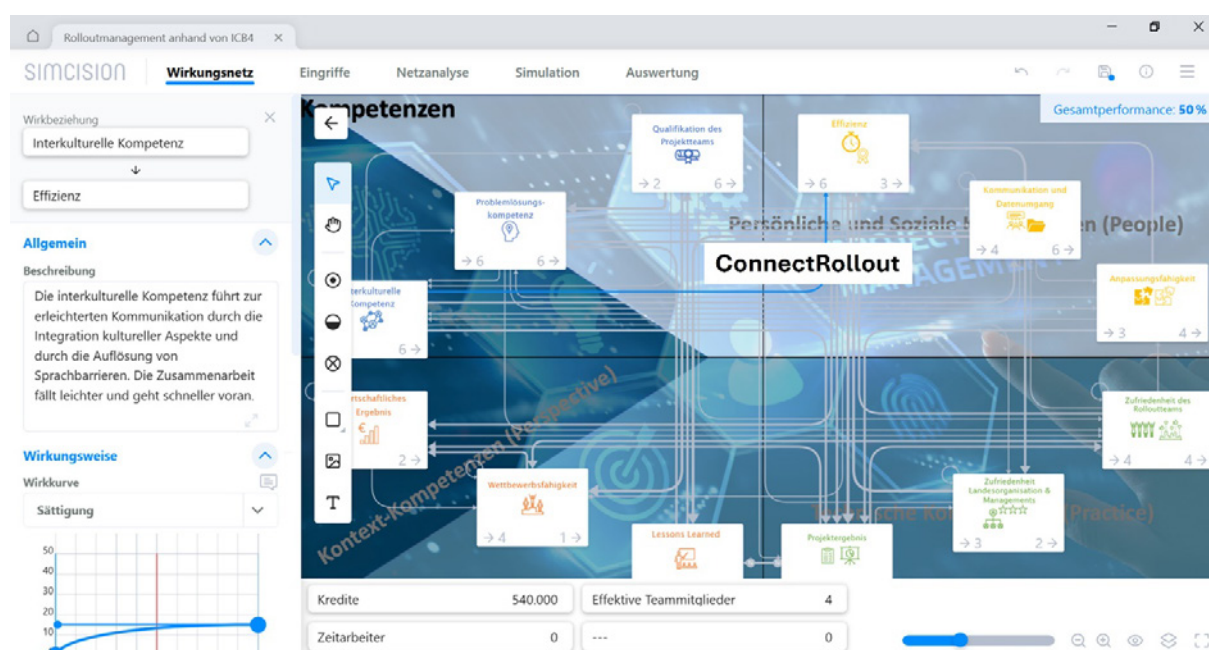
Developed by: Siegfried Zürn, Ines Dias Costa

Article contributed by: Siegfried Zürn, Ines Dias Costa

<https://doi.org/10.5281/zenodo.15824721>

Keywords

Collaborative Problem-solving, Project Management, Simulation-based Learning, Stakeholder Management, Strategic Decision-making, Systems Thinking



Screenshot from Connect Rollout showing the simulation interface. Image used for educational review; rights remain with the creators.

Introduction

The digital simulation game *Connect Rollout* (see Figure) was developed in 2022/23 at Esslingen University of Applied Sciences to foster competencies in international project management. Using a systems-thinking approach, the game simulates the complex challenges of a global rollout project. It aims to provide students and professionals with practice-oriented experiences that can be applied in real projects. By using the ICB4 competence standards (IPMA, 2015) and simulating dynamic project processes, "Connect Rollout" offers an innovative method for knowledge transfer.

The game allows players to make strategic decisions in a safe environment and analyse the impact of their actions. This not only enhances problem-solving abilities but also strengthens collaboration and diversity of perspectives within a team.

Facts

Release date:	2023
Developer:	Siegfried Zürn and Ines Dias Costa, Hochschule Esslingen
Game type:	Digital
Number of players:	4–6 persons per team
Format:	Hybrid
Time frame:	120–180 minutes
Languages:	German
Environment:	Online platform including analysis dashboards
Material:	Predefined scenarios, interaction modules, and evaluation tools
Price:	Free for public universities; licences available on request for other institutions

Resonance & Criticism

Connect Rollout has been tested in various degree programs at Esslingen University of Applied Sciences. However, no peer-reviewed empirical studies on its effectiveness are available up to the publication of this book. Verbal feedback after game sessions shows that students appreciate the practical hands-on design and real-world relevance of the simulation. In particular, students highlighted improved understanding of complex interrelationships, as well as strengthened teamwork and decision-making abilities.

Suggestions for improvement included longer simulation durations and smaller groups to enhance the effectiveness of knowledge transfer.

Game Principle & Process

Connect Rollout simulates the rollout of a connect app in the international spare parts business of an automotive company. The game follows the classic three-phase model of simulation-game design (briefing – simulation – debriefing). Its theoretical foundation combines systems thinking, as defined by Kim (1999), to map complex interdependencies with the competence framework of the IPMA ICB 4.0. Each of the 12 target elements of the game is assigned to one or more of the 28 ICB competence elements.

Participants take on various roles within a project team and work together to achieve project goals. The game is divided into 12 rounds, where multiple game rounds intend to simulate project phases. Players make decisions such as allocating resources, resolving technical or organizational project difficulties, or adapting to changing stakeholder requirements. Events such as unexpected software-implementation issues, resistance from project participants, or communication problems create additional challenges requiring quick action and strategic thinking. In-game dashboards show overall performance development, resource consumption, and KPI trends after each round. An influence matrix and a visually designed impact-chain analysis enable players to discover cause-effect relationships independently after every round. The instructor moderates discussion after every four rounds and conducts a structured debriefing at the end, reflecting on decisions, alternatives, and transfer potential to real practice.

By applying systems thinking, players analyse interdependencies across various project dimensions. This dynamic structure supports deep understanding and prepares participants for the challenges of real-world projects.

Learning Objectives & Educational Fields of Application

After completing the simulation, participants should be able to think systemically and identify dependencies in complex projects.

This is achieved by analysing interrelationships repeatedly and adjusting strategies based on the dashboards. Random events, limited resources, and time pressure force teams to prioritise, weigh risks, and make decisions under uncertainty. Meanwhile, differing roles, country organizations, and stakeholder interests require continuous alignment and negotiations, teaching players to communicate effectively and collaborate in international teams. An iterative round structure and immediate feedback foster an agile handling of deviations of plans and strengthen competence development in strategic planning and continuous improvement.

A short briefing (15 minutes) introduces the scenario, roles, platform operations, and learning goals. The simulation phase (4 x 30 minutes, followed by discussion) follows. Instructors observe player interaction, provide guidance on systems-thinking tools when needed, and ensure active participation of all team members. A final 30-minute debriefing includes a joint analysis of dashboards, a discussion of successful and less successful strategies, and transfer questions ("What would I do differently tomorrow in a real project?"). Instructors act as coaches and reflection moderators; their professional feedback is essential to avoid superficial "gameplay" and secure competence-oriented learning outcomes.

The game is suitable for project-management courses at universities and universities of applied sciences, as well as for corporate training programs and workshops for team building and leadership development.

Effectiveness

Participant feedback suggests that Connect Rollout is an effective tool for teaching complex project-management knowledge. The combination of practical relevance and simulation-based learning enhances motivation and learning outcomes. Participants especially valued the ability to make mistakes safely and learn from them.

Potentially problematic aspects

Like all simulation games, Connect Rollout is based on model assumptions that may limit the transferability of its results. High data requirements for realistic modelling and the risk of oversimplification remain central challenges. Therefore, careful model maintenance and continuous validation are necessary.

Reviewers: Martin Gerner, Robert Galiard

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Cranky Uncle

Developed by: John Cook, Monash University, Goodbeast

Article contributed by: Hannes Hamester

<https://doi.org/10.5281/zenodo.15924838>

Keywords

Climate-change Education, Cognitive Bias, Conspiracy Theories, Critical Digital Skills, Critical Thinking, Information, Inoculation Theory, Media Literacy, Misinformation, Rhetoric

Introduction

Cranky Uncle is an educational digital game developed in 2020 by John Cook, a scientist at Monash University, in collaboration with the creative agency Goodbeast. The game aims to train students in how to deal with misinformation by becoming a “cranky uncle” themselves, a science denier and conspiracy theorist who uses various argumentation techniques to reject the general scientific consensus. Through humorous cartoons with a thematic focus on climate change, deep insights into the tactics of science denial are provided to help resist future attempts at misleading persuasion and improve critical thinking. As they play, players are put to the test through various quiz types, identify deceptive arguments, receive instant feedback on correct or incorrect quiz answers, and move up and down a scoring system.

Facts

Release date:	2020
Developer:	John Cook, Monash University & Goodbeast
Game type:	Digital
Number of players:	Single player, can also be played in groups
Format:	Hybrid
Time frame:	Completing all the denial techniques takes about 30 minutes, depending on how many quiz questions the players answer.
Languages:	The game is available in 13 languages
Environment:	Access to smartphones or computers
Material:	Guidelines for Teachers
Price:	Available free of charge

Resonance & Criticism

Since Cranky Uncle mainly addresses climate change and the associated discourse on its consequences and risks, the game’s core topic is challenging to beat on timeliness grounds (Cook et al., 2023). Especially during the recent COVID-19 pandemic, the ubiquitous spread of disinformation returned to the forefront (Cook, 2021), and the educational game attracted significant attention. In 2023, the game’s inventor received the Publication Award for Excellence in

Information Literacy, presented by Purdue University, for an article on the game's relevance and effectiveness (Cook et al., 2023).

Game Principle & Process



Screenshots from Cranky Uncle (John Cook, Monash University & Goodbeast). Used for educational review. Rights remain with the creators.

At the beginning of the game, the players examine various explanations of the denial techniques to identify them later. Furthermore, at the end of each unit, quiz questions are asked to test and deepen the players' knowledge. These quiz questions can always be selected and played through in the main menu, regardless of the score. After completing the explanation phase and the quiz, players receive "cranky points" that represent their progress in the game. Additionally, teachers can use this point system to grade their students, with a set number of "cranky points" corresponding to a particular grade or reflecting the student's level of engagement.

According to the developer John Cook, Cranky Uncle is based on the psychological research field known as "inoculation theory" (Cook, 2021), a form of inoculation that, rather than fighting a virus, aims to immunize against misinformation by acquiring new knowledge. This vaccination can take place in two ways, as Cook (2021) explains, through fact-based and logic-based approaches. During the game, players are confronted with the FLICC system (Cook, 2021), the five main techniques of science denial. With the help of a wide range of examples from these areas of fake experts, logical fallacies, impossible expectations, cherry-picking, and conspiracy theories, players can gain a thorough overview of the most dangerous strategies of science denial.

Learning Objectives & Educational Fields of Application

The game aims to build resistance to problematic theories and statements, and to identify fallacies and conspiracies directly. Regarding the focus on climate change, these skills are future- and science-affirming lessons that can be particularly valuable for young learners. The detailed insights into the tactics of science denial and its rhetorical devices also offer students the opportunity for in-depth education. However, the effectiveness of the game heavily depends on the preparation and follow-up of the game content by the teachers. Before playing, there should be an introduction to the general topic, and after the game, students could reproduce what they have learned through role-playing games or similar activities (Cook & Autonomy Co-op, 2021).

To make it easier to use the game in the classroom and to prepare for and follow up on it, guidelines for teachers have been published that suggest a range of activities to supplement and reinforce the game (Cook & Autonomy Co-op, 2021). These guidelines minimize teachers' workload, as they only need to register for group codes on the game's website. Since it can be assumed that all players have smartphones or computers, little or no external equipment is needed. As a result, teachers in over 17 countries have adopted Cranky Uncle into the curricula of primary, secondary, and higher education classes, and it has already been used across a variety of subjects, including biology, environmental science, English, and philosophy.

Effectiveness

The humorous presentation of serious topics aims to explain complex subjects simply and maintain engagement and interest among players (Cook, 2021). A study by Cook et al. (2023) demonstrated that Cranky Uncle's humor-based pedagogical approaches can transform complex topics, such as climate change and its consequences, into engaging and entertaining teaching units. In addition, the game promotes players' critical thinking abilities, which are particularly important in today's world for helping them see through false reasoning and avoid being tempted by disinformation (Cook et al., 2023).

Potentially Problematic Aspects

Given that Cranky Uncle addresses certain ideologies and thus also political affiliations, some players may reject or question the game's topics. Trust and understanding must be established in the group in advance so that no one feels excluded or attacked. It is equally important that teachers feel confident in their knowledge of the game's subject matter to work effectively with the game. The teacher's guide provides resources that convey sufficient background knowledge to get a good overview of the topic and the game's approaches (Cook & Autonomy Co-op, 2021).

Reviewer: Johannes Katsarov

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Depression Quest

*Developed by: The Quinnspracy, Zoë Quinn,
Patrick Lindsey, Isaac Schankler*

Article contributed by: Viktoriia Bormashova

<https://doi.org/10.5281/zenodo.15938371>

Keywords

Counselling Techniques, Empathy, Inclusion, Mental Health, Nursing, Philosophy, Psychology, Queer Studies, Trauma



Official title screen from *Depression Quest*, developed by Zoë Quinn, Patrick Lindsey, and Isaac Schankler (2013). © The developers.

Introduction

Depression Quest (see Figure) is an interactive educational game developed by Zoë Quinn, Patrick Lindsey, and Isaac Schankler in 2013, where you play as someone living with depression. A person takes on the role of someone struggling with depression and lives through a series of everyday life events while trying to manage illness, relationships with people, and a job. The gameplay is text-based: a player is presented with short to medium text describing the situation and several answer choices. Each of them has its own effect on the character's mental health and the story's progression. Some of the options are crossed out, indicating the restrictions imposed by depression. There are several ideas behind the game. Firstly, it aims to show others who are suffering from depression that they are not alone. However, the main goal of the game

is to spread awareness and educate people about the depths of what depression can do by making the realities of depression accessible to a broader audience.

Facts

Release date:	February 14, 2013
Developer:	The Quinnsspiracy, Zoë Quinn, Patrick Lindsey, and Isaac Schankler
Game type:	Digital
Number of players:	Single Player
Format:	Asynchronous
Time frame:	30–45 minutes is enough to understand the overall idea behind the game. For the complete gameplay, around 1-1.5 hours are needed.
Languages:	English
Environment:	Access to a computer, tablet, or mobile phone with working internet
Material:	None
Price:	Free of charge; pay-what-you-want revenue model

Resonance & Criticism

The game overall received mixed reactions. Many people pointed out the game's "dark and compelling" atmosphere and its lack of fun (Williams, 2014). Some of them went further and claimed it to be "a boring experience to go through". However, most critics praised the game's approach to addressing mental health issues.

As for audience response, Depression Quest faced backlash online. The original author, Zoë Quinn, was subjected to wide-scale harassment in late 2014. They received a detailed rape threat mailed to their home address, causing them to withdraw the game from Steam's Greenlight service. After bringing it back, Quinn began to receive threatening phone calls.

Game Principle & Process

The game revolves around everyday scenarios that the main character, who is dealing with depression, must confront and manage. There are over 40,000 words of interactive fiction with about 150 unique encounters. Each scenario presents the player with up to 4 choices that fully affect the character's relationships, career, self-care, and mental health. Overall, social interactions are the backbone of the game's narrative and serve as a primary mechanism to explore the impacts of depression. Moreover, the developers implemented a so-called mental health meter that depends on the user's decisions and appears at the bottom of the page. Even though the story unfolds linearly, with events chronologically following each other, the player's choices shape the game, and the player has partial control over game events, as some future decisions may be constrained by depression and thus become unavailable. In the end, the game does not have a traditional "win/lose" situation, and the author explains it as "Like depression itself, Depression Quest does not have an end really. There is no neat resolution to depression ...". As a result, the game features five endings, ranging from the character continuing to struggle alone to recovering. As the game is narrative-driven, the objectives are implicitly defined within the gameplay. This idea, however, has its own drawback: the objectives might not appear crystal

clear to all players but rather vague and confusing, especially to those unfamiliar with the concept of serious games. As for feedback, it comes in the form of immediate consequences for each player's choice. Rewards are also not in the traditional form of points or achievements, but in the form of expanded choices and improved outcomes. Finally, Depression Quest is not explicitly based on any scientific model but instead on Quinn's real-life experience.

Learning objectives & Educational fields of application

As stated before, the primary learning objective of the game is to raise awareness of depression and build empathy for those living with it. As a result, the game mechanics are carefully designed to accurately reflect the constraints and challenges of living with a mental disorder. As the game is designed to be single-player and narrative-based, the role of the teacher is not reasonably necessary. However, if it is used in educational institutes, the teacher can be either a guide for reflection, encouraging players to reflect on the consequences of their choices, or a facilitator of discussion, helping with the processing of players' experiences or explaining why specific options might become (or already were) unavailable, as well as clarifying any misconceptions about depression, especially those that confuse it with simple sadness. The main task for teachers, however, is to connect the game's themes to the real world, e.g., symptoms, cycles, and problems with receiving (or trying to receive) a treatment. Due to the game design, only one teacher is needed, although their expertise in the mental health field should be sufficient. For preparation, playing through the game and researching mental health sources, especially those connected to depression, is advised.

The main advantage of using the game as a learning tool is its immersive, choice-driven design, which fosters a deeper understanding of the issue. By actively engaging with the protagonist's problems, students get a chance to move beyond theoretical knowledge, which is a crucial step in reducing biases and raising mental health literacy and awareness.

Effectiveness

There is no direct evidence about the effectiveness of the game; however, Zoë Quinn confirmed receiving numerous emails from players thanking them for providing a narrative to help understand the illness, as well as emails admitting that after playing, some of them tried to get it under control. The author also claimed that some therapists have used the game as "an exercise to generate empathy between a sufferer and his or her family" (Parkin, 2014). Quinn agreed that the game was released to offer anyone struggling a helping hand, so immersion stems more from relatability than from creating a skill-based flow experience. Thus, it may resonate more strongly with those familiar with depression (Seelow, 2020).

Potentially problematic aspects

Some critics argued that "Depression Quest" tells the story of an over-privileged person who is "better equipped" to deal with illness, making the game inaccurate in terms of representation and accuracy (Parkin, 2014). Despite this, the game has covered several ethical aspects. Before the game starts, a trigger warning about heavy themes and their emotional impact is displayed on the first page. Moreover, by ignoring traditional elements like scoring and winning, the game

avoids undervaluing its serious topics. The game is also free and accessible worldwide to ensure its message reaches everyone. Lastly, the character is genderless, which makes the game more inclusive.

Reviewers: Johannes Katsarov, Torben Schmidt

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Dialect: A Game About Language and How It Dies

Developed by: Kathryn Hymes, Hakan Seyalioğlu, Thorny Games

Article contributed by: Elizabeth A. Peacock

<https://doi.org/10.5281/zenodo.15870009>

Keywords

Anthropology of Marginalized Communities, Collaborative Storytelling, Culture, Empathy, History, Language, Queer Studies, Sociolinguistics



Photo of Dialect: A Game About Language and How It Dies (Thorny Games). Used for educational review. Rights remain with the creators.

Introduction

Dialect (see Figure) is a tabletop role-playing card game (TTRPG) developed by computational linguist Kathryn Hymes and mathematician and cryptologist Hakan Seyalioğlu, the game designers and founders of Thorny Games. The goal of *Dialect* is for players to learn about language change and endangerment as they take on the roles of members of a community (known as the “Isolation”) at the margins of a wider, dominant society. As players move through the game’s stages, they create a language of their own and use their new words as they interact with other players. The language changes in response to different events in the game, and eventually it is lost as their community dies off or is subsumed by the broader, dominant society. What makes *Dialect* unique is that, from the onset, players know that the community they create, and its

language, is doomed. How and why the end comes, however, changes every time the game is played, as does the language that players create.

Facts

Release date:	2017
Developer:	Kathryn Hymes & Hakan Seyalioğlu, Thorny Games
Game type:	Analog, Digital, Hybrid
Number of players:	3–5
Format:	Synchronous
Time frame:	3–4 hours
Languages:	English
Environment:	Room, tabletop, or flat surface
Material:	Game book, language deck, index cards, something to write with.
Price:	\$29 for the standard edition. This includes digital files of the game book and language deck and allows players to make additional copies if needed (not for resale).

Resonance & Criticism

Dialect has been praised for its unique focus on the power of language (Roberts, 2017), its re-centering of otherwise marginalized peoples (Platt, 2024), and its potential as a powerful tool for developing empathy for others (Witte & Bindewald, 2020). In his piece on imagined utopias, Platt praises Dialect for its ability to “help us understand how reorienting ourselves to failure and negative emotions through TTRPGs can create room for us to imagine and bring about alternative, better worlds” (2024, p. 92). The game began as a Kickstarter project that garnered 6000% of the developers’ goal (Roberts, 2017), and has won numerous international gaming awards, including Game of the Year (IGDN 2019), Best Game Tabletop (Indiecade Europe), and Best Game Silver Ennie (GenCon, 2019).

Game Principle & Process

Throughout the game, players collectively answer questions that help define their community (“Isolation”), its culture, and its values (“Aspects”); inhabit their characters as they interact with each other, using their shared language to discuss events in the game; and modify the language of their community as it grows, is challenged, and eventually dies.

The game progresses through five phases. In the first phase, players select one backdrop for their community, which includes a setting and discussion questions, develop their community by answering prompts that help define its core “aspects”, and collectively name their community. Dialect provides four core backdrops written by the game developers, and twelve additional backdrops contributed by others. Players then select their characters’ roles from the card deck and choose names for them. Lastly, players take turns introducing their characters to the rest of the group and explaining how each character relates to the Aspects. The subsequent three phases, Ages 1 through 3, comprise the core gameplay. In each age, players take turns using the language deck cards to make a connection to one of the Aspects, construct a new

word or phrase based on that connection, and role-play their character by having a conversation using the new word or phrase with other characters. With each age comes new concepts and actions, which change existing aspects and transform the language. The last phase, “Legacy”, attempts to give players a sense of closure on their dead Isolation and its language (for an example of how the game is played, see Roll20).

Learning Objectives & Educational Fields of Application

Thorny Games, the developer of Dialect, specializes in immersive tabletop role-playing games (TTRPGs) that focus on language, its development and loss, and its role in communicating across cultural divides. Though Dialect was developed with TTRPG game players in mind, the game book includes valuable information on basic linguistic structure and attempts to show players the central role of language in interactions, identity, and community-building. This includes a chapter on word-building by David J. Peterson, the linguist behind the constructed languages of Game of Thrones, and a chapter on preventing language loss in the real world by Steven Bird. This additional content makes Dialect a potentially useful game for introductory linguistic courses, as well as anthropology and cultural studies courses, as players can determine how much to use the linguistic structure content as they develop their Isolation’s language.

In addition, Dialect is designed to be inclusive and to highlight diverse perspectives and voices. Possible story environments include machines left on an abandoned future Earth, thieves in a 1830s urban city, enslaved people who fought for their freedom, or a virtual community of outsiders (i.e., LGBTQ+, those suffering from substance disorders, or however players may define themselves). The game encourages all players to have an equal voice in shaping Isolation and its language. While players often work together, individual players can voice alternative viewpoints, and it is ultimately up to each player to decide how the language will change during their turn. Dialect, therefore, may also help develop communication skills, empathy for diverse others, and practicing collaboration within the game environment.

I attempted to play this game in a 25-person introductory course on linguistic anthropology during several class meetings in Fall 2024. Each group of 3-5 students was given their own deck of cards and a journal to track their words and choices. The class selected one isolation (“The Czaten Dacha”) and a path to take, with the intention of having students in different groups face the same challenges, but each group would deal with them in its own way. I played the role of the facilitator, guiding the class through the game, but was not an active player in any of the groups. We played in small chunks of 15-20 minutes out of our 85-minute class meetings. However, the class only completed the initial Isolation and Age 1 before student interest fell, and we stopped playing.

Effectiveness

The game’s effectiveness in the classroom setting varies. In my class, students found it challenging to remember previous decisions and world-building, as we only played in short chunks over several weeks. Unpredictable student attendance in some groups adversely affected the motivation of the remaining students in those groups. While students who were familiar with role-playing games were eager to play, others who were used to more passive games struggled

to figure out how to “act out” their characters or preferred having others make decisions for them.

The game might have been more successful if we had devoted 2-3 class meetings to playing it in its entirety. Alternatively, we could have had only one or two groups actively play it while the rest of the class listened and observed. This would have diminished the game’s democratic nature, but it might have improved students’ understanding of its purpose in relation to the course learning outcomes. One student suggested we meet at a different time and have the class play the game for extra credit. By contrast, another one suggested that the game might be useful as an activity for several university student clubs.

In short, while the game may be played in a smaller classroom, it most likely needs to be modified due to the length of gameplay, variable student motivation, and differing students’ experiences with TTRPGs.

Potentially Problematic Aspects

The game’s content is much more inclusive than that of typical TTRPGs, which is commendable. Nevertheless, while players themselves can set the tone for gameplay, the topics of marginalized communities and language loss often stir deep emotions players may not expect. The game also requires active involvement from all players to develop the language and assume their character roles during conversations. This might be difficult for players new to card-based role-playing games. It can also feel jarring to switch between discussing the language itself (a metalinguistic task) and then using that language as one’s character.

Reviewer: Saskia Sterzl

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Dot's Home

Developed by: Rise-Home Stories
Article contributed by: Ashley Rezvani

<https://doi.org/10.5281/zenodo.15925872>

Keywords

African American Studies, Ethical Decision-making, Family Dynamics, Gentrification, Housing Justice, Intergenerational Inequality, Poverty, Racial Injustice, Redlining, U.S. History



Screenshot from Dot's Home (Rise-Home Stories). Used for educational review. Rights remain with the creators.

Introduction

Dot's Home (see Figure) is a short activist game released in 2021 by the nonprofit organization Rise-Home Stories to raise awareness about housing discrimination, gentrification, and land justice within Black communities in the USA. Learners play as Dot, a young Black woman living in a Detroit neighborhood with her nephew and grandmother. The player time-travels to three past scenes to learn about the housing challenges faced by Dot's community in each of these historic periods. At the end of the time-travel sequences, the player helps Dot's family make an important decision about their housing. These choices are remembered and lead to different endings. However, most players' choices do not meaningfully impact the game's narrative, since the illusion of choice was an explicit design feature intended to highlight how some systems are rigged against the individual (Morris, 2022).

Facts

Release date:	October 22, 2021
Developer:	Rise-Home Stories
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	60–90 minutes
Languages:	English
Environment:	Smartphones, tablets, Mac computers, or Windows PCs.
Material:	There is optional material on Rise-Home Stories' website that provides context to the story of Dot's Home.
Price:	Available for free

Resonance & Criticism

The game was well-received by critics and players alike. Dot's Home was positively reviewed in an IGN article in 2021 and a Wired article in 2022 (Morris, 2022; Valentine, 2021). Players have also rated the game well; in 2025, Dot's Home has a "Very Positive" rating on Steam, 4.4/5 stars on the Google Play Store with over 10,000 downloads, and 4.5/5 stars on the App Store.

The game received mixed reviews from Shelterforce, a nonprofit publication that reports on affordable housing (Duong, 2022). The reviewer criticized the quality of the dialogue, the illusion of choice, and felt that important nuance was lost due to the game's short length. However, Shelterforce praised the game for its art direction and the immersive qualities of its game design (Duong, 2022).

Game Principle & Process

Dot's Home is a short point-and-click narrative experience in which the player explores the environment, inspects objects, and converses with other characters. The game is divided into three main chapters, with an introduction and an epilogue. Each chapter begins with Dot time-traveling to the past, where she meets her ancestors and speaks with them. In these dialogues, the player is provided with multiple dialogue options and conversational threads. Through these conversations, the player learns about the housing issues and discrimination impacting the lives of Dot's ancestors. The player can optionally find and read newspaper clippings throughout the environment that provide additional historical context for each era.

While the story is linear, at the end of each time-travel sequence, the player advises one of Dot's family members on a significant life decision about their home, such as whether to sell it to an immigrant family or to wealthy out-of-state investors. These choices ask the player to consider how the decisions they make for Dot's family will affect the whole community, an intentional design choice by the developers to create a "values-driven game" (Morris, 2022). Each player's decision is recorded and will lead to one of three possible conversations between Dot and her family at the end of the game. With this one exception, players have limited agency and control over the story's outcome. Restricting the player's power over the game narrative

was another intentional design choice to illustrate how prejudicial systems can limit an individual's power and control over their life (Morris, 2022).

Learning Objectives & Educational Fields of Application

The primary goal of *Dot's Home* is to situate the player in the role of an individual directly impacted by harmful systems that dictate where people of color can live in the United States. The player is inserted into scenarios where they must make housing decisions in a community affected by redlining, urban renewal, and gentrification. The developer's explicit learning goal is to encourage player reflection on how families and communities end up in specific neighborhoods, using the game to emphasize that not everyone has equal choice in determining how and where they live due to factors like race, immigration status, and wealth (Rise-Home Stories Project, 2021).

The game is free and available on all smartphones and computers, so little or no additional equipment is required. *Dot's Home* can be downloaded through platforms such as Steam or the App Store, or directly from the Rise-Home Stories' website.

Instructors can find a wealth of free additional resources on housing issues on Rise-Home Stories' website. *Dot's Home* is also part of the Rise-Home Stories Project, a collection of media intended to educate the public about housing discrimination and policy. These additional resources and media stories could be assigned to students alongside *Dot's Home* to provide context for the topics the game addresses, including current housing issues faced by communities of color in the United States.

Given the short length of *Dot's Home* and the game's focus on the Detroit community, it is not well-equipped to give students a broad, thorough understanding of the history of housing discrimination. However, *Dot's Home* strongly positions the game as a powerful supplementary learning tool to communicate the individualized impact and emotional experience of living through racialized housing discrimination. Since the game is single-player, it may be helpful to ask students to reflect on their experiences before, during, and after the game to encourage engagement. *Dot's Home* would help facilitate a larger class discussion on the impacts of historic housing discrimination, gentrification, and land justice.

Effectiveness

There have been no empirical studies on the effectiveness of *Dot's Home* as a tool for raising awareness of housing discrimination, land justice, and gentrification. However, the game is narrative-driven, with simple gameplay more akin to an interactive novel, making it a beginner-friendly and accessible experience for those unfamiliar with digital games. The game has also been praised for its immersive storytelling (Duong, 2022).

Potentially Problematic Aspects

Dot's Home explores "the human side of housing injustice instead of giving meticulous explanations about history and policy" (Duong, 2022). Given the narrative focus on the experience of one community within a specific city, if the game is played in isolation, players lacking context for the broader history of discriminatory housing policies may draw simplified conclusions

about how these complex issues work. However, Dot's Home provides a concrete example of how real housing laws impact people and communities. The strength of Dot's Home lies in its ability to ground abstract ideas and statistics through storytelling. To succeed as an educational tool, Dot's Home should be situated within a larger historical context and supplemented with learning materials or lectures that comprehensively illustrate the consequences of housing discrimination across different communities, regions, and time periods.

Reviewer: Saskia Sterzl

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Dungeons & Dragons

Developed by: Wizards of the Coast
Article contributed by: Kevin Rebecchi

<https://doi.org/10.5281/zenodo.15824637>

Keywords

Collaborative Storytelling, Diversity, Empathy, Ethical Decision-making, Inclusion, Social-emotional Learning, Teacher Training, Teamwork

Introduction

Dungeons & Dragons (D&D) is a tabletop role-playing game (TTRPG) created in the 1970s by Gary Gygax and Dave Arneson (Dungeons & Dragons—Wizards of the Coast, 2015). A TTRPG is a form of collaborative storytelling in which players assume the roles of fictional characters and navigate a shared narrative world, typically guided by a game facilitator known as the Dungeon Master (DM). Players describe their actions, interact with the setting and each other, and use dice to determine the outcomes of uncertain events.

Recognized as a cornerstone of modern role-playing games, D&D laid the groundwork for many subsequent games in the genre (Williams et al., 2006). Over the decades, the game has undergone numerous revisions, with each edition refining the system to maintain its appeal and accessibility. The fifth edition (released in 2024), in particular, has been lauded for its streamlined mechanics and engaging storytelling, drawing in both newcomers and seasoned players. D&D is also highly valued for fostering social connections, problem-solving skills, and creativity (Bowman, 2010). Walden (2015) emphasized that it encourages shared experiences, cooperative storytelling, and escapism from everyday stress, making it a powerful tool for both entertainment and personal development.

This chapter explores the educational potential of D&D for addressing respect for difference and otherness, particularly cognitive diversity, though not exclusively. In teacher education, highlighting its capacity to foster empathy, accessibility, and ethical reflection through role-play.

Facts

Release date:	First edition in 1974, continuously updated; latest edition: fifth edition (released in 2024)
Developer:	Wizards of the Coast
Game type:	Tabletop role-playing game
Number of players:	At least 12 players, preferably more.
Format:	Synchronous; in-person or online.
Time frame:	Flexible (from 30 minutes for short exercises to multi-session campaigns)

Languages:	Available in multiple languages (English, German, French, Italian, Spanish, etc.)
Environment:	In-person (tabletop) or online (via virtual platforms)
Material:	Free tools available online (character sheets, rules, campaign guides), adaptable to various socio-cultural contexts
Price:	Core rules available for free; additional materials are purchasable

Resonance & Criticism

D&D has transcended its status as a tabletop game to become a cultural and social phenomenon, with an estimated 50 million players worldwide since its first release (Beazley & Touma, 2024). In 2024 alone, it was estimated at 4 million in 2024 (Fiori, 2024). Initially popular in niche gaming communities, D&D has gained mainstream recognition, particularly through the rise of streaming platforms and actual-play series, which have brought the game to millions of viewers globally. Beyond its influence on tabletop gaming, D&D has left a lasting impact on popular culture, inspiring movies, television series, magazines, and video games, including notable titles such as *Baldur's Gate 3*. The game's resurgence in mainstream culture has been fuelled by the rise of online streaming, which has attracted millions of viewers to live-play sessions (Gilsdorf, 2009). This exposure has further reinforced its reputation as both an entertainment medium and a valuable social activity. Beyond entertainment, D&D has been increasingly embraced in educational and therapeutic settings (see the "Effectiveness" section below for some references), where its storytelling mechanics and collaborative nature are used to develop social interaction, narrative skills, and group cohesion.

Moreover, following the recent introduction of an autistic character, Asteria (Arndt, 2023), many players have accused the game of tokenism and virtue signalling on Reddit threads and Facebook groups. However, controversies surrounding D&D are nothing new; the game has also been accused of Satanism (Waldron, 2005) and racism (Ferguson, 2022) multiple times.

Game Principle & Process

In D&D, players create and customize their characters from a lot of options, including species (e.g., humans, elves, dwarves), classes (e.g., warriors, wizards, rogues), backgrounds (e.g., acolytes, artisans, secrets), and appearance (e.g., height, skin colour).

The D&D universe is vast and diverse, featuring multiple open worlds and campaign settings such as the *Forgotten Realms* and *Greyhawk*. These settings include magic, supernatural powers, and mythological creatures (dragons, demons, werewolves ...), with adventures taking place in varied environments (forests, mountains, dungeons ...). Within these settings, players embark on quests such as rescuing hostages or uncovering lost artifacts.

The collaborative storytelling aspect of D&D relies on the interaction between players and the Dungeon Master (DM). The DM serves as the game's narrator, describing the setting, orchestrating challenges, portraying non-player characters (NPCs), and ensuring the game's balance and coherence. Meanwhile, players control their individual characters, making decisions, engaging in dialogue, and determining their actions through descriptive role-playing.



Tabletop gameplay session of Dungeons & Dragons (Wizards of the Coast), showing miniatures, dice, and a grid-based map used during turn-based play. Image from Wikimedia Commons. Used for educational review.

D&D employs a turn-based gameplay system with dice rolls to determine the outcomes of actions (see Figure). Players take turns performing actions (spellcasting, skill checks ...), with dice rolls determining success or failure based on character abilities and equipment bonuses.

Practical preparation takes approximately 2–3 hours, including reviewing the game rules, selecting or customizing a beginner-friendly adventure module, and preparing pre-generated character sheets. Facilitators should plan for a clear session structure, encourage equitable participation, and be ready to improvise in response to student creativity. It is recommended to start with short quests and gradually introduce more complex elements as students become more familiar.

Learning Objectives & Educational Fields of Application

D&D can be used as an educational tool to explore issues of respect for difference and otherness (whether cognitive, cultural, social, or sexual) through role-playing and collaborative storytelling. This pedagogical approach is based on social-constructivist theory (Vygotsky, 1978), which emphasizes that learning is first social and dialogical before becoming internalized by the individual. In an era where peace, understanding, and empathy are increasingly valued, D&D stands out as a medium uniquely capable of fostering these qualities.

By engaging in imaginative role-play, players step into the shoes of characters with different backgrounds, worldviews, and experiences, allowing them to navigate moral dilemmas, interpersonal conflicts, and complex social dynamics. This process can help to develop empathy, perspective-taking, and ethical reasoning.

For example, players may embody a tiefling bard who faces prejudice due to their demonic ancestry, mirroring real-world experiences of cultural discrimination and exclusion. Another

might take on the role of a disabled elf wizard, using magical prosthetics to navigate the world and foster discussions on accessibility. A character, such as a human cleric raised by dragonborn, who does not speak the same language as the other characters, may struggle with cross-cultural identity and belonging. Through these diverse characters and challenges, students must collaborate to overcome obstacles, leveraging their team members' strengths and perspectives. Throughout the campaign, they will encounter situations that require them to solve problems creatively, mediate conflicts, and make strategic decisions while maximizing the potential of their group's diversity. By designing and playing through dynamic and inclusive campaigns, students not only engage in meaningful interactions that challenge biases but also experience firsthand how diversity can be an asset in problem-solving. These dynamics align with transformative learning theory (Mezirow, 1991), which holds that learners revise and expand their worldview through critical reflection on personal assumptions and social norms.

In teacher education programs, D&D offers an innovative approach to preparing teachers to foster inclusion, empathy, and respect in their future classrooms. It also enables prospective teachers to develop techniques for facilitating discussions about neurodiversity and developing social and emotional intelligence. By simulating inclusive classroom dynamics in a safe fictional setting, players engage in experiential learning that follows Kolb's (1984) model—cycling through concrete experience, reflective observation, abstract conceptualization, and active experimentation. This prepares future educators to translate these insights into real-life teaching practice. Through gameplay, they thus learn how to create safe, respectful, and inclusive learning environments for their own students.

Effectiveness

While empirical research on D&D as a pedagogical tool is still developing, some studies highlight the therapeutic (Rosenblad et al., 2025; Slaughter & Orth, 2023) and educational (Carter, 2011; Morgan & Turner, 2021; Smith, 2024; Spotorino et al., 2020) benefits of role-playing games in developing engagement, problem-solving, and social learning. Collins and Septiana (2023) emphasize how structured role-play enhances transformative learning by encouraging perspective-taking and emotional intelligence. Sousa et al. (2023) demonstrate that tabletop games effectively promote cognitive and soft skills, supporting active learning and experimentation. Manard (2023) further explores the role of play in identity formation and social connection, showing how D&D fosters belonging and collaborative storytelling. These findings affirm D&D's potential as a tool for building empathy, ethical reasoning, and communication skills in education. However, this is not specific to D&D, and research on the effectiveness of (TT)RPGs in education has long been discussed (Adelakun et al., 2024; Cullinan & Genova, 2023).

Potentially Problematic Aspects

Firstly, preparing and running D&D sessions requires significant planning and time from teachers. Secondly, the open-ended nature of the game means teachers and Dungeon Masters need to guide discussions to keep them aligned with learning objectives. Since some students may find the fantasy setting unfamiliar or disengaging, the teachers need to create appropriate scenarios for their audience. Finally, making sure all players have a voice in discussions is crucial, particularly in diverse classrooms.

In addition, some critics argue that the game's complex rule system and improvisational aspects can be intimidating for newcomers. However, D&D's modular structure allows for simplifications and custom adaptations, making it accessible to a broader audience when properly introduced.

Reviewers: Johansen Quijano, Lucian Jueterbock, Kat Schrier

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Durga Puja Beyond Borders

Developed by: Xenia Zeiler, Satyajit Chakraborti

Article contributed by: Xenia Zeiler

<https://doi.org/10.5281/zenodo.15870015>

Keywords

Culture, Durga Puja, Event Management, History, Indian festival culture, Intercultural Communication, Migration, South Asian Studies



Screenshot from Durga Puja Beyond Borders (Z. Zeiler; Flying Robot Studios). Used for educational review. Rights remain with the creators.

Introduction

The educational video game *Durga Puja Beyond Borders* (see Figure) introduces Indian festival culture by focusing on Durga Puja. Today, Durga Puja is not only widely celebrated in India but is also a significant event for global Indian communities (e.g., Guha-Thakurta, 2015; Zeiler, 2025). The game draws on aspects of management games to playfully yet educationally introduce various layers of Durga Puja festival culture, including joint Durga Puja organizations and, especially, celebrations. It conveys educational content about the festival's history and past and present ways of worshipping and jointly celebrating, in India and beyond. Moreover, it allows a glimpse into how festivals are important events and locations for migrant communities to live and negotiate identity, heritage, and culture. This game invites players to join the festival in an exemplary global Indian community, in the so-called Indian diaspora, in Helsinki, Finland.

In Durga Puja Beyond Borders, you play as Laura, who takes part in organizing and celebrating a Durga Puja event hosted by a local Indian community.

The game is part of a set of two educational video games at the festival, developed specifically for university teaching. The Durga Puja Mystery (2020) and Durga Puja Beyond Borders (2021) can be played in combination or as stand-alone games, depending on the player's interest.

Facts

Release date:	2021
Developer:	collaboration between Xenia Zeiler, University of Helsinki, Finland, and Satyajit Chakrabarti, Flying Robot Studios, Kolkata, India
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	60–90 min, depending on the options the player chooses
Languages:	English
Environment:	Android phones and tablets; Windows PCs and laptops
Material:	The game is downloadable from the Google Play Store or via a direct link upon request; a public website additionally offers game-accompanying academic context information on the festival Durga Puja (two academic lectures, one academic blog post, and one documentary), produced specifically for the two educational video games on Durga Puja, see https://blogs.helsinki.fi/durgapuja-the-videogame/
Price:	Fully open access and free of charge, as the game development was funded by the University of Helsinki

Resonance & Criticism

Durga Puja Beyond Borders was developed for university-level humanities teaching but is open to play for anyone interested in Indian festival cultures. Collected voluntary student feedback praised the game's innovative, playful approach to learning about the festival. Additionally, the game has gained international awareness among university teachers.

Sample course titles in which the game has been used so far include "Globalization, Global Communities, and Transcultural Encounters", "Who has got the Power? Communicating and Negotiating Authority and Identity in Indian Festival Cultures", and "Identities and Digital Networks of Migrant Communities".

Game Principle & Process

As mentioned above, Durga Puja Beyond Borders is an educational video game developed to introduce selected core aspects of Indian culture and society, using the festival as a content example. It focuses on the festival's celebration in Indian communities beyond India.

The player character Laura lives in Helsinki, Finland. Invited by her friend Shreya, she joins a video conference of a local Indian Durga Puja Committee as they begin preparing the annual event. The committee appoints Laura as the assistant to the group's chair, Shreya, who, in turn,

mentors Laura on the festival's history and on past and present rituals and worship, iconography, mythology, and geographical travels in India and beyond.

This mentor conversation (accessible via the "Ask Mentor" button) contains essential information that enables the player to answer quiz questions later in the game. Laura then proceeds to the "Schedule" level, which lists the event's rituals, cultural performances, meals, and other main happenings. Using the scheduler menu that provides contact details for all committee members and a selection of vendors, the player assigns each event point to a responsible person.

Next, the player joins the actual festival celebrations, which last three days. This game level takes place in a community hall, shown in an isometric view. The player can now walk through the venue, starting conversations with visitors or just exploring. This level's main feature is the player's conversations with Durga Puja visitors (community members and friends), which offer ample opportunities for knowledge exchange. These conversations also include quiz questions that test the player's knowledge and determine the final score.

This game builds on the (at times contested) claim that educational video games add value to teaching by facilitating immersive (e.g., McMahan, 2003) and embodied (e.g., Gregersen, 2011; Lankoski, 2016; van't Riet et al., 2018) experiences.

Learning Objectives & Educational Fields of Application

Durga Puja Beyond Borders, like its predecessor, *The Durga Puja Mystery*, has an overall objective as well as more specific and detailed learning objectives. The primary, overarching goal is to give students and interested general audiences access to knowledge of the Durga Puja festival, particularly as celebrated beyond India, in a playful yet academically sound way. The game's sub-goals include specific usability in classroom settings across a variety of courses suited to the academic disciplines of South Asian studies, Asian studies, religious studies, and area and cultural studies.

The festival of Durga Puja has traveled widely with Indian communities, beyond many geographical and cultural borders. Today, the festival is celebrated in many places around the globe that have become home to Indian migrant communities. This game invites you to join the festival in an exemplary global Indian community, in the so-called Indian diaspora, in Helsinki, Finland. To achieve this, the game uses several pedagogical gamified features that allow the player to join a Durga Puja event from the planning stage through the actual celebrations. This is achieved through enabling the player to converse with the planning committee in video team meetings, take support from a mentor, schedule the event plan for the celebrations and assign responsibilities, use video calls to talk with the festival planning committee members, have conversations with members of the community about Durga Puja in India and beyond, and use a library to get suggestions for further readings – all during the gameplay. Upon successful completion of all events during the three celebration days, the player receives a score based on their answers to the quiz questions throughout the game.

Durga Puja Beyond Borders is easy to use on a Windows PC or laptop with the required system requirements (<https://blogs.helsinki.fi/durgapuja-the-videogame/play/>). All practical instructions, as well as game-accompanying academic content context that can support both the teacher in

content preparation and the player during gameplay, are free of charge and easily accessible. This reflects the fact that using an educational video game in classroom settings should always be supported by other learning activities, such as assigned academic readings on the game's content matter, group discussions, and the use of different media formats. As this is a single-player game, it is even more advisable to embed it in collaborative class discussions and in further information sources and learning activities on the theme.

Effectiveness

A postmortem of the game by Zeiler & Chakraborti (2024) further investigated the pros and cons, including the effectiveness. This student feedback confirms that the game supported the learning process, mainly by providing more direct and immersive access to certain festival elements than is possible in conservative learning environments (e.g., Blumberg & Blumberg, 2014; Mayer, 2014). These festival elements include, for example, audio (such as ritual and festive music) and visuals (such as colours). It has also proven effective to choose the management game genre, as it aligns with Durga Puja Beyond Borders's focus on event planning and execution.

Connecting the two games via the main player character, Laura, proved effective. Having participated in a Kolkata Durga Puja in *The Durga Puja Mystery* (2020), Laura is now interested in seeing the festival in her hometown, Helsinki. Thus, the narrative and the player character Laura may be seen as both a direct successor to *The Durga Puja Mystery* and a stand-alone game. Both games can be played in succession (with a recommendation to play *The Durga Puja Mystery* first) or independently. The fact that both games are, nevertheless, very different in terms of platform (PC and mobile), genre (mystery and management), aesthetics, soundscapes, etc., further supports reaching various player/learner types.

Potentially Problematic Aspects

The game is not yet available for iPhone. An Apple version is planned but is subject to funding.

Reviewer: Johansen Quijano

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Dying Debate: A Nano Larp

Developed by: Guardian Adventures
Article contributed by: Meghan Gardner

<https://doi.org/10.5281/zenodo.15681653>

Keywords

Conflict Management, Death, Empathy, End-of-life Care, Ethical Decision-making, Family Dynamics, Health, Medical Ethics



Promotional image for Dying Debate: A Nano Larp (Guardian Adventures). Used for educational review. Rights remain with the creators.

Introduction

Developed by Guardian Adventures and released for beta testing in October 2024, *Dying Debate* is a role-playing game designed to facilitate discussion on complex and emotionally charged end-of-life decisions within families. While best performed as an analog (in-person) game, it is also suitable for video conferencing, ensuring accessibility for remote or hybrid classrooms. Players take on the roles of siblings with differing views on the care of an aging parent who is terminally ill and suffering from severe dementia. The parent has not provided any formal directives, forcing the siblings to confront difficult choices.

The game is structured to foster empathy and critical thinking. Characters may hold positions that are the opposite of the players' real-world beliefs, which promotes reflection and conversation. A guided workshop and debriefing segment frame the role-play, ensuring the emotional safety and educational value of the experience. Designed for adult learners 18+, Dying Debate is especially effective in courses focused on ethics, health care, and family systems.

Facts

Release date:	October 22, 2024
Developer:	Guardian Adventures
Game type:	Analog
Number of players:	2–5
Format:	Synchronous
Time frame:	20 minutes plus pre-game and debrief
Languages:	English
Environment:	Meeting room or via video conferencing
Material:	No special materials are required other than a timekeeping mechanism and printed handouts with game instructions and character prompts.
Price:	Free; accessible upon request from https://www.guardup.com

Resonance & Criticism

Since its initial beta test and planned public run at a conference in Oslo, Norway, and again in Rochester, NY, USA, Dying Debate has drawn attention for its emotional depth and relevance to real-life issues. Early participants report increased willingness to engage in personal conversations around end-of-life care. Playtest feedback has been positive overall, though some noted the emotional heaviness of the topic requires skilled facilitation.

A significant concern raised by reviewers is the lack of detailed guidance for instructors or facilitators. Given the game's sensitive subject, the facilitator plays a critical role in establishing trust, managing emotional responses, and guiding the debrief. A comprehensive facilitation guide is under development and will include sample language for introducing safety protocols, redirecting off-topic or combative discussions, and providing aftercare.

Game Principle & Process

The game is structured into three main phases: Session 0 (10 minutes), gameplay (20 minutes), and debrief (10 minutes). In Session 0, the facilitator introduces the scenario and safety protocols, including consent mechanics and emotional check-ins. Participants are cast as siblings with conflicting views on whether to prolong their parent's life using medical interventions or allow natural death.

Gameplay involves a facilitated courtroom-style debate. One sibling advocates for palliative care, another for aggressive intervention, and a third remains undecided. Players are encouraged to embody their roles deeply and reflectively, using structured prompts. A workshop activity before play helps the player portraying the parent with severe dementia consider the long-

term consequences of the illness, such as financial hardship, lost independence, and emotional isolation.

Facilitators should remain present throughout, observing and gently intervening when needed. A judge character within the game has a scripted redirection line (“Please focus on the topic at hand”) to keep the discussion constructive.

The post-game debriefing, grounded in Crookall’s (2014) emphasis on reflection, includes prompts like “How did it feel to embody this viewpoint?” and “How might this influence your real-life decisions?” Facilitators are encouraged to allow time for quiet reflection, emotional processing, and discussion.

Learning Objectives & Educational Fields of Application

The game enhances communication skills, empathy, and ethical reasoning. Participants explore end-of-life decision-making, medical ethics, and family conflict through embodied narrative. It is especially relevant for courses in ethics, public health, law, medicine, social work, and gerontology. By simulating realistic tensions and emotional stakes, the game fosters durable insight and encourages post-game dialogue.

Grounded in social constructivist theory (Westborg, 2022), Dying Debate treats learning as relational and experiential. Bowman’s (2013) work on social conflict in role-playing underscores the value of conflicting perspectives in educational narratives.

Effectiveness

Early beta feedback and surveys suggest Dying Debate effectively prompts personal reflection and behavior change. A follow-up survey conducted within two months after gameplay gathered responses from 20 of the 38 original participants across both playtests. Of those respondents, 18 of 20 reported engaging in a conversation with a loved one about end-of-life directives after participating in the LARP. The two respondents who had not yet had the discussion indicated that they planned to do so within the next three months. Only four respondents stated they had previously discussed end-of-life directives before playing. Eighteen respondents reported an increased sense of urgency or importance regarding planning after the experience, and 17 stated that the conversation was sparked at least in part by telling loved ones about the LARP, which led directly to the discussion. These early results appear promising, as end-of-life directive conversations are widely recognized as emotionally challenging and socially taboo, often leading people to delay planning. The reported behaviour change suggests that emotionally immersive role-play may be a meaningful catalyst for initiating difficult but essential family dialogue.

Potentially Problematic Aspects

The game’s themes of terminal illness and death may be distressing to some. Facilitators must clearly communicate opt-out options and ensure that safety tools (e.g., thumbs up/side-ways/down, pause mechanics) are respected (Reynolds & Germain, 2019). Cultural assumptions

about death may limit the game's universal relevance. Facilitators are encouraged to adapt scenarios sensitively.

Reviewer: Maren Schaal

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Elegy for a Dead World

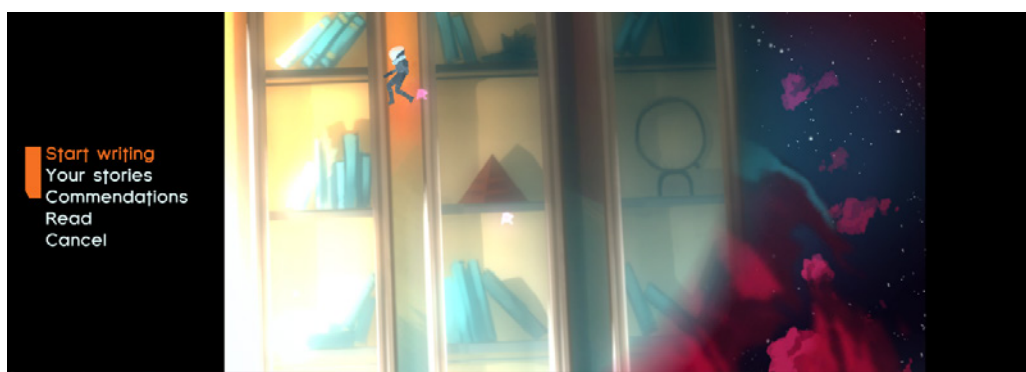
Developed by: Dejobaan Games and Popcannibal

Article contributed by: Johansen Quijano

<https://doi.org/10.5281/zenodo.17679767>

Keywords

Creative Writing, Literary Studies, Narrative Exploration, Romanticism, Storytelling



Elegy for a Dead World (2014), gameplay screenshot. Image © Dejobaan Games & Popcannibal.

Introduction

Elegy for a Dead World (see Figure) is an interactive experience that functions as a guided writing simulator, in which players explore landscapes inspired by Romantic poetry. The game's title alludes to Byron's poem "Darkness", which explores the end of civilization and human frailty in the face of an indifferent universe. The world's visual themes prompt players to construct narratives about the fate of the lost civilizations that once inhabited these spaces.

The game's primary audiences are students, educators, and creative writers. It fits into the category of serious educational games because its design emphasizes literacy and creative expression. This positions the game as a tool for teaching writing that fosters imagination and encourages interpretation while aligning with the broader contemporary discourse in serious games.

The game is an experiment in digital authorship. It provides a framework where players can choose to follow structured prompts or abandon them entirely in favour of free-form composition. This transforms the game into an open-ended literary exercise that bridges interactive media with creative writing.

Facts

Release date:	2014 (Retired in 2024, only available if previously purchased through Humble Bundle as a DRM-free release)
Developer:	Dejobaan Games and Popcannibal

Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	20 minutes to an hour
Languages:	The game's user interface (UI) is in English, but players can write in any language.
Environment:	It is recommended to play in a well-lit room. A computer or laptop with either Windows or Linux is required.
Material:	Unfortunately, the game has recently been delisted from Steam. Players will need to have already purchased it via Steam or Humble's Jumbo Bundle 7.
Price:	–

Resonance & Criticism

The game has been praised for its innovative concept, and critics have highlighted its potential to inspire creativity and serve as a tool for writers. Khan (2014) notes that it "presents an experience that is all-inclusive and does not look down on anyone who does not fully comprehend it." They state that "whether it is part of your education or one of your passions, writing and literature is an integral part of anyone's life, and so *Elegy* serves as a welcoming platform for anyone who wants to practice writing and polish their craft." However, some reviewers pointed out limitations, for example, *VentureBeat* observed that the game's non-writing elements are lacking (Henningsen, 2014). The game received an honourable mention for the Nuovo Award at the 2014 Independent Games Festival, recognizing its innovative approach to ludonarrative.

Game Principle & Process

Elegy for a Dead World employs a minimalist side-scrolling mechanic where players traverse spaces at a deliberate pace while encountering environmental cues and prompts designed to inspire writing and storytelling. Prompts range from descriptive world-building exercises to character-driven narratives, and free-form writing lets players bypass prompts and write original stories without constraints. Whether players write in free-form or through prompts, movement is linear, with new prompts or pages appearing as they advance through each world. There are no obstacles, enemies, or puzzles, and progression is dictated solely by the player's engagement with the writing process. Since the game lacks interactive branching choices or systemic consequences, players have significant control over the narrative content but little influence over the world itself. The landscapes and their associated prompts remain static, meaning the player's primary agency lies in interpretation and storytelling rather than gameplay manipulation.

The game's goal is framed as a creative exercise: to complete writing a narrative inspired by its worlds. The act of writing itself becomes the reward, with players able to review their narratives upon completion. Unlike traditional games with challenge-based progression, *Elegy for a Dead World* promotes intrinsic motivation by emphasizing the personal satisfaction of creative expression. The game's aesthetic and narrative themes are rooted in Romantic literature, particularly the idea of the sublime. The barren landscapes reflect the themes of decay and loss in

Byron's *Darkness* and Shelley's *Ozymandias*, and their structure follows Roland Barthes' concept of the "writerly text", which invites open-ended interpretation.

Learning Objectives & Educational Fields of Application

Elegy for a Dead World has significant pedagogical potential. It fosters creative writing skills, narrative construction, and literary analysis in an engaging and interactive format. The game can be integrated into literature, composition, or digital humanities courses, to explore themes of solitude, loss, and civilization through both visual and textual mediums as it provides an opportunity for interdisciplinary study by merging game studies with literary theory, narratology, and historical or philosophical discussions about the Romantic movement's preoccupation with decay, the sublime, and the passage of time (Schultz-Colby & Colby, 2008). The game can be linked to constructivist pedagogy, where learning is self-directed, and knowledge is built through active engagement. It provides a scaffolded environment that encourages learners to experiment with storytelling while offering minimal direct instruction.

The educational goal of *Elegy for a Dead World* is to foster creative writing skills by immersing players in visually evocative environments that serve as inspiration for narrative construction. It promotes learning objectives by fostering creativity, critical thinking, and literary engagement. It encourages players to craft original narratives, enhancing their creative and expressive writing skills (Jones, 2023). By requiring players to analyze visual and textual cues, the game develops critical thinking and interpretative abilities while reinforcing storytelling techniques and literary composition.

The teacher serves as a facilitator, guiding students through the game's creative and analytical aspects. Their role includes introducing the game and its objectives by providing context on its Romantic literary influences and instructing students on how to engage with the writing prompts. Teachers would also encourage analytical discussion by facilitating post-play reflections on narrative choices and thematic elements, helping them refine their storytelling skills through constructive critique. While the game is intuitive and does not require extensive technical training, teachers would benefit from spending one to two hours familiarizing themselves with its writing modes. Additional preparation may be necessary if the game is incorporated into a structured course module to ensure that assignments and assessments align with learning objectives.

Effectiveness

Although there is no peer-reviewed evidence of the game's effectiveness, experiential observations suggest it offers several strengths in fostering creative writing and literary engagement. The game encourages active participation by requiring players to create narratives rather than passively consuming content, fostering independent thought through multiple interpretations without a singular "correct" outcome. Its structured prompts support learners at different levels, guiding beginners while providing experienced writers the flexibility to engage in free-form storytelling, and it successfully blends digital media with traditional storytelling, demonstrating the potential of video games as tools for literary exploration (Jackson, 2017). However, *Elegy for a Dead World* also presents limitations, particularly its lack of direct feedback mechanisms: it does not offer built-in grammar or style analysis, leaving students reliant on self-review or

peer feedback. The game's open-ended nature may also require external structuring, as some students might struggle without clear guidance from an instructor.

Potentially Problematic Aspects

While *Elegy for a Dead World* is generally suitable for educational settings, a few aspects of its content and mechanics could present challenges. The game is designed around open-ended creative writing rather than fact-based accuracy, meaning that any historical or literary references are impressionistic rather than rigorously sourced. However, this does not pose a significant issue unless students mistake its aesthetic inspiration for historical accuracy. A more problematic issue is the game's lack of availability. Since the game can only be accessed by those who previously purchased it, new players are effectively locked out of integrating it into their curricula, which limits the game's potential reach.

Reviewer: Saskia Sterzl

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Exit Game: Measurement Lab

Developed by: Anna Sorgatz, Juliane Schuldt

Article contributed by: Anna Sorgatz,

Juliane Schuldt, Sophie Gröger

<https://doi.org/10.5281/zenodo.15824792>

Keywords

Engineering, Geometrical Product Specification, Measuring Tasks, Product Development, Strategic Decision-making



Overview pages and example scene from the digital exit game Measurement Lab. © Anna Sorgatz and Juliane Schuldt. All rights reserved for the developers.

Introduction

The exit game *Measurement Lab* (see Figure) is a virtual escape room developed by Juliane Schuldt and Anna Sorgatz in 2024 as part of the research project “Multimediale Lehr-Lern-Loop-Methode in der Fertigungsmesstechnik (FMT E-Tutor)”. This virtual measuring room enables players to solve various measuring tasks by selecting the appropriate measuring devices. Various Geometrical Product Specification and Verification standards are applied.

The intended user group for the game is mechanical engineering students attending the lecture series of the Professorship of Production Measurement Technology. A game scenario has been developed in which players must complete various measurement tasks. The aim is to transfer the knowledge learned in the lecture to a new application. The current content and requirements in industrial practice have been incorporated into the story.

Students can play the game at any time and place. All they need is a computer or other mobile device and a working internet connection.

Facts

Release date:	2024
Developer:	Anna Sorgatz, Juliane Schuldt
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	One game round, including follow-up, takes between 30 and 60 minutes
Languages:	German
Environment:	A computer or mobile device with internet access is required to play
Material:	Any digital device
Price:	The game can be played for free after registering on the project page.

Resonance & Criticism

During the development of the escape room, both mechanical engineering students and metrology scientists worked on content-related tasks. They served as test subjects for feedback rounds, ensuring that the future user group was directly involved. The game has also been presented to experts in the field of serious games and standardization in mechanical engineering at a conference on teaching methods for standardization. The exit game has not yet been awarded a prize.

Game Principle & Process

The exit game takes place on the university campus and in the professor's measuring lab. Players move through a virtual environment created from 360° images of the relevant areas. At the start of the game, the players receive a message from the department's professor stating that missing measurement results must be submitted within 30 minutes. The player must find the relevant workpiece with the corresponding technical drawing in the measuring lab. To identify the necessary characteristics, the player must read and interpret the technical drawing, then locate the relevant measuring devices in the measuring rooms and perform the measurements. Afterward, players can review all the ISO GPS standards used and see in which situations they have been applied. There is no defined path within the laboratory, so players can move around independently and unlock certain rooms by solving tasks. Various Non-Player-Characters (NPCs) are integrated to give feedback and guide through the game.

The exit game has been integrated into a virtual learning environment for Production Measurement Technology. Based on the previously defined learning objectives, it has been structured into thematic sections (Schuldt & Gröger, 2022), with various preliminary studies analysing the content of ISO GPS and dividing it into suitable training modules (Schuldt et al., 2020; Schuldt & Gröger, 2023). The learning objectives and the game have been defined and developed based on previous research and Bloom's taxonomy of learning objectives (Bloom, 1956), ensuring that the competencies associated with the learning outcomes are presented transparently. The

game is integrated into the learning process. Specific learning objectives are defined at the outset and presented to players. An underlying reward system motivates players to achieve these objectives and use additional content to apply their knowledge, thereby enhancing their long-term skills.

Learning Objectives & Educational Fields of Application

The primary learning objectives of the game are to develop practical skills in Production Measurement Technology. Players learn to read technical drawings, identify inspection features, and select appropriate measuring devices to obtain accurate measurements. The various tasks in the measuring lab, the influence of environmental conditions on measurements, and the application of regulations and standards complement competence-based learning. The mechanics of the game support achieving these learning objectives by challenging learners to make decisions directly related to the learning content.

At the outset, during game development, the teacher defined the game's learning objectives and designed it accordingly. The teacher's role during the game is supportive. During the game, the players are supported by the NPCs. In addition, solutions are hidden so that players always have the opportunity to reach the next room. The developers aimed to create a system that is independent of time and place. This allows learners to play and learn at the times that suit them best. Aspects such as a lack of time due to family commitments or absence during practical semesters are considered, and students are supported in their current situation in the best possible way. Of course, there is always the option of contacting the professorship staff directly (Sorgatz et al., 2024).

The game mechanics support the learning objectives by providing students with direct feedback from NPCs and offering the opportunity to reflect on the learning content and the standards applied after completing the game. In this way, a deeper exploration of the content is encouraged, and learners' fear of meeting standards is alleviated. The targeted use of media makes learning active, motivating, and immersive, which leads to an effective and sustainable learning process.

Effectiveness

Although no specific studies have been conducted on the effectiveness of the developed exit game, Measurement Lab, the positive effects of serious games are well documented in educational research (Sitzmann, 2011). Not only do serious games promote learning, but they also increase players' motivation and commitment. Student assistants were involved in developing the game, and their experiences and opinions were incorporated directly into the design process to ensure the game met students' needs and expectations. Test rounds were carried out with various students to gather feedback and optimize the game. It became clear that players need time to get used to the gameplay but quickly get the hang of it. The level is the same for all players. Care was taken to ensure that the task difficulty corresponds to the learning objectives and progress. Although the story frames the task as time-critical (30 minutes), players are not actually time-restricted. This enables players to achieve the learning objectives and apply their knowledge in a practical, unfamiliar environment. The content taught in lectures can therefore be viewed and learned holistically.

Potentially Problematic Aspects

While the game supports decision-making about standards and device selection, it cannot fully replicate tactile handling, calibration routines, measurement “feel”, or real sources of error from physical practice. This may limit transfer to hands-on lab performance unless paired with in-person measurement training.

Reviewers: Siegfried Zürn, Martin Gerner

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Explain It Like an Acrobat

*Developed by: Marit Klinge, Steffi Hobuß, Johannes Katsarov,
Michel Bieniek, Maya Kim, Lucian Jueterbock
Article contributed by: Marit Klinge*

<https://doi.org/10.5281/zenodo.18232397>

Keywords

Collaborative Problem-solving, Cognitive Flexibility, Communication Studies, Critical Thinking, Inference Skills, Language, Linguistic Creativity, Teamwork, Time Management

Introduction

Developed in 2025 by a team of the Game-Didaktik project at Leuphana University in Lüneburg, the Taboo-inspired card game *Explain It Like an Acrobat* encourages players to think outside the box. Contrary to the original Taboo game, Explain It Like an Acrobat challenges players linguistically by using 10 rather than the usual 5 forbidden words, requiring more flexible descriptive strategies.

In teams, players take turns explaining and guessing everyday object terms while avoiding the forbidden words on the cards. It is primarily intended to promote creative expression and to enable participants to view everyday objects from a different perspective.

As a serious game, it thus combines playful competition with educational value while also providing the opportunity to develop eloquence and language competence. Designed for diverse groups, the game promotes shared, fun experiences that strengthen cooperation.

Facts

Release date:	2025
Developer:	Marit Klinge, Steffi Hobuß, Johannes Katsarov, Michel Bieniek, Maya Kim, Lucian Jueterbock of the Game-Didaktik project at Leuphana University in Lüneburg
Game type:	Analog
Number of players:	4–12
Format:	Synchronous
Time frame:	20–60 minutes
Languages:	English, German
Environment:	Tables and chairs to create groups
Material:	32 playing cards and a timer
Price:	–

Resonance & Criticism

As the game was developed in late 2025, no official large-scale player feedback has been reported yet. However, one initial test at Leuphana University in a Liberal Arts seminar showed a positive reception. Participants played for about 40 minutes across four rounds.

Students valued the creative challenge, and the extensive list of forbidden words forced them to find new descriptive strategies. Some participants reported feeling “stumped,” making the game both humbling and engaging. The concept of Explain It Like an Acrobat is based on the well-known Taboo mechanic and is used in an educational context. Like Taboo, the game offers playful competition while encouraging reflection on communication and increasing complexity by using ten instead of five forbidden words.

Game Principle & Process

The goal of the game is for each team to guess as many everyday objects as possible in one minute without using any of the ten forbidden words.

The setup is simple: Players split into two even teams. Each round, the groups nominate one player as the Describer, while the others serve as guessers. A shuffled deck of cards is placed face down in the center of the table for easy access. The Describer draws a card showing the object to be explained, along with ten forbidden words that may not be used (see Figure).

Participants using the card-based materials during a session of Explain It Like an Acrobat (Game-Didaktik project). Used for educational review. Rights remain with the creators.

During a team’s turn, the Describer has 1 minute to have their team guess as many objects as possible. Forbidden words, rhymes, proverbs, or initials may not be used. Only verbal explana-

tions are permitted; pointing, miming, acting, sounds, or gestures are forbidden. If a rule is broken, the card is discarded, and no points are awarded.

The opposing team monitors rule adherence and points out violations. The Descriptor may pass on a card, which is then discarded. When time is up, successfully guessed cards are collected, and the opposing team begins their turn. The team with the most cards at the end wins the game.

Clear communication, creative linguistic strategies, and teamwork are central objectives. Explain It Like an Acrobat provides immediate feedback through correct guesses, while rule violations serve as corrective feedback. The collected cards act as a visible progress indicator.

The playful competition motivates teams to improve descriptive strategies. The game principles draw on communicative language teaching and collaborative learning, promoting paraphrasing and meaning-focused interaction through limited word use (Canale & Swain, 1980; Hagaman et al., 2010). Players jointly negotiate meaning, reflecting core principles of collaborative learning (Dillenbourg, 1999).

Learning Objectives & Educational Fields of Application

The aim of Explain It Like an Acrobat is to help players expand and strengthen their linguistic skills and active vocabulary through play.

Due to the ten forbidden words and additional restrictions on gestures, sounds, and other shortcuts, participants must avoid generic responses and instead develop alternative explanation strategies. They learn to describe everyday objects through actions or shared experiences, which promotes their linguistic flexibility and descriptive skills.

The game mechanics strongly support these learning objectives. The high number of taboo words, as well as time pressure, intensifies the need for concise yet creative descriptions that avoid routine language.

Furthermore, the guessers also hold a difficult position. During the Descriptor's explanation, they must interpret the clues given by the Descriptor while negotiating meaning cooperatively. Therefore, communication and active listening skills are also trained.

A teacher could take on the role of observer or facilitator. They can supervise the game and clarify rules with little preparation time. Teachers only need to familiarize themselves with the basic playing principles. After gameplay, the teacher could moderate a reflection phase in which the players discuss helpful strategies or misunderstandings that arose.

Overall, Explain It Like an Acrobat is a fun game that allows for cooperation and helps players expand their creativity and eloquence. It combines challenge, collaboration, and linguistic experimentation to foster players' expressive competence.

Effectiveness

No empirical studies on the effectiveness of Explain It Like an Acrobat have been conducted yet.

However, as already stated in the game principles section, the game mechanics align with established findings in vocabulary research. This research suggests that deeper lexical processing is supported by forced paraphrasing and meaning-focused language (Hagaman et al., 2010).

Moreover, time pressure, clear goals, and immediate feedback in the game can be linked to core elements of flow theory (Csikszentmihalyi, 1990). This theory has been linked to high engagement in learning contexts. These theoretical assumptions align with the observations from the initial seminar test in 2025. The students reported that during the game, they felt challenged and engaged, which aligns with the theoretical expectations.

Potentially Problematic Aspects

Explain It Like an Acrobat does not contain any sensitive or harmful topics, as all terms used are everyday objects. Therefore, ethical risks seem minimal.

However, the verbal focus and time pressure of the game may lead to disadvantages in players with language impairments or high-performance anxiety. Individuals with speech or hearing disabilities could also face difficulties, as the game relies entirely on spoken descriptions. Overall, it may require some adjustments to be more inclusive.

Reviewer: Saskia Sterzl

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Facilitation Toolkit

Developed by: Saskia Sterzl
Article contributed by: Saskia Sterzl

<https://doi.org/10.5281/zenodo.18483307>

Keywords

Collaborative Problem-solving, Communication Studies, Cooperation, Educational Ethics, Facilitation, Frame Games, Gamification, Guided Discussion Techniques, Interactive Teaching, Method Cards, Teamwork, Workshop Design



Sample cards from the Facilitation Toolkit. Used for educational purposes. Rights remain with the creators.

Introduction

The Facilitation Toolkit is a collection of method cards (see Figure) for educators and facilitators who lead game-based learning activities. The Game Didaktik Project at Leuphana University Lüneburg developed these cards because many instructors lack practical knowledge of facilitation techniques, even as interest in serious games and gamification is growing in higher education.

The cards are organized into five categories that reflect typical phases of facilitated learning sessions: icebreakers, knowledge activation, energizers, debriefing, and discussion formats. Each category has its own color and symbol for quick identification for users with color vision deficiency. The toolkit builds on the concept of frame games (Thiagarajan, 2004), reusable activity structures that can be filled with different content depending on the learning context. Think-Pair-Share, for instance, keeps its structure whether applied to mathematical problems or ethical dilemmas.

The toolkit includes blank cards. Facilitators can add their own methods or invite workshop participants to contribute techniques from their practice. The collection grows with use.

Facts

Release date:	February 2026
Developer:	Saskia Sterzl, Leuphana University Lüneburg
Game type:	Analog (printed cards)
Number of players:	1–15
Format:	Standard playing card size (70 x 120 mm)
Time frame:	1.5–2 hours
Languages:	German
Environment:	Group table
Material:	Available as an Open Access download (PDF) on Zenodo and Twillo; files are formatted for professional printing services or self-printing
Price:	Free (Open Access, CC-BY-SA)

Resonance & Criticism

The cards have been used in the “Mastering Facilitation” workshop developed by the Game Didaktik Project. Participant feedback from this workshop provides initial insights into how the toolkit functions in practice.

Participants particularly valued the playful approach and the practical outputs. One participant noted: “I left with concrete materials I can use immediately.” The toolkit was described as versatile and immediately applicable. Systematic follow-up data on independent use is not yet available.

Game Principle & Process

Each card follows a consistent structure for quick orientation. The front shows the method name, goal, and required preparation or materials. The back outlines the procedure and includes practical tips.

The five categories cover different moments in facilitated sessions. Icebreakers help establish a supportive learning environment and reduce initial nervousness. Knowledge activation methods help participants recall and connect prior knowledge before engaging with new content. Energizers wake up the group physically and mentally, particularly useful after periods of concentrated work. Discussion formats give participants a clear structure for exchange and debriefing techniques that structure reflection after learning activities.

Methods range from well-established classics like World Café and Think-Pair-Share to creative approaches such as “Montagsmaler” (a drawing-based review game) and “Love Letters” for peer feedback. Some methods require no preparation, while others require specific materials; the cards clearly indicate these requirements.

Learning Objectives & Educational Fields of Application

The toolkit is designed for educators and facilitators who want to expand their method repertoire. It is suitable for preparing courses, workshops, or training: the cards can be browsed by category to find appropriate methods for specific phases. The blank cards invite users to add their own methods. Browsing the full collection takes approximately one hour; selecting methods for a specific session typically requires five to fifteen minutes.

An application example: In the “Mastering Facilitation” workshop of the Game Didaktik Project, the toolkit serves as both teaching material and takeaway resource. Participants receive a printed copy at the end to take into their own practice.

Effectiveness

Formal evaluation studies are not yet available. Frame games have been used in training contexts for decades (Thiagarajan, 2004), and skilled facilitation is critical to learning outcomes in game-based learning (Crookall, 2010). One workshop participant reported that handling the cards helped them remember the methods better and made it more likely to use them, compared with digital bookmarks or PDF documents.

Potentially Problematic Aspects

As with any collection method, there is a risk that users treat the cards as recipes to follow mechanically rather than as frameworks to adapt. The brief card format necessarily simplifies methods that often have considerable depth and variation. Facilitators new to game-based learning may benefit from additional training or mentorship in addition to the toolkit.

Reviewer: Johannes Katsarov

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Fair Play: A Serious Game Addressing Bias in Higher Education

Developed by: Molly Carnes, Christine Pribbenow

Article contributed by: Darla Skoracki

<https://doi.org/10.5281/zenodo.15938625>

Keywords

Abuse, Anti-discrimination Law, Cognitive Bias, Critical Thinking, Diversity, Empathy, Ethical Decision-making, Inclusion, Inequality, Institutions, Political Science, Racial Injustice



Gameplay screenshot from Fair Play, developed by the University of Wisconsin-Madison (Molly Carnes & Christine Pribbenow). © Fair Play Project.

Introduction

Fair Play (see Figure) is a serious game designed to raise awareness of implicit racial bias and promote diversity in higher education. Developed at the University of Wisconsin-Madison by Molly Carnes and Christine Pribbenow, the game places players in the role of Jamal Davis, a Black graduate student navigating academia while confronting systemic and interpersonal discrimination. By simulating realistic academic situations through interactive storytelling and decision-making, the game aims to foster empathy, deepen understanding of racial bias, and support equitable behavior in educational and professional contexts (Gutierrez et al., 2014).

Facts

Release date:	Mid-2010s
Developer:	University of Wisconsin-Madison (Molly Carnes and Christine Pribbenow)
Game type:	Digital

Number of players:	Individual
Format:	Synchronous
Time frame:	Several hours; no fixed time frame.
Languages:	English
Environment:	PC and Mac
Material:	Computer, internet access
Price:	Not publicly available

Resonance & Criticism

Fair Play has received positive evaluations in academic and professional settings, particularly in diversity workshops and training seminars. It is widely recognized for its focus on bias literacy and its ability to engage players emotionally and cognitively. According to Gutierrez et al. (2014), players appreciate the realism of the scenarios and the game's ability to generate empathy and critical thinking, especially in science, technology, engineering, mathematics, and medicine (STEMM) fields.

Despite its strengths, Fair Play has received criticism for its limited interactivity and repetitive structure. The game scenarios do not vary across multiple playthroughs, which can reduce its long-term engagement. Moreover, the game's effectiveness is significantly enhanced by facilitated group discussions; without structured reflection, players may not fully internalize or apply the lessons conveyed (Gutierrez et al., 2014).

As a digital simulation designed for individual players, Fair Play functions as a single-player, narrative-driven learning tool. It is classified as a serious game due to its primary educational intent and research-based foundation in social psychology and experiential learning (Carnes et al., 2012).

Game Principle & Process

In Fair Play, players assume the role of Jamal Davis and navigate a series of academic and social scenarios that reflect common forms of implicit bias and microaggressions. These situations include departmental meetings, mentorship interactions, and peer discussions, all of which impact Jamal's academic success and emotional well-being. Players make dialogue and behavioural choices that influence Jamal's relationships, opportunities, and stress levels.

The game uses decision-making mechanics to highlight the consequences of bias and the limitations imposed by structural inequality. Objectives include helping Jamal overcome barriers, develop a professional network, and thrive in his academic environment. Feedback is embedded in the narrative; player choices shape Jamal's experiences and provide insight into the social dynamics of academia. Although there is no traditional reward system, reflection is prompted through cause-and-effect relationships between choices and outcomes.

While the game lacks multiplayer or direct social interaction, its full potential is unlocked in post-game discussions. Facilitators often use Fair Play to spark dialogue and group reflection, creating a shared space for participants to explore bias, privilege, and systemic challenges.

Learning Objectives & Educational Fields of Application

The primary learning objectives of Fair Play are to increase awareness of implicit bias, promote empathy for marginalized individuals, and equip players with strategies to recognize and counteract discriminatory behavior. The gameplay encourages players to reflect on the impact of their decisions and consider how biases manifest in everyday academic life.

The design supports these objectives through role-play and immersive storytelling. Players are confronted with realistic challenges and must choose how to respond in ways that reveal the complexities of navigating academic spaces as an underrepresented minority. These mechanics promote critical thinking and ethical decision-making.

Facilitators play a crucial role in translating in-game experiences into lasting learning. Ideally, the game is used in structured educational settings, such as workshops or classrooms, where trained instructors guide discussions and help contextualize scenarios. Training for facilitators includes understanding implicit bias, becoming familiar with the game's content, and preparing reflection materials. This preparation can require several hours, depending on prior knowledge.

Effectiveness

Research supports the effectiveness of Fair Play as a tool for promoting bias literacy and institutional awareness. Gutierrez et al. (2014) report that players demonstrate increased understanding of implicit bias and greater empathy for marginalized individuals following gameplay. Similarly, Carnes et al. (2012) found that bias literacy interventions, which underpin the game's theoretical framework, can lead to meaningful shifts in perception and behavior.

However, evidence of long-term behavioral change is limited. Most studies assess short-term outcomes, such as immediate reflections and increased awareness, without longitudinal follow-up. This underscores the need for further research on the game's sustained impact.

Potentially Problematic Aspects

User feedback highlights the game's immersive narrative and relevance as strong points, especially for students and faculty in STEMM. Nevertheless, the limited variation in scenarios and dependence on facilitator guidance are notable constraints. The game's technical foundation, based on an older version of Unity, may also pose compatibility or security issues if not updated.

Ethical concerns are mitigated by the game's careful design, which seeks to educate without sensationalizing sensitive issues. Nonetheless, players who have experienced discrimination may find some content emotionally triggering. The game is best suited for mature audiences interested in diversity, equity, and inclusion.

Reviewers: Torben Schmidt, Johannes Katsarov, Saskia Sterzl

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Fishbanks

*Developed by: Dennis Meadows, John Sterman, Andrew King
Article contributed by: Hannes Hamester*

<https://doi.org/10.5281/zenodo.15924911>

Keywords

Business, Climate-change Education, Collaborative Problem-solving, Strategic Decision-making, Sustainability, Systems Thinking, Tragedy of the Commons

Introduction

Fishbanks is a digital educational game, developed in 1992 by Dennis Meadows, John Sterman, and Andrew King in the Massachusetts Institute of Technology (MIT Sloan School of Management, n.d.). It simulates the socio-economic dynamics of the fishing industry. Players take on the role of fishermen and women who aim to maximize profits and minimize total costs. During the game, conflicts are staged in which players must act in their own interests and in society's interests. In this way, players encounter difficulties building trust and engaging in joint decision-making and have to develop binding behavioral rules. Through the allocation of fixed fishing areas and fluctuations in fish stocks, players are forced to negotiate with each other about where and how much fishing is allowed. In the process, additional costs arise, for example, in the purchase and sale of fish and the construction of ships. Through auctions, permits, and quotas, players learn about the sustainable management of a shared body of water. They can thus improve their understanding of the interrelationships among the environment, the economy, and society.

Facts

Release date:	1992; online version released 2010
Developer:	Dennis Meadows, John Sterman, and Andrew King of the Massachusetts Institute of Technology
Game type:	Hybrid, digital & analog variants
Number of players:	Multiplayer
Format:	Synchronous
Time frame:	2–3 h
Languages:	The game is available in English, Spanish, Portuguese, and Chinese
Environment:	For digital play: access to computers
Material:	Guidelines for teachers
Price:	Online version free of charge; analogue versions currently cost \$185 (System Dynamics Society, 2025)

Resonance & Criticism

With its first publication in the early 90s and the introduction of the digital version in 2010, Fishbanks remains one of the most well-known educational games (Ruiz-Pérez et al., 2011). As early as 2014, a study found that about 30% of participating academics had implemented the learning game in their professional or academic lives, and that the game already enjoyed great popularity in university contexts (Amaral & Hess, 2018). Over the years, numerous spin-offs of the original have been created, including modified and, in some cases, analogue game variants (Sherpa, n.d.), all of which have retained the basic principles of the traditional game.



Photo of the Fishbanks game (MIT/Dennis Meadows et al.). Used for educational review. Rights remain with the creators.

Game Principle & Process

In Fishbanks, the team that can claim the highest profit at the end of the game wins. This sum is made up of the general capital of the groups and the value of the boats in their fleets. As in real life, profit is calculated here from the difference between income and expenses, which are determined by the sale of fish and boats or by harbor and operating costs. The various prices can be adjusted depending on the game variant: auctions can take place, taxes can be waived, and loans can be taken out. Varying fish stocks and different water types create many opportunities for players to influence the game and become the best fishing company.

Based on the “tragedy of the commons”, a theory that describes the result of free trade among individuals who, out of self-interest, seek to maximize their personal benefit and do not con-

sider the common good, Fishbanks simulates the economic effects of the competitive use of shared resources (Ruiz-Pérez et al., 2011). According to this theory, the possible long-term consequences of self-interested management are often ignored, so that the overexploitation and overloading of public resources ultimately harms the public (Barnett, 1982). To prevent this, public resources can either be privatised, or regulations that limit their use must be created and adhered to, which is another aspect that Fishbanks' game mechanisms try to stimulate.

Learning Objectives & Educational Fields of Application

Fishbanks' unique concept has made it one of the most widely used educational games, aligned with high school and university curricula. The competition-based game approach is suitable for economics, and its environmental and social focus also ensures a wide range of academic applications (Ruiz-Pérez et al., 2011). Since there are fewer fish available for everyone whenever a team catches one, the fishermen and women have to agree on rules and regulations, such as fishing quotas, to prevent an impending collapse of the ecosystem. As a result, not only are profit maximisation and economic success the central goals of the game, but social and societal aspects must be given equal consideration for the game to play out positively.

To support teachers in implementing the educational game in the classroom, various instructions and curricula can be found and used online (FishBanks Simulation Guide, 2015). Before the original version of Fishbanks can be used in teaching units, teachers must apply for group codes on the game page and ensure that they have access to computers or other Internet-enabled devices. As a teacher, it is helpful to familiarize oneself with the game content in advance so that sufficient answers can be provided to players' questions. It is also helpful to ask students to write down their experiences before, after, and during the game. This way, the game's dynamics can be discussed in detail, and the entire gaming experience gains thematic depth. Finally, the outcomes of Fishbanks should be reflected on together, and players can, for example, start a second game with their own set of political guidelines or a stronger focus on the interactions between cause and effect.

Effectiveness

The economic, environmental, and societal aspects of Fishbanks' concept enable players to educate themselves across many fields effectively. A 2014 study at the Federal University of São Paulo showed that the educational game can increase players' general environmental awareness in a fun way (Amaral & Hess, 2018). In particular, learners are introduced to the complex dynamics of managing common-pool resources by placing strong emphasis on ecological consequences and risks (Amaral & Hess, 2018). In the process, the learning game trains problem-solving skills and can actively improve the players' systemic thinking (Amaral & Hess, 2018).

Potentially Problematic Aspects

Fishbanks relies heavily on simplified economic and ecological assumptions. This abstraction can create a misleading sense of predictability in real-world resource management, where political, cultural, and historical factors play significant roles. Competitive gameplay may also overshadow collaborative learning, unintentionally reinforcing profit-maximization over sus-

tainability. Finally, the simulation's emphasis on negotiation dynamics can disadvantage players who are less confident or less experienced with strategic communication, potentially affecting learning outcomes.

Reviewer: Johannes Katsarov

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Future of the EU

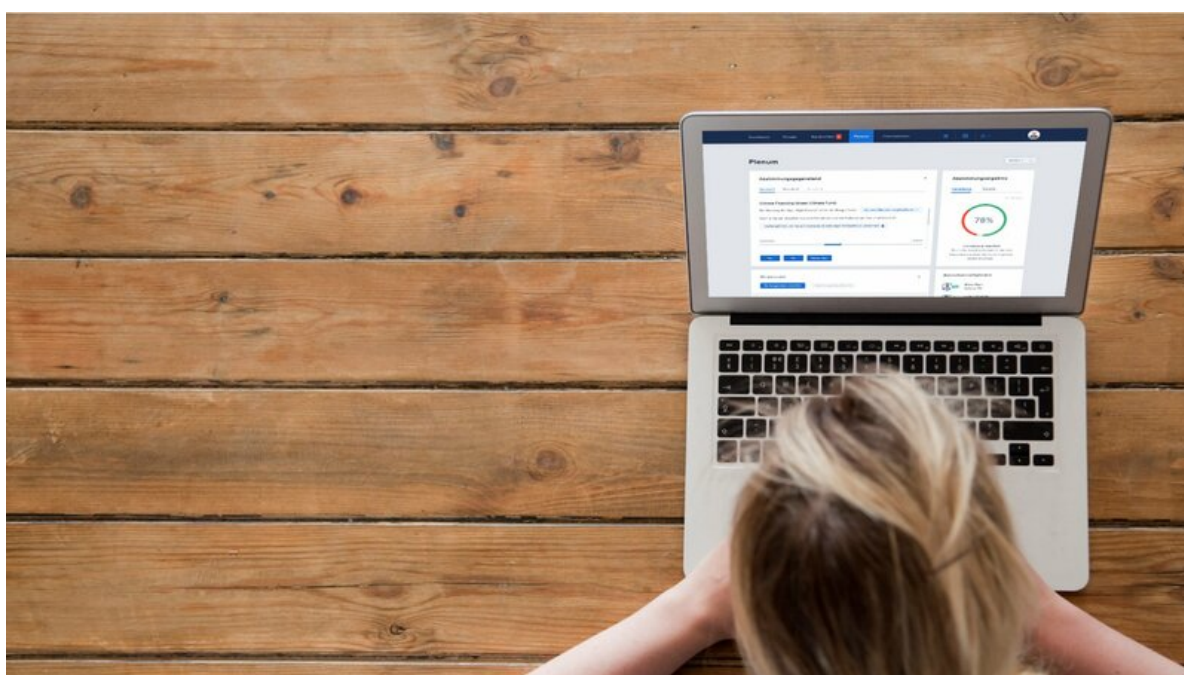
Developed by: planpolitik

Article contributed by: Björn Warkalla, Simon Raiser

<https://doi.org/10.5281/zenodo.15869984>

Keywords

Blended Learning, Civic Education, Collaborative Problem-solving, Democratic Values, European Union (EU), Negotiation, Political Science, Strategic Decision-making



Example blended-learning setting from Future of the EU, showing a participant engaging with the digital simulation platform during the preparation phase prior to in-person negotiation sessions (planpolitik). Used for educational review. Rights remain with the creators.

Introduction

At the European Council, heads of state and government make landmark strategic decisions to develop European cooperation further. The agenda includes current challenges and institutional problems, such as the growing divisive tendencies within the EU and the democratic deficit, as well as further questions of future integration, e.g., strengthening the social dimension, addressing conflicts over asylum and migration, or the future enlargement of the Union. The game is played using PlanPolitik's digital simulation game platform, Senaryon (see Figure). It can be played in a blended-learning setting, in which a preparatory online phase is combined with on-site negotiations, or entirely online and asynchronously, or entirely on-site, with interactions supported by the digital platform. In the following, we describe the blended-learning version of the game.

Facts

Release date:	2017
Developer:	planpolitik
Game type:	Blended, online, and on-site variants
Number of players:	Multiplayer
Format:	Hybrid
Time frame:	1–2 days
Languages:	English, German, other translations possible
Environment:	For digital play: access to a laptop, tablet, or smartphone
Material:	Provided through the platform
Price:	The implementation is based on two models: facilitated by planpolitik trainers or licensed to external facilitators, e.g., university staff. In both cases, costs are involved.

Resonance & Criticism

Participant feedback across multiple runs highlights strong engagement, high completion rates in the online phases, and more fact-based contributions during the on-site summit. Patterns mirror findings from blended-learning research, with broader participation and deeper role immersion than in purely face-to-face formats. Most delegations remain active throughout all online phases, and facilitators observe consistently high levels of preparation, strategic coalition-building, and sustained motivation across both modalities.

Game Principle & Process

As in real life, negotiations begin well before the actual summit. In the preparatory online phase, students take on the roles of the permanent representatives of selected EU member states, pre-negotiating the issues on the agenda. Upon arrival for the on-site negotiations, the participants are upgraded and assume the roles of the respective heads of state and government to negotiate the Council presidency's draft proposal and work on the final declaration.

As the online phase is asynchronous, the participants interact independently of time and place and decide for themselves when and for how long they participate in the negotiations. The online part is divided into five distinct phases, each lasting roughly 3-4 days. Each delegation is requested to fulfil specific tasks within the respective phases.

As soon as participants assume their roles, they can interact. They are in contact with each other via group chats and private messages. Based on their role descriptions, they begin working on draft articles for the final declaration. In addition, they search for preliminary agreements and forge coalitions with other delegations. Based on the delegations' proposals, the Council presidency then creates a single draft.

The game facilitators observe the simulation game from their own separate area, monitoring chats and negotiations. For evaluation purposes, they can analyze the game's course and each delegation's participation level.

Once on-site negotiations begin, participants review the presidency's draft and work on the final declaration. After three weeks of intense online negotiations, of getting familiar with the interests and positions of all delegations, debating pros and cons, forging changing coalitions, and commenting on various proposals, the participants arrive for the face-to-face negotiations with a high level of preparation and immersion in their roles. While all delegations are highly motivated to win the negotiations and to fight for their respective key interests or red lines, the talks are very much fact-based.

While participants verbally negotiate the draft, they continue using the online platform to discuss and edit new proposals before presenting them in the plenary. These parallel two-level negotiations make the entire process more complex, but at the same time open new ways of informally finding deals on issues that appear to be stalemated.

Learning Objectives & Educational Fields of Application

A blended-learning simulation game on *The Future of the European Union* offers participants an immersive environment to explore both the institutional procedures and the nuanced dynamics of EU decision-making. The online phase, which can precede a face-to-face summit, allows learners to delve deeply into the policies and positions of member states, thereby enhancing their understanding of the various interests and red lines at stake. This asynchronous preparation fosters sustained engagement with key EU topics, so that learners arrive at the on-site negotiation phase well prepared, confident in their roles, and equipped with substantive arguments. The extended timespan of a blended format also helps participants gain a realistic impression of how EU-level negotiations unfold over weeks rather than hours, highlighting the significance of back-channel discussions and iterative coalition-building. As a result, learners acquire not only a solid grasp of policy details but also an appreciation for the intricate interplay between policy content, political strategy, and institutional frameworks.

Due to its modular nature, this blended-learning simulation game can be adapted for university courses in European Studies, Political Science, International Relations, or Public Administration, as well as for advanced secondary school civics programs. It aligns with active learning strategies championed in higher education by combining digital engagement and face-to-face collaboration, thus catering to diverse learner types. Students who thrive in written, data-driven tasks can leverage the online platform to propose and debate policy drafts, while those more at ease with verbal negotiation gain confidence and visibility during the final on-site phase. Beyond formal education contexts, non-governmental organizations, think tanks, and professional development programs can integrate this simulation format to facilitate EU-specific policy training and inter-institutional collaboration exercises. Overall, the game's interactive approach to EU affairs encourages a more profound, experiential understanding of Europe's political realities, reinforces key competences such as negotiation and team coordination, and capitalizes on the advantages of both digital and in-person learning environments.

Effectiveness

Feedback from participants and facilitators suggests that a blended-learning simulation on the future of the European Union can significantly enhance learners' engagement and depth of understanding. In particular, the preparatory online phase allows participants to immerse

themselves in EU policy details and the positions of diverse stakeholders, leading to richer, more fact-based negotiations once the face-to-face summit begins. This combination of written and oral negotiation exercises accommodates different learning styles. It broadens participation, enabling quieter or more reflective individuals to shape the debate just as effectively as those who thrive on live discussion.

Facilitators repeatedly observe that the quality of face-to-face discussions is noticeably higher than in traditional seminar formats, with participants referencing concrete policy details, articulating clearer priorities, and forming coalitions more quickly due to prior online coordination. Compared to standard classroom debates, interventions are more structured, less ad hoc, and more strongly anchored in the institutional logic of council decision-making. During the extended online phase, students report challenges such as uneven activity peaks, managing asynchronous workloads, and sustaining momentum over multiple days, though these issues rarely reduce overall engagement.

Although research is required to fully validate and compare the learning effects of purely online, face-to-face, and blended formats, early indicators show that this game structure promotes heightened motivation, deeper content retention, and the development of critical soft skills like negotiation, strategic thinking, and collaborative problem-solving (see also: Raiser et al. 2018). However, it is essential to note that current insights are based on facilitator observations and participant feedback rather than formal empirical measurement.

Potentially Problematic Aspects

Technical access barriers, such as unstable internet connections or unfamiliarity with digital negotiation tools, can affect participation. Students also face uneven time-management demands across the longer asynchronous phases, and preparation depth varies, meaning some delegations require additional scaffolding. Written-only communication occasionally leads to misunderstandings or slower conflict resolution, and facilitators have limited ability to intervene spontaneously during the online phase.

Reviewers: Saskia Sterzl, Nimrod Shanit

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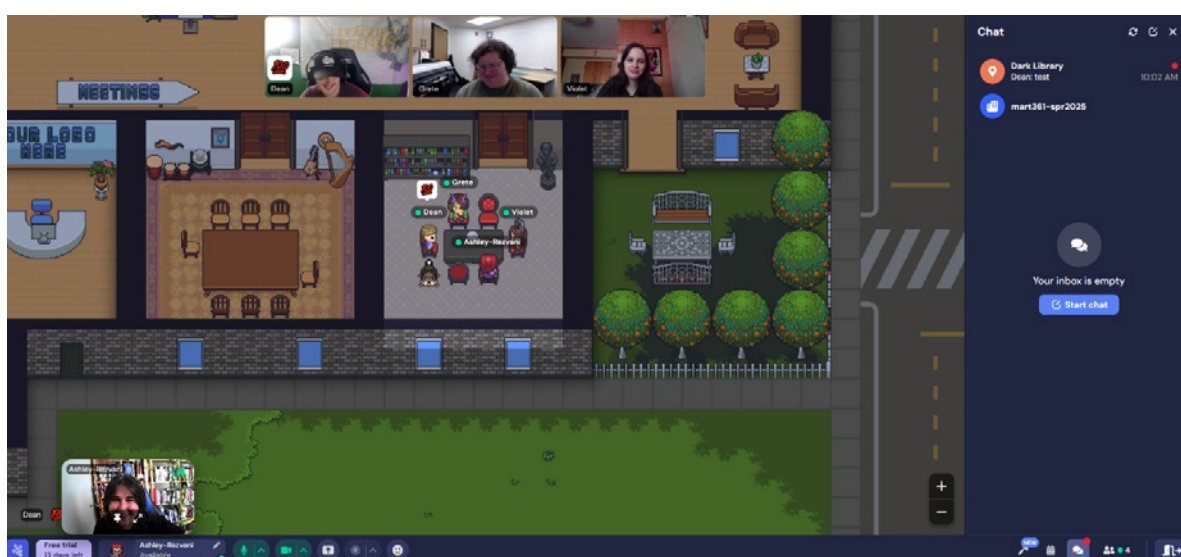
Gather.Town

*Developed by: Gather Presence Inc.
Article contributed by: Ashley Rezvani*

<https://doi.org/10.5281/zenodo.15925949>

Keywords

Group Learning, Language, Media Literacy, Online Collaboration, Online Interaction Skills, Remote Teamwork



Screenshot from Gather.Town (Gather Presence Inc.). Used for educational review. Rights remain with the creators.

Introduction

Gather.Town is a gamified virtual work environment that supports online learning, virtual conferencing, and remote teamwork. Players create their own customizable avatar to represent themselves and move around in the virtual environment. Gather.Town uses proximity-based video and audio chat: when player avatars are physically proximate in the game space, a video chat interface appears, enabling them to talk to each other in real time. This facilitates spontaneous communication and social interaction like in the real world. Featuring custom pixel art, the platform offers templates for office layouts, though the virtual office or classroom is fully customizable depending on the user's payment plan. Other Gather.Town features include scheduling, integration with tools such as calendars and email, and built-in minigames and team activities. The virtual environment was designed and developed by the for-profit company, Gather Presence Inc., with multiple payment options for users, including a free one.

Facts

Release date:	May 2020
Developer:	Gather Presence Inc.
Game type:	Digital, requires an internet connection
Number of players:	Multiplayer
Format:	Hybrid
Time frame:	Any
Languages:	English, Japanese, Portuguese
Environment:	Web browser, desktop app, mobile app
Material:	There is a robust set of tutorials available on Gather's website that instruct users on how to use the virtual environment.
Price:	Free for 10 or fewer users; multiple payment plans available for larger groups.

Resonance & Criticism

Gather.Town gained popularity as a virtual office and classroom during the COVID-19 pandemic (Lu, 2021). The platform was praised for its proximity chat features, customizability, ease of implementation, facilitation of serendipitous interactions between users, and its fun and engaging nature (Lu, 2021; Komar, 2023; Mascarenhas, 2021; McCulloch, 2020). However, Gather.Town was also criticized for requiring users to have a stable internet connection and for potential privacy concerns about the platform's management of user data (Komar, 2023). While most empirical research on Gather.Town is positive, some scholars criticize the short duration of these studies and their reliance on self-reporting (Lo & Song, 2023).

Game Principle & Process

Users must create an account on Gather.Town, which involves choosing a username and optionally uploading a profile picture. Once an account has been created and users are logged in, they will be prompted to create and customize an avatar to represent them in the virtual classroom or office.

On the user's website homepage, referred to as a dashboard, users can see the virtual environments they belong to and click on them to enter. Alternatively, users can create a new virtual classroom or office space from their dashboard. The space owner can use the mapmaker feature to design the virtual classroom, changing its theme, layout, and size. For example, instructors can add, delete, and move rooms, furniture, décor, and other interactive objects. It is possible to designate certain rooms for specific activities, such as meeting rooms or casual spaces.

After the virtual classroom is created, the space owner can invite students and others via a link or email. A password can also be set for an additional layer of security, and users will be prompted to enter it to gain access to the classroom. Once new users have created an account and designed an avatar, they will enter the classroom. They can "claim a desk", a feature that allows users to claim a small portion of the room and customize it.

Due to Gather.Town's proximity chat features, users will only be able to see and hear one another when their avatars are physically close in the virtual classroom. For example, students

could be split into groups, and each group could move to different areas of the classroom. They would see and hear their group members' video and audio, since they are proximate, but they would not see or hear other groups. However, there is also a messaging feature, so users can message each other or a group, even if their avatars are not close to one another in the classroom.

Learning Objectives & Educational Fields of Application

Gather.Town's goal as a platform is to improve online communication, interaction, and collaboration in virtual work, educational, and leisure settings. With features specifically designed to assist in educational endeavors, Gather.Town creates a virtual environment conducive to learning and teaching within online higher education classrooms regardless of discipline. Gather.Town provides pedagogical benefits that other platforms, such as Microsoft Teams and Zoom, do not. Overall, its design facilitates meaningful and in-depth learning (Kim & Kim, 2023).

Gather.Town is especially useful for language learning (Fitria, 2021; Zhao & McClure, 2024). Zhao and McClure (2024) note that the customizable environment enables "teachers to pre-set a social scene (e.g., restaurants, hospitals, shopping malls) and create role-play scenarios for learners to practice their spoken language and social communication skills" (p. 243), which provides learning opportunities that are especially effective at helping students develop oral proficiency and communication skills.

Both instructors and students report that Gather.Town is a valuable platform for online classes, with curricula that emphasize group work, collaboration, class discussions, and peer-to-peer feedback (Lee et al., 2023; McClure & Williams, 2021). Ultimately, "online learning using [Gather] had positive effects on online-use skills and improved the efficacy of online learning, self-direction, and online interaction" (Kim & Kim, 2023).

Gather offers a "Gather Academy", a robust selection of guided video tutorials and training that help instructors and learners set up their audio and video settings, navigate the virtual environment, integrate external tools, onboard other users, and customize the virtual classroom.

Effectiveness

When used to facilitate online learning, both students and teachers preferred Gather over platforms such as Microsoft Teams and Zoom (Lee et al., 2023; Latulipe & De Jaeger, 2022; McClure & Williams, 2021). Students reported that using Gather helped them learn practical skills more effectively than other forms of online learning, and 71% of those interviewed in one case study wanted to use the platform more often for distance learning (McClure & Williams, 2021). When compared to Zoom, students also noted that using Gather improved the ease of collaboration with classmates and the overall quality of teamwork, due to a sense of presence, belonging, and the feeling that they could more freely express their emotions with others (Lee et al., 2023). Additionally, students showed greater participation and social connectivity when using Gather than when using Zoom (Latulipe & De Jaeger, 2022). While 100% of educators in one case study found using Gather effective, they also unanimously agreed that it was not as effective as face-to-face instruction (McClure & Williams, 2021).

Potentially Problematic Aspects

Gather.Town's proximity chat feature requires users to have a stable internet connection and access to a device with a camera and a microphone. Additionally, given the gamified classroom environment with colourful 2D pixel art, users unfamiliar with digital games may struggle to use the platform effectively for learning.

Reviewer: Saskia Sterzl

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Green Europe? Lobbying in the European Union using the example of climate policy

Developed by: planpolitik

Article contributed by: Björn Warkalla, Simon Raiser

<https://doi.org/10.5281/zenodo.15869992>

Keywords

Blended Learning, Civic Education, Climate Policy Education, Collaborative Problem-solving, European Union (EU), Negotiation, Political Science, Strategic Decision-making, Sustainability

Introduction

Green Europe? Lobbying in the EU: Using the Example of Climate Policy is a blended-learning simulation game that places participants in the midst of environmental policymaking within the European Union (EU). Developed and delivered via planpolitik's digital simulation platform, Senaryon, the game explores how different stakeholders – ranging from European Commission (EC) services to industry, consumer, and environmental lobby groups – collaborate and compete to influence legislative proposals to reduce CO₂ emissions from cars.

Repeatedly, participants from multiple universities, including the Georg-August-Universität Göttingen and the University of Antwerp, have used this simulation to engage across countries, time zones, and academic programs, gaining firsthand experience of the EU's complex interplay between policy drafting and lobbying activities. This cross-university setup enables collaboration between diverse educational backgrounds and mirrors the distributed nature of EU policy work. The game may be used entirely online and asynchronously, in a blended format that combines online preparation with face-to-face elements, or entirely on-site with digital support. Below, we focus on the blended/online iteration. Its mixed-format design builds on established approaches to combining online and in-person simulation elements (Raiser et al., 2018).

Facts

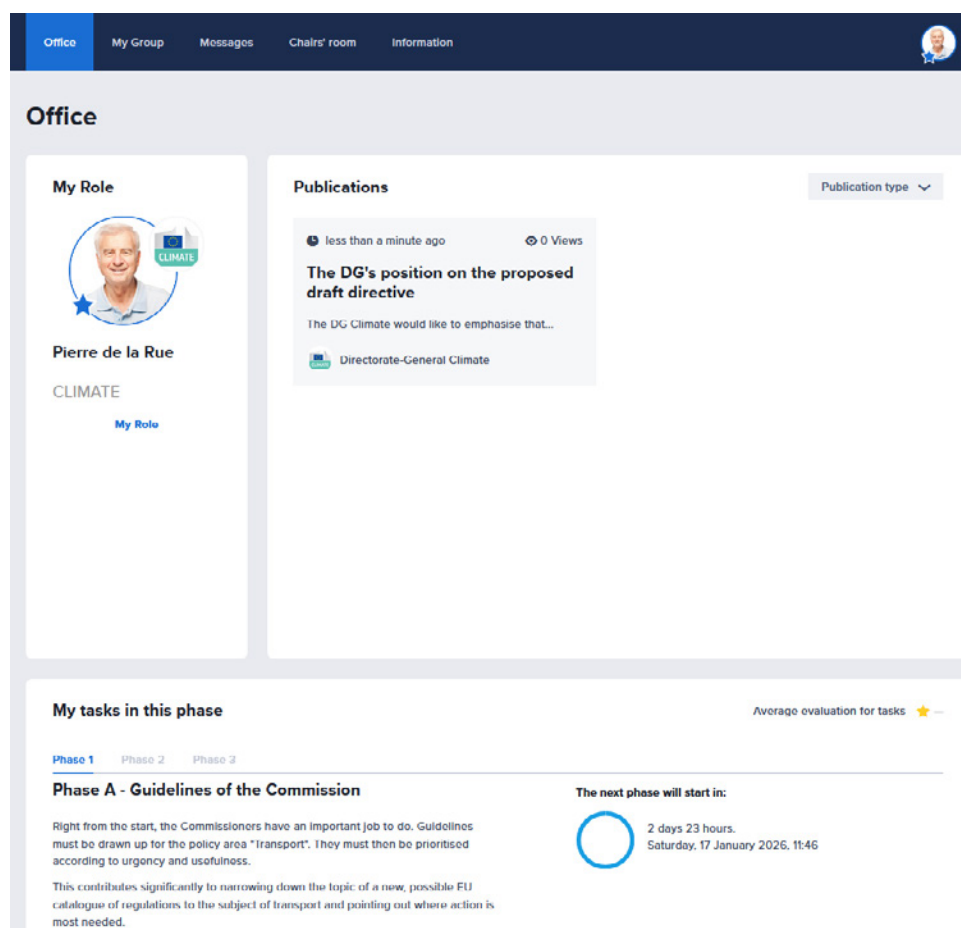
Release date:	2019
Developer:	planpolitik
Game type:	Blended, online, and on-site variants
Number of players:	Multiplayer (recommended 20–50 participants)
Format:	Hybrid
Time frame:	Typically 2 weeks online (split into two 1-week phases), with an optional 1–2 days of on-site negotiations
Languages:	English, other translations possible
Environment:	Access to a laptop, tablet, or smartphone for digital play

Material:	Provided through the Senaryon platform (role descriptions, chat systems, shared text pads)
Price:	Implementation can be facilitated by planpolitik trainers or self-facilitated by teaching staff. Costs apply in both scenarios

Resonance & Criticism

Reflections from repeated iterations show that the simulation is perceived as realistic, motivating, and helpful in understanding lobbying, negotiation, and amendment processes in EU climate policy. Students value practical insights, dual-role play, and cross-national collaboration. Challenges include compressed timelines, uneven engagement, and simplified conflict dynamics. Digital coordination across time zones can be demanding, though the platform is generally viewed as accessible.

Game Principle & Process



Example interface from Green Europe? Lobbying in the European Union, showing role-specific workspaces, publications, and task coordination within the online simulation environment (planpolitik). Used for educational review. Rights remain with the creators.

First week: Policy drafting in the European Commission. During the first phase, half of the participants play the role of EU Commission officials in DG Environment, DG Industry, and DG Trade (see Figure). Their task is to draft concrete legislative proposals to reduce CO₂ emissions from cars. They begin with broad goals (e.g., setting emission targets) and gradually move toward specific policy measures (e.g., taxation incentives, emission standards). Meanwhile, the other half of the participants act as lobbyists representing diverse interests – environmental NGOs, trade associations, airlines, consumer protection organizations, and more.

Working asynchronously, each team completes clearly defined sub-tasks with deadlines. The commission teams consult one another to reconcile conflicting interests among different DGs, while the lobbyist teams collaborate to develop position papers and strategic outreach. All interactions—negotiations, information exchange, and brainstorming—occur via Senaryon's built-in chat system and shared text documents. Facilitators monitor these interactions, provide concise feedback, and guide the next steps.

Second week: Decision-making in the European Parliament. The second phase simulates the legislative procedure in the European Parliament (EP). Participants switch roles: those previously serving in the Commission now become lobbyists, and those who were lobbyists become Members of the European Parliament (MEPs). The MEPs organize themselves into political groups (e.g., the European People's Party, the Greens, the Socialists, etc.) and propose amendments to the Commission's legislative draft.

Again, participants communicate asynchronously online. MEPs must translate overarching ideological standpoints into specific amendments, while lobbyists engage them with arguments, data, and strategic persuasion. By the end of the second phase, the EP votes on a resolution that consolidates the amendments made to the Commission's proposal.

After both phases, each participant composes a reflection essay or report detailing how the negotiations unfolded, how positions shifted, and what they learned about EU lobbying and decision-making processes.

Learning Objectives & Educational Fields of Application

This simulation game deepens participants' understanding of the EU legislative process, specifically how the European Commission and the European Parliament interact under the watchful (and influential) eye of lobby groups. Learners actively experience the complexity of reaching consensus among conflicting interests, honing both their analytical and practical skills in policy drafting and advocacy. Role-switching exposes participants to differing strategic logics and pressures within EU policymaking, illustrating how institutional mandates and lobbying goals diverge.

In addition to political science and European studies programs, "Green Europe?" can be integrated into interdisciplinary courses dealing with environmental policy, international relations, or public administration. The experience aligns with active learning strategies: it challenges participants to collaborate on real-world tasks—drafting legislation, negotiating positions, building coalitions. The game also supports intercultural competence, as students from different countries and academic backgrounds work in distributed teams. This reflects broader findings that online simulation formats can expand international and digital teaching capacities in

higher education (Ivens & Kaiser, 2021). Non-academic settings, such as NGOs or think tanks, can adopt this format for professional training on climate negotiations or EU lobbying tactics.

Effectiveness

Instructors from Georg-August-Universität Göttingen and the University of Antwerp report high levels of student engagement and satisfaction. By mixing groups from multiple institutions, the simulation makes full use of asynchronous online collaboration tools and fosters a genuine international atmosphere. Students consistently highlight the value of working in cross-national teams, learning to divide tasks efficiently—one member may focus on research, another on drafting position papers, and a third on stakeholder outreach. This aligns with insights from collaborative online simulation research, which highlights how distributed teams benefit from structured digital environments (Fink et al., 2023).

Early evaluations suggest that the two-phased structure enhances the depth and pace of learning. The deadlines embedded in each phase create a sense of urgency, preventing the common pitfall of asynchronous simulations, which can sometimes stall. Instead, structured tasks lead to lively online debates, immediate supervisor feedback, and tangible learning outcomes. Reflective essays show that participants gain a clearer understanding of lobbying strategies, legislative constraints, and the role of both environmental and industrial perspectives in shaping EU climate policy.

Note that although feedback has been gathered from several implementations of the simulation game, no empirical, peer-reviewed studies evaluating the game's effectiveness have yet been conducted.

Potentially Problematic Aspects

By foregrounding lobbying strategies and interest-based negotiation, the simulation may place less emphasis on normative, procedural, and ethical constraints that also structure EU climate policymaking. Without careful facilitation and debriefing, participants may develop an oversimplified understanding of lobbying influence, overestimating strategic pressure while underestimating institutional safeguards, transparency requirements, and evidence-based deliberation. In addition, the asynchronous format can lead to unequal participation levels, with more active participants exerting disproportionate influence on outcomes, potentially affecting both learning experiences and perceived realism.

Reviewers: Saskia Sterzl, Nimrod Shanit, Carina Heyer

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Green House

Developed by: Limitless Harmony, Creators: Alix Dvorak, Adam Lupu

Article contributed by: Elizabeth Johnston

<https://doi.org/10.5281/zenodo.15870023>

Keywords

Climate-change Education, Collaborative Problem-solving, Economics, Risk Management, Strategic Decision-making, Sustainability

Introduction

Green House is a card game designed for players 12 and older to save the planet from the effects of the climate crisis. Developed by Alix Dvorak and Adam Lupu, this card game provides players with 64 “Solution-Focused Action Cards” focused on how families, businesses, nonprofits, and government entities can address the climate crisis. In team play, players collaborate and consider how to act on events (Limitless Harmony, 2021). Backed by a 2020 Kickstarter project, Limitless Harmony first published the deck for backers and is now available on the Green House website. Players grapple with obstacles such as pollution, time, cost, and hopelessness as they take actions to “clean the sky” (Limitless Harmony, 2021). Green House provides a low floor for entry into the game, as players do not need to be an expert on the climate crisis to play. The creators describe several reasons to focus on the climate crisis within a gaming context, such as providing an opportunity to discuss these big ideas with friends and family and making it easier to access and understand possible solutions (Limitless Harmony, 2020).

Facts

Release date:	2020
Developer:	Limitless Harmony, Creators: Alix Dvorak & Adam Lupu
Game type:	Analog
Number of players:	Team Play Mode, 1–8 players; Role Play Mode, 3–8 players
Format:	Synchronous
Time frame:	20–30 minutes
Languages:	English
Environment:	Tabletop space for game pieces and space for all players
Material:	The game website includes an overview of the game and a how-to-play video (https://www.greenhousegame.com). It also provides access to all climate solutions with links to additional resources (https://www.greenhousegame.com/solutions).
Price:	Card game: \$33; Print & Play (PDF of game): \$10; school set (5 copies of the game & Classroom and Conversation Guide): \$160.

Resonance & Criticism

There is little information from players and experts about their thoughts on this game. BoardGameGeek (n.d.) lists a rating of 7.2/10 with three reviews. A video review by one user highlights key aspects of the gameplay; however, Tolson (2021) offers positive remarks about how the events are easy to relate to because of their connection to real-world events such as wildfires or hurricanes. Other player viewpoints are outlined on the Green House website, which provides positive reviews of the gameplay and the connection to the climate crisis (Limitless Harmony, 2021). According to Douglas & Brauer (2021), gamification can be an effective tool for supporting players' understanding of sustainability, though they do not specifically review Green House.

Game Principle & Process

Green House focuses on how greenhouse gas emissions contribute to the climate crisis and ways to reverse their effects, such as reducing the burning of fossil fuels and shifting agricultural practices (Bruhwiler et al., 2021; Mikhaylov & Moiseev, 2020; Omotoso & Omotayo, 2023).



Example event and action cards from Green House, illustrating climate-related challenges and solution-focused actions within the game system (Limitless Harmony; Alix Dvorak & Adam Lupu). Used for educational review. Rights remain with the creators.

The creators suggest starting with “Team Play Mode” (Limitless Harmony, 2021), designed for 1 to 8 players, with modifications for single- and two-player games. Players work collaboratively to eliminate “Greenhouse Gas” (GHG). Actions taken impact all players and their efforts to convert GHG (angry clouds) into “Clear Sky” (happy clouds). Players lose the game if they collectively run out of money, time, hope, or clean air.

Players’ hands include four “Action Cards” (AC), which represent ways to impact the climate crisis. A turn begins with a player selecting an “Event Card” (EC) from the deck (see Figure). ECs are environmental consequences that might occur, such as “Fish Extinction!” or “Climate Refugees”. After selecting a card, the player must adjust the GHG, “Money”, and “Hope” tokens to account for the effects. For instance, if the player selects the “Global Drought!” card, then they would flip 3 “Clear Sky” tokens to the GHG side, take away 3 “Money” tokens, and flip one of the heart “Hope” tokens to the broken side. Next, the player selects an AC to play. These cards have the potential to impact the effects of an EC. For example, if a player selected “Befriend Your Representatives”, then they would earn 2 “Money” tokens and would flip one broken heart to the “Hope” side. Not all ACs have positive effects. Cards like “Make Smarter Grids” take away GHG tokens but also cost money. Players can make more impact by going on “Momentum Runs”. ACs with a momentum icon allow for up to 2 players to add an AC. At the end of a turn, players draw new ACs to fill their hands back to 4 cards.

The “Role Play Mode”, for 3 to 8 players, modifies play. Players manage their own money. They can only play an AC if they have the funds and are out of the game if they run out of money. Actions do not take immediate effect, as another player needs to back a proposed action with the appropriate funding. Also, players select one of four roles: family, business, nonprofit, or government. Each has “special powers” that change the game. For instance, if a player has the government role, they collect two “Money” tokens from each player at the start of their turn.

Learning Objectives & Educational Fields of Application

Green House focuses on helping players understand the climate crisis. ACs allow players to learn about ways that nonprofits, businesses, families, and government entities can change their impact on the planet. Each AC includes a QR code that links to a resource with more details. For instance, the “Reduce Food Waste” card links to an article from the BBC that highlights the environmental impact of food waste. These links provide a starting point for players to learn more about the issues the game addresses. The ECs describe how the climate crisis is impacting the planet. For example, the “Extreme Storms” card says, “Rainstorms, tornadoes, and snowstorms are more frequent and last longer, causing chaos and costly damage”. These cards do not include links to additional information, so it is up to the player to investigate the topic further.

The gameplay is straightforward, allowing both players and the teacher to focus on the game’s climate-crisis content. Discussions about the economics of the climate crisis and people’s feelings of climate anxiety could be supported. Players could discuss the implications of events or actions in terms of the money it costs or the potential for hopelessness. When purchasing the school set, educators also receive “Classroom and Conversation Guides”. Facilitation is an important component of using serious games in the classroom as students grapple with complex ideas. Van Schaik (2023) writes, “The way in which the educator talks to their students and

engages them in conversation is of relevance, as this might affect how the climate change-related uncertainties in the games are interpreted in the educational setting” (p. 1901–1902).

Effectiveness

Although there is no research on the effectiveness of the Green House game, researchers are investigating the use of gamification to address the environmental crisis (Douglas & Brauer, 2021; Flood et al., 2018; van Schaik, 2023). According to Douglas & Brauer (2021), “Gamification, the application of game design principles to a nongaming context, has been used to promote pro-environmental behaviors” (p. 89). Flood et al. (2018) outline several potential benefits of high-quality serious games focused on adaptation to climate change, such as challenging players’ beliefs and influencing how they apply their understandings to the real world. In comparison, van Schaik (2023) highlights the potential for games to help players cope with the uncertainties of the climate crisis.

Potentially Problematic Aspects

The climate crisis evolves as the planet changes due to human activity, scientists’ knowledge deepens, and new understandings of potential solutions emerge. The AC and EC capture the climate crisis at the time of publication (2020). The AC cards include QR codes to resources that might not be accessible in the future, or the science might no longer support these actions.

The climate crisis is not equitably felt across humanity. The conversations that emerge as players engage with the ideas might be challenging depending on their experiences. For example, “Students might experience psychological distress, presumably especially if they have previously been impacted by climate catastrophes or other adverse and uncertain circumstances” (van Schaik, 2023, p. 1901).

The game suggests an age of 12+, but the developers’ content suggests that younger children might be able to play. They note that the math required is simple and that the game’s pictures will engage younger children (Limitless Harmony, 2021). There is nothing specific in the rules or suggestions on how to modify gameplay for younger users.

Reviewer: Anna Sorgatz

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Green New Deal Simulator

Developed by: Molleindustria

Article contributed by: Rachel Cronk

<https://doi.org/10.5281/zenodo.17169834>

Keywords

Climate-change Education, Climate Policy Education, Democratic Values, Ecology, Economics, Energy Consumption, Environmental Law, Land-use Planning, Natural Disasters, Political Science, Pollution, Renewable Energy, Sustainability, Systems Thinking

Introduction

Green New Deal Simulator (see Figure) is a short activist game released in 2023 by the game studio Molleindustria to promote clean energy practices across the U.S. The game illustrates the difficulties of transitioning a fossil-fuel-dependent energy grid to clean, renewable energy (Couture, 2023). Players view a regional map of the United States and draw and play cards to interact with the game system. They must balance factors such as unemployment, the effectiveness of a given green energy technology for a particular region, politics, and more. They are given a finite amount of time to reach full green energy in each region of the U.S., with multiple negative random events that can set back the player's progress. Gameplay communicates both the pitfalls and benefits of attempting to reach zero carbon emissions through relying entirely on green energy and explores the challenges of green energy conversion. It also showcases the highly complex system of energy politics, employment, finances, and public perception, allowing students to experience these hardships in a way that helps them better understand the causes and effects of each choice.



Official logo of Green New Deal Simulator, developed by Molleindustria (2023). All rights remain with the developer.

Facts

Release date:	May 1, 2023
Developer:	Molleindustria
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	20–30 minutes
Languages:	English
Environment:	Smartphones, tablets, Mac, or Windows PC
Material:	N/A
Price:	Available for free on itch.io.

Resonance & Criticism

Green New Deal Simulator has a Very Positive rating on Steam (87%) and a 4.4 out of 5 on the App Store as of 2025. The game continues to incite discussion about the effectiveness of green-based politics and solutions to the current climate crisis (Serin, 2023).

Critics reviewed the game positively on Gamedeveloper (Couture, 2023), Medium (Tecson, 2024), and Rock Paper Shotgun (Serin, 2023). Serin (2023) asserts that the game was a fun lesson that gamifies a serious topic and breaks it down into complex moving parts that illustrate the reality-based struggle of green energy conversion in our world today. Couture's (2023) interview with the developers states that the creators wanted the game to focus on communities that are "ravaged by the industrialization, disasters, and by the effects of the energy transition itself". Tecson (2024) suggests that this game is meant to teach players about environmental sciences, climate change, renewable energy, and the challenges of transitioning to such energy practices.

Most reviews on gaming websites have been overtly positive, though some users have noted that the game is challenging and that the win condition is difficult to achieve. Another player mused that one must carefully consider the regions being managed and which card will be most effective, while another player noted that it takes numerous playthroughs to win the game.

Game Principle & Process

The Green New Deal Simulator is a card-based game. Each turn, players have the option to draw a card, skip a card, play a card, or hold a card for later. The player must keep an eye on their budget meter, the unemployment in each state, the amounts of green energy, fossil energy, and fossil electricity (which can eventually be converted into green energy), and, lastly, the game's progress meter at the top. Should players fail to reach green energy usage within a set period, an authoritarian government takes over the United States, and the game ends. The progress meter alerts the player when their choices lead to the takeover of an authoritarian government.

Examples of cards are High-Speed Rail, which reduces gas consumption and helps with commuting, but also raises unemployment equally across neighbouring regions; and Solar Farm, which absorbs energy from the sun to make electricity and is twice as efficient when played in

sunny regions. Some cards require a positive budget to play, so players must manage their funding and choose to skip cards that may be less useful to the country's status (unemployment, green energy amounts per state, etc.) to have a larger budget for the next turn. Some cards, like Pumped Storage Hydropower, do not have a negative side effect, but they can only be played in regions with mountains, which limits where players can activate them. This is a weighted choice, as public transport has other positive effects for the game but is balanced by the negative repercussions of higher gas use in that region. Players may also be potentially affected by random events such as natural disasters or workers' strikes, which can raise unemployment and set back progress in a particular state. Players must not only manage the region they are trying to produce green energy in, but also all neighbouring regions, keeping the entire country in mind to ensure that none of the negative effects are pressuring any region too much.

Players may also play research cards, which improve the qualities and impact of existing cards. For example, players may upgrade solar energy to reduce the cost of installing future solar farms or research fusion energy. Fusion energy is usually discovered too late in the game to ever reach fruition, prompting the player to reflect on whether it is worth playing at all.

Learning Objectives & Educational Fields of Application

The main goal of Green New Deal Simulator is to give an overarching view of how green energy changes could affect the U.S., and give the player insight into the moving pieces of what each policy will affect, though the game's message is not limited to the real-world relation of being set in the United States; these are ideas and principles that can be applied universally across the globe. Rather than just merely installing wind farms, consideration must be given to unemployment, green energy percentages in current and nearby states, where a card and energy type or change would be most effective in a region, and planning to maximize the change. The player learns, through cause-and-effect, the different negative impacts of both green and fossil-fuel technologies. The player also discovers how policy changes can provoke criticism and pushback and provides an overview of how to manage competing goals in a nation composed of diverse people and regions with specific, varied needs and capabilities. The game offers a nuanced perspective on how green policies may work and details how they may be achieved. The learning goal of this game is to teach about green energy policies and installations, and to address the potential harms of switching to green energy.

Instructors may find this game helpful to spur discussion about potential green energy sources, the consequences of those changes, and the consequences of failing to mitigate the negative effects of climate change. Students can benefit from multiple playthroughs to revise their strategies and attempt to play the game again with a better outcome. This game encourages multiple playthroughs to streamline attempts at 100% green energy. Students can discuss with one another to learn better strategies and formulate new approaches and ideas for successfully converting the U.S. to green energy through trial and error.

Effectiveness

There have been no studies on the effectiveness of the Green New Deal Simulator's rhetoric in converting the U.S. to green energy. However, the game does help engage players' minds and prompt them to consider creative solutions to a real-world problem humanity faces. It helps

students think creatively, decisively, and intuitively about how we can manage our current predicament. The game may help motivate students to engage with these topics in their day-to-day lives and may also help them think more deeply about effective solutions to Earth's problems by learning more about the proposed solutions it offers (Tecson, 2024).

Potentially Problematic Aspects

A potential concern with Green New Deal Simulator is its strong emphasis on clean, green-sourced energy as the core of U.S. energy production. This focus may be interpreted as aligning with left-leaning political perspectives and could unintentionally alienate students or families with differing ideological views. Although clean energy is not inherently partisan, it is frequently associated with progressive rhetoric, which may affect perceptions of neutrality. Additionally, the game's exclusive focus on the United States may limit its relevance for international students from countries with different energy infrastructure, regulations, and environmental contexts.

Reviewer: Saskia Sterzl

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HeartSelling

Developed by: METALOG® GmbH & Co. KG

Article contributed by: Maren Schaal

<https://doi.org/10.5281/zenodo.15828493>

Keywords

Business, Business Ethics, Commerce, Competition, Conflict Management, Cooperation, Ethical Decision-making, Negotiation, Sustainability, Trading, Transparency



Photo from HeartSelling (METALOG® GmbH & Co. KG). Used for educational review. Rights remain with the creators.

Introduction

HeartSelling (see Figure) promotes fair, value-based trade by balancing competition and cooperation. The objective is to initiate a discussion on value-oriented trade. It is aimed at sales and negotiation professionals, as well as teams looking to explore communication, transparency,

and cooperation. HeartSelling fulfills the components of a serious game by incorporating simulation, play, role, and learning (Schwägele, 2015, pp. 45 ff.).

Four competing teams share the same goal. They need to build a figure that requires different pieces. Each group specializes in producing a single component, which is why trade and cooperation are necessary. Under time pressure and with initially high levels of uncertainty, participants must both cooperate and pursue their individual goals simultaneously. After the trading phase, a monetary winner is crowned. A subsequent part with the group's self- and external assessments is added to the results. Fair and transparent teams receive an increase in points, while unfair teams sometimes have points deducted. This often shifts the winners and makes it clear that long-term success depends on value-oriented action.

The game was developed by "Metalog", a company specializing in soft-skills games.

Facts

Release date:	–
Developer:	METALOG® GmbH & Co. KG
Game type:	Analog
Number of players:	8–24; optimum: 16
Format:	Synchronous
Time frame:	2–3 hours, depending on the depth of the discussion afterward. Time is independent of the number of players.
Languages:	English, German
Environment:	Ideal setting: 1 room plus 4 group rooms; alternative: 1 large room with four separated zones with visual protection (privacy screens, pinboards, etc.).
Material:	All material is included with the one-time purchase of the game. In addition, a blackboard or flipchart is needed to track the results.
Price:	€537

Resonance & Criticism

HeartSelling is a relatively unknown game from the Metalog portfolio. This benefits its use in teaching, as the game mechanism only works if the participants are unfamiliar with it. There are no official evaluations of the game, as these are mainly used in practical educational work without research-based support. However, observations by facilitators and direct feedback from the players indicate a high level of involvement and comprehensibility of the game. The evaluation of soft factors is a surprise effect of the game that players sometimes criticize. However, this mechanism is needed for the game to work.

Game Principle & Process

The game is played with four teams that compete synchronously. They must interact and cooperate to achieve their individual goals. There are a few basic rules that cannot be influenced: the number and duration of the trading phases and a clearly defined trading zone. Beyond that, they are free to compete and cooperate as they wish. They can freely control both the handling

of their own parts and the handling of their information. Pricing and exchange conditions are freely negotiable.

The game objectives and rules are announced at the beginning. The teams also have permanent access to brief instructions that state the game objectives. The main aim is to produce a complete figure. The importance of fairness for the game is mentioned casually. It is essential to include this to avoid post-game discussions. At the same time, the soft goals must not be over-emphasized. The game mechanism needs the participants to pay little or no attention to them.

The game consists of several trading phases, followed by an evaluation of the figures produced. The monetary result is celebrated, and the end of the game is presented to the teams. From here on, an eye-opening experience sets in. The soft topics are questioned using evaluation forms, and the results are discussed in plenary. Each group expresses how they perceived the others in the game and names positive and negative experiences. This discussion reflects the primary learning process. This is where the link is made between short-term and long-term success and fair, value-oriented interactions. The fact that the assessment of social factors is included as a quantitative position in the overall game result underlines their relevance.

Learning Objectives & Educational Fields of Application

HeartSelling emphasizes that individual goals cannot be achieved without cooperation and a value-based approach to interaction with other operators. The second message is that short-term success is often attractive and can tempt players to overlook sustainable, long-term success. The initial situation, time pressure, and high uncertainties ensure that the game works out. A big part of the learning experience takes place in the game discussion. All experiences gained during the main game phase are valuable and can contribute to the game's overall message.

It is possible to run the game alone; however, it is best to carry it out in pairs. This allows for making more external observations during the gaming phase, which can then enrich the debriefing phase. The facilitator's key role is to introduce the game and oversee timekeeping and moderation across the different rounds. During the game phase, the facilitator should act discreetly and not intervene unless a breach of complex rules occurs. The main challenge of the facilitator is to lead the debriefing. Each game is different, and unpredictable events can happen. A listening attitude that gives the players enough room to report their experiences is needed.

The game mechanisms are easy to understand. The game manufacturer provides detailed instructions and a video for the game. With sufficient preparation time, users can learn to execute the game themselves.

Effectiveness

There is no empirical evidence for the effectiveness of this specific game. However, it is used frequently because of direct, positive participant feedback. When asked for feedback, they emphasize the game's entertainment, its flow, and the hands-on experience with the discussed topics.

Potentially Problematic Aspects

In the beginning, the different teams have to form their identity. Therefore, they develop a name, logo, and slogan. Such creative tasks can sometimes be used for inappropriate, discriminatory “jokes”. The facilitator should prevent this at an early stage and address it during moderation.

The game itself does not address problematic or sensitive topics. The game materials and room setting do not increase the risk of injury.

Reviewers: Lucian Jueterbock, Saskia Sterzl

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Hire Up

Developed by: Vivian Hsueh Hua Chen, Jimmy Sheng Tian Ho

Article contributed by: Marcella Sakols

<https://doi.org/10.5281/zenodo.16024344>

Keywords

Business Ethics, Cognitive Bias, Customer Service, Empathy, Ethical Decision-making, Hospitality, Inclusion, Labor Law, Labor Politics, Management, Perspective-taking, Political Science

Introduction

Hire Up was developed by Vivian Hsueh Hua Chen & Jimmy Sheng Tian Ho in 2021. The game's thematic focus is the management of a food court that has hired employees with international backgrounds. The main focus is on employees rather than food production. The objective of the game is to build a good food court reputation with customers while placing greater emphasis on treating employees fairly. The game primarily targets individuals in management or hospitality positions, or those entering these fields. HireUp requires players to reflect on their choices and actions after most interactions between employees and customers in the food court and provides a review of their choices after they finish playing, so they can reflect on their decisions.

The game's principle is that the player is presented with situations involving their employees, with options to respond, one of which prioritizes the employees' comfort and safety. This way, the player can practice sound ethical management.

Facts

Release date:	2021
Developer:	Vivian Hsueh Hua Chen & Jimmy Sheng Tian Ho
Game type:	Digital
Number of players:	Singleplayer
Format:	Asynchronous
Time frame:	15 minutes
Languages:	English
Environment:	A laptop or computer is needed, and an internet connection, as it is an online game.
Material:	No additional material needed.
Price:	Free

Resonance & Criticism

The game was developed as part of a study at Erasmus University Rotterdam. The players were analysed and received external questionnaires pre- and post-game that focused on their in-game choices, not their playing experience. The study included 300 participants: 196 female,

103 male, and 1 other. It was analysed how guilt was experienced, including the guilt regarding attitudes towards immigrants, by comparing pre-game and post-game attitudes. A few limitations of the game were listed, one of which was that it didn't elicit strong emotional reactions, which affected how players responded to the consequences of their choices. Additionally, the reward/punishment mechanism may have influenced users' decisions (see Hsueh et al., 2025).

Game Principle & Process

The game is linear, using time to measure how long the player has played or still has to play; one day in the game is approximately one real-life minute. The player roleplays a food court manager and chooses which stalls are set up freely. Then, employees are hired for each food stall. Here, the player can also control how the manager interacts with the customers and their employees, so there is relatively high player control over the game; however, the interactions end with a set of two options the player can select as a "moral decision".

The game objectives are shown at the beginning of the game with some added context, such as who the player is, and then also the setup of the map and where to access what. It is very user-friendly and easy to understand within a few minutes, especially since actions like opening a new stall and hiring new employees are repeatedly shown to the user.



Screenshot from Hire Up (Vivian Hsueh Hua Chen & Jimmy Sheng Tian Ho) showing the food court interface, including stalls, objectives, time, and popularity indicators. Used for educational review. Rights remain with the creators.

Feedback is given by employees themselves, who, when clicked, show their happiness levels, and is also collected through a questionnaire provided by a so-called "friend" whenever a social

interaction between customers and/or employees occurs. The user can reflect on the impact their decision had on their peers during the interaction (see Figure). At the end of the game, employees leave reviews for management about how they were treated during the experience.

There is no real social interaction between people, only interactions between the player and AI characters. These interactions are the backbone of the game. However, the game designers encourage interactions between in-classroom teachers and students during play, as well as inter-student interactions.

The game is based on the Moral Foundations Theory (MFT), the Social Identity Theory (SIT), and the Parasocial Contact Hypothesis (PCH) (Hsueh et al., 2024).

Learning objectives & Educational fields of application

The game's training objective is to intrinsically learn to treat people with different cultural and racial backgrounds as you would treat yourself, fairly and considerately. By being presented with scenarios in which one must choose between employees' well-being and customers' well-being, or potential profit, the user is encouraged to prioritize employees' comfort and defend them when customers engage in prejudicial interactions (Koek & Chen, 2024).

The game provides interactions that mimic realistic scenarios likely to occur in customer service jobs, but because the interactions are all between NPCs, the conversations cannot elicit real emotions, as they would between real people, and it is therefore difficult to find oneself in an empathetic situation. This does not effectively ensure that the learning objectives or the study's aim are achieved.

The role of the teacher is primarily to guide players when confusion arises, remind them to pay attention to the tutorial page, and facilitate discussions during and after the game. Aside from playing the game itself, there isn't any immediate training time required for teachers. The mechanics of this game were that moral foundation violations weren't punished; they were rewarded, which, because it was played only with NPCs and digitally, meant the rewards could override players' moral standings (Hsueh et al., 2024).

Effectiveness

Based on the paper written by Hsueh et al., players' personal moral values didn't strongly influence their in-game moral decisions, except for the most noticeable values. Breaking certain moral rules in the game caused feelings of guilt, but those feelings didn't affect players' attitudes toward foreigners afterward when asked again. It is also found that breaking moral rules in the game could worsen views towards other groups, rather than resulting in altruistic outcomes as was initially expected before conducting the study (Hsueh et al., 2024). Other aspects of the game were not analysed, such as the game's immersion or players' enjoyment. It should be acknowledged that there is a notable lack of empirical studies pertaining to educational games like HireUp!.

Potentially problematic aspects

One potentially problematic aspect is the limited emotional depth of the NPC interactions. Because the game relies entirely on short, pre-scripted encounters, it may not generate the level of engagement needed for meaningful reflection on prejudice or ethical decision-making. This can weaken the intended learning outcomes, especially in contexts where empathy or perspective-taking is central. Additionally, the built-in reward structure occasionally reinforces choices that conflict with the game's intended moral lessons, which may confuse players or lead to unintended interpretations of the scenarios.

Reviewers: Torben Schmidt, Johannes Katsarov, Saskia Sterzl

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Indika

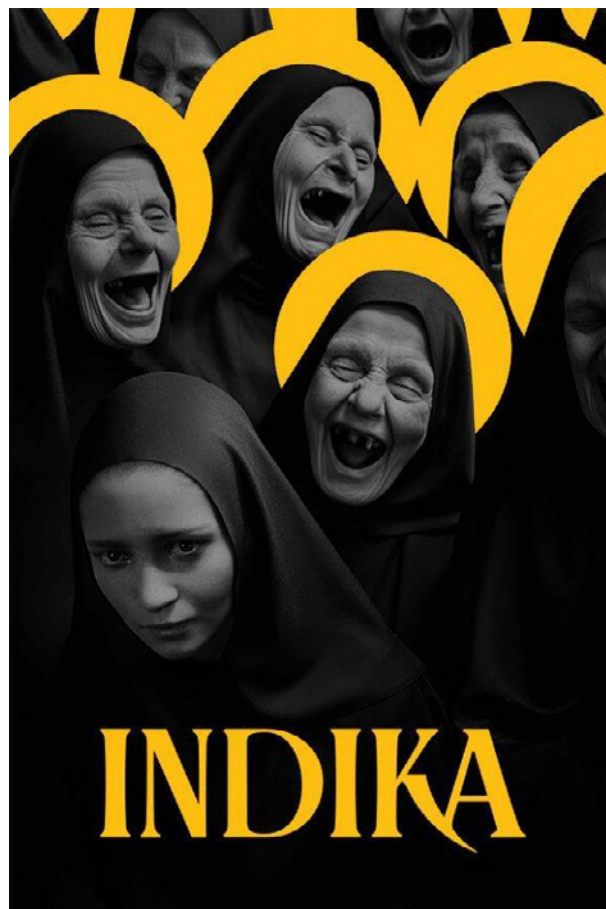
Developed by: Odd Meter

Article contributed by: Hannes Hamester

<https://doi.org/10.5281/zenodo.17679539>

Keywords

Abuse, Ethics, Gender Studies, Moral Development, Philosophy, Psychology, Religion, Theology, Trauma



Key art for Indika (2024). © Odd Meter. Used for educational review. Rights remain with the creators.

Introduction

Indika (see Figure) is a third-person adventure game that portrays the story of a nun in a surreal version of 19th-century Russia. Developed by the studio Odd Meter and released in 2024, the digital game explores themes such as religion and authority as a young nun named Indika embarks on a dark journey of self-discovery. At the start of the game, players must perform mundane tasks to satisfy Indika's sisters at the convent. However, after she is given the task of

delivering a letter, Indika sets off to leave the monastery behind. However, the young woman is not travelling alone, as she is always accompanied by the devil himself, speaking to her in her thoughts. By encountering many strange people on her way, Indika begins to see visions, and her relationship with the devil causes her to question her own beliefs. As her world falls apart, players must solve puzzles to keep Indika sane, while flashbacks elaborate on her personal background. Overall, the game Indika is known for its immersive storytelling and philosophical perspectives on faith, presenting players with both comedic and tragic confrontations with the church and inner conflict.

Facts

Release date:	May 2, 2024
Developer:	Odd Meter
Game type:	Digital
Number of players:	Single player
Format:	Hybrid
Time frame:	4–6 hours
Languages:	German, English, French, Spanish, Russian, Japanese, Polish, Portuguese, Chinese, Ukrainian
Environment:	Access to computers/consoles & controllers
Material:	–
Price:	Around €25

Resonance & Criticism

As a result of Indika's outstanding storytelling, the game was rated very positively across the board, with around 90% positive ratings on Steam and "generally favourable" reviews on Metacritic, as of 2025. Moreover, it has won several awards, for instance the "Game Designer Award" at the Japan Game Awards 2025, the "Game Of The Year" as well as "Best Narrative" awards at the 2025 Games For Change Awards and the "Best Dialogue For An Indie Game" award at the 23rd Annual Game Audio Network Guild ("INDIKA" on Steam, n.d.). Therefore, most players value Indika for its intense examination of themes such as guilt, faith, identity, and psychological instability. Nevertheless, precisely those themes can be overwhelming for players looking for a simpler experience.

Game Principle & Process

All in all, Indika's gameplay is relatively simple, as players mostly control the character from a third-person perspective and walk through the scenery. Indeed, the dialogue of the game drives the story, and the narrative focuses on the nun's philosophical soul-searching, accompanied by the devil's whispers in her ears. However, as the story progresses and Indika slowly loses her mind, the game utilises unique aesthetics to represent the various plot elements, for instance, puzzle games that reflect on her state of sanity. Furthermore, flashbacks of Indika's past are presented through 2D pixel art to juxtapose her dark present with her joyful, bright background.

Within the game, players can collect points to rank up and increase their level of piety, but the more points a player gets, the more they need. This feedback system is an approach to gamify religion itself, with regard to prayers and deeds earning a believer's way into heaven. Indeed, the developers of *Indika* clarified that they deliberately designed this feedback system to appear meaningless to test whether players unthinkingly follow instructions or question them (Couture, 2025).

Consequently, the overarching motive of *Indika* is to criticise the church and faith as an abused instrument of power, used by those in authority to oppress and control the population, especially regarding women. In the case of *Indika* herself, it is not clear whether she already had mental health problems before she became a nun or whether her involvement in the church caused them. Nevertheless, the criticism of religion shows right at the start of the game, when players need to perform dull tasks to satisfy the other sisters, or when church representatives and the military are seen working together, ultimately using religion as a weapon. By referring to the Russian Orthodox Church, *Indika*'s developers intend to clearly express their disapproval of the system (Gordon, 2024).

Learning Objectives & Educational Fields of Application

Above all, *Indika* aims to tell a story about humanity's eternal struggle with itself. That is why, during the game, the question of good and evil is repeatedly raised in contrast to the religious definitions, and players are encouraged to rethink their own understanding of morality. Therefore, the devil, the main character always heard in the back of her mind, is not only meant to represent the biblical creature but rather the dark, forbidden thoughts *Indika*, or all human beings, carry within. This intentional ambiguity is also found in the other characters of the game, for instance, the devout believer Ilya, an escaped convict whom *Indika* encounters on her journey. While Ilya prays to God and *Indika* converses with the devil, they both join forces to seek salvation in a greater power, only to find out that they are responsible for their own fates.

Provided that the developer intends to criticise religion and to display the power faith holds to restrain people, the game *Indika* deliberately leaves questions unanswered to provoke players to think and seek solutions for themselves (Gordon, 2024). For this reason, *Indika* can be used to stimulate discussion in ethics or religion courses about the interplay of belief and doubt, the power of institutions, or journeys of self-discovery. Further, the game can be utilized in media education to analyze games as a medium for criticism and reflection. At this time, no information has been published for teachers who wish to implement the game in their curricula.

Effectiveness

To date, no empirical studies have examined the educational value of the game *Indika*. However, Luan, Chang, and Zeng found in their 2025 article on the educational value of narrative-driven commercial entertainment games that dialogue-based games, can promote empathy, perspective-taking, and narrative-based reflection. According to the researchers, narrative games are well-suited as a medium for value formation, particularly through immersive stories and symbolic and metaphorical content that foster emotional connections (Luan et al., 2025). As a result, dialogue-based games have substantial educational value when they integrate cultural content in a meaningful way. In fact, video games like *Indika* can strengthen value awareness,

promote reflective thinking, build cultural identity, and anchor learning emotionally (Luan et al., 2025). Even though Indika was not the focus of the study by Luan et al. (2025), the game nonetheless demonstrates the described qualities and thus has great potential for teaching values and ethics, especially in humanities-oriented learning contexts.

Potentially Problematic Aspects

The game Indika contains content that is not suitable for all age groups and may trigger some players, such as partial nudity, use of tobacco, violence, consumption of alcohol, cursing, body dismemberment, non-consensual sex, and sexual assault (INDIKA on Steam, n.d.). Especially the depictions of sexual violence in some scenes of the game may cause harm to players. It is advisable to inform players of the presence of these graphic images before play, so that no one is forced to consume potentially disturbing material. Moreover, the intense criticism of religion should also be pointed out to prevent anyone from feeling attacked in their beliefs.

Reviewer: Johannes Katsarov

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Jede Stimme zählt

Developed by: polyspektiv Burgdörfer, Ness, Systainchange

Article contributed by: Johannes C. Mieth, Heidi Ness,

Frank Burgdörfer

<https://doi.org/10.5281/zenodo.15923842>

Keywords

Competition, Constitutional Politics, Cooperation, Political Science, Rhetoric



Photograph of the game Jede Stimme zählt (Every Vote Counts) showing the box and game components. Image used for educational review; rights remain with the creators.

Introduction

Jede Stimme zählt (Every Vote Counts; see Figure) is a game about facts, values, topics, and processes within an election campaign, where players develop a political campaign. They must complete creative tasks and convince fellow players with their own ideas. In addition, they must demonstrate their competence by answering quiz questions.

The game conveys how an election campaign works. The biographies of political supporters provide insight into the diversity of political participation and encourage players to engage in their own political involvement.

The game includes both competitive and cooperative elements and can be used in a variety of ways. Target groups include university students, school pupils, and people interested in politics. Depending on the group, topics can be addressed at different levels of depth.

The first edition of Every Vote Counts was developed for the 2021 German federal election; since then, updated versions have been created for state elections and the 2024 European election. The game was developed in cooperation between Polyspektiv and Systainchange.

Facts

Release date:	01.09.2021
Developer:	Polyspektiv Burgdörfer & Ness & Systainchange
Game type:	Analog, Hybrid
Number of players:	6–24, optimal: 8–16
Format:	Synchronous
Time frame:	1.5–4 hours, optimal: 2.5–4 hours (larger groups require slightly more time than smaller groups)
Languages:	German
Environment:	For large groups: a room with 4–5 tables; for small groups: one table with 6–8 seats. No digital requirements when played analogue; for hybrid/digital play: 4–5 devices and stable Wi-Fi.
Material:	Paper and pens; video instructions: https://jedestimmezaehlt.de/film/
Price:	36.50€ for the physical game; for digital/hybrid use, arrangements must be made with the authors.

Resonance & Criticism

The game uses an innovative concept combining creative tasks with quiz challenges. Nearly 1,000 copies have been sold, reaching an estimated 15,000 people. Additionally, the game has been used in around 25 workshops focused on reflecting on elections and democracy (as of 10/2025).

Feedback from participants is consistently positive. Various aspects are highlighted: variety, use of different talents (creativity, knowledge, speed), freedom of playstyle (cooperative or competitive), accessibility, and the strengthening of political knowledge.

One challenge is the game's time intensity. It can only be modified to fit under 1.5 hours—for example, as a pure quiz game or as a cooperative format focused on gradually building and presenting a campaign.

Game Principle & Process

The game is played in three to four teams, each consisting of two to six players. The goal is to collect as many supporters as possible for one's campaign. Smaller groups sit together at one

table. For larger groups, one table in the middle holds all materials, while each team has its own table. The game materials include a game board and a round counter, plus several types of cards: supporter cards in four categories, collected throughout the game, and topic, task, and inspiration cards used explicitly in the creative rounds.

The two types of rounds—creative rounds and quiz rounds—alternate. In creative rounds, players develop their campaign: theme, party name, slogan, posters, campaign videos, etc. Teams complete these tasks simultaneously within a limited time, then present and evaluate each other's results. Teams may choose to cooperate or compete.

In quiz rounds, teams encounter potential supporters represented on cards. To win them, they must answer a question. Each round, they choose one of four political fields (political system, political content, media and public communication, networks and party work) and attempt to answer a question correctly.

If the team answers correctly, it receives the supporter card. Some cards announce events instead of asking questions. Social interactions within teams are essential in both round types. Interactions between teams, mainly through mutual evaluations, also play a significant role in game dynamics. Players may adopt a wide variety of political positions, advocate for them, and justify them. The only requirement: campaigns must be conducted using democratic means. Ideally, the instructor is familiar with the game beforehand so they can introduce the different elements step by step.

Learning objectives & Educational fields of application

The game pursues several central learning and training objectives. First, it engages players with political topics and campaign processes by simulating how an election campaign works and how a political campaign is built step by step. In creative rounds, players develop their own campaigns and observe how others evaluate them, while quiz rounds introduce factual knowledge about the political system, democratic values, political debates, media use and public relations, interest groups, and party structures.

In addition, the game supports the practice of democratic attitudes and procedures. Players learn to communicate their views and argue for their interests, while becoming sensitized to the importance of listening and respectful interaction in the context of a fair election campaign. They also practice providing reasoned evaluations of political contributions.

The game further encourages political participation. By developing playful solutions to political issues and defending them, players often grow unconsciously into the role of someone who may wish to advocate for these ideas in real life. The biographies presented on supporter cards strengthen awareness of the diversity of political engagement and encourage real-world participation.

Beyond political content, the game strengthens creative campaign skills. Players experience how a campaign is developed, from problem analysis and ideation to the creation of visual and textual elements and marketing strategies. These skills extend beyond political contexts and support general campaign competence.

Finally, the game promotes the development of cooperative and competitive strategies. Players experience how cooperative or competitive behaviour influences others and the overall game dynamic, learning both to negotiate shared interests and to assert distinct positions in a competitive setting.

A teaching person is required to support the learning process by moderating gameplay, clarifying factual content, providing quality criteria, and ensuring real-world relevance during the debriefing phase.

Effectiveness

There are no scientific studies or evidence regarding the game's effectiveness. Feedback from workshops is consistently positive. Observations show that players find it motivating because different skills can lead to success. Points can be earned through knowledge, creativity, or social skills. The rapid alternation between round types suits the short attention spans of younger participants.

The creative solutions produced in the game can be broadly grouped into three categories: serious tasks with political content; humorous or silly solutions; and mixed solutions combining creativity, humour, and political content.

In-depth discussions on political positions, content, or participation are not part of the game itself, as they would slow down the fast, entertaining gameplay. In workshops, the game is supplemented with evaluation discussions, real-world transfer, and additional content to contextualize the session.

Potentially problematic aspects

The game contains time-bound information that must be updated regularly.

Special attention was given to diversity in the depiction of people. This representation reflects societal diversity (e.g., 50% women, 30% people with migration background, inclusion of people with disabilities) rather than the composition of political institutions (e.g., the Bundestag). In some contexts, this may irritate if it does not reflect the local perception of representation and is perceived as "forced diversity".

Reviewer: Saskia Sterzl

Sources

No external sources were used.

Kahoot

Developed by: Kahoot!

Article contributed by: Zachary Fitz-Walter, Joshua Hall, Justin Carter

<https://doi.org/10.5281/zenodo.15824773>

Keywords

Competition, Cooperation, Gamification, Quiz-based Learning



Logo of the game-based learning platform Kahoot!. Used for educational review. Rights remain with the creators.

Introduction

Kahoot! is an online game-based learning platform designed to enhance engagement and motivation in educational settings. The primary focus is education and knowledge reinforcement across diverse subjects. The main objective is to answer quiz questions accurately and as quickly as possible to outperform other players.

Kahoot! has broad appeal; it works well for students and educators across higher education, schools, and training environments. It leverages game design principles, such as timed quizzes, points, and leaderboards, to create an engaging and educational experience.

Gameplay is simple: educators create or choose from pre-made trivia quizzes, which are then delivered in a live, interactive session.

Developed in 2012 by a team led by Johan Brand, Jamie Brooker, and Morten Versvik, Kahoot! has grown into one of the most widely used tools in gamified education (Kahoot!, 2024a).

Facts

Release date:	2012
Developer:	Kahoot!
Game type:	Digital
Number of players:	1–400+
Format:	Hybrid
Time frame:	Varies depending on quiz length (e.g., 2 minutes+)
Languages:	English, Spanish, French, Brazilian Portuguese, German,

	Italian, Japanese, Dutch, Turkish, Polish, Norwegian, Traditional Chinese, Simplified Chinese, Arabic, Ukrainian, Korean, Swedish, Danish, and Indonesian.
Environment:	Educators need a device, screen, and internet connection to host the game, and students need a device (e.g., mobile phone, tablet, or computer) with internet connection to play
Material:	No additional material necessary; all instructions are available on their website: https://kahoot.com/
Price:	A basic (free) account includes the multiple-choice quiz and up to 10 players per game. Various paid tiers provide access to more participants per session and other features

Resonance & Criticism

Kahoot! has been well received by both students and educators, with research showing positive effects on learning, classroom dynamics, attitudes, and anxiety (Ciesielska et al., 2024; Zhang & Yu, 2020). The International Certification of Evidence of Impact in Education (ICEIE) has awarded Kahoot! The Gold Certification for “Efficacy” for demonstrating educational value through empirical studies conducted in classrooms by research teams (Kahoot!, 2024b). Some criticisms have emerged, primarily around its game mechanics, which promote guessing, and the potential impact on learning depth from limited feedback.

Game Principle & Process

Kahoot! is a game-based learning platform structured like a game show, with teachers as hosts and students as contestants. The platform uses a quiz format in which multiple-choice questions are displayed on a shared screen, and players respond on their own devices (e.g., smartphones, tablets, or computers). Designed to be fast-paced and competitive, points are awarded for accuracy and speed, and a live scoreboard highlights top performers after each question. While players cannot control the pace or content of the game, teachers (hosts) can customize specific settings, such as the time available to answer each question, the randomization of question order, or the enabling of name generators, to tailor the experience for learners.

The primary objective in Kahoot! is to answer questions correctly and quickly to earn points and climb the leaderboard. The platform promotes learning through feedback and reward systems, including points for correct, speedy responses, leaderboards that encourage competition, and immediate feedback on answers, as well as visual or auditory cues such as bright colors, catchy music, and sound effects to enhance engagement.

Social interaction plays a significant role in the Kahoot! experience. The shared host screen and competitive elements create a sense of community and friendly rivalry among players. Team-based play is also an option and can further encourage collaboration.

Research suggests (Wang & Tahir, 2020) that Kahoot!’s design is informed educational theories that include Intrinsic Motivation Theory (Malone, 1980), which leverages challenge, curiosity, and fantasy to make learning enjoyable and Flow Theory (Sweetser & Wyeth, 2005), which aims

to immerse players in a state of deep engagement through fast-paced gameplay and scoring systems.

Learning Objectives & Educational Fields of Application

Kahoot! is designed to enhance student engagement and facilitate knowledge acquisition. It does this by transforming traditional classroom exercises into a game show that allows students to develop cognitive skills such as critical thinking, problem-solving, and information recall (Wang & Tahir, 2020).

The challenging game show environment of Kahoot! promotes engagement and encourages participation in learning. Kahoot! effectively uses dynamic audiovisual elements and suspenseful answer reveals to stimulate curiosity. The platform also uses game mechanisms that promote social interaction and competition. Points, leaderboards, and podium rankings encourage playful competition and motivate students to perform their best.

Teachers play a vital role in designing and facilitating effective Kahoot! sessions. They are responsible for creating relevant quiz questions aligned with learning objectives, setting appropriate difficulty levels, choosing time limits, and determining the number of questions to include. Teachers can also facilitate discussion and reflection after each session. A single instructor can effectively manage a session with minimal training. It is important, though, for teachers to familiarize themselves with the platform's tools and to playtest their quizzes before delivering them to a class to ensure they are suitable.

Kahoot!'s game mechanics strongly support its learning objectives by promoting engagement, interaction, and knowledge acquisition. The inclusion of immediate feedback mechanisms reinforces correct answers and corrects misconceptions, supporting timely reflection and learning strategy adjustments. Kahoot! also offers much flexibility through multiple question formats, game modes, and customization options. This allows educators to adapt content effectively to different learning needs and contexts. In addition, Kahoot! provides post-game reports that highlight participation and identify questions where students may need additional focus, particularly when many answered incorrectly.

Effectiveness

Studies highlight Kahoot!'s effectiveness as a learning tool, with a meta-analysis of 16 studies involving 2,070 participants showing statistically significant improvements in vocabulary, grammar, and exam performance compared to traditional methods (Kahoot!, 2024). Some studies highlight Kahoot!'s effectiveness in enhancing vocabulary acquisition and in reducing anxiety (Wang & Tahir, 2020). A handful of studies that found no significant improvements in learning outcomes suggest that Kahoot! is ineffective. However, effectiveness depends on several factors, including the specific learning context, the quiz design, and how the teacher integrates the platform into their teaching (Wang & Tahir, 2020).

While short-term gains in knowledge retention are well documented, long-term, sustainable learning impacts remain underexplored in research.

Kahoot! promotes immersion and engagement, aligning with the concept of flow (Licorish et al., 2018). Features such as clear goals, immediate feedback, and balanced challenges encourage focus, motivation, and enjoyment. However, time pressure and competitive elements may disrupt flow for some students, requiring careful quiz design to maintain balance (Zhang & Yu, 2021).

Potentially Problematic Aspects

Kahoot! offers a positive learning experience, but some aspects may require consideration. For example, the accuracy and appropriateness of language and content presented depend entirely on teachers. A review of quizzes for errors, cultural sensitivity, and timeliness is important, particularly if using any pre-made public content.

Kahoot!'s competitive nature may be stressful for some students, and adjustments may be needed to ensure accessibility (i.e., longer time to answer questions). If delivered in a classroom, it helps if students can clearly see the host's screen, so a projector is recommended.

Reviewer: Saskia Sterzl

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KI GENESIS

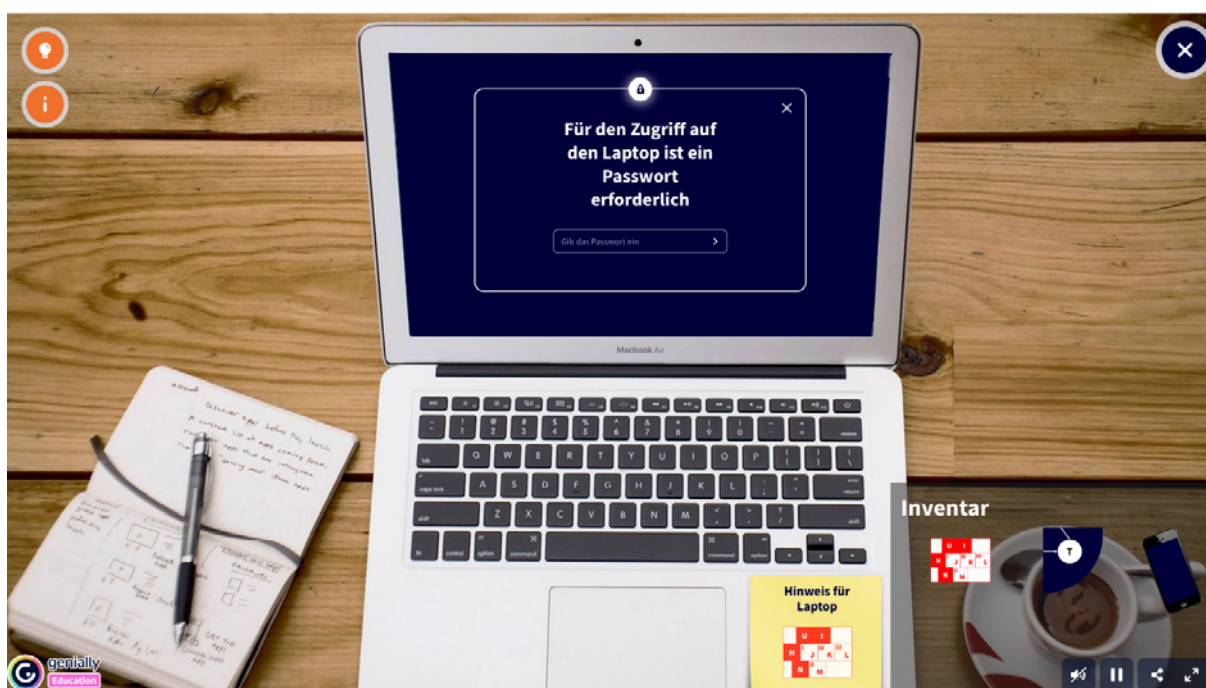
Developed by: Angela Loboda

*Article contributed by: Michael Louis Eulenstein,
Angela Loboda*

<https://doi.org/10.5281/zenodo.15939274>

Keywords

Academic Advising, Business, Study Orientation



Example gameplay screen from KI GENESIS, a digital escape game for study orientation and academic advising. © Angela Loboda. All rights reserved for the creators.

Introduction

KI GENESIS: Der Schlüssel der Zukunft (see Figure) is a digital escape game. It was developed by Business Information student Angela Loboda in cooperation with the Student Advisory Service at Hildesheim University in 2024. It focuses on orientation for prospective students of Business Informatics. Its main objective is to facilitate informed study decisions by immersing participants in narrative-driven puzzles based on the curricula, leveraging persuasive mechanics as described by Bogost (2007). The game targets upper-secondary and early university students, especially those interested in Business Informatics and related fields. *KI GENESIS: Der Schlüssel der Zukunft* can be played here: <https://view.genially.com/65e9a866c5a4ab00141ab88e>.

Facts

Release date:	2024
Developer:	Angela Loboda
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	30–60 minutes (optimal 45–60; multiplayer may take longer).
Languages:	German
Environment:	Web browser, Internet, mobile device, or computer, no installation required
Material:	No requirements
Price:	Freely available via https://genial.ly (embedded)

Resonance & Criticism

KI Genesis was positively received in two testing phases. Initial feedback from a small group of Student Advisory at Hildesheim University (ZSB) staff and student assistants (N=7) indicated enthusiasm about the intuitive game design and the realistic integration of puzzles into the narrative. A second iteration with a more diverse group—academic staff and Business Informatics students (N=8)—confirmed this impression, noting the engaging storyline, the clarity of the interface, and the relevance to real-world study decisions. In broader evaluations involving actual study-interested participants (Playtesting Iteration 2), 75% of users rated the escape room as “good”, while 25% rated it “very good”. Additionally, 83.3% of participants stated they would recommend the escape room to others. Many reported that the game helped them better understand business informatics and assisted in making more informed study choices.

While the game has not received formal awards, but its methodological approach has attracted interest from other German universities implementing similar orientation programs. Criticism centered primarily on technical refinements: some participants experienced occasional loading delays in complex puzzle sequences, and initial difficulty levels required adjustment to prevent frustration among users with limited prior knowledge. Expert feedback emphasized the need for adaptive difficulty tuning and expanded hint systems, which were subsequently implemented in iterative improvements. These refinements successfully increased the percentage of participants who found the puzzle difficulty appropriate from 42.9% to 75% across testing iterations.

Game Principle & Process

In KI Genesis, players progress through four thematic rooms, each aligned with core modules of business informatics, such as Introduction to Business Informatics, Informatics, and Business Administration, as well as professional field exploration. The riddles in each room simulate realistic tasks that people in these fields encounter daily. Each room contains several puzzle types, such as text-based, logic-based, multimedia (e.g., video puzzles), and drag-and-drop tasks, all linked to real study content. The mechanics involve pattern recognition, symbol decryption, sequential unlocking, matching, and classification. Players maintain a high level of agency and control, navigating non-linearly between hints, clues, and puzzles at their own pace.

An integrated hint system supports self-directed problem-solving without external intervention. In line with Kolb's experiential learning theory (1984), the game promotes learning through active experience followed by structured reflection. Constructivist principles underpin the puzzle design, encouraging players to build understanding through self-guided, context-rich problem-solving (Piaget, 1950; Vygotsky, 1978).

The game's objectives are to support participants in their study orientation by simulating realistic decision scenarios and to foster awareness of study content and required competencies in business informatics. These objectives are explicitly introduced during the briefing phase and reinforced through in-game dialogue and puzzles, which reflect actual curriculum challenges and decision points. The narrative framing helps players clearly understand the game's objectives, making clear that they understand that progression in the game mirrors real academic progression. The game was designed primarily for individual use. However, during testing phases, especially in educational workshops or university fairs, it was occasionally played in small collaborative teams.

The development of the escape room is based on the Design Science Research (DSR) approach (Hevner et al., 2004), which guided the iterative design, prototyping, and evaluation process. It draws on the Room2Educ8 framework (Fotaris & Mastoras, 2022) to structure educational escape rooms in a digital and study-orientation context.

Learning Objectives & Educational Fields of Application

This escape room module pursues three central learning objectives: First, subject-matter competence is strengthened through authentic, content-aligned puzzles that introduce core Business Informatics concepts such as database integrity, algorithmic thinking, and SWOT analysis. These puzzles replicate academic challenges in a simplified yet realistic format, enabling participants to internalize complex content through active engagement. Second, methodological competence is developed via tasks that require analytical reasoning, pattern recognition, and strategic decision-making. Players must evaluate alternatives, interpret multi-layered clues, and apply iterative problem-solving, all of which mirror key competencies in higher education. Third, self- and social competence is encouraged through structured reflection prompts and decision-based branching that promote critical thinking, perspective-taking, and awareness of personal learning styles and study preferences. A mix of linear and non-linear puzzle sequences sustains game flow and engagement. These learning outcomes were designed in accordance with the SMART principles to ensure they are specific, measurable, attainable, relevant, and time-bound.

Effectiveness

An empirical evaluation of the escape room was conducted using a pre-post design with secondary school students (N=6) in grades 11-13. The study employed structured questionnaires administered before and after participation to measure changes in knowledge, interest, and decision-making confidence. Results demonstrated significant improvements in participants' understanding of the core concepts and disciplines of Business Informatics. The average comprehension of subject-specific content increased from 3.2 to 4.0 on a 5-point scale after participation. Students reported gaining new information about the study program (4 out of 5 participants) and showed enhanced ability to assess the field's relevance to their career goals. Par-

ticipants demonstrated increased reflection on personal interests and improved capability to evaluate their suitability for the program. Enhanced problem-solving competencies and methodological skills were maintained, particularly in developing autonomous solutions. Immersive experience and flow state: Playtesting iterations showed progressive improvement in engagement levels. Second-iteration results indicated that 75% of participants found the puzzle difficulty appropriate (compared to 42.9% in the first iteration). Participants highlighted the emotional resonance of metaphors, intuitive design, and the effectiveness of puzzles in stimulating self-reflection. The narrative structure successfully created immersion while maintaining educational focus without overwhelming cognitive load.

Potentially Problematic Aspects

The game content was developed for factual accuracy in Business Informatics, aligning terminology and processes with current German university curricula. Expert feedback informed revisions to reduce cognitive overload and add supportive hints for players without background knowledge. Presented in German for upper-secondary students, it may challenge those with limited academic German skills. As a browser-based digital escape room, the game avoids physical risks and minimizes technical issues through interface optimization. Ethical and inclusive language was prioritized, with a value-neutral, diversity-aware narrative. Designed for prospective STEM and business students, it may not suit those with low digital literacy or reading comprehension difficulties, though additional support can improve accessibility.

Reviewers: Johannes Katsarov, Bilgehan Karatas

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Klimaxo

Developed by: Volker Kast

Article contributed by: Volker Kast

<https://doi.org/10.5281/zenodo.15828333>

Keywords

Business, Climate-change Education, Climate Policy Education, Consumer Psychology, Ecology, Economics, Environmental Law, Nature Conservation, Political Science, Renewable Energies, Risk Management, Sustainability, Systems Thinking



Photograph of the game Klimaxo showing the box and components. Image used for educational review; rights remain with the creators.

Introduction

The importance of climate change as a global challenge no longer needs to be highlighted. Atmospheric CO₂ ppm levels continue to rise, and the consequences are becoming increasingly evident. At the same time, the proportion of environmentally conscious people is also increasing. However, the topic is complex, and it is often unclear how to implement climate protection effectively.

This is where *Klimaxo* (see Figure) comes in. Klimaxo is a scientifically grounded strategy game that makes complex climate knowledge tangible through innovative game mechanics. As an analogue card game, its rules can be learned in ten minutes using the online explainer video.

The central goal of Klimaxo is to enable constructive dialogue about climate protection and to convey practical action-oriented knowledge. The core focus lies on estimating the magnitudes of CO₂ emissions generated individually or collectively. The game translates complex climate relationships into easy-to-remember rules of thumb, reducing the feeling of being overwhelmed. Through strategy, knowledge, and luck, dynamic rounds emerge that work across various knowledge levels. The game was developed by Volker Kast (education expert) in collaboration with Martin Merten (environmental psychologist).

Facts

Release date:	May 2024
Developer:	Volker Kast
Game type:	Analog
Number of players:	2–6; with more than six players, playing in teams of two is possible
Format:	Synchronous
Time frame:	Minimum 30–40 minutes including the desired debates; optimal duration: 1–1.5 hours
Languages:	German
Environment:	Play surface and seating
Material:	Online explainer video for a quick start: https://www.klimaxo.de/pages/anleitung . Starting with the classic printed rulebook is more time-consuming, but it is possible.
Price:	24.50 euros per game (2025). Universities may receive funding for this (e.g., through Engagement Global).

Resonance & Criticism

Klimaxo has already gained wide recognition within the sustainability community. The concept was awarded at the Impact Slam Hamburg 2023 for its climate-protection potential. Its nomination for the German Award for Sustainability Projects 2025 further highlights the positive reception.

Players particularly emphasise the well-balanced mix between knowledge transfer and enjoyable gameplay. The game convinces with its clear presentation of complex relationships and real-life relevance. Participants are encouraged to engage in scientifically grounded debates in a relaxed atmosphere, without moralising. Experts especially appreciate the high professional quality ensured by integrating current climate research.

Game Principle & Process

Klimaxo is a strategic analogue card game that simulates global warming on a board ranging from 0 to 3 degrees. At the beginning, players are randomly assigned roles pursuing different interests regarding global warming. This makes antagonistic positions possible and leads to engaging perspective shifts.

In several rounds, the game piece “Earth” is moved on the temperature scale through various actions. If players succeed in manoeuvring Earth into the temperature range associated with

their role, they score points. Whoever has the most points after all rounds wins. The Earth's temperature is influenced by action cards featuring realistic "climate actions" with scientifically grounded CO₂ values. Event cards add societal random events.

Between rounds, players can win jokers through a CO₂-estimation mini-game. This mechanic is central to the learning process: While players initially struggle to estimate CO₂ magnitudes, they develop a more accurate sense over time. Built-in balancing mechanisms for experienced players ensure a level playing field.

The combination of educational content and competitive elements makes Klimaxo particularly dynamic. Competition and estimation questions foster both social interaction and topic-related discussion.

Ouariachi et al. (2020) identify the following elements as crucial for achieving strong learning effects and behaviour change through games: The available actions must be within reach, the challenge must be sufficiently difficult, trust in provided information must exist, performance evaluation must be possible, and the game should evoke strong emotions through meaningful relevance.

Learning objectives & Educational fields of application

The game's primary goal is to help players better assess CO₂ emissions and their magnitudes. It highlights aspects in which society systematically misjudges climate impact. For example, the influence of private plastic consumption is generally greatly overestimated, whereas emissions from dairy products are often underestimated.

Climate change is overwhelming for many people when navigating daily decisions. Klimaxo counters this overload with simple rules of thumb, such as: seasonal food generally has a significantly more positive climate effect than regionality alone. In the game, players estimate CO₂ emissions to gain strategic advantages. At the same time, these rules of thumb are read aloud as "tips". The resulting discussions, grounded in scientific data, aim to generate memorable insights or spark deeper engagement with the topic. An instructor can moderate the debates, deepen the questions, ask for takeaways at the end, or join the game themselves.

Klimaxo is well-suited for university courses, sustainability workshops, or team-building events. It can also be used in schools, provided an appropriate time slot (1–1.5 hours) and a focused and sustainability-interested class are available. As a serious game, Klimaxo addresses people with a basic interest in sustainability—from students to sustainability managers to families. Universities, climate clubs, and sustainability-focused companies use it successfully in climate education.

The scientific basis of the game was validated by environmental psychologists at the University of Magdeburg. The data and scenarios are based on current research and are expected to remain valid until at least 2035—barring unexpected developments.

Effectiveness

So far (2025), evidence is limited to anecdotally documented experiences collected through user surveys. Common reactions include surprise and self-reflection, with comments such as “I never would have guessed that”, “Ah, I’m actually doing pretty well here”, or similar remarks. Statements such as “We all know so little” from sustainability managers illustrate the game’s high potential for knowledge gain.

Laughter about the assigned in-game roles, competitive remarks, and factual discussions are also consistently observed. Players often express motivation to share content with others, saying things like “I should really tell my boss about this” or “I definitely want to play this with my kids”.

Comments such as “Oh, so installing solar panels has that much impact? Then let’s do it—we’ve been thinking about it for a long time” indicate strengthened climate-protective impulses, and similar reactions occur across many topic areas. A flow state is often observed as players become fully immersed in the game and engage in lively discussions for one to two hours.

Potentially problematic aspects

Klimaxo consistently uses gender-inclusive language and ensures diverse representation in its game characters. The effects of anthropogenic climate change are supported by a strong scientific consensus. The Intergovernmental Panel on Climate Change (IPCC) regularly publishes internationally recognised reports. Despite clear evidence, some people doubt human-caused climate change. Frondel et al. (2021) find that the share of climate sceptics in Germany in 2020 was approximately 9%. For these individuals, the game may be less suitable. However, players report that Klimaxo can still facilitate relaxed climate discussions even with sceptical friends.

Reviewers: Siegfried Zürn, Martin Gerner

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As a serious game, Landopoly provides an engaging platform for experiential learning, blending gameplay with educational objectives. Players move across a board, encountering decision points that require weighing options and consequences, with progress determined by the sustainability and societal impact of their choices.

Landopoly was adapted by Michigan State University Extension and United Growth for Kent County, based on the game “Hydropoly” from Environmental Concern, Inc. It was published in the early 2000s to support environmental education initiatives.

Facts

Release date:	Not given, probably early 2000s, since it’s adapted from Hydropoly
Developer:	Michigan State University
Game type:	Analog
Number of players:	2–4 (more if played in teams)
Format:	Synchronous
Time frame:	1–2 lessons (45–90+ minutes)
Languages:	English, German
Environment:	Classroom
Material:	game board, decision cards, neighborhood potluck cards, die, tape, scissors, playing pieces
Price:	Free

Resonance & Criticism

Landopoly has not received any specific rating from players or experts in the field. But since it was made by educators, one can assume that it would be suitable in an educational context. The game has not received specific awards but is adapted from the well-regarded Hydropoly, widely used in environmental education. Criticism may focus on its reliance on predefined scenarios, which may limit adaptability to diverse local contexts, and the use of dice rolls, which can reduce player agency. Despite these points, it probably remains a valuable resource for promoting critical thinking and civic engagement.

Game Principle & Process

Landopoly is a turn-based board game designed to teach players about land-use decision-making, emphasizing the environmental, economic, and social consequences of their choices. Players take turns rolling a die, moving their pieces along a board with designated spaces, and encountering different challenges through Decision Cards and Neighborhood Potluck fields.

The game structure revolves around decision-making mechanics. When players land on a Decision Card space, they draw a card and make choices based on the scenario presented. The card outlines potential actions without revealing their consequences until a decision is made. These outcomes affect players’ progress by moving them forward or backward on the board. Neighborhood Potluck Cards offer simpler prompts that reward or penalize players for specific behaviors. The game encourages players to weigh options critically, integrating environmental, social, and economic perspectives.

The primary objective is to reach the “Winner” space, achieved by making thoughtful decisions that align with sustainable land-use principles. Objectives are clearly communicated through the consequences of actions, encouraging players to consider long-term impacts on natural habitats, communities, and economies. Feedback is immediate, as players see how their choices affect their movement on the board, reinforcing the learning process.

The game fosters social interaction by allowing players to play in teams and discuss during decision-making. Teams must collaborate, share perspectives, and negotiate to reach consensus, making group dynamics a significant part of the experience. This interaction enhances critical thinking, listening, and compromise skills.

Landopoly is grounded in concepts of sustainable development and human-environment interaction, drawing from ecological theories and decision-making models.

Learning Objectives & Educational Fields of Application

Landopoly is designed to teach participants about sustainable land-use decision-making, emphasizing the balance between economic growth, environmental preservation, and social equity. The central educational objectives are to develop critical thinking, collaborative decision-making, and an understanding of the consequences of land-use choices on ecosystems, communities, and economies.

Participants expand their critical thinking skills by analysing scenarios presented in the Decision Cards and weighing the trade-offs of various actions. The game encourages players to engage in systems thinking, recognizing the interconnectedness of environmental, social, and economic factors in land management. Players also practice collaborative problem-solving and communication skills when working in teams to evaluate options and reach consensus.

The game mechanisms directly support these objectives. Immediate feedback, such as movement on the board based on decisions, reinforces the consequences of players’ choices, ensuring that they understand the cause-and-effect relationships. Scenarios are structured to reward environmentally sustainable decisions, highlighting the importance of ecological preservation and long-term planning. This design ensures that players repeatedly apply critical and ethical reasoning, reinforcing learning through gameplay.

The teacher’s role is to facilitate the setup, explain the rules, and guide discussions during and after the game. Teachers can help students reflect on their decisions and connect in-game scenarios to real-world land-use issues. Only one teacher is needed to manage a session, and minimal preparation time is required, as printable materials and clear instructions are available. However, familiarity with the game’s environmental and social themes enhances its educational impact.

The game’s mechanics—such as turn-based decision-making and role-play during team discussions—enhance the learning process by engaging players in realistic scenarios and encouraging active participation. The game’s structure aligns well with disciplines like environmental science, geography, public policy, and economics, making it a versatile educational tool for fostering awareness and skills in sustainable decision-making.

Effectiveness

There are no explicit empirical studies cited on Landopoly regarding its effectiveness, the sustainability of learning outcomes, or its immersive qualities. However, the game's structure aligns with established educational theories, such as experiential learning, which emphasizes learning by doing. The immediate feedback mechanism (moving forward or backward on the board) reinforces learning outcomes by making the consequences of decisions clear. Studies on comparable serious games provide supporting evidence. For example, the groundwater governance game piloted in Ethiopia demonstrated cognitive, normative, and relational learning, with sustained effects observed six months later (ELDidi et al., 2024).

While there is no formal research on the game's capacity to create a flow state, its straightforward mechanics and real-world relevance likely encourage engagement. The combination of role-play, discussion, and decision-making ensures players remain actively involved. Future studies could assess its long-term learning impacts, but its classroom use suggests it is effective.

Potentially Problematic Aspects

The game contains no explicit content or mechanisms that appear discriminatory or problematic. The game does not address sensitive topics such as suicide, drug abuse, or violence, making it generally suitable for a wide range of participants. However, some scenarios may be perceived as oversimplified, as they reduce complex land-use issues to binary choices that might not fully reflect real-world complexities or local cultural contexts. This simplification could lead to inaccuracies or limit the depth of critical engagement.

The game assumes a level of environmental and social literacy, which may exclude participants unfamiliar with these concepts. Additionally, the reliance on printed materials and physical spaces may present accessibility challenges for some people.

Reviewer: Johannes Katsarov

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Lizards and Lies

Developed by: Scott DeJong, TheGameCrafter
Article contributed by: Scott DeJong, TheGameCrafter

<https://doi.org/10.5281/zenodo.15794413>

Keywords

Communication Studies, Conspiracy Theories, Critical Digital Skills, Ethical Decision-making, Information, Inoculation Theory, Media Literacy, Misinformation, Online Interaction

Introduction

Lizards and Lies is a two-versus-two board game that models how problematic information (Jack, 2017) moves through social media. Initially designed as a research project trying to simulate the flow of information online, the game has since been adapted for late high school and university classrooms. At its core, Lizards and Lies shows the push-and-pull of false or misleading content online. Themed around conspiracy theories, the game has players take on the role of a malign actor spreading false ideas or those trying to manage the fallacy. By having players work in teams against one another, they explore the challenges and strengths of actors, including: Digital Literacy Educators, platform moderators, conspiracy theorists, and online trolls. Through gameplay and a facilitated debrief, Lizards and Lies demonstrates how information systems are interconnected and the core challenges of managing the large volume of false content being created and consumed. It was initially designed in 2021 by a PhD candidate at Concordia University (Scott DeJong – also author of this write-up) as part of a class on wargaming, before becoming a more robust educational version with the support of Fenwick McKelvey and their research project exploring online recommendation systems in 2022.

Facts

Release date:	January 2023
Developer:	Scott DeJong, TheGameCrafter (Manufacturer)
Game type:	Analog
Number of players:	2–4
Format:	Synchronous Board Game
Time frame:	1.5 to 2.5 hours
Languages:	English, French, Lithuanian
Environment:	Tables and Chairs. Small Groups
Material:	Board game components; facilitation guide available for download.
Price:	94.99\$ or Free to Print and Play

Resonance & Criticism

Upon its initial release, the game received widespread media attention, with coverage in news and magazine stories that helped boost its visibility beyond its origins in Montreal. Throughout

2022 and 2023, the game was brought to various institutions to spark discussion about the state of disinformation. The designers worked with military groups in Canada, embassies, and professors to develop versions of the game tailored to their contexts and needs. Feedback was gathered at all of these events, and the game was slightly adjusted to address these needs until the project's completion in 2023. At that point, the game was made publicly available on a website for download (lizardsandlies.ca) and purchasable copies through self-publisher The Game Crafter. Additionally, a how-to-play video was recorded and published to help individuals access and play the game. This is also accompanied by a facilitation guide available with the game materials.

At this time, there is no empirical evidence or studies on the efficacy of the game, though its design process of integrating theory has been written and published (DeJong & Souza, 2022).

Game Principle & Process

Grounded in a story about an ongoing election and the impact of conspiracy theories, players focus on spreading or stopping the spread of messages on social media (see Figure). In a two-team alternating-turns game, each player's role gives them particular strengths and weaknesses that reflect the push and pull of content on social media, as researchers have discussed (Han, 2017). Conspiracy theorists build communities to make content go viral, working alongside their allies, the trolls, who target specific groups to generate engagement.



Example gameplay setup from Lizards and Lies, illustrating the board, player roles, and the circulation of problematic information within the game system (Scott DeJong, TheGameCrafter). Used for educational review. Rights remain with the creators.

However, they follow a predictable playbook, and their content becomes repetitive, making them easier to stop if they do not receive enough visibility. Alternatively, platform moderators try to manage content within communities; however, they can get overwhelmed by the volume of false narratives and need to triage their efforts to focus on the communities most vulnerable. Their ally, Digital Literacy Educators, relies on teaching users to fact-check, but this is a slow, unreliable process that can make it hard to stop content from gaining traction. Each action players take reflects the game's objectives and theories, and facilitation during and after play is meant to help players understand the learning goals.

By playing their own character, players get a glimpse of the challenges and strengths of various actors involved in the proliferation of information online. They are rewarded each round for how successfully they achieved their goals, and the team dynamics are meant to promote social interaction between players. The game's design builds on research on information flows, which explored various analogies for disinformation, such as war and virality, before developing a model of digital ecosystems (DeJong & Souza, 2022). This was coupled with emerging literature on inoculation theory, which suggests that showing how these systems work makes individuals less vulnerable to their effects (Grace & Liang, 2023). The game used the tension of teams battling to prompt players to reflect on malign actors and those trying to deal with false information.

Learning Objectives & Educational Fields of Application

Lizards and Lies has two central objectives. First, it wants players to understand the push and pull of false information movements. Second, it wants to model digital systems to have players learn about the strengths and weaknesses of various actors in the online ecosystem. The former is achieved through reflection on each round of gameplay, and the latter through individual play. As players alternate turns, they will watch as malign actors fill the board with false information, while moderators and educators attempt to remove the content. As content is added and removed, the mechanics allow some false ideas to linger each round, growing larger the next turn, reflecting what Byun Hal Chun (2017) refers to as the bubbling up and swarm of information.

For the second objective, individual mechanics from player cards and boards help them reflect these roles. For example, trolls follow a playbook to manipulate communities, conspiracy theorists always add content where their supporters are, and platform moderators have to manage the flagging and removal of content. This can make the game confusing for less experienced players and requires a facilitator who is knowledgeable about the game and its material. While the research team has run the game with groups up to 100, they needed some minor facilitation support, which generally translates to one facilitator for every three to four games (12-16 people). In some scenarios, we have players work in pairs, expanding the 4-player variant to 8 players to help give the students and teachers more space for conversation and reflection.

To support student learning, Lizards and Lies offers a facilitation guide to potential users and employs an in-between-round narrative to ground the mechanics in the learning goals. As a simulation-style game, the narrative is meant to translate the micro-interactions among players, their cards, and the board into real-world impacts.

Effectiveness

Unfortunately, this game was not evaluated for its learning efficacy in the classroom context. Instead, research focused on the game's design and model (DeJong & Souza, 2022). Reflecting on the simulation and its design, the team examined how the various analogies used to discuss disinformation and its spread struggled to fully encapsulate the issue. Narratives of a disinformation war or virus perpetuate a binary of good actor versus bad actor and a single solution (i.e., vaccine), yet, through design-as-research, the project examined how ecological models of media better reflect the challenges that social media brings to disinformation. The evidence for this was in how the game design and flow developed alongside each analogy. An ecological model provided greater agency for players in the game while also better reflecting the push-and-pull that was core to its design (DeJong & Souza, 2022).

Potentially Problematic Aspects

In its design, the team sought to avoid ongoing political conspiracies or real-world tensions and instead defaulted to playful narratives such as lizard people or aliens. Unfortunately it was only recognized at a later stage of the design process that the origins of the lizard-people conspiracy theory are rooted in anti-Semitic narratives. The game does not seek to perpetuate these associations and addresses this issue explicitly in the facilitation guide. Nevertheless, it acknowledges that, in some contexts, alternative narrative framings would have been more appropriate. Additionally, the game presents the theory in a satirical light, framing it as a conspiracy theory and using play mechanics and flavor text on cards to foster a critical perspective on conspiracy theories and build resilience against misinformation surrounding them. The theory is presented alongside a guided learning process to not only have students become critical of such problematic claims, but also use it as a larger example for class discussion.

However, given that the game's larger goal is based on false information and that such work typically perpetuates harmful narratives, there is space for facilitators to engage players in a meaningful discussion about how seemingly humorous conspiracies have roots in hate. The game encourages a broader conversation about the theories within it and how they perpetuate false and misleading perspectives among the public in ways that are normalized. Teachers running the game should be aware of this potential conversation when introducing it into their practice.

The game does present several challenges. It is complex, lengthy, and expensive, creating challenges in its distribution and use. While it has been played with 10-year-olds, the level of gameplay and knowledge required make it generally suited for an older audience. Furthermore, given the game's length, it can be challenging to run in a single high school class, making it most suitable for university-level courses. However, the game's topic and intricacy also make it interesting for other groups, highlighting the variety of interests in media literacy tools across industries.

Reviewers: Kevin Rebecchi, Elizabeth Peacock

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Logomancer

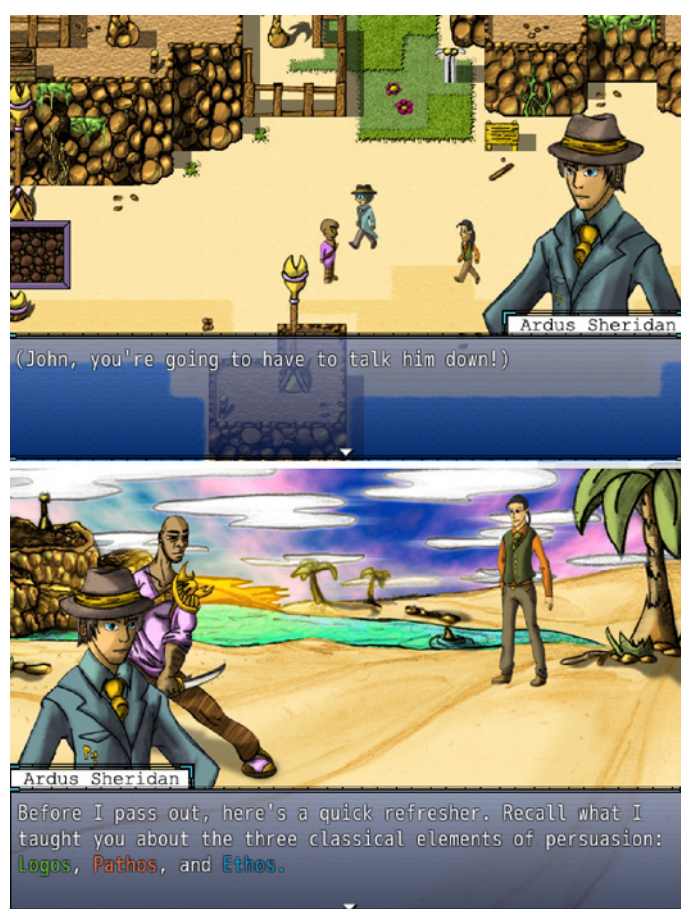
Developed by: Jeffery Nordin

Article contributed by: Johansen Quijano

<https://doi.org/10.5281/zenodo.17169827>

Keywords

Argumentation Theory, Communication Studies, Critical Thinking, Language, Linguistic Agency, Rhetoric, Symbolic Logic



Selected gameplay screenshots from Logomancer, developed by Jeffery Nordin (2014). © The developer.

Introduction

Released in 2014, *Logomancer* (see Figure) offers an innovative fusion of storytelling, logic, and language-based gameplay. It is a narrative-driven puzzle role-playing game that explores the power of language as both a tool for persuasion and as game mechanics. Logomancer draws clear inspiration from turn-based SNES RPGs like *Final Fantasy VI*, particularly in its structured, dialogue-driven progression and combat-inspired mechanics. The game's design mimics classic

RPG elements, such as turn-based encounters, but instead of physical battles, players engage in linguistic duels where words and rhetorical strategies, such as persuasion via emotion (pathos), appeals to authority (ethos), and appeals to logic and critical thinking (logos), determine success. The main objective is to navigate through the environment by strategically using rhetorical concepts in turn-based battles to influence events and uncover secrets. The game aligns with educational and cognitive development goals for courses based on rhetoric, discourse, and critical thinking. Its approach to narrative and rhetorical combat fosters critical thinking and an appreciation for the power of words.

Facts

Release date:	2014
Developer:	Jeffery Nordin
Game type:	Digital
Number of players:	Single player
Format:	Synchronous
Time frame:	10 hours
Languages:	English
Environment:	It is recommended to play in a well-lit room. Either a computer or a laptop with Windows is required.
Material:	The game can be purchased via Steam at https://store.steampowered.com/app/375430/The_Logomancer/ . A demo can be downloaded for free at the Indie Game Database https://www.indiedb.com/games/the-logomancer/downloads/the-logomancer .
Price:	\$3.99 via Steam

Resonance & Criticism

Logomancer has received mixed feedback from both players and critics. On Steambase, it holds a “Mixed” rating with a Player Score of 55/100 (Steambase, 2025). While the game has not received awards, it has been praised for its unique approach to conflict resolution. Steam user Ben says the game is unique because of its approach to combat, which he describes as “a system of Pathos, Ethos, and Logos to use logic and reasoning to beat your opponents instead of violence” (Steam, 2025). Likewise, Mia Blais-Côté “found the idea of fighting with dialogue very original” and “dialogues between heroes unique, with a penchant for philosophy” (Blais-Côté, 2021). On the other hand, its art style was criticised as unpolished and its combat as unconventional; however, these criticisms seem to stem from the fact that the game was made in an RPG Maker engine, which, in the mind of many gamers, is not considered a “real” game engine (Zavarise, 2017).

Game Principle & Process

Logomancer is structured as a narrative-driven role-playing game (RPG) that integrates rhetorical analysis and persuasive strategies into its core mechanics. Players select rhetorical strategies from a predefined set of options that mimic real-world persuasive techniques and must adapt their approach to the rhetorical situation. While the game follows a linear story progres-

sion, players have meaningful control over their choices, influencing dialogue, argument outcomes, and character development.

The game's objectives are designed to be clear and intuitive, aligning with its educational goals. Players must successfully construct and deploy rhetorical strategies to advance through challenges, with each encounter reinforcing core rhetorical principles. Objectives are introduced through contextual storytelling, ensuring that players understand the purpose behind each rhetorical engagement.

Feedback and reward systems are integral to the learning process in Logomancer. Players receive immediate feedback on their rhetorical choices, with success or failure determined by the choice of rhetorical appeals used. The game incorporates experience points and skill progression tied to rhetorical competencies, reinforcing the application of persuasive strategies. Narrative feedback serves as a motivational tool, ensuring that learning is embedded within an engaging, consequence-driven framework.

The game draws from established rhetorical and educational theories, particularly Aristotelian rhetoric (ethos, pathos, logos), Toulmin's model of argumentation, and experiential learning principles. It aligns with constructivist learning theories, emphasising active engagement and problem-solving rather than passive consumption of information. By integrating these theoretical foundations into its mechanics, Logomancer functions as both a compelling game and a pedagogical tool.

Learning Objectives & Educational Fields of Application

The central learning objective of Logomancer is to enhance students' understanding and application of rhetorical concepts by immersing them in a narrative-driven role-playing experience. It reinforces rhetorical strategies and critical thinking skills in a way that feels natural and engaging. By integrating rhetorical challenges into its gameplay, Logomancer encourages players to actively analyse and apply these concepts rather than passively consume information.

Mechanics revolve around turn-based dialogue battles where players must strategically select rhetorical techniques to persuade opponents, mirroring real-world argumentation. This direct application ensures that students recognise rhetorical strategies and understand their effects in different contexts. The iterative nature of the gameplay, where students must refine their choices based on in-game feedback, reinforces learning through practice.

The role of the teacher is primarily as a facilitator rather than a direct instructor. Since the game introduces and reinforces rhetorical concepts, teachers guide discussions and help students connect in-game experiences to real-world applications. One teacher is sufficient to integrate Logomancer into a classroom setting, as the game is designed to be intuitive and self-explanatory for both teachers and students.

Game mechanics support the learning objectives by requiring players to practice rhetorical decision-making in a dynamic environment. The immediate feedback from in-game characters rewards strategic choices, and because students engage with rhetorical concepts in a gamified setting, they are more likely to internalise these strategies.

Classroom discussion plays a significant role in *Logomancer*'s educational potential due to character-driven dialogues and in-game debates. While the game is single-player, it encourages critical thinking and discussion, making it a valuable tool for classroom integration or peer-based learning. Players often reflect on their in-game choices and compare their rhetorical approaches with others, fostering metacognitive awareness and deeper engagement with the material.

Effectiveness

While there are no peer-reviewed studies specifically examining *Logomancer*, experiential observation suggests that students who engage with the game demonstrate a deeper understanding of rhetorical concepts. Those who play through *Logomancer* tend to show higher levels of engagement in discussions, often making more insightful connections between rhetorical strategies and real-world applications. They also show greater consistency and accuracy in applying these concepts in their writing and analysis than students who have not played the game. This suggests that *Logomancer* may serve as an effective tool for reinforcing rhetorical principles through interactive learning.

Experientially, the rhetorical appeal that showed the most noticeable improvement in student application was pathos. Students began the course with logos as the default mode of argumentation. Gameplay helped them recognise that persuasion requires resonance with an audience's emotions and values. Discussions following gameplay evolved from descriptive "what happened in the game" retellings to analytical exchanges about rhetorical choice-making. Students would ask, "Why did that particular strategy persuade the character?" or "What could have been more effective if the audience had been different?" These conversations mirrored the analytical lens we want them to use when analysing real-world discourse.

Potentially Problematic Aspects

Logomancer is not inherently problematic in its content or themes; however, it features only two female characters, which some players may find limiting in terms of representation. While this does not detract from the game's educational value, a more balanced character roster could enhance inclusivity.

Reviewer: Saskia Sterzl

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Lost & Found

*Developed by: Owen Gottlieb, Ian Schreiber,
RIT – MAGIC Spell Studios, Convergent*

Article contributed by: Matthes Groetzner

<https://doi.org/10.5281/zenodo.17169761>

Keywords

Community Building, Competition, Cooperation, Economics, Empathy, History, Law, Medieval History, Religious Law, Religion, Resource Management, Strategic Decision-making, Tragedy of the Commons



Key visual from *Lost & Found* (Owen Gottlieb, Ian Schreiber, RIT – MAGIC Spell Studios, Convergent). Used for educational review. Rights remain with the creators.

Introduction

Lost & Found is a historically analog strategy game series, later adapted into digital formats, developed by its two lead designers, Owen Gottlieb and Ian Schreiber, from the Rochester Institute of Technology (RIT). The first game in the series was published in 2017 by the MAGIC

Center Initiative in Religion, Culture & Policy, and is the main focus of this article. During this game, players aged 14 and above slip into up to five roles of medieval citizens of a 12th-century North African town, where each of them will struggle to find balance between the needs of their family and those of their entire community in order for all to thrive. In collaboration as well as in competition with their fellow citizens, the players have to utilize their limited resources in a struggle to address dilemmas, overcome crises, and avert disasters that threaten to destroy the community (Lost & Found, 2018; Gottlieb, 2021; Gottlieb et al., 2017). The room for the individual and communal trade-off decisions is defined and limited by the historically accurate, religious-based laws and legal systems of the time, which serve as a guidepost for behavior. By highlighting the pro-social aspects of religious legal systems, the game fosters greater discourse and understanding of how these systems have shaped the foundations of modern law. Developing religious literacy in this way can enrich our understanding of community-building today (Gottlieb, 2017; Gottlieb, 2021; Gottlieb & Schreiber, 2020a; Lost & Found, 2018).

Facts

Release date:	2017 (Lost & Found – first game), 2017 (Lost & Found: Order in the Court – second game), 2020 (Lost & Found: New Harvest – third game)
Developer:	Owen Gottlieb, Ian Schreiber, RIT – MAGIC Spell Studios, Convergent
Game type:	Analog
Number of players:	2–5 players (Second game: 3–5 players)
Format:	Synchronous
Time frame:	Approximately 60–90 minutes (Second game: 30–60 minutes)
Languages:	English, German
Environment:	Space for group activity, room, table, or floor (optional)
Material:	Game box contains all required materials.
Price:	61.99\$ (First Game), 55.99\$ (Second Game), 66.99\$ (Third Game)

Resonance & Criticism

Since its initial release in 2017, the Lost & Found series has won several awards and recognitions, which are displayed on its homepage. It was an Indiecade Nominee (Indiecade, 2019), part of the SAAM Arcade Official Selection (Smithsonian American Art Museum, 2018), won the Bronze Medal at the International Serious Play Awards 2018, was nominated for Best Non-Digital Game at the International Academic Conference on Meaningful Play in 2018 and again in 2022, and was a Finalist at the James Paul Gee Learning Games Awards 2021 in the Middle School and Up category. It was also included in three additional Official Selections at Open World Arcade and Now Play This London in 2019, as well as at the Boston Festival of Independent Games (FIG) in both 2018 and 2022 (Homepage – Lost & Found, 2018). The game is considered to have strong potential as a teaching tool for history. In an experiment, some history students reported that after playing the game they would begin learning from ‘experience’ rather than memorizing. Experiencing historically accurate legal systems and applying them to simulated real situations may help solidify understanding of the past (Gottlieb, 2021; Houghton, 2022).

Game Principle & Process

Within the first game of the series, each player represents a family and a job-related role in a small community, such as a cowherd or a potter. The goal is to complete at least three of five family responsibility cards, which require significant sums of dinarim (the game's main resource). Players must also collectively complete at least six of ten communal responsibility cards, which allow for pooled contributions. The game ends after a set number of turns. Failure to complete enough communal responsibilities results in a collective loss. Players who meet family goals win if the community survives, so just some, all, or no players can win.

On a turn, a player first draws resource cards, which include personal resources and items that belong to themselves, other players, or strangers. Using others' resources is treated as theft and has potential endgame consequences. Next, the player draws an event card inspired by historically accurate situations. Events may present rewards, moral dilemmas, or crises that require cooperation. Players must weigh following the law, breaking it for short-term gain, or exceeding requirements for long-term benefits. If a player cannot pay for the required resources, they go destitute, causing all players to lose. After resolving events, a player may return a lost item to clear space in their hand. They can then contribute resources to a family responsibility (requiring full payment) or a communal responsibility (allowing partial contributions). The turn ends with discarding resources until the hand limit is reached, and the game continues. Players must balance personal goals with communal needs, facing constant tension between individual success and community survival (Gottlieb et al., 2017).

The game's rules are tied to and based on Moses Maimonides Mishneh Torah, a religious law code. The legal scholar, physician, philosopher, and rabbi distilled hundreds of years of Jewish law within his work (Gottlieb & Schreiber, 2020a; Gottlieb, 2021). As a tool for teaching historic systems and societies, the game connects to emphasize the power of "experiential learning". It is able to simulate experience for its players, who can then reflect, think, and act according to it (Gottlieb & Schreiber, 2020b; Houghton, 2022; Institute for Experiential Learning, n.d). With the game's general structure of balancing family and communal needs, it also addresses issues such as the "tragedy of the commons", although it is not specifically designed to do so. Players get rewarded based on both their resource management and their reputation within the community (Gottlieb, 2017).

Learning Objectives & Educational Fields of Application

The initial aim of the game is to expand the discourse surrounding religious legal systems, broaden the understanding of societal development, and bring religious literacy to more people. It teaches the pro-social aspects of religious-based law systems, such as collaboration, cooperation, and sustainability of governance and community. This makes the central purpose of the game to serve as a learning artifact for both formal and informal environments (Gottlieb, 2021; Gottlieb & Schreiber, 2020a).

It reaches its initial goal through experiential learning. Playing the game under its historical, religious, and law-based rules simulates experience. Reflecting on this experience helps players weave these teachings into their way of thinking and potentially act on them. The emphasis on player interaction within a community also highlights a secondary learning objective. Players

can learn historical thinking and historical empathy, which could be key factors in truly understanding history. Especially when viewed from modern standpoints. This makes the learning process not only about knowledge but also about skill (Houghton, 2022). The resulting experiential learning cycle can positively affect players' future behavior (Institute for Experiential Learning, n.d). Through historical experience, players could thus learn to be more responsible citizens of our modern, pluralistic democracy (Lost & Found, 2018).

The game's creators and collaborators have suggested that this game (and games like it) could be included in learning environments as history-teaching tools. It therefore holds the potential to play its part in maximizing the diversity of teaching opportunities and learning experiences (for a certain range of disciplines). These are historical, legal, ethical, art, history, and religious studies, given their historic accuracy (Houghton, 2022).

Effectiveness

There is little evidence or data on the game Lost & Found's actual effectiveness. No real numbers are given. However, in reflective observations during the game's creative process, the developers found that it initially did not spark discussion about the game's context and meaning. Role-play-oriented play and design were implemented to increase the players interest and engagement, as a more "humorous" way to play and learn. This aspiration has led to the development of the second game in the series, which further sought to incorporate players' own thoughts and ideas into the gameplay (Gottlieb & Schreiber, 2020a; Gottlieb & Schreiber, 2020b). Simultaneously, there has been some feedback from history students while reflecting on how the game affected their learning progress. Some stated that there was no personal difference in learning the conventional way. Others recalled the ability to truly understand the essence of the historic material in question whilst playing the game (Houghton, 2022).

Potentially Problematic Aspects

Given that the Lost & Found series explores past times and cultural contexts, some of its historically accurate depictions might clash with modern views (Houghton, 2022).

Reviewers: Saskia Sterzl, Johannes Katsarov

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Management Essentials

Developed by: TOPSIM GmbH
Article contributed by: Robert Galiard

<https://doi.org/10.5281/zenodo.15924170>

Keywords

Accounting, Business, Competition, Cooperation, Financial Management, Human Resource Management, Marketing, Operations Management, Project Management, Strategic Decision-making



Graphic from Management Essentials. Rights owned by TOPSIM GmbH; used here for educational review.

Introduction

Management Essentials (see Figure) is a business simulation that models the management of an innovative headphone manufacturer. Its goal is to teach fundamental management competencies by enabling participants to make strategic decisions across production, marketing, finance, and human resources.

The simulation is designed for beginners in business administration, such as students, trainees, and professionals without prior business knowledge. It offers practical learning experiences and fosters entrepreneurial thinking.

As a serious game, Management Essentials combines playful elements with realistic economic challenges. It is suitable for universities, companies, and professional development programs.

The round-based game structure allows teams to manage company success over up to six periods (financial years). Decisions influence market share, costs, and revenue.

The simulation was developed by TOPSIM GmbH, has been available since 2022, and is continuously updated.

Facts

Release date:	Initial release: October 2022. Current version: 1.2 (September 2024)
Developer:	TOPSIM GmbH
Game type:	Digital hybrid (at least one player per team requires internet access)
Number of players:	Optimum: 9–25 (3–5 groups of 3–5 persons) per market. Multiple markets are possible. The number of players is infinitely scalable.
Format:	Asynchronous Hybrid
Time frame:	Approx. 10 to 16 hours, depending on how many of the six periods are played, how the simulation is implemented, and whether evaluations or additional tasks are integrated. The time requirement also depends on the intended learning outcomes.
Languages:	English, German
Environment:	Device: Tablet, PC, or laptop (minimum 720p). Browsers: Chrome, Firefox, or Safari. Internet access required.
Material:	Participants receive an introduction, a participant manual, business news, and seminar materials. The facilitator receives a seminar leader's handbook. Short description: https://www.topsim.com/wp-content/uploads/2024/05/Management_Essentials_Flyer.pdf ; Blog article: https://www.topsim.com/blog/eintauchen-in-die-unternehmenswelt-mit-management-essentials/
Price:	TOPSIM simulations are not freely available; they require paid licences. Exact costs depend on the specific simulation, the number of participants, and the usage model. For accurate pricing, a direct inquiry with TOPSIM is recommended.

Resonance & Criticism

Management Essentials builds on the well-established TOPSIM business simulation concept, which has been used for more than 30 years. The simulation is predominantly used in introductory university courses and corporate training programs. No official user numbers are currently available.

Participants and experts appreciate the beginner-friendly design and the clear presentation of relevant key figures. The engaging storyline is also highlighted, as it supports the learning process. In August 2023, the simulation received two Silver Awards from the Brandon Hall Group in the categories "Best Use of Games or Simulations for Learning" and "Best Use of Blended Learning". No critical feedback is currently reported.

Game Principle & Process

In Management Essentials, participants take on the role of executives of a production company specialising in innovative on-ear headphones. A typical session lasts 10 to 16 hours, is divided into multiple seminar blocks, and includes up to six periods (financial years) with up to 19 round-based strategic and operational decisions. These decisions relate to production, sales, personnel, administration, and finance. Team decisions directly influence company success as they compete with other teams.

The primary goal is to maximise business success, measured through indicators such as annual profit, customer satisfaction, and planning quality. These goals are clearly defined and transparent, allowing participants to align their strategies accordingly.

After each period, teams receive detailed evaluations of their decisions. Using these reports, they analyze the effects of their strategies and make adjustments. This continuous feedback supports the learning process and fosters the development of effective business strategies.

The simulation promotes teamwork, as participants collaborate to make decisions and discuss strategies. Competition with other teams intensifies social interaction and encourages the exchange of ideas and tactics.

The simulation is based on business management theories and models, particularly in production management, marketing, finance, and human resources. Realistic business processes support practical understanding of these concepts.

Overall, Management Essentials provides an interactive, practice-oriented approach to learning and applying fundamental business knowledge.

Learning Objectives & Educational Fields of Application

Management Essentials provides foundational business knowledge, enabling participants to make strategic and operational decisions for a production company. In doing so, they develop both professional and transferable skills.

Learning objectives include designing the marketing mix, planning production capacity, making investment decisions, and analysing operational activities concerning liquidity and financial position. The simulation also introduces accounting principles and management tools.

Transferable skills include effective team decision-making under time pressure, analysing business data, developing and implementing strategies, and considering environmental and competitive conditions.

The round-based, competitive structure allows participants to make decisions across production, marketing, finance, and human resources. These decisions directly impact company performance, making the learning experience realistic.

The complexity of the simulation increases gradually: In early periods, participants focus solely on online sales decisions, while later periods introduce additional areas such as product improvements, entry into retail and wholesale markets, supplier management with quantity discounts, and expanded financing and HR decisions. Benchmarking between teams intensifies competition and reinforces learning.

Instructors moderate the simulation, support the teams, and lead reflection phases. Typically, one instructor per group is sufficient, though larger groups may benefit from additional instructors.

The simulation mechanics strengthen understanding of business processes by simulating realistic decision-making scenarios. Participants analyse consequences, test strategies, and develop strategic thinking and problem-solving skills. Management Essentials offers an engaging and practice-oriented approach to teaching business fundamentals.

Effectiveness

No empirical studies on the specific effectiveness of Management Essentials are currently available. However, there are reports of positive experiences in practice. Instructors describe successful collaborations between universities and companies, with both students and trainees benefiting from practical learning experiences and knowledge exchange (TOPSIM GmbH, 2024b).

Regarding long-term learning effects, no specific studies exist. Generally, however, the interactivity and practical orientation of business simulations are assumed to promote understanding of business concepts (TOPSIM GmbH, 2023).

No specific investigation of flow experience has been conducted for Management Essentials. However, participants reportedly enjoyed the simulation and benefited from practical learning experiences, indicating high engagement. Practice reports also highlight positive learning outcomes and strong participant involvement (TOPSIM GmbH, 2024).

Potentially Problematic Aspects

Management Essentials does not address sensitive topics such as violence, drug abuse, or mental illness. It focuses on economic decision-making and avoids discriminatory content or stereotypes.

Because the simulation is primarily business-focused, the simulation integrates social and ethical aspects of corporate governance—such as diversity and social responsibility—only partially.

The simulation is accessible in the sense that it does not impose physical demands. However, individuals with visual impairments may face challenges without adaptations.

Reviewer: Hannes Hamester

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Mastering Business Operations

Developed by: TOPSIM GmbH
Article contributed by: Robert Galiard

<https://doi.org/10.5281/zenodo.15924315>

Keywords

Accounting, Business, Corporate Management, Financial Management, Human Resource Management, Marketing, Operations Management, Production Management, Project Management, Sales, Strategic Decision-making



Graphic from Mastering Business Operations. Rights owned by TOPSIM GmbH; used here for educational review.

Introduction

Mastering Business Operations (see Figure) is a complex management simulation that teaches participants how to lead a medium-sized manufacturing company. The goal is to make strategic and operational decisions and understand their impact on business performance. The simulation is aimed at students and professionals in business and management.

As a serious game, Mastering Business Operations combines playful elements with practical professional development. Participants analyze market conditions, optimize processes, and address financial planning, production, and human resource management.

The game follows a round-based structure: Teams make decisions across various business areas and receive feedback through a realistic simulation. The simulation is based on the long-standing TOPSIM business simulation concept, which has been in use for more than 40 years. Version 15.1 of Mastering Business Operations was first released in the TOPSIM Cloud in 2017. It continues to be updated.

Facts

Release date:	Initial cloud release: Version 15.1 (February 2017). Current version: 15.6.4 (September 2024)
Developer:	TOPSIM GmbH
Game type:	Digital hybrid (at least one player per team requires internet access)
Number of players:	Optimum: 9–25 (3–5 groups of 3–5 persons each) per market. Multiple markets are possible. The number of players is infinitely scalable.
Format:	Asynchronous, Hybrid
Time frame:	Approx. 24–40 hours depending on how many of the eight periods are played, how the simulation is conducted, and whether evaluations or additional tasks are incorporated. Time requirements also depend on the intended learning goals.
Languages:	English, German
Environment:	Device: Tablet, PC, or laptop (minimum 720p). Browsers: Chrome, Firefox, or Safari. Internet access required.
Material:	Participants receive an introduction, a participant manual, business news, and seminar materials. Facilitators receive a seminar handbook. Short description: https://www.topsim.com/wp-content/uploads/2024/05/Mastering_Business_Operations_Flyer.pdf ; Blog article: https://www.topsim.com/blog/hohe-entscheidungskomplexitaet-mit-mastering-business-operations/
Price:	TOPSIM simulations are fee-based. Exact licensing costs depend on the simulation, number of participants, and usage model. Direct inquiry with TOPSIM is recommended.

Resonance & Criticism

Mastering Business Operations has been used for many years in educational institutions—such as the University of Paderborn in the module “Organization and Corporate Management” (TOPSIM GmbH, 2022c)—and at Hochschule Bremen for working with business intelligence tools (TOPSIM GmbH, 2023). Its long-term use demonstrates that it is a well-established and recognized simulation concept.

Universities especially use the simulation to provide students with practical insights into corporate management. While exact user numbers are unavailable, the variety of application examples suggests widespread usage.

No specific awards or detailed reviews are documented. Although few criticisms exist, complex simulations may present challenges in gameplay or achieving learning objectives.

Game Principle & Process

In Mastering Business Operations, participants take on the executive management of a medium-sized industrial company. The round-based simulation spans up to eight periods (fiscal years), during which teams make up to 54 decisions across six areas: finance and accounting, research and development, procurement, sales, production, and human resources.

The simulation is a Level-3-Simulation (Mastering) and confronts participants with high decision complexity from the very beginning. Starting in the first round, participants must plan production capacities under fluctuating demand, calculate maintenance cycles and default risk, manage just-in-time procurement, negotiate price and service agreements, and make investment and financing decisions. Market news informs teams of current developments, and benchmark charts compare their performance to competitors.

The goal is to increase the company's value, profits, and market share in the long term. After each round, the TOPSIM Cloud generates reports on financial and production indicators as well as competitive analyses. This immediate, data-driven feedback mechanism supports iterative learning.

Teams consist of three to five participants. Four to six teams compete simultaneously. Facilitator training requires an eight-hour webinar plus approximately four to six hours of self-study with manuals and demo scenarios. This ensures that instructors become familiar with the interface, analysis tools, and didactic applications.

The simulation is grounded in theories of operations research, production, and financial management. It realistically simulates internal interactions and external influences, effectively strengthening problem-solving and teamwork skills (Zimmermann, 2008).

Learning objectives & Educational fields of application

Mastering Business Operations pursues various learning objectives: Participants learn to analyze economic conditions and make well-founded business decisions. They recognize the interconnectedness of different business areas and make cross-functional decisions. Another objective is to set and adjust strategies in a dynamic, competitive environment. Participants analyze market conditions, optimize processes, and apply marketing strategies. They also deepen their understanding of business metrics by interpreting financial data and incorporating it into strategic decisions.

Instructors moderate the game, support teams, and guide reflection phases to enhance the learning process. One instructor is typically sufficient for one group, although additional support may be helpful for larger cohorts.

The simulation's mechanisms support learning goals through realistic decision-making scenarios. The round-based structure requires strategic thinking as participants make cross-functional decisions and analyze outcomes. Regular reflection encourages critical thinking and continuous improvement. Mastering Business Operations, therefore, provides a realistic environment for developing business competencies.

Effectiveness

No specific empirical studies on the effectiveness of Mastering Business Operations are currently public. However, general research shows that serious games can produce positive learning effects. For example, the study "Lost in Antarctica" compared serious games with traditional lectures and found that serious games can enhance learning outcomes (Eckardt et al., 2017). Studies also suggest that combining fun and learning in serious games increases motivation

and learning success (Hoblitz, 2015). Regarding immersion and flow, research suggests that serious games can foster immersion by combining entertainment and educational content (Perttula et al., 2017).

In summary, while no specific studies exist for Mastering Business Operations, general research on serious games indicates that simulations can enhance learning motivation and outcomes.

Potentially Problematic Aspects

Mastering Business Operations contains no problematic content such as violence, drug abuse, or sensitive issues such as mental illnesses. As an economic simulation, it focuses on business decisions without discriminatory or stereotypical content. Ethical issues—such as the social consequences of business decisions—are also addressed. The language used is neutral and factual; however, the complexity of economic content may pose challenges for individuals without prior knowledge. Digital literacy is required to navigate the online platform, and participants with severe visual impairments or motor limitations may face accessibility challenges unless appropriate adjustments are made.

Despite these challenges, the simulation is broadly accessible for its target groups.

Reviewer: Hannes Hamester

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Mastering General Management

Developed by: TOPSIM GmbH

Article contributed by: Robert Galiard

<https://doi.org/10.5281/zenodo.15924396>

Keywords

Business, Controlling, Corporate Management, Financial Management, Human Resource Management, Marketing, Procurement Management, Production Management, Project Management, Strategic Decision-making



Graphic from Mastering General Management. Rights owned by TOPSIM GmbH; used here for educational review.

Introduction

Mastering General Management (see Figure) is a competitive business simulation that models the strategic management of a medium-sized company. Its goal is to make well-founded management decisions across strategy, finance, production, and marketing to ensure long-term business success.

The simulation is aimed at executives, junior managers, and advanced business students. It supports knowledge transfer in management courses and promotes entrepreneurial thinking.

As a serious game, Mastering General Management combines playful elements with realistic economic challenges, strengthening participants' decision-making and problem-solving skills.

The game mechanics are based on round-based decision-making: Teams analyze market conditions, develop strategies, and implement them across multiple business periods.

The simulation is built on the long-standing TOPSIM business simulation concept, which has been used for over 40 years. Version 15.1 of Mastering General Management was first published in the TOPSIM cloud in 2017. The simulation is continuously updated.

Facts

Release date:	Initial cloud release: Version 15.1 (February 2017); Current version: 15.7 (December 2023)
Developer:	TOPSIM GmbH
Game type:	Digital, hybrid (at least one team member needs internet access)
Number of players:	Optimum: 9–25 (3–5 groups of 3–5 persons each) per market. Multiple markets are possible. Player count is infinitely scalable.
Format:	Asynchronous, Hybrid
Time frame:	Approx. 16–32 hours depending on how many of the eight periods are played, how the simulation is run, and whether evaluations and additional activities are included. The time requirement also depends on the intended learning outcomes.
Languages:	English, German
Environment:	Device: Tablet, PC, or laptop with at least 720p. Browsers: Chrome, Firefox, or Safari. Internet access required.
Material:	Participants receive an introduction, a participant handbook, business news, and other seminar materials. Facilitators receive a seminar leader's manual. Short description: https://www.topsim.com/wp-content/uploads/2024/05/Mastering_General_Management_Flyer.pdf ; Blog article: https://www.topsim.com/blog/unternehmen-strategisch-fuehren-mit-mastering-general-management/
Price:	TOPSIM simulations are not freely available; a licence is required. Costs depend on the simulation, number of participants, and chosen usage model. Costs are calculated individually; inquiries should be directed to TOPSIM.

Resonance & Criticism

Mastering General Management is one of TOPSIM's most frequently played simulations and has been used for many years in educational institutions and businesses. Many universities successfully integrate it into their teaching (TOPSIM GmbH, 2023b), and companies use it in their training programs (TOPSIM GmbH, 2022a).

Participants and experts praise its realistic portrayal of complex business processes. Universities highlight their holistic approach, which helps students develop a comprehensive understanding of business interrelationships (TOPSIM GmbH, 2024).

The simulation's high complexity can be challenging. At the same time, it is considered an advantage because it requires realistic business decisions and encourages deep engagement with economic processes. No specific awards or exact user numbers are publicly available.

Game Principle & Process

In Mastering General Management, participants act as the executive board of a medium-sized company and make strategic decisions in production, marketing, finance, and human resources. The goal is to gain market share and secure long-term business success.

Participants analyze market conditions, develop strategies, and implement them. They have complete control over their decisions and receive continuous feedback through financial indicators and market reports.

The simulation strongly promotes teamwork, as participants work in groups and make decisions together. Competing with other teams intensifies social interaction and encourages the exchange of ideas and tactics.

The simulation is based on economic models from strategic management, controlling, and marketing. Instructors require some familiarization, which is supported by TOPSIM training materials and seminars.

Learning Objectives & Educational Fields of Application

Mastering General Management aims to achieve various learning objectives. Participants learn to make decisions under uncertainty and time pressure and to conduct market analyses. They develop analytical abilities by evaluating business metrics and adjusting strategies. The realistic representation of business processes fosters understanding of complex economic relations. Since the simulation is typically played in teams, it also enhances communication and cooperation skills.

The mechanisms support these learning objectives by simulating realistic corporate operations. Each decision directly impacts business performance, and participants receive continuous feedback through financial metrics and market reports. This iterative learning process enables them to learn from mistakes and optimize strategies. The simulation challenges and strengthens long-term strategic thinking and offers a dynamic environment that complements traditional teaching methods (TOPSIM GmbH, 2024).

Instructors serve as moderators. They guide the process, encourage reflection, and support participants in interpreting results. Generally, one instructor is sufficient, as the simulation essentially runs independently. TOPSIM's training materials, guides, and seminars facilitate effective implementation. Universities and companies integrate the simulation into courses and training programs to teach practical business knowledge and strengthen leadership skills.

Effectiveness

There are currently no publicly available empirical studies on the specific effectiveness of Mastering General Management. However, there is evidence supporting the effectiveness of serious games in education. One study shows that participation in a serious game can improve learning outcomes compared to traditional lectures (Eckardt et al., 2017).

Another relevant aspect is the flow experience, in which participants become fully absorbed in an activity. This intense engagement can positively influence motivation and learning outcomes (Hoblitz, 2015).

Although specific research on Mastering General Management is limited, general findings suggest that serious games like this one increase learning outcomes by enhancing motivation and engagement.

Potentially Problematic Aspects

Mastering General Management does not include sensitive topics such as violence or drug abuse and contains no discriminatory content. However, the high complexity may be challenging for participants without prior business knowledge, unless instructors provide adequate support.

People with visual impairments may have difficulty interpreting the table- and chart-based data displays. The simulation requires strategic thinking and numerical understanding, which may pose difficulties for some learners. While business decisions are simulated, social responsibility is not a central theme but could be added in a didactic context.

Reviewers: Saskia Sterzl, Hannes Hamester

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Mastering Global Expansion

Developed by: TOPSIM GmbH

Article contributed by: Robert Galiard

<https://doi.org/10.5281/zenodo.15924253>

Keywords

Accounting, Business, Competition, Cooperation, Financial Management, International Management, Marketing, Production Management, Project Management, Risk Management, Strategic Decision-making, Supply Chain Management



Graphic from Mastering Global Expansion. Rights owned by TOPSIM GmbH; used here for educational review.

Introduction

Mastering Global Expansion (see Figure) is a strategic business simulation focused on internationalization. Participants assume executive management of a manufacturing firm and develop expansion strategies for the global market. The objective is to ensure long-term business success by making informed decisions across market entry, marketing, production, and finance.

The simulation is aimed at executives, students, and decision-makers who deal with global markets and corporate strategies. As a serious game, it combines practical learning with game-based simulation, promoting strategic thinking and entrepreneurial competencies.

The round-based structure challenges teams to conduct market analyses, plan investments, and outperform competing teams. The simulation is based on the established TOPSIM business simulation concept, which has been used for over 40 years. Version 7.2 of Mastering Global Expansion was first released in the TOPSIM Cloud in 2015 and has been continuously developed since then.

Facts

Release date:	Initial cloud release: Version 7.2 (February 2015). Current version: 7.4.2 (April 2022)
Developer:	TOPSIM GmbH
Game type:	Digital hybrid (at least one player per team requires internet access)
Number of players:	Optimum: 9–25 (3–5 groups of 3–5 persons each) per market. Multiple markets are possible. The number of players is infinitely scalable.
Format:	Asynchronous, Hybrid
Time frame:	Approx. 16–32 hours, depending on how many of the eight periods are played, the implementation format, and whether evaluations and additional tasks are integrated. Time requirements depend on the intended learning goals.
Languages:	English, German
Environment:	Device: Tablet, PC, or laptop (minimum 720p). Browsers: Chrome, Firefox, or Safari. Internet connection required.
Material:	Participants receive an introduction, a participant handbook, business news, and seminar materials. Facilitators receive a facilitator handbook. Short description: https://www.topsim.com/wp-content/uploads/2024/05/Mastering_Global_Expansion_Flyer.pdf ; Blog article: https://www.topsim.com/blog/den-weltmarkt-erobern-mit-mastering-global-expansion/
Price:	TOPSIM simulations are fee-based. Pricing depends on the simulation, number of participants, and usage model. Direct inquiry with TOPSIM is recommended.

Resonance & Criticism

Mastering Global Expansion is an advanced simulation focused on a company's internationalization. It is used in advanced business programs as well as executive and corporate training.

The competition-oriented simulation models the challenges of global expansion and strengthens strategic thinking in an international context. While exact user numbers are not publicly available, the simulation is used in educational institutions and companies such as trainM GmbH to foster cross-functional collaboration and entrepreneurial understanding (TOPSIM GmbH, 2024).

No specific evaluations or awards are currently known. However, TOPSIM simulations are generally praised for their practical approach to teaching complex business topics.

Game Principle & Process

In Mastering Global Expansion, participants lead a company that expands from its home region into six international markets (Europe, North America, South America, Central Asia, Asia-Pacific, and Africa).

The round-based simulation spans up to eight periods (fiscal years). In each period, teams make decisions regarding market entry, marketing, research and development, production, procurement, finance, sales, and human resources. Later in the simulation, global expansion and fi-

nancing decisions are added, resulting in up to 93 decisions per round. A typical session takes 16 to 32 hours and is usually divided into two or three seminar blocks.

The objective is to operate profitably in all regions in which the company expands. Automated evaluations and market reports generated after each round provide immediate feedback on earnings, market shares, and risks, allowing continuous strategy adjustments.

Teams consist of three to five participants. Four to six teams compete simultaneously. Collaborative decision-making enhances communication, while benchmarking intensifies competition.

The facilitator training includes a one-day (8-hour) webinar and approximately four hours of self-study with a manual and demo scenario. This ensures instructors become familiar with the interface, analysis tools, and didactic applications.

The simulation is grounded in international and strategic management theory and realistically models corporate missions, market barriers, and market entry strategies.

Learning Objectives & Educational Fields of Application

Mastering Global Expansion introduces participants to the challenges of internationalization and equips them with the skills to make strategic decisions in a global context. The simulation encourages strategic thinking by requiring participants to develop and implement well-founded corporate strategies for international market expansion.

Participants analyze new markets, evaluate opportunities and risks, and develop market entry strategies and address potential market barriers.

In addition to professional competencies, the simulation strengthens social and communication skills. Teams discuss strategic options, make decisions together under uncertainty and time pressure, and implement those decisions across business areas such as marketing, production, procurement, and finance. Immediate feedback across periods promotes problem-solving and collaboration.

The round-based structure simulates real market conditions and competitive dynamics. Immediate feedback and evaluations deepen understanding of economic relationships.

Instructors introduce the mechanics and lead reflection phases. Depending on group size, additional support may be beneficial.

The simulation encompasses multiple business domains and prepares participants for real challenges in international management. Participants develop a holistic understanding of business processes and gain practical experience applying strategic and analytical skills.

Effectiveness

No specific empirical studies on the effectiveness of Mastering Global Expansion currently exist. However, general serious-game research demonstrates positive effects on learning outcomes. For example, Eckardt et al. (2017) found that participation in a serious game improved learning outcomes and increased motivation, enjoyment, and satisfaction compared to traditional lectures.

Regarding long-term learning effects, studies indicate that serious games can enhance knowledge retention. A meta-analysis found that digital games improve learning and increase learner motivation (Knogler et al., 2017).

Research on immersion and flow suggests that well-designed serious games can induce a flow state—an immersive balance between challenge and ability—which enhances engagement and learning (Hoblitz, 2015).

Overall, general findings on serious games suggest positive effects on motivation, learning outcomes, and immersion.

Potentially Problematic Aspects

Mastering Global Expansion contains no sensitive or problematic content such as violence, drug abuse, or discriminatory depictions. It focuses on economic decisions and uses neutral, realistic scenarios.

Ethical considerations of globalization—such as social responsibility and sustainable growth—are incorporated, but the simulation presumes foundational business knowledge, which may pose accessibility challenges for beginners.

There are no physical or technical barriers beyond standard digital access requirements. However, individuals with visual or motor impairments may require additional support.

Reviewer: Hannes Hamester

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Method Choice

Developed by: Saskia Sterzl
Article contributed by: Saskia Sterzl

<https://doi.org/10.5281/zenodo.18483341>

Keywords

Collaborative Problem-solving, Communication Studies, Cooperation, Debriefing Methods, Educational Ethics, Embodied Learning, Facilitation, Gamification, Guided Discussion Techniques, Strategic Decision-making, Teamwork



Workshop participants playing Method Choice (Photo: Johannes Katsarov).

Introduction

Method Choice is a serious game that helps educators collaboratively explore and discuss debriefing methods for game-based learning. Many debriefing methods exist, but educators often struggle to discover new approaches and to evaluate which methods fit their specific teaching

contexts. Instead of passively presenting methods, Method Choice lets participants make their preferences visible through shared movement and discover methods playfully.

The game adapts a Ouija-board-style mechanic from *Die Geister, die wir rufen*¹, a serious game about generational conflicts in organizations. Participants place their fingers on a shared slider and pull it toward categories representing their interests. The physical tension makes differing preferences immediately visible and opens up conversations about pedagogical approaches in a playful way (see Figure).

Facts

Release date:	2025
Developer:	Saskia Sterzl, Leuphana University of Lüneburg
Game type:	Analog board game with cards
Number of players:	2–9
Format:	Synchronous, face-to-face
Time frame:	1–2 hours
Languages:	German
Environment:	Flat surface where participants can stand around the board
Material:	Wooden board with slider, method cards, reflection question cards, five interchangeable corner sets, lightbulb tokens, hourglass, talking piece
Price:	Available upon request from the developer

Resonance & Criticism

Method Choice was used once in the “Mastering Debriefing” workshop at Leuphana University in October 2025 with six participants. No separate evaluation was conducted, but the overall workshop evaluation showed that all participants found the workshop helpful and would recommend it to colleagues. Participants highlighted the playful approach and variety of methods as positive aspects. During gameplay, participants appeared engaged and talked extensively about their teaching practice. The game may support peer-learning and method discovery, though systematic evaluation would be needed to confirm this.

Game Principle & Process

The game board is a wooden square with a circular slider at its centre. The four corners display selection criteria that can be exchanged using magnetic cards, and YES/NO fields are engraved on the board for quick group voting. Five different corner sets allow participants to explore debriefing methods according to different interests, for example by setting (face-to-face vs. digital), by problem addressed (such as activating quiet participants or managing time pressure), or by learning objective (such as securing knowledge or planning transfer).

Each round proceeds in three phases. The group begins by selecting a corner set and placing it on the board. All participants place a finger on the slider and pull toward the corner represent-

¹ *Die Geister, die wir rufen* (The Spirits We Summon) was developed at the Serious Game Maker Days 2025 by Saskia Joanna Rauhut, Saskia Sterzl, Birgit Wimmer, Christian Hoffstadt, and Vivien Lebe.

ing their preferred category. Once the slider crosses a marked threshold, a participant draws a method card matching that category. Each card contains the method name, objectives, required materials, implementation steps, and practical tips, similar to the co-facilitator cards used in facilitation training (see Sterzl, this volume).

The group then discusses the drawn method for approximately ten minutes, timed by an hourglass. During discussion, participants can spend lightbulb tokens to draw reflection question cards. These questions range from practical ones like “How confident do you feel using this method?” to questions about transfer like “What would you need to adapt for your context?”

After the discussion, the group uses the Ouija mechanic again to collectively evaluate the method. A reflection set replaces the corner set, with options ranging from enthusiastic (“I’m excited”) to sceptical (“Not for me”). The group then votes via the YES/NO fields whether to continue with another round.

Setup takes approximately 15 minutes, and facilitators benefit from reviewing the method cards beforehand. In the initial test, the group discussed five to six methods over approximately 90 minutes.

Learning Objectives & Educational Fields of Application

Method Choice introduces educators to debriefing methods and helps them develop judgment about when different approaches might be appropriate. Debriefing is essential for transforming game experiences into lasting learning (Crookall, 2010). Method Choice uses this insight: the game itself teaches debriefing through structured discussion and reflection.

The game encourages openness to unfamiliar approaches in two ways: First, each corner contains multiple methods, and after the group chooses a direction together, a card is randomly drawn from that category. Second, the group decides on the direction together, so participants engage with methods they might not have chosen on their own. The reflection questions prompt participants to consider their specific teaching contexts. Kolb (1984) describes experiential learning as a cycle moving from concrete experience to abstract conceptualization; the reflection questions help participants take exactly this step.

The embodied decision-making mechanic draws on principles of embodied cognition. Wilson (2002) argues that physical interaction with the environment shapes cognitive processes. When participants pull toward different corners, they literally feel where their colleagues want to go. Method Choice fits into facilitation training workshops, particularly as an activity for exploring different debriefing methods.

Effectiveness

No formal effectiveness studies have been conducted. The game was tested once with six participants who reported having fun and talked extensively about their experiences. Whether the embodied mechanic produces better learning outcomes than alternative formats is an open question.

Potentially Problematic Aspects

The game requires physical proximity, which may be uncomfortable for some participants. The standing format may be difficult for people with mobility limitations.

The handcrafted materials mean that the game cannot easily be reproduced or shared widely. The Ouija-board aesthetic, while playful, may raise concerns for some participants due to associations with spiritualism.

Reviewer: Johannes Katsarov

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My Child Lebensborn

Developed by: Sarepta Studio AS, Teknopilot AS

Article contributed by: Lucian Jueterbock

<https://doi.org/10.5281/zenodo.15937938>

Keywords

Empathy, Ethical Decision-making, Ethics, Human Rights Education, Mental Health, Moral Development, Psychology, Sociology, Trauma, World War II History

Introduction

My Child Lebensborn (first released in May 2018 and developed by Sarepta Studio and Teknopilot) is a narrative-driven serious game that investigates the post-war fate of Children Born of War (CBOW). The player adopts Klaus or Karin, a seven-year-old growing up in rural Norway in 1951, whose German parentage makes them a target for bullying, gossip, and official discrimination (Children Born of War Project, n.d.). The main objective of the game is to foster discussion around the experience of these children by immersing players in the day-to-day challenges of caring for a child who is ostracized by society and exploring how hatred and prejudice can turn innocent children into post-war victims (Festøy, 2023; Children Born of War Project, n.d.). The game is based on the historical experiences of CBOW, which were gathered through interviews and assistance from the CBOW research network (Festøy, 2023; Children Born of War Project, n.d.). The game is entirely digital, but a specialized classroom version launched in 2023 includes printable teaching materials on bullying, human dignity, World War II, and ethics for educational use (*My Child Lebensborn EDU*, n.d.).

Facts

Release date:	2018. Remastered edition released in 2023.
Developer:	Sarepta Studio AS (developer); Teknopilot AS (producer and original publisher). Published on PC/consoles by East2West (2020).
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous (playable at any pace; no online or simultaneous component).
Time frame:	4–6 hours of gameplay for one playthrough (can be completed within a few sessions). The game progresses over a few in-game months (ending around June in the story), and players may play in short daily segments or longer sittings.
Languages:	Released in over 10 languages, including English, Norwegian, German, French, Spanish, Russian, Hindi, Ukrainian, Japanese, Korean, Arabic, and Chinese. Subtitles and text are available in these languages, making it accessible to a broad audience.

Environment:	Digital device required; can be played on smartphones, tablets, or computers. No special room setup is needed; suitable for individual play. In a classroom setting, each student or small group would need a device with the game. The game is played via touch or mouse input, with simple point-and-click interactions.
Material:	No physical materials required. For educational use, teachers may optionally provide supplemental readings about WWII history and utilize the My Child Lebensborn EDU package. Having a discussion or debrief guide is recommended.
Price:	As of 2025, the mobile version costs around 2–3 euros, and the remastered PC/console versions cost around \$8–\$10. There is no subscription fee. The specialized EDU version is made available to schools with a license key.

Resonance & Criticism

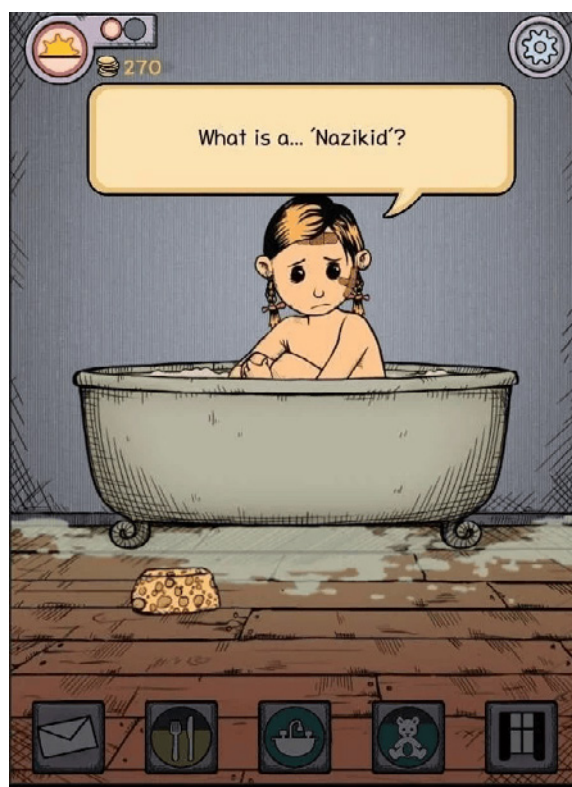
By May 2025, the game had surpassed 100k mobile downloads and holds an “Overwhelmingly Positive” Steam rating (My Child Lebensborn Remastered on Steam, n.d.). Awards include BAFTA Game Beyond Entertainment in 2019, «Best Game of 2018, Small Screen» Spillprisen, and TapTap 2019 Best Narrative (“My Child Lebensborn” – Teknopilot, n.d.). Reviewers hailed it as proof that a game “need not be fun to be effective” (Parkin, 2018). They also have pointed out that the gameplay can feel repetitive and emotionally draining; the daily routine of feeding, working, and coping with constant bullying is intentionally oppressive, which can be psychologically strenuous for the player (Parkin, 2018).

Game Principle & Process

The game is a historical empathy simulator that unfolds in a structured day-by-day format and is akin to a “dark Tamagotchi”, in which a player takes over the caretaker role for a 7-year-old child (Parkin, 2018; Festøy, 2023). Each in-game day is divided into segments (morning, after work, and evening), and the player has a limited number of actions (e.g., “two units of time” per evening) to allocate the tasks such as preparing meals or engaging in dialogue with the child. Each day, the player goes to work (off-screen) while the child goes to school. In the afternoon, players must decide how to use their limited time and resources.

Alongside the caretaking tasks, the game places heavy emphasis on dialogue and decision-making. The child will ask difficult questions (“What is a Nazikid?”) and the player is offered a choice of responses ranging from evasive reassurance to blunt honesty (see Figure). These choices shape the child’s emotions while having minimal effects on the narrative.

Instead of presenting historical facts directly the player experiences factual events first hand like the bullying of Children Born of War after WW2 through narrative form rather than learned from textbooks (Festøy, 2023). There is no explicitly “right” answer; each response leads to consequences that the player must witness, such as the child’s reaction (relief, confusion, hurt) and subsequent behavior.



Gameplay screenshot from *My Child Lebensborn*, developed by Sarepta Studio AS and Teknopilot AS (2018). © The developers.

The game objectives are implicit rather than explicitly scored: the overarching goal is to support the child as best as possible through a year of school and life events. Players come to measure success by the child's gradually revealed feelings rather than points or levels.

After key chapters, the game presents a summary of the player's parenting style and even shows how the player's major decisions compare statistically with those of other players worldwide (Parkin, 2018).

Learning Objectives & Educational Fields of Application

The central educational objective of the game is to foster historical empathy (Festøy, 2023), which is the ability to contextualize and emotionally understand people's actions and experiences in the past. By guiding a player through the intimate experience of raising a persecuted child, the game allows participants to feel the impact of significant historical events (WW2 and its aftermath) on ordinary individuals. Players thus learn not just facts of history but the lived social consequences of war, such as discrimination and trauma, which are often overlooked in traditional curricula (Optun, 2022).

Its mechanics support the game's learning objectives in several ways. First, the immersion in the role of caregiver anchors abstract historical issues in personal experience; this approach aligns with constructivist learning theory, which posits that learners understand concepts better when they "live through" situations (Bada, 2015). Moreover, students playing *My Child Lebensborn* are actively making decisions to help someone facing it, which can deepen their com-

prehension and empathy and illustrate how the actions sometimes do not translate into the intended social outcomes. On top of that, the repetition of nurturing tasks helps players internalize the persistence often required in caregiving and in marginalized individuals' lives.

The dialogue system is perhaps the strongest educational mechanic to foster practical empathy. The branching narrative ensures that if a player chooses, say, to be completely truthful about the harsh reality, they see the child's subsequent emotional struggle. In contrast, if they choose to shield the child from the truth, they witness confusion or a breakdown in trust. In both cases, players learn about the complexity of truth-telling and empathy in traumatic situations.

While the game is designed to stand alone for individual players, a teacher would ideally provide historical context and guide reflection afterward. Typically, one instructor is sufficient to oversee a group play session or assign the game as homework. Minimal training is needed for the teacher regarding gameplay mechanics. However, some preparation is recommended: the teacher should familiarize themselves with the game's content and potentially sensitive moments by playing it through beforehand (about 4–5 hours). Educators should also be prepared to debrief students, as the emotional intensity may necessitate discussion or counseling.

Effectiveness

While there are no formal, peer-reviewed studies yet, emerging scholarly analysis indicates the effectiveness of *My Child Lebensborn* as a learning tool. For example, in an academic diploma thesis by Pemberger (2021), the game has been described as historically accurate. In another Master's thesis, Skretting (2019) examined how closely the game aligns with theoretical approaches to historical empathy. This study found that the game essentially promotes sympathy (rather than empathy) and some perspective-taking. Skretting (2019) argues that these shortcomings are because the game provides a limited factual background on social and cultural norms, so some perspectives in the game go underrecognized. A more recent thesis (Optun, 2022) focusing on the *My Child Lebensborn* EDU implementation in Norwegian schools found that the educational version, which includes classroom discussion and historical briefings, "supplements the shortcomings of the main game and promotes historical empathy" (Optun, 2022).

Potentially Problematic Aspects

Content-wise, the game deals with heavy themes of discrimination and trauma. This means the emotional toll on players can be significant. This is particularly important because, unlike a passive film, the player is an active participant in the child's life, so they could internalize the child's suffering or experience guilt when they cannot help the child effectively. Educators using the game should pre-warn students about the sensitive content and ensure a supportive environment for debriefing, including addressing these feelings and clarifying that the events were largely beyond the player's control due to societal injustice.

Technical and accessibility considerations are relatively minor but worth noting. The game relies heavily on reading text, and there is no voiced dialogue, which could be a barrier for players

with visual difficulties or specific cognitive disabilities. Physically, the game is not demanding, so also players with limited mobility can participate.

Reviewer: Johannes Katsarov

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My Five Moments: The Game

*Developed by: World Health Organization (WHO)
Article contributed by: Karen (Kat) Schrier, Julie Storr,
Claire Kilpatrick, Hugo Sax, Benedetta Allegranzi*

<https://doi.org/10.5281/zenodo.15870043>

Keywords

Dentistry, Empathy, Health, Healthcare Systems, Medical Education, Medicine, Midwifery, Nursing Education, Physical Therapy



Example gameplay screen from My Five Moments: The Game, a digital serious game on hand hygiene and patient-centered care. © World Health Organization (WHO) and Serious Games Interactive. All rights reserved for the creators.

Introduction

My Five Moments: The Game (see Figure) is a free online game developed by the World Health Organization (WHO). It aims to teach the principles of improving hand hygiene at the point of care in a virtual clinical environment. It is geared toward medical students, nursing students, physical therapy students, and other health professions learners, as well as infection control educators who are teaching hand hygiene. Players need to take care of their patients by per-

forming everyday clinical tasks (e.g., taking blood pressure, drawing blood) while also ensuring they practice hand hygiene at the right moment, according to the “My 5 Moments” approach, a framework developed by WHO. Players also need to compassionately respond to patients by helping them (e.g., taking care of a pet or connecting them with their loved ones). The game takes place in a fictional clinical universe, the International Alien Hospital, and all the patients are aliens from different planets with different needs. This game challenges players to prevent two key infectious threats (microbial cross-transmission and healthcare-associated infections) through timely hand hygiene.

The game was developed by the WHO’s Infection Prevention and Control Hub and the WHO Academy, along with the developer Serious Games Interactive (SGI). It was released in 2024 and is available at: <https://5mgame.lxp.academy.who.int/>.

Facts

Release date:	2024
Developer:	World Health Organization (WHO)/Serious Games Interactive
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	Each level of the game takes about 15–20 minutes to play. There are five levels in total.
Languages:	English, with plans for Spanish, French, and Arabic translations
Environment:	Online (browser-based)
Material:	https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/infection-prevention-and-control/your-5-moments-for-hand-hygiene-poster.pdf ; https://5mgame.lxp.academy.who.int/
Price:	Free of charge

Resonance & Criticism

My Five Moments: The Game is relatively new, so limited research has been done on it thus far. It was part of the Hand Hygiene launch day on May 5, 2024, and has been accessed by players in 114 countries, including Kenya, Ukraine, Brazil, Japan, India, and New Zealand.

The game was well received by those interviewed during playtesting. One person, a hospital educator, explained that she used the game in Nigeria to influence behaviors and actions to prevent infection during the 2024 Lassa fever outbreak (Al-Mustapha et al., 2024).

The game is only available on a browser, which limits access for those in remote locations or those without desktop or laptop computers. Having a mobile version would help with this. Also, the game uses 3D graphics, which may be harder to access in areas with lower bandwidth. Translating the game into other languages, such as Spanish and Arabic, will improve accessibility.

Game Principle & Process

In this game, players travel to the International Alien Hospital in the year 2224, where they take care of patients, friendly aliens from across the galaxy, who are highly vulnerable to germs. However, there is a twist: time itself is starting to unravel. There is a secret organization in the hospital called the Clock Keepers, who are trying to help heal time. Players need to collect orbs called “moments” (which they earn by doing hand hygiene at the right moment) so that the Clock Keepers can keep time safe. Thus, players need to protect their patients and Earth by practicing hand hygiene at the right moments.

Each level of the game features a different alien and a unique alien world. First, there is Hana, from the planet Sundago. In this sunny, yellow tutorial level, the player plays as a nurse helping Hana, a cardiac patient. Hana asks for help in feeding her pet, a “takito”. You need to make sure to practice hand hygiene at the correct times and with the proper methods, including when to wear gloves and whether to use a sink or an alcohol-based hand rub.

Players earn moments, as mentioned previously. They need to get a certain number of moments in each level to “unlock” the next level. They also earn points, such as by earning moments (which earn them 5 points) or by doing a task (like taking blood pressure), which earns them 1 point. Players can also make dialogue choices that can be more or less empathetic. If you choose the more compassionate choice, you will unlock a “hearts” animation. Unlocking enough of the empathetic choices helps you earn the “golden moment”. This is a moment earned by helping your alien patient with a special task, like throwing a birthday party for an alien on dialysis for kidney disease. If you miss a moment of hand hygiene, you receive feedback that you missed it and do not earn points.

The game is based on the WHO guidelines on hand hygiene in health care and on the My Five Moments for Hand Hygiene approach (Sax et al., 2007). These include Moment 1, or before touching a patient. Moment 2, or before a clean or aseptic procedure. Moment 3, or after body fluid exposure risk. Moment 4, after touching a patient. Moreover, Moment 5 is after touching a patient’s surroundings. WHO’s My Five Moments helps orient clinicians on when to perform hand hygiene, thereby contributing to better patient outcomes.

Learning Objectives & Educational Fields of Application

The aim of the game is behavior change and improved compliance with hand hygiene practices and performing hand hygiene in a way that reduces the transmission of infections. The learning objectives of the game are knowing how to choose the correct indications (Moments 1–5) and perform hand hygiene; knowing how to choose the right hand hygiene action (hand rubbing versus handwashing) given the clinical steps; understanding the different “zones” in the clinical setting (patient zone and health care zone) and how that intersects with hand hygiene; and organizing one’s workflow efficiently so they perform hand hygiene properly amid all of their different clinical tasks.

The learning objectives are operationalized in the game. It rewards you for taking the right action and for choosing when to perform hand hygiene properly. If you do not do it properly (by missing a moment), you get immediate feedback and are told why it is incorrect. If players

do too much hand hygiene, the level will restart. The purpose is to be accurate and efficient, not to do too much or too little, so you keep patients safe and are also considerate of time.

Educators can integrate this game into medical or nursing education, as well as IPC modules. Hospital or clinical educators can incorporate this into orientation or general hospital education (one-off trainings or workshops). The game can be used at any educational level, including undergraduate and postgraduate levels, as well as for continuing education and professional development of health workers. It can also be used in a hybrid or blended format, where students are partially online, entirely online synchronously, or in an in-person format.

One approach is to have students first see an infographic of the My Five Moments for Hand Hygiene indications (for instance, see [https://cdn.who.int/media/docs/default-source/integrated-health-services-\(ihs\)/infection-prevention-and-control/your-5-moments-for-hand-hygiene-poster.pdf](https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/infection-prevention-and-control/your-5-moments-for-hand-hygiene-poster.pdf)). The students can discuss moments and talk through clinical scenarios, such as a blood draw or chest auscultation, and discuss when they would perform hand hygiene. Then, afterward, they can play this game and talk through the decisions they made. They can share any mistakes they made (if any) and whether any moments were confusing or surprising. Educators can consider having an in-class leaderboard or badges for completing the game; though note that competitive elements may sometimes discourage some learners.

The game can be used as part of a flipped classroom format, where students play it outside the classroom (it can also be played as a standalone experience). Educators can have students extend the learning afterward by imagining scenarios related to their specific field or setting (such as surgery or nursing homes).

Effectiveness

Improving hand hygiene at the point of care can prevent millions of healthcare-associated infections each year, ultimately saving lives. While the game is new and has not undergone extensive research, anecdotal evidence suggests players are engaged and find it helpful in understanding the My Five Moments for Hand Hygiene framework and when to perform hand hygiene.

However, there is extensive research on the efficacy of the My Five Moments approach itself, as well as on the game's teaching approach. First, the My Five Moments of Hand Hygiene takes a user-centered approach, focusing on the clinician (the student, the player, the person providing care) (Sax et al., 2007). It helps simplify, visualize, and operationalize the concept of hand hygiene so that it is performed in a logical, sound manner (Salmon et al., 2015). However, there are still opportunities to optimize this model (Schmutz et al., 2023). Second, a VR experience based on the My Five Moments of Hand Hygiene framework demonstrated higher adherence and compliance (Stuart et al., 2025).

The game also stems from other research on games and learning, on the effectiveness of design principles such as role-playing, story-based games, progression of difficulty, and meaningful feedback, as well as on empathy and games (Schrier, 2021).

Potentially Problematic Aspects

The game features a diverse range of clinicians and alien races; however, it has limitations. First, the game is online and browser-based, which limits access for those in lower-bandwidth areas or those without access to a desktop or laptop. The game will not yet run on mobile devices, such as phones and tablets. Second, the game is not fully accessible. Currently, there is no voiceover narration, and the game is only in English. It is not clear if a screen reader could read all the text on the screen, especially given how complex the user interface (UI) is. Right now, there are several essential meters on the screen, including a “moment” collector, points, a bar indicating how many times you have performed hand hygiene, and both dialogue and instructional text boxes. This can be overwhelming for the player. Using a 3D immersive game is liberating for some players, but it can also cause issues for others.

Reviewers: Krista Bonello Rutter Giappone, Ivelina Dimitrova Karaatanasova

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Night in the Woods

Developed by: Infinite Fall

Article contributed by: Hannes Hamester

<https://doi.org/10.5281/zenodo.15926139>

Keywords

Ethical Decision-making, Ethics, Gender Studies, Inclusion, Mental Health, Moral Development, Philosophy, Queer Studies, Religion, Trauma



Screenshot from *Night in the Woods* (Infinite Fall). Used for educational review. Rights remain with the creators.

Introduction

Night in the Woods (NITW, see Figure) is a digital single-player storytelling game published by Infinite Fall in 2017 and is about college dropout Mae Borowski who returns to her economically unstable and depressing hometown of Possum Springs. Realizing that her family and friends have moved on without her, Mae tries to reconnect with her former life by wandering around town and encountering the people she left behind. Over the course of the story, players get to know the main character better and understand her intelligence, sarcasm, and self-destructive, insecure habits. Through Mae's unique perspective, the story of NITW unfolds as players explore the virtual environment and the many characters living within it, all troubled by their own profound personal issues. Overall, the adventure game is structured with text-based dialogues and rather childlike aesthetics but offers deep insights into its carefully constructed characters. As

the game progresses, players are challenged with increasingly complex ethical decisions about sociocultural, political, and psychological issues in a gentle yet confrontational way.

Facts

Release date:	2017
Developer:	Infinite Fall
Game type:	Digital
Number of players:	1
Format:	Hybrid
Time frame:	around 10 hours
Languages:	English
Environment:	access to computers/consoles
Material:	–
Price:	€20 per person

Resonance & Criticism

Since its release, NITW has been very well received and praised by the gaming community for its meaningful storytelling. Therefore, apart from being nominated in numerous other categories, the game has won several awards, including “The Game Award” for “Best Independent Game” in 2017 as well as the “SXSW Gaming Award” for “Most Fulfilling Community-Funded Game” and the “BAFTA Games Award” for “Best Narrative” in 2018 (Night in the Woods (Video Game 2017) - Awards - IMDb, n.d.). However, due to the game’s slow story development and simple game mechanics, enjoyment is not guaranteed, and some players may quickly lose interest (Trattner, 2017).

Game Principle & Process

At the start of NITW, the story is essentially the same every day: the main character wakes up, walks through town, talks to friends, and returns home to have nightmares when she sleeps. However, the repetition of Mae’s daily routines not only offers insights into her habits but also fosters players’ engagement and deepens their knowledge of the game’s characters and environments (Caravella, 2021). For this reason, the game wants players to feel as if time passes slowly at the beginning, mirroring the monotony of life in Mae’s hometown. Even her tendency toward self-destruction is built into the game’s mechanics, as players must choose between dialogue options where one seems worse than the other, showing Mae’s critical state of mind (Trattner, 2017).

Through these dialogues with the game’s NPCs, NITW calls for ethical decision-making by encouraging players to reflect on their choices and rewarding them for doing so throughout the game. Furthermore, decisions are becoming increasingly complex, with less time to respond, which promotes players’ ethical judgment processes (Caravella, 2021). Ultimately, playing the game creates intrinsic motivations to produce ethical arguments and cultivate the players’ moral character, a relatively stable arrangement of ethical dispositions. That is why one of NITW’s core game mechanisms is “affective materiality”, defined as “making decisions and tak-

ing actions in a context that they are encouraged to come to care about” (Veale, 2021, p. 452). By feeling responsible for the consequences of their choices, players understand their impact on the virtual environment and the characters within it. Especially in connection with ethics, the feeling that however the story ends it will be their fault, encourages players to empathize with the characters and actively follow the game’s progress.

Learning Objectives & Educational Fields of Application

As a prime example of digital storytelling, the game takes a long time to develop and flesh out its characters’ stories, creating compelling content and emotional depth. Therefore, whenever players are confronted with ethical decisions during the game through text-based dialogues between Mae and various citizens of Possum Springs, NITW manages to tackle rather heavy subjects without overwhelming the players. Through these conversations, players can learn about sensitive topics such as mental illness, child abuse, death, and sociopolitical issues regarding the city’s state of disrepair (Trattner, 2017). Additionally, the game deals with cultural stereotypes and is a fundamentally queer experience due to the representation of several queer storylines. Moreover, since the characters are often not visually gendered, NITW promotes the fluidity of gender and sexuality, thus challenging heteronormativity as well as binary gender constructions (Trattner, 2017). By learning about various personal fates and standpoints, such as different religious views, drug addiction, and anti-capitalistic and anti-fascist arguments, the players develop their own ethical code and practice it over the course of the game.

Effectiveness

A study conducted in a classroom setting found that NITW causes players to reflect on their own moral agency and promotes their introspection, the examination of one’s own conscious thoughts and feelings (Caravella, 2021). Moreover, the game can help players practice their moral decision-making and potentially adjust their ethical dispositions within and outside the virtual world. For this reason, decisions made in NITW can have lasting effects on players, given the game’s complex ethical challenges (Caravella, 2021).

Furthermore, players of NITW have praised the relatability of the game’s characters, especially their ability to project the fictive problems into their own lives (Veale, 2021). Accordingly, the game’s creators “have spoken of being contacted by many people who had been dealing with the same lack of medical and social support as the characters in the game” (Veale, 2021, p. 458). In conclusion, NITW can help players realize they need support and connect with others dealing with the same problems.

Potentially Problematic Aspects

As previously mentioned, NITW addresses various sensitive topics that some players may not want to deal with due to their personal backgrounds. Similarly, while some players may enjoy the slow storytelling and time-consuming character studies, others may feel trapped by the perception of responsibility, because most of the game’s stories are burdening experiences.

Therefore, players might feel alienated because they cannot change things for the better, and most characters' fates are predetermined, which is more likely to be categorized as unfavourable.

Reviewers: Torben Schmidt, Johannes Katsarov

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Pandemic

Developed by: Z-Man Games

Article contributed by: Dave Carlgren

<https://doi.org/10.5281/zenodo.15673775>

Keywords

Collaborative Problem-solving, Infectious disease, Public Health, Risk Management, Strategic Decision-making



Cover art of Pandemic (Z-Man Games). Used for educational review. Rights belong to the publisher.

Introduction

Pandemic (see Figure) and its offshoots are collaborative games focused on stopping a global pandemic from spreading. Pandemic is not designed as a serious game but has been created and sold to the public as entertainment, which it does well. However, Pandemic is an excellent game for simulating complex environments, the spread of infectious disease, and building collaborative and cooperative problem-solving skills. The game was developed by Matt Leacock of Z-Man Games and first released in 2008. New versions in different languages, incorporating new character options and changing the gameplay to reflect persistent changes based on player choices, have been added throughout 2023.

The game's principle uses a random card draw to seed disease around the globe, then adds another deck to infect further and amplify existing diseases. Players have attributes and actions that they use to slow the progress of the disease while working within the game's random spread mechanics.

Facts

Release date:	2008, 2023
Developer:	Z-Man Games
Game type:	Analog
Number of players:	2–4
Format:	Synchronous
Time frame:	45 minutes
Languages:	English, Serbian/Croatian, Arabic, Czech, Italian, Ukrainian, Hebrew, Portuguese, Dutch, German, Japanese, Polish, Spanish, Thai, Catalan, Estonian, Latvian, Lithuanian, Chinese, French, Greek, Icelandic, Hungarian, Korean, Danish, Norwegian, Russian, Bulgarian, Finnish, Swedish, Romanian
Environment:	Tabletop
Material:	No additional material required
Price:	\$36–53 CAD

Resonance & Criticism

Pandemic has received critical acclaim and many awards, including Golden Geek Nominations and Winners, Meeple Choice Awards, Hra roku Nominee, Spiel des Jahres Nominees, and BoardGameGeek Hall of Fame Inductee. It is currently ranked 162 overall on BoardGameGeek, based on more than 130,000 ratings.

Game Principle & Process

Pandemic is a real-world simulation game of infectious disease treatment. With random infection and spread procedures and collaborative team play, this game is complex and challenging. The objective is to find cures for four infectious diseases before they become uncontrollable. Players must use their individual character attributes and actions to stop this from happening. There are intrinsic rewards in the game, depending on the version played, as well as carryover effects in newer versions that impact all future games played.

Social interaction is paramount in Pandemic. Without careful planning and strategic cooperation, you will not be successful.

Pandemic is based on the spread of infectious disease and, increasingly, the effective measures for stopping such spread.

Learning Objectives & Educational Fields of Application

There are two primary learning objectives of Pandemic: the spread of infectious disease and how to contain it, and collaborative and cooperative problem solving. The game's random

spread mechanics (decks of cards, Epidemic cards, and Outbreaks) add a sense of realism to gameplay, as uncertainty is prominent. The abilities and actions of each player have both shared and unique components, bringing a sense of ownership, character, and meaning to each play. The game is designed such that without effective collaboration and cooperation, your team will not succeed, and the viruses will win.

Teacher interaction may be necessary for initial rule comprehension and the occasional rule or action interpretation, but the rule book is clear and well-written. There are also many videos available online to teach the gameplay mechanics. In addition, Pandemic homepage (<https://www.zmangames.com/game/pandemic/>) features Pandemic Puzzles that can help orient new players to the challenges of multiplayer cooperation and problem-solving.

Pandemic is an excellent game that requires skill, communication, collaboration, and cooperation to have a chance of success. Even with all of those, the randomness of the infectious spread may still overcome the players, just as in real life.

Effectiveness

No empirical evidence has been found to date on the effectiveness or learning impacts of Pandemic.

Potentially Problematic Aspects

Some players may find the topic of a spreading pandemic challenging, especially given real-world COVID-19 experiences. Beyond that, this game is neither ethically challenging nor risky.

Reviewer: Johannes Katsarov

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Papers, Please!

Developed by: Lucas Pope

Article contributed by: Leon Sumfleth

<https://doi.org/10.5281/zenodo.15926634>

Keywords

Authoritarian Systems, Border Control, Bureaucracy, Dystopia, Empathy, Ethical Decision-making, Ethical Dilemmas, Immigration Law, Migration, Political Science, Workflow Simulation

Introduction

Papers, Please is a puzzle-simulation video game created by indie game developer Lucas Pope, developed and published through his production company, 3909 LLC. In *Papers, Please*, the player takes on the role of a border-crossing immigration officer in the fictional dystopian communist country of Arstotzka, which has been and continues to be in political conflict with its neighboring countries. The player must review travelers' passports and other supporting paperwork against a growing list of rules using tools and a guidebook. Tasks include allowing in those with the proper paperwork while rejecting those without all proper documents, detaining those with falsified information, and balancing personal finances for their family. It is directed at players interested in exploring a completely unfamiliar role as an immigration officer and experiencing the moral questions that may arise at work. *Papers, Please* can be regarded as an attempt to raise awareness of the process of converting human beings into a handful of documents, questioning the morality of this procedure.

Facts

Release date:	8 August 2013 (improved phone version released in 2022)
Developer:	Lucas Pope, 3909 LLC
Game type:	Digital
Number of players:	1
Format:	Hybrid
Time frame:	Average round takes about 45 minutes, can be between 30 and 90 minutes, depending on the players' decisions
Languages:	14 languages, including German, English, Spanish, etc.
Environment:	A phone or laptop is sufficient.
Material:	No additional material necessary.
Price:	€5.99 in the App Store; €9.75 for the PC version; no further costs

Resonance & Criticism

Papers, Please received numerous awards and was especially praised for its sense of immersion, which produced a strong emotional effect on the player. It never scored lower than an 8 out of 10 in all major review journals (Edge, Eurogamer, GameSpot, IGN, ...), won the Seumas McNally

Grand Prize, “Excellence in Narrative”, and “Excellence in Design” awards at the 2014 Independent Games Festival, the “Innovation Award” and “Best Downloadable Game” at the 2014 Game Developers Choice Awards and “Best Simulation Game” at the 2014 BAFTA Video Game Awards. Critics praised the game as an example of video games as an art form, creating a game environment that suits the situation and helps convey the protagonist’s emotional world. Some critics remark that the game can be repetitive.

Game Principle & Process

The player in *Papers, Please* dives into the work life of an immigration inspector at a border checkpoint for the fictional country of Arstotzka in the year 1982.



Screenshot from *Papers, Please* (Lucas Pope, 3909 LLC). Used for educational review. Rights remain with the creator.

As an inspector, the player is tasked with reviewing arrival documents. Every in-game day, new rules are added to the required documentation, and over time this makes the document-checking process increasingly complex (see Figure). Immigrants arrive at the checkpoint with their paperwork, and if discrepancies are discovered, the player may interrogate the applicant. They can demand missing documents, verify the applicant’s fingerprints, and order full-body scans. If incriminating evidence is discovered, the player may order the entrant arrested. If an arrest is not necessary, the player must stamp the passport to accept or deny entry. Should the player violate protocol, a warning will be issued in the player’s booth, and after another mistake, fines will be applied. The player has a limited amount of real-time, representing a complete day shift at the checkpoint, to process as many arrivals as possible. At the end of the shift, the player earns money based on how many people have been processed (and bribes collected), minus the fines received, and then must decide on a simple budget to spend that money on rent, food,

and heating for their family. If the player goes into debt, the game ends with a game over. Accepting bribes risks being discovered and imprisoned by the government. The player is challenged with moral dilemmas as the game progresses, such as allowing the supposed spouse of an immigrant through despite lacking complete papers at the risk of accepting a terrorist into the country. They will encounter members of a secret organization called EZIC. Granting/denying entry to EZIC agents affects the end of the game. The player can also choose to escape to a neighboring country, Obristan, to start a new life, with or without their family.

Learning Objectives & Educational Fields of Application

On the surface, *Papers, Please* is a game about thorough examination and strict adherence to a precise process. While this does train the player's conscientiousness and ability to identify discrepancies, the underlying learning objective is rooted in the moral dilemma caused by the player's decisions. *Papers, Please* presents the player with constant moral choices, but makes it hard to be a good person. While the player can waive the rules to reunite a couple, they do so at the expense of their own family, meaning they must decide whether they want to create a better world or look after themselves and their loved ones (Croshaw, 2013). The consequences of their choices are clearly shown in the game, for example, through newspaper articles, messages from the ministry of immigration, or because the subjects return and express their (dis)approval, sometimes also in monetary form. These decisions are implemented into the story, so there is no way to avoid them. No external teachers are needed for this game because the tutorial does a good job of explaining the mechanics, and it is generally not very complex, so that players will find their way quickly.

Effectiveness

The developer Lucas Pope stated that he did not intend to create an empathy game, but that empathy emerged as a product of the scenarios he implemented, which led to emotional engagement (Wells, 2016). Several factors enhance the game's immersive experience and, by extension, its learning potential. The game mechanics, particularly the financial balancing of basic survival needs and the explicit depiction of player choices and their consequences, contribute strongly to immersion. This immersion makes the moral questions feel weighty and serious, thereby supporting the learning process. *Papers, Please* thus tries to foster understanding and empathy for people working in this field, as many players feel overwhelmed after only a few levels, while border officers perform this work every day.

Nevertheless, the effectiveness is heavily questioned by researchers like Jorge Peña, who argues that the setting of *Papers, Please* could even be considered counterproductive, proposing that the atmosphere of distrust decreases subjective norms and lowers intentions to help (Peña & Hernández Pérez, 2020).

Potentially Problematic Aspects

Due to *Papers, Please*'s dystopian nature, the game may be unsettling for players. Especially for players who have had experiences with migration, the atmosphere of the game may induce bad memories or even trauma. Additionally, although Pope stated that he avoided including

specific references to inspirations such as the Soviet Union or the border processes at the Berlin Wall (Cullen, 2014), similarities cannot be denied. This may negatively influence perceptions of this history and reinforce stereotypes. Studies have shown that the setting of the game actually decreases willingness to help immigrants (Peña et al., 2018). Lastly, the release was delayed due to a nudity problem (within the body scanner), but a censorship option was added.

Reviewer: Johannes Katsarov

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Per Anhalter durch das Immunsystem

Developed by: Christian Zimmermann, HessenHub Giessen

Article contributed by: Christian Zimmermann

<https://doi.org/10.5281/zenodo.15824751>

Keywords

Biology, Health, Immunology, Medicine, Nutritional Science, Physiological Systems

Introduction

Per Anhalter durch das Immunsystem is a digital educational game designed to support the teaching and learning of immunological processes for students of life sciences. It was published in 2024 by Christian Zimmermann, a scientist and lecturer in nutritional sciences at Justus Liebig University Giessen. The game was developed in collaboration with students and HessenHub, the Network for Digital University Teaching in Hesse, in Giessen. The goal of the game is to teach students how specific processes in the immune system work. It is designed as a point-and-click adventure in a simplified cartoon style, where players interact with immune cells and complete various tasks. In the game, players must prepare for an attack by pathogens and respond by producing specific antibodies. Through this process, they gain insights into how immune cells interact and how immune responses occur. Throughout the game, the players are required to solve puzzles and reflect on the content they have learned.

Facts

Release date:	2024
Developer:	Christian Zimmermann, HessenHub Giessen
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	20–40 minutes
Languages:	German
Environment:	Browser-enabled device with internet connection
Material:	Digital device
Price:	Free of charge

Resonance & Criticism

So far, the game has received little response since its recent release. Initial evaluations from students who participated in a module on basic immunology show a high acceptance rate and positive feedback regarding the game's educational impact. In line with the feedback, the game's design increased learning motivation and encouraged active engagement with the content. All previous surveys on this game showed that the participants in the evaluation regarded learning games as applicable in this subject-specific context. Based on content-related ques-

tions about the interaction of immune cells in response to an antigen included in the assessment, a learning effect could be confirmed.

Game Principle & Process

Per Anhalter durch das Immunsystem is a digital serious game based on the principles of a point-and-click adventure. Set in a simplified, cartoon-style science fiction environment, players encounter pathogens that must be analysed and processed by immune cells. Players are introduced to the game mechanics by an anthropomorphized cell, which also serves as their guide throughout the game. The goal is to prepare for an impending infection by producing antibodies to neutralize the pathogens. Throughout the game, players must repeatedly decide how different immune cells interact. They receive guidance on the correct choices through interactions with the cells. Additionally, the ongoing processes are explained with supplementary information. If players are unsure of what to do, a help menu is available for support. As players progress through the game, they learn about the development of B memory cells and antibody-producing plasma cells, as well as other cells involved in this process. The narrative-driven format combines educational content with gamified elements to increase engagement.



Screenshot from Per Anhalter durch das Immunsystem (Zimmermann; HessenHub Gießen). Used for educational review. Rights remain with the creators.

Learning Objectives & Educational Fields of Application

Per Anhalter durch das Immunsystem places immunological processes, which are usually only presented schematically in textbooks, into an interactive and playful context where students

can actively experience the content. To facilitate the understanding of key immunological aspects and the overall immunological concept, the game relies on simplification.

Students can first play the game independently as part of a self-learning phase or use it as a review tool for content from a previous lecture. By incorporating puzzles into the game, both critical thinking and decision-making skills are encouraged (Fotaris & Mastoras, 2019). Additionally, the understanding of facts is deepened by requiring players to apply the integrated knowledge within the game to solve problems (Hense & Mandl, 2012). The game design allows students to engage with the material at their own pace, accommodating individual learning needs. In a safe learning environment, they can make mistakes and learn from them without fear of evaluation or pressure (Fischer et al., 2017).

In a complementary lecture or seminar, instructors can then explore specific aspects in more detail or supplement them with additional information that is presented in a simplified form within the game.

Effectiveness

There are no studies on this game, and therefore, no empirical findings so far.

Potentially Problematic Aspects

To play the game, players need an internet-enabled device. Without an internet connection, the game cannot be played. Because of its visual design, the game may be unsuitable for individuals with visual impairments. Players should also have basic immunological knowledge, as otherwise they may find it difficult to navigate within the game world. Because the game simplifies immunological concepts, there is a risk that some ideas may be misunderstood if it is played without further explanation.

Reviewer: Saskia Sterzl

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Pest Friends

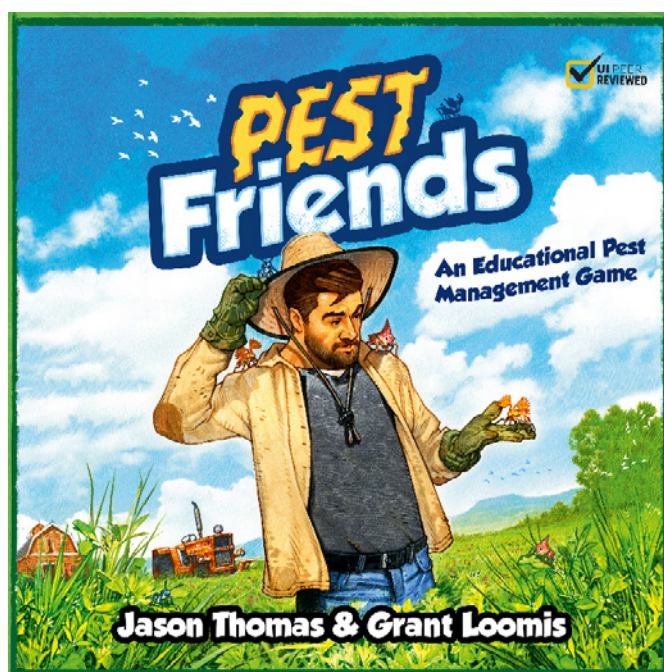
Developed by: Jason Thomas, Grant Loomis

Article contributed by: Jason Thomas, Grant Loomis

<https://doi.org/10.5281/zenodo.17679633>

Keywords

Agriculture, Collaborative Problem-solving, Critical Thinking, Integrated Pest Management (IPM), Strategic Decision-making, Sustainability, Systems Thinking



Game artwork from Pest Friends. © Jason Thomas and Grant Loomis, University of Idaho Extension. All rights reserved for the creators.

Introduction

Pest Friends (see Figure) is a facilitator-led board game designed to teach the principles of Integrated Pest Management (IPM)—an ecosystem-based approach to pest control through informed, data-driven decisions. Developed by University of Idaho Extension educators, the game places players in the role of pest managers tasked with protecting crops, conserving beneficial insects, and staying within a limited budget. Played over eight rounds, each representing a month in the growing season, players choose actions such as scouting or pesticide use, with behind-the-scenes consequences managed by a facilitator. *Pest Friends* introduces players to real-world agricultural challenges while promoting systems thinking and sustainability.

Facts

Release date:	2022
Developer:	Jason Thomas and Grant Loomis, University of Idaho Extension
Game type:	Hybrid
Number of players:	1–20 (individual or team-based play; ideal team size: 4–6)
Format:	Hybrid
Time frame:	60–90 minutes
Languages:	English, Spanish translation in development
Environment:	Physical board game with printable components and a web-based facilitator tool, or a full digital version
Material:	Available at https://pestfriends.org
Price:	Free of charge

Resonance & Criticism

Since its launch in 2022, it has been used by over 1,300 players (internal analytics, January 2024), including 464 educators (PestFriends.org, unpublished internal analytics data). It has been implemented in college horticulture classes, Master Gardener training, and pesticide recertification programs. A 2023 survey of 47 participants found that 98% reported a positive shift in their pest management mindset, with many intending to adopt more sustainable strategies (unpublished internal data).

The game received national recognition in the United States as the 2023 NACAA Communications Award winner (Publication category) and continues to grow in use through conference presentations and train-the-trainer workshops across multiple U.S. states. A web-based version launched in late 2022 at pestfriends.org has improved accessibility for educators.

Facilitators frequently cite the game's realism, flexibility, and capacity to spark meaningful discussion. However, some note that the game's impact depends heavily on the facilitator's familiarity with the rules and ability to manage field dynamics, which may present a learning curve. Support resources—including printed materials, video guides, and digital tools—help mitigate these challenges.

Game Principle & Process

Pest Friends simulates decision-making in crop pest management using a turn-based format. Over eight rounds, players act as pest managers, making 2–3 choices per round from a set of possible actions: scouting, pesticide application, habitat modification, or custom farming.

A facilitator manages hidden in-game variables with the support of a web application. These variables include pest reproduction, predator–prey dynamics, and crop health. The facilitator modifies the game state using tiles stored in a field bag, for example by removing pest tiles after pesticide use, feeding predators that eliminate other insects, damaging plants when pest levels are high, or adding new insects through reproduction. After each player's action, feedback is provided, gradually revealing ecological interactions over time.

At the end of the game, players calculate scores based on healthy crops harvested and the remaining budget. A digital tool on the game's website simplifies field calculations and enhances the experience for facilitators and players—the game's behind-the-scenes complexity models real-world systems while keeping gameplay approachable and engaging.

Learning Objectives & Educational Fields of Application

Pest Friends supports a variety of educational goals. It helps players understand Integrated Pest Management (IPM) as an ecosystem-based strategy and emphasizes the importance of scouting, research, and monitoring pest populations. The game also encourages players to weigh the economic, ecological, and resistance-related trade-offs of pesticide use. Through gameplay, participants recognize predator-prey interactions, delayed consequences, and develop skills in collaborative problem-solving and data interpretation.

The game is widely used in secondary and post-secondary agricultural education, extension trainings for farmers, pesticide applicators, and Master Gardeners, as well as in environmental science, biology, and sustainability courses. It is also applied in team-building sessions that introduce systems thinking in agricultural contexts. Facilitators are encouraged to hold a post-game debrief to help participants reflect on their decisions and connect gameplay outcomes to real-world practices.

Effectiveness

Survey results suggest the game is highly effective in teaching IPM concepts. In one study (Loomis & Thomas, 2022) with 56 participants, 100% found the game more engaging than a traditional lecture, and 90% reported increased learning. In another survey of 47 players, 98% said the game improved their mindset around pest management, particularly regarding scouting, pesticide reduction, and IPM diversity.

Facilitators report that the game encourages long-term retention and discussion of IPM topics beyond the classroom. The game's success has been linked to its ability to simulate ecological feedback loops in a simplified, low-risk setting. The digital facilitator tool reduces implementation barriers, making the game more accessible to both specialists and general educators.

Potentially Problematic Aspects

Educators and participants have noted some limitations. One concern is the scoring system, which focuses on crop health and profit; a few educators have suggested incorporating broader outcome metrics, such as environmental impact or climate-related scores, to reflect long-term sustainability better. Another point of feedback concerns the use of fictional insects and crops—such as fan bugs and lunar wheat—that some players feel reduce realism. However, these elements are intentionally designed to reflect real-world dynamics while ensuring the game remains flexible and relevant across regions and over time; this design choice prevents regional bias, allowing educators in diverse locations to apply the game's concepts to their specific local pests without contradiction. Additionally, some experienced players have expressed interest in added complexity, such as the inclusion of crop insurance, multi-year sce-

narios, or weather variability. The current design, however, prioritizes accessibility and simplicity to support players who may be new to Integrated Pest Management.

Reviewer: Saskia Sterzl

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Plagiaruedo

Developed by: Laura Barclay, Ian Johnson

Article contributed by: Laura Barclay, Ian Johnson, Dave Carlgren

<https://doi.org/10.5281/zenodo.15938726>

Keywords

Criminology, Critical Thinking, Educational Ethics, Humanities, International Relations, Learning Development, Politics, Social Sciences, Sociology



Conceptual image illustrating the theme of plagiarism detection and academic integrity addressed in Plagiaruedo (Laura Barclay, Ian Johnson). Used for educational review. Rights remain with the creators.

Introduction

The game of *Plagiaruedo* is an adaptation of the European “Cluedo”, or the game “Clue” in North America (see Figure). The main objective is to determine the culprit, the form of academic misconduct, and the reason for this choice. Plagiaruedo would be best used in introductory courses at post-secondary institutions. The game is intended as a conversation starter about academic integrity and potential misconduct, rather than to provide complete information about these concepts. When used as an introductory activity, students can become more engaged and informed about misconduct issues without feeling “threatened” by the topic. The designers have also included events in the game to speed up and vary gameplay, thereby affording greater interactivity. The game was developed by Laura Barclay and Ian Johnson of the University of Portsmouth in 2023–2024.

Facts

Release date:	2023
Developer:	Laura Barclay, Ian Johnson
Game type:	Analog
Number of players:	3–6 (optimal with 3–4 for time)
Format:	Synchronous

Time frame:	30–45 minutes
Languages:	English
Environment:	–
Material:	May become print-and-play
Price:	Currently not publicly available; the makers plan to produce a second edition soon.

Resonance & Criticism

The game has been play-tested with instructors in the UK and Canada, and with students in the UK. Generally, it has been well received by all groups as a conversation starter to prompt metacognition and deeper engagement with integrity and misconduct concepts. A release of the game is in preparation.

The most challenging aspect, according to students and instructors, is the time required to play the entire game. At present, the game takes approximately 30–45 minutes, which can be a challenge to incorporate into a 50-minute university class.

Game Principle & Process

Plagiaruedo is a mystery game modeled after the board game Cluedo (Clue in North America), where players use logical deduction to determine which cards are not held by other players. Plagiaruedo alters the theme to focus on academic misconduct rather than murder.

A set of cards (one suspect, one misconduct, and one rationale) is secretly removed before play and placed in an envelope on the board. Each player starts with a card hand that provides limited information and acquires more through dice-driven movement around the board and by asking targeted questions of other players to eliminate possibilities. Each player attempts to determine the identity of the hidden set of cards at the start of the game by strategically removing cards from other players' hands.

There is limited social interaction beyond gameplay, as the game is intended as a conversation starter and an initial activity to promote thought and discussion. It is a soft introduction to challenging concepts. The designers recommend a follow-up session to discuss aspects of the game. There are options to play competitively or collaboratively in teams or as a single group.

The scientific theory for the game is that challenging ideas may be more easily approached through a lens of play than through direct means (Mardell et al., 2023).

Learning Objectives & Educational Fields of Application

Plagiaruedo is designed to introduce students to the concepts of academic integrity, potential misconduct, and how misconduct can occur. This has led to an open discussion of the possible consequences of these actions during playtesting. By introducing these ideas through a game, students tend not to feel "lectured at" and approach the concepts with a more critical lens, seeking meaning. Follow-up activities by the instructor can involve more probing questions that seek answers to prompts such as: "Where could a student find assistance for this challenge before resorting to this form of misconduct?"; "Given the forms of academic misconduct in the

game, how would you rank them in order of severity?"; "What consequences do you think should accompany these issues?" As such, the instructor's role is largely facilitation during and after gameplay.

Effectiveness

Formal research is still underway. Initial play-testing and feedback sessions with instructors and students have been largely positive, with the game challenging conceptions about academic integrity and the use of games to introduce challenging topics into class.

Potentially Problematic Aspects

The most significant challenge in implementation at present is the time required to introduce, play, and adequately debrief the game. While this time is valuable, instructors often feel that the information can be delivered more quickly through a lecture. Another challenge, which is currently being approached humorously, is adapting a game board that is "intentionally similar" to the actual Cluedo board. There is currently no intention to publish this commercially in this form. Hence, the use of recognizable copyrighted material in a game about plagiarism and academic misconduct adds a layer of context to the broader conversation.

This game is likely most appropriate for students who are relatively new to the structures, pressures, and requirements of the post-secondary environment.

Reviewers: Saskia Sterzl, Johannes Katsarov

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Potions!

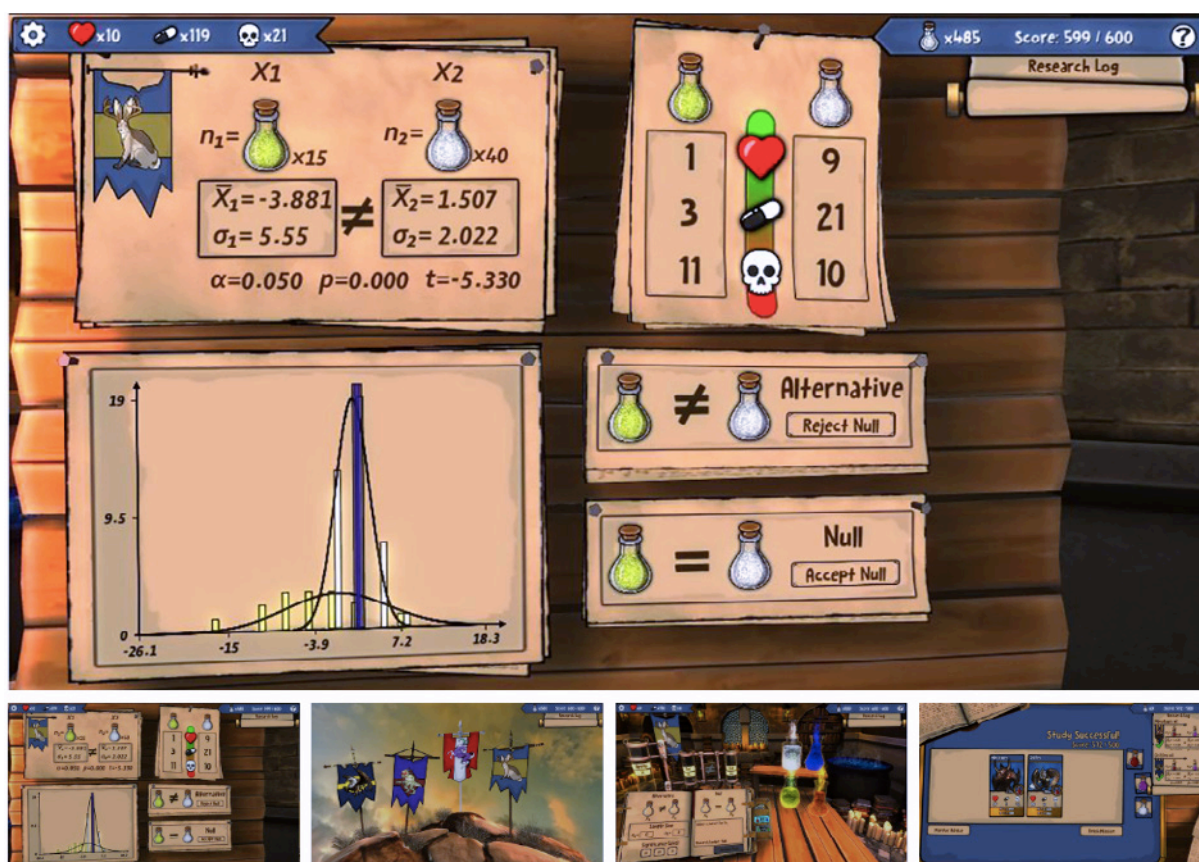
Developed by: K20 Center

Article contributed by: Dave Carlgren

<https://doi.org/10.5281/zenodo.15674722>

Keywords

Critical Thinking, Hypothesis Testing, Quantitative Reasoning, Science, Statistics



Gameplay screenshot from Potions! (K20 Center). Used for academic review and illustration. Rights remain with the original developer.

Introduction

Potions! (see Figure) is a puzzle game designed to improve understanding of hypothesis testing (K20 Center, n.d.). In this game, players attempt to blend different potions to save dying mythical creatures. Using one- and two-tailed tests with different potions, the player can see whether their concoction has an effect, is ineffective, or causes damage to the creatures in the test group before attempting to apply it to the entire population. This game should appeal to introductory statistics classes and students willing to explore concepts with a playful spirit. Potions! has been created with hypothesis testing firmly in mind, and all controls and actions are designed

to produce clear outcomes from the player's tests. The game has been developed by the K20 Center at the University of Oklahoma.

Facts

Release date:	2016
Developer:	K20 Center
Game type:	Digital
Number of players:	1
Format:	Synchronous
Time frame:	1–1.5 hours
Languages:	English
Environment:	Online play
Material:	Instructor resources are available. In-game tutorial walks the player through the steps.
Price:	Free with registration

Resonance & Criticism

Building on ideas such as engagement, enjoyment, flow, and framing statistical problems in a fictional narrative, Potions! is a relatively light introduction to hypothesis testing without undue simplification of the concepts. Players who are interested in learning through play and engagement have found Potions! to be a creative and fun way to learn hypothesis testing. Students who were more used to traditional lecture formats learned an equal amount, as indicated by performance on summative assessments, but were unsatisfied with the experience, as indicated by subjective feedback.

The K20 website reports that their games will “impact over 12,000 students in 46 Oklahoma schools” in 2018. Broader data is not currently available.

Game Principle & Process

This game is set in a fictitious fantasy world where mythical creatures are being cursed. Your job is to use hypothesis testing to save as many creatures as possible in several different trials with different antidotes. Using one- and two-tailed testing, modifying sample sizes, and analyzing the results, players determine the best possible formulation to save creatures.

The in-game tutorial provides a walkthrough of all the features and the basics of hypothesis testing. Once the levels are entered, the game gets much more challenging as the data becomes harder to interpret based on the tests run.

The instructor guide clearly outlines the learning objectives, and the game remains true to these objectives.

The game uses a point system for each level: successfully saved creatures earn +3 points, while those who perish earn no points. Each level has a minimum score to pass and move to the next challenge. This is a single-player game with no player interaction.

Learning Objectives & Educational Fields of Application

Potions! is all about hypothesis testing in a fictional fantasy narrative structure. The game mechanics are simple, and all directed toward helping the player reach the learning objectives. An in-class instructor may find it necessary to add explanations early in the game, but players also develop skills and interpretations rapidly as they play more. This game was designed to teach hypothesis testing, and it does so adequately and enjoyably, without sacrificing accuracy in mathematics or interpretation.

Effectiveness

No empirical evidence has been found to date on the effectiveness or learning impacts of Potions!

Potentially Problematic Aspects

The mythical creature narrative does an excellent job of eliminating sensitive topics. Younger players may find the inevitable death of test creatures to be challenging. As of this writing, Potions! is only available in English, and the reading level matches the topic.

An additional challenge is that the narrator occasionally uses jargon and slang in his written communications and instructions. The purpose of this is unclear, but it can be distracting at best and confusing at worst.

Reviewer: Johannes Katsarov

Sources

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Prisoner in My Homeland

Developed by: Thirteen, The WNET Group, PBS, Electric Funstuff

Article contributed by: Alina Burmeister

<https://doi.org/10.5281/zenodo.15928270>

Keywords

Abuse, Civil Rights, Empathy, Ethical Decision-making, Ethical Dilemmas, Forced Displacement, Japanese American Incarceration, Law, Migration, Population Expulsions, Racial Injustice, U.S. History



Screenshot from Prisoner in My Homeland (Thirteen; The WNET Group; PBS; Electric Funstuff). Used for educational review. Rights remain with the original creators.

Introduction

This point-and-click adventure game follows Henry Tanaka, a fictional 16-year-old Japanese American boy during World War II. Designed for middle school students, the game is an immersive role-playing experience that fosters historical perspective-taking and critical thinking. After Japan attacked Pearl Harbor in 1941, President Roosevelt's Executive Order 9066 forced Henry's family and over 120,000 other Japanese Americans to leave their homes. They have to relocate from the family's strawberry farm on Bainbridge Island to an incarceration camp in Manzanar, California.

Players step into Henry's shoes, make decisions, and see how their choices shape his story. The game combines history with interactive learning, encouraging discussion and deeper exploration through additional resources. The game is part of the Mission US game series, developed in 2020 by Thirteen, the WNET Group, PBS, and Electric Funstuff, in collaboration with historians, educators, and the Japanese American community.

Facts

Release date:	2020
Developer:	Thirteen; The WNET Group; PBS and Electric Funstuff
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	90 min–2 h
Languages:	English
Environment:	Computer or tablet
Material:	300 pages of educational material are provided online
Price:	Free of charge

Resonance & Criticism

Mission US is a widely recognized educational game, with over four million registered users across the U.S. and beyond (The WNET Group, n.d.). The game has been highly praised by both players and experts, earning notable prizes for "Prisoner in My Homeland", including the 2021 Japan Prize for Best Work in the Digital Media Division and a Gold Medal in the K-12 Education Category at the 2021 International Serious Play Awards.

Game Principle & Process

The game is divided into a prologue, three chapters, and an epilogue, each

displaying a different part of Henry's journey as he adjusts to life in a Japanese American internment camp. In the prologue, the player learns how to navigate the world and select options. Players guide Henry through the camp, completing tasks such as taking a job, attending school, and prioritizing activities like sports or camp duties.

Social interaction is a key element, as Henry interacts with other non-player camp residents (NPCs), each offering diverse perspectives and experiences. Players receive feedback through badges, such as "Community Builder" or "Questioning Authority", which reflect their choices and shape the story's outcome. There are no right or wrong choices to make (Schrier et al., 2024). Additionally, they expand their vocabulary by collecting key terms in a personal organizer, reinforcing historical and cultural learning throughout the game.

Activities like the decision tracker, mission reflections, and document analysis enhance understanding of the motivations behind historical events. Before each chapter, students can be given a decision tracker and a reflection sheet to note the decisions they make, why they make them, and how these choices affect the story. The teacher is advised to remind students to reflect on

their values and the outcomes of different decisions before making them, to foster empathy and understand the complexity of decision-making.

The students should take a few notes after each decision and reflect on whether they would have made it if they were in Henry's situation, or whether a Japanese American teenager in the 1940s would have made it.

After going through the decision tracker, the students are given the mission tracker, in which they must explain the story's content and their impressions of the camp or its characters.

These tools allow students to test their knowledge and reflect on the values shaping their decisions in the game.

Learning Objectives & Educational Fields of Application

By immersing players in historical scenarios, the game fosters historical empathy, which is defined as "[...] where we get to when we have successfully reconstructed other people's beliefs, values, goals, and attendant feelings" (Ashby & Lee, 1987, p. 63). It also develops critical thinking skills by encouraging players to analyze historical evidence and think like historians.

To achieve these goals, the game integrates structured educational tools. Teachers are provided with 300 pages of supporting materials, including clearly defined learning objectives, a curriculum outline, and timelines for each chapter. These resources also include historical background information to help the educator prepare for potential questions and discussions.

The teacher's role is supportive yet flexible. The game suggests walking through the prologue together in class, where teachers can explain the historical context and game mechanics. After this initial session, students can play independently, either in the classroom or at home, reducing the need for constant teacher involvement. The provided resources ensure educators can confidently guide their students without requiring extensive preparation.

Effectiveness

Research on serious games provides valuable frameworks for understanding the effectiveness of Mission US as an educational tool. Bruner's (2009) concept of situated cultural contexts emphasizes that learning occurs within specific cultural settings, utilizing relevant cultural resources. This aligns closely with Mission US, which immerses players in the historical struggles for freedom, democracy, and equality, encouraging them to adopt the perspectives of ordinary people in the past. Implementing primary sources like photos, diaries, and documents expands the player's experience. This approach encourages critical thinking and mimics historians' work, such as analyzing evidence, identifying bias, and interpreting causality (Schrier et al., 2010).

The game achieves a high level of immersion through goal-based, narrative-driven gameplay that places the player in control of Henry Tanaka's emotional and physical journey, aligning with Lachlan and Maloney's (2008) argument that such interactive state transitions heighten a user's susceptibility to deep engagement within the game's environment.

Moreover, A. Knowlton's (2021) narrative analysis supports the game's effectiveness and engageability by concluding that its use of second-person narration and interactive choice empowers students to guide the story in ways that align with their own values, thereby enhancing

narrative fidelity and increasing the likelihood of intertextual understanding and perceived credibility of the characters and central theme.

Potentially Problematic Aspects

The game delves into sensitive themes like racial injustice, historical trauma, and their inter-generational effects, encouraging players to reflect on how past events impact families and communities. While these topics are essential for fostering empathy, educators must handle discussions with care to ensure students feel supported and comfortable engaging with these challenging issues (Schrier et al., 2024).

Reviewer: Johannes Katsarov

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Quandary

Developed by: Learning Game Network (LGN), FableVision

Article contributed by: Karen Schrier

<https://doi.org/10.5281/zenodo.15870029>

Keywords

Critical Thinking, Empathy, Ethical Decision-making, Ethics, Moral Development, Perspective Taking, Philosophy



Example artwork from Quandary, a digital ethics and critical-thinking game. © Learning Game Network (LGN) and FableVision. All rights reserved for the creators.

Introduction

Quandary (see Figure) is an online, browser-based, free, single-player educational game that aims to teach ethical thinking, reflection, argumentation, and problem-solving (Osterweil et al., 2019). The game was initially designed for middle and high school students but has also been used effectively for higher education (university settings) (Schrier, 2021). In *Quandary*, players

take on the role of a captain who is collaborating with others to build a new society on a fictional planet called Braxos. They face various challenges, such as what to do about missing sheep, which may have fallen prey to the Yashor, a native creature of Braxos. Players must investigate the situation by gathering evidence from community members, distinguishing between opinions and facts, and formulating a solution. Quandary was created through a collaboration of scholars at Harvard, MIT, and Tufts, as well as game developers at Learning Games Network (LGN) and FableVision. In 2024, LGN (a nonprofit spinoff from MIT's Education Arcade) was awarded a top prize in the international edtech Tools Competition. This prize funded an expansion of game features, including an episode focused on AI ethics, an AI chatbot designed for post-game reflection, and a "build-your-own episode" functionality. Quandary has been played more than 2.4 million times in many countries worldwide.

Facts

Release date:	2012
Developer:	Learning Game Network (LGN) and Fablevision
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	15–20 minutes
Languages:	English, Spanish
Environment:	Online (browser-based)
Material:	https://quandarygame.org/resources?language_content_entity=en has resources and lesson plans; website includes additional teaching material, such as: https://quandarygame.org/sites/default/files/2024-03/documents/Quandary_ExtensionQuestions.pdf
Price:	Free of charge

Resonance & Criticism

Quandary has been used in social studies, law, civics, and ethics classrooms. It has won awards like Games for Change (2013-Game of the Year), Parents' Choice Awards (2013), Serious Play Awards (2013), and the Common Sense Education Top Pick for Education (2018). Most recently, Quandary was a top prize winner in the aforementioned Tools Competition.

A few possible criticisms of the game include its limited interactivity and limited representation of diverse avatars. While the graphics are innovative for a 2D game, there is not much interaction beyond sorting, pointing, clicking, and reading through comic-style introductions. The original game features two avatars (a male and a female, both with tan skin) and forces you to choose one. It is, however, understandable that a free online game may not be able to include multiple avatar types. However, the citizens of Braxos (NPCs) are diverse.

Game Principle & Process

Each episode of the game begins with a graphic novel-style overview of an ethical dilemma. It invites players first to understand and contextualize a given problem (such as the missing sheep

and Yashor predators). The game then asks players to interview the citizens of Braxos, consider all perspectives, and categorize them into groups (such as facts, opinions, and solutions). For instance, players explore multiple possible courses of action, such as constructing a fence, setting traps, poisoning the Yashor, or doing nothing. They need to engage with NPCs, listen to their perspectives, and sort gathered information into solutions. After weighing the evidence, players then decide on the best course of action for the community.

Unlike traditional games, Quandary does not present clear-cut right or wrong answers. Instead, players are rewarded for their reasoning skills and earn points for how well they differentiate between facts and opinions and support their chosen solution with evidence. The game emphasizes the ethical decision-making process rather than simply arriving at the correct answer, fostering critical thinking and problem-solving skills.

This means that a player gets points based on their process of finding a solution, rather than on the solution itself. A student might reach the same solution as another student but get different points because of how they arrived at it. Since Quandary's scoring works differently from other games, a student might not understand at first why they gained or lost points. This helps the student to understand that solutions are not the only outcome, but that the process is also important.

The game is based on models such as project-based learning, which, in this case, focuses on actively involving players in skills like problem-solving, decision-making, and evidence-based reasoning within a real-world-inspired scenario. This allows them to explore ethical dilemmas through immersive, hands-on experiences. The game also relates to the social problem-solving process, which "is the cognitive-behavioural process that an individual goes through to solve a social problem" (Quandary website).

Learning Objectives & Educational Fields of Application

The primary learning objectives of the game, as stated on the website, are to "develop critical thinking and perspective-taking, practice empathy, and learn how to make ethical decisions" (Quandary website). The game facilitates learning in several ways. First, although the science fiction setting of Braxos and its inhabitants in Quandary are fictional, the game's problem-solving processes are rooted in real-world logic, evidence, and ethical reasoning. By working through a real-world, authentic scenario and dilemma and scaffolding the problem-solving process, players can develop critical thinking skills in the game and transfer those abilities to real-world contexts.

Teachers can integrate this game into their classrooms in multiple ways. One approach is to have students work in pairs, collaborating as they navigate the game and discuss their choices, such as how to categorize a piece of evidence or determine which evidence is most relevant to solving a challenge. Alternatively, students can first play individually and then later engage in a full-class discussion to compare their chosen solutions and the reasoning behind them. Teachers can also facilitate class debates and deliberations and encourage students to use evidence from the game to support their arguments.

Additionally, educators can extend the learning experience by having students design their own science fiction societies or worlds. Working in teams, students could develop various aspects of

their fictional communities, including communication systems, food distribution, and public spaces. They might consider potential ethical dilemmas and how their society's citizens might address them. As mentioned earlier, the team is developing a Build-Your-Own episode capability. This means students can also create their own episodes of Quandary by coming up with an ethical scenario, creating and naming characters, and assigning perspectives to them. By designing an episode, they will be encouraged to think about how a potential audience member might approach their work, and this might further perspective-taking and other ethical decision-making skills.

While Quandary is used in middle and high school, it can be instrumental in higher education as a low-barrier, engaging way to practice ethical reasoning and to spark conversations about real-world dilemmas or ethics in professional fields. The Build-Your-Own functionality is potentially helpful for older students who can not only play the game but also think about how to structure scenarios within it.

Effectiveness

On the Quandary website, the learning objectives include “help[ing] students recognize and deal with ethical situations in their own lives by developing their critical thinking, perspective-taking, empathy, and decision-making skills [...]. Quandary can also be used to help develop literacy and life skills, including problem solving, communication, information literacy, global awareness, collaboration, and creative thinking” (Quandary website).

This is backed by research. Researchers investigated Quandary and found that players used perspective-taking, ethical decision-making, and other skills (such as weighing the consequences of different possible solutions) (Hilliard et al., 2016; Osterweil et al., 2019). Researchers also examined student conversations around the game, which suggested that it can help jump-start moral perspective-taking and reflection on morality (Gee & Hilliard, 2017). A study across 12 classrooms and a comparison group showed improvements in fact vs. opinion comprehension, self-reported perspective-taking, concern for others, and more, alongside high teacher satisfaction and student engagement among tested fifth- and ninth-graders (Hilliard et al., n.d.). Currently, the team is conducting further research on engagement with the game, its learning objectives, and its new components (e.g., chatbot).

Potentially Problematic Aspects

The game does not include potentially problematic content such as specific political or social issues. Instead, Quandary was designed to explore complex universal ethical dilemmas without telling students what to think or do.

While there are no known serious risks, there are limitations regarding accessibility and representation. There are only two languages (English and Spanish), and bandwidth may be limited in more remote settings. Additionally, screen readers may not read all the text on the screen, and images are not always tagged with alt text. However, the game is available in a free 2D format, and mobile versions make it more accessible to a broader audience.

Finally, there is a limitation in the representation of diverse gender and racial identities in the selection of the avatar. This should be discussed up front so students understand the limitation and how it might impact their play.

Reviewers: Kevin Rebecchi, Krista Bonello Rutter Giappone

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Reise unter die Oberfläche

Developed by: Tuğçe Fatma Özdemir, Hatice Simsek

Article contributed by: Michael Louis Eulenstein,

Clara Sophie Wiese, Nabila Sijilmassi

<https://doi.org/10.5281/zenodo.15939005>

Keywords

Cognitive Bias, Collaborative Problem-solving, Culture, Diversity, Empathy, Global Citizenship Education, Inclusion, Intercultural Communication, Political Science



Overview pages and example screen from *Reise unter die Oberfläche*, a hybrid digital escape room for intercultural learning and education for sustainable development. © Tuğçe Fatma Özdemir and Hatice Simsek. All rights reserved for the creators.

Introduction

Journey Beneath the Surface (*Reise unter die Oberfläche*; see Figure) was developed by Tuğçe Fatma Özdemir and Hatice Simsek in cooperation with the Green Office, the Department of Business Administration and Business Informatics, and the International Office at the University of Hildesheim.

The digital escape room aims to foster intercultural competences, particularly knowledge, self-reflection, and perspective-taking, among higher education students. The game is designed to

provide students with insights into intercultural models, enable them to reflect on cultural assumptions, and foster openness in dealing with intercultural encounters. Its design builds on established intercultural frameworks such as those of Hall [Hal76] and Hofstede [Hof01].

Since intercultural learning is most effective in interactive, real-life settings, serious games offer an opportunity to simulate interpersonal encounters while simultaneously imparting theoretical knowledge. The escape room is one of several learning units designed to teach intercultural skills in the context of Education for Sustainable Development (ESD).

Facts

Release date:	2024
Developer:	Tuğçe Fatma Özdemir, Hatice Simsek
Game type:	Digital, Hybrid
Number of players:	1–several (recommended up to 4)
Format:	Hybrid
Time frame:	At least 30 minutes, optimal 45–60 minutes, Multiplayer mode slightly increases time
Languages:	English, German
Environment:	Web browser, Internet, mobile device, or computer, no installation required
Materials:	Not required, but other modules of the e-learning course “Basic knowledge Working in Intercultural Teams” by “Your Goal - Your Action” are helpful
Price:	Freely available via Genially (embedded)

Resonance & Criticism

A qualitative evaluation is currently being conducted. Following a test run, students were interviewed in focus groups. Minor technical flaws in the game design weakened its effectiveness. Challenges with navigation and overly complex puzzles negatively impacted the game’s flow. Despite the criticism, the results show that Journey Beneath the Surface meaningfully encourages students to better understand the construction of cultural identity and to reflect on their own thinking and behavior.

Game Principle & Process

The gameplay follows a group of students preparing for an excursion abroad. To progress through the rooms, players must identify and understand intercultural models such as the iceberg, onion, or backpack models (Hall, 1976; Hofstede, 2001; Hofstede, 1991).

Informative texts, models, and quiz units encourage reflection on the construction of cultural identity, for example, through the onion or backpack models. Familiarity with the various models enables a deeper understanding of the individuality and complexity of cultural identity formation. Through this theoretical input and because the game is modelled on a familiar team situation in a heterogeneous group, players are also unconsciously encouraged to question their own thought patterns and assumptions about the game characters, which are often influenced by superficial characteristics such as language, origin, or clothing style. In a later puzzle, the

game attempts to break these stereotypes by randomly assigning characteristics that have no influence on gameplay but do shape players' perceptions. Each room contains puzzles and decision-making tasks that prompt individual reflection and group discussions in local multiplayer. Narrative progression is supported through audiovisual feedback and built-in hints.

Learning Objectives & Educational Fields of Application

The escape room is a module of the e-learning "Basic Knowledge of Working in Intercultural Teams" offered by the "Your Goal – Your Action" (YGYA) project on its website (www.uni-hildesheim.de/deinprojekt). It is included in the chapter "Approaches and Models". The primary purpose of the game is to raise awareness of how individual and cultural aspects, e.g., language, symbols, thought and behavior patterns, power relations or values, are (in)visible, how this (in)visibility shapes cultural identity, and how this affects interpersonal interaction.

It aims to strengthen global consciousness, cultural empathy, and critical thinking in intercultural interactions. These skills promote crucial reflection and inclusive dialogue, both of which are core elements of transformative learning and ESD [WWR11].

The game fits flexibly into both classroom-based and digital settings, and it is often paired with post-game debriefs to connect gameplay to theory. The non-linear design supports autonomous navigation and peer-learning while encouraging mutual understanding in intercultural teams.

Effectiveness

Nabila Sijlmasi is currently undertaking a comprehensive qualitative analysis of the game's effectiveness as part of her master's thesis. The initial evaluation of the focus group interviews indicates that the game effectively supports intercultural learning. Participants highlighted the emotional resonance of the metaphors, the intuitive design, and the puzzles' effectiveness in stimulating self-reflection.

Potentially Problematic Aspects

Stereotypes, especially in the context of intercultural learning, may be reproduced unconsciously. When creating the game, an effort was made to be as sensitive to discrimination as possible and to avoid preconceptions, for example, by randomly assigning characteristics to the game's characters or by working with a diverse team of developers.

Reviewers: Bilgehan Karatas, Ashley Rezvani

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Remember. The Children of Bullenhuser Damm

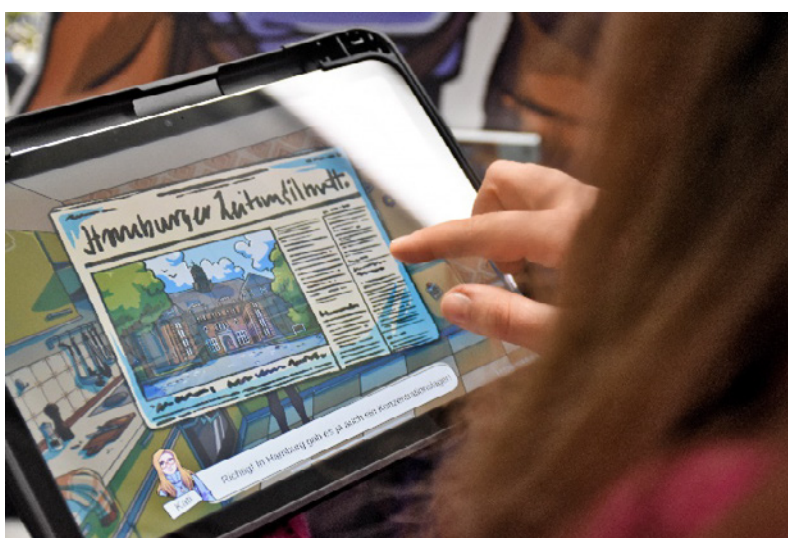
Developed by: Paintbucket Games

Article contributed by: Lucas Haasis

<https://doi.org/10.5281/zenodo.15938198>

Keywords

Death, Democratic Values, Empathy, Memorials, Political Science, Remembrance Culture, World War II History



Remember. The Children of Bullenhuser Damm in use by a student—image courtesy of Stiftung Hamburger Gedenkstätten (photographer: Iris Groschek).

Introduction

The digital remembrance game *Remember. The Children of Bullenhuser Damm* is based on the history of the Bullenhuser Damm Memorial in Hamburg, which commemorates 20 Jewish children and 28 adults murdered by the SS in 1945. Before their murder, the children were subjected to pseudo-medical experiments at the Neuengamme concentration camp. The game introduces young people to the memorial's history, focusing not on the crime but on remembrance culture and the question, "How is this history relevant to me today?" Players experience different perspectives on remembrance through the eyes of five students from the school Bullenhuser Damm in the late 1970s. They uncover traces that reveal the background to this unimaginable crime. The game complements visits to the memorial, encourages reflection, and promotes active participation in remembrance culture.

The game was developed by the Foundation of Hamburg Memorials and Learning Centers Commemorating the Victims of Nazi Crimes, in collaboration with Paintbucket Games, and funded

by the Alfred Landecker Foundation. The Oldenburg Gamelab developed teaching instructions. The game is available for free on both Android and iOS platforms.

Facts

Release date:	28 November 2024 (German version); 14 April 2025 (English version)
Developer:	Paintbucket Games
Game type:	Digital
Number of players:	Single player
Format:	Hybrid; In class, all students play the game simultaneously, but each student participates individually.
Time frame:	Each of the five individual character stories has a duration of approximately 20 to 30 minutes. In class, students may select a character from among the characters, with each student typically playing one. To experience all five characters, the total gameplay time is 2 hours.
Languages:	English, German
Environment:	The game is available for free download on Android, iOS, and macOS. System Requirements: Android 9 or later, iOS 14.0 or later, macOS 11.0 or later. For optimal use, the game is best played on tablets, allowing each student to engage individually and subsequently participate in group discussions. Content rating: USK 12+ (contains themes of violence and war).
Material:	The game can be integrated into classroom instruction and played without additional materials. However, to support effective implementation, comprehensive teaching instructions have been developed, offering teachers lesson plans and supplementary source material. Instructional resources are available on the memorial's website. Materials have been tested in history classes and are designed to be user-friendly for educators.
Price:	The game is free on Android, iOS, and macOS. Teaching materials are also available at no cost, in hard copy or electronic format, on the memorial's website.

Resonance & Criticism

Students who engaged with the game, whether at school, university, or directly at the memorial, responded very positively. They participated in meaningful discussions about remembrance, personal impact, and responsibility. This real-life connection is a key reason for incorporating games into educational settings. In "Remember. The Children of Bullenhuser Damm", this connection is tangible: young people interact with the characters, identify with them, and reflect deeply – an outcome rarely achieved so directly in the classroom. As a result, the game is well-suited to both history and civic education. It has received very positive press coverage and, in 2025, was nominated for "Best Serious Game at the German Computer Game Award (DCP).

Game Principle & Process

The game immerses players in the roles of students at Bullenhuser Damm School c. 1980, who uncover traces of the Nazi past and are prompted to reflect on history and memory. Using a

point-and-click interface, players interact with various characters and explore different time periods, gradually constructing a personal, subjective narrative of remembrance. Remembrance is depicted as fragmented, inconsistent, and individual, thereby highlighting the multiplicity of perspectives.

Each of the five playable characters embodies distinct memories and themes, all of which are connected to the story of the children of Bullenhuser Damm. These diverse themes enable players of different ages to explore a range of topics and foster meaningful conversations.

The memorial's context is introduced at the outset; however, players must actively uncover the historical background through exploration. They visit multiple locations, interact with people, and collect objects, which together form "memory spaces" enriched with original documents, audio recordings, and eyewitness accounts. Learning unfolds gradually, mirroring the processes inherent in real-life remembrance work, and the central message remains that such atrocities must never be repeated. Designed for both individual and group play, this adventure game encourages discussion and emotional engagement, ensuring that students are supported and given a voice. The interactive format facilitates trial-and-error, reflection, and a sense of self-efficacy, thereby addressing a range of competencies. Most importantly, the game motivates young people to connect historical reflection with their own lives and present-day experiences.

Learning Objectives & Educational Fields of Application

The game is well-suited for teaching history lessons on National Socialism, the Holocaust, and remembrance culture. It can be integrated into a variety of subjects, including history, politics, religion, ethics, or as part of an independent project. Central to the game are the questions "What is remembrance?" and "How does this relate to me?", which are aimed at fostering an understanding of the significance of remembrance culture and memorial sites, as well as encouraging personal reflection on one's own role and responsibility in the remembrance process. Additionally, the game can be used to prepare for or follow up on a visit to the memorial site.

Teachers are responsible for providing students with foundational knowledge of Nazi Germany and the Holocaust, framing the use of the game, and ensuring that the gaming session is structured and purposeful. Comprehensive teaching instructions, including lesson plans and supplementary materials, are available to support reflection on the question "What does it mean to remember Nazi crimes?" These materials have been tested in educational settings. The game is recommended for students aged 12 and older, as it aligns with curricular requirements and students' prior knowledge.

The game's straightforward mechanics make it accessible and easy for both students and teachers to engage with. It is advisable for teachers to play through the game in advance of classroom use. Students may play the game simultaneously on tablets, with gameplay followed by group and plenary discussions. At the conclusion of each story, a "memory room" links the digital experience to authentic sources and eyewitness interviews, creating a powerful moment of realization for students as digital narratives merge with real historical accounts. While the game offers a complete narrative, it intentionally leaves many questions unanswered, underscoring the idea that remembrance is an ongoing process and never fully concluded.

Effectiveness

During development, the game was evaluated by several focus groups comprising 20–30 students from various schools, grade levels (7–13), and school types. Feedback from both teachers and students was actively incorporated into the design process. Students played the game both at school and at the memorial site. The game proved highly immersive, with students strongly identifying with the teenage characters and actively engaging in the search for clues. Testing demonstrated that the game successfully engaged all students. The educational impact was particularly profound when the game was played on-site, immediately before visiting the memorial.

Potentially Problematic Aspects

The game introduces the fate of the murdered children with sensitivity and respect; however, the narrative and the visit to the authentic site may evoke feelings of grief or shock. The game is designed to support players in discussing the crime and processing their emotions. Teachers should be aware that both students and the educators themselves may have emotional responses, making thorough preparation and follow-up essential. Nevertheless, evaluations have shown that students valued the opportunity to learn about the children through the game before visiting the memorial or engaging more deeply with the historical events.

Reviewers: Saskia Sterzl, Dave Calgren

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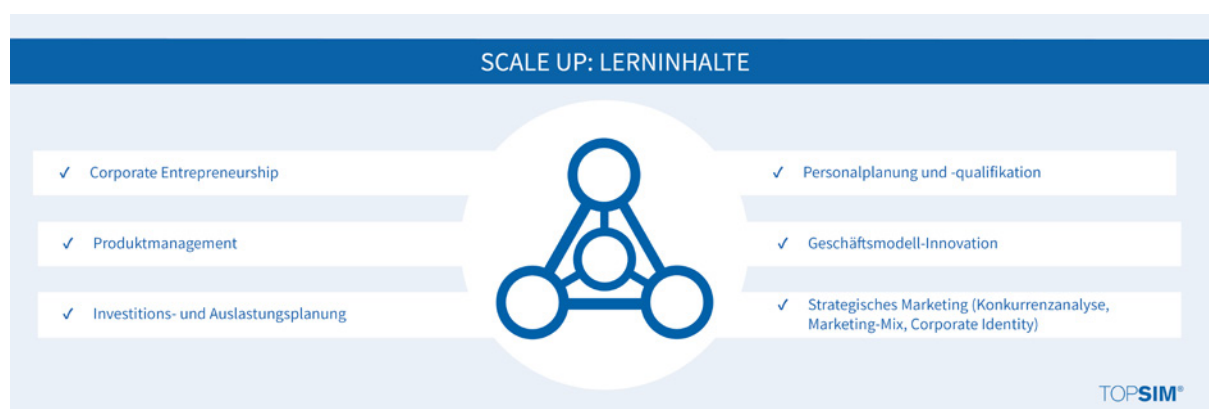
Scale Up

Developed by: TOPSIM GmbH
Article contributed by: Robert Galiard

<https://doi.org/10.5281/zenodo.15924481>

Keywords

Business, Competition, Cooperation, Corporate Leadership, Digitalization, Financial Management, Innovation Management, Marketing, Operations Management, Production Management, Strategic Decision-making, Technology



Graphic from Scale Up. Rights owned by TOPSIM GmbH; used here for educational review.

Introduction

Scale Up (see Figure) is a strategic business simulation that places participants in the role of managing a traditional scooter manufacturer. The objective is to guide the company through digital transformation and develop a sustainable business model for the future. Participants must make strategic decisions in production, marketing, finance, and human resources.

The simulation targets students, professionals, and leaders who want to train their management and decision-making skills in a realistic environment.

As a serious game, *Scale Up* combines playful elements with real economic challenges to enable practice-oriented learning. The focus lies on strategic thinking, digital transformation, and innovation management.

The game was developed by TOPSIM, has been available since 2020, and is continuously updated. It is used in various academic and corporate settings to prepare participants for complex management tasks in a digital market environment.

Facts

Release date:	Initial release: 2020. Current version: 1.7.0 (27.09.2024)
Developer:	TOPSIM GmbH
Game type:	Digital hybrid (at least one player per team requires internet access)
Number of players:	Optimum: 9–25 (3–5 groups of 3–5 persons each) per market. Multiple markets are possible. The number of players is infinitely scalable.
Format:	Asynchronous, Hybrid
Time frame:	Approx. 10–24 hours depending on how many of the six periods are played, how the simulation is run, and whether evaluations or additional tasks are included. Time and effort also depend on the intended learning outcomes.
Languages:	English, German
Environment:	Device: Tablet, PC, or laptop (minimum 720p). Browsers: Chrome, Firefox, or Safari. Internet access required.
Material:	Participants receive an introduction, a participant manual, business news, and seminar materials. Facilitators receive a facilitator handbook. Short description: https://www.topsim.com/wp-content/uploads/2024/05/Scale_Up_Flyer.pdf ; Blog article: https://www.topsim.com/blog/digitalisierung-mit-scale-up-meistern/
Price:	TOPSIM simulations are not free. Licensing costs depend on the simulation, number of participants, and usage model. Costs are calculated individually; for accurate pricing, direct inquiry with TOPSIM is recommended.

Resonance & Criticism

Scale Up is used primarily in companies and universities to provide practical experience in strategic management. For example, the CBS International Business School in Mainz uses it in interdisciplinary courses where students from different programs collaborate, bringing diverse perspectives into the decision-making process (TOPSIM GmbH, 2022b).

Exact user numbers or distribution statistics are not publicly available, but participant and expert feedback is predominantly positive. At Hochschule Osnabrück, students showed great enthusiasm and applied theoretical lecture content in practice (TOPSIM GmbH, 2020). No specific awards or critical reviews of Scale Up are publicly documented.

Game Principle & Process

In Scale Up, participants act as executives of a scooter manufacturer transitioning its business model towards electric mobility. The round-based simulation consists of up to six periods, with each team making up to 40 decisions per period across finance and accounting, research and development, procurement, sales, production, and human resources.

The simulation places special emphasis on developing and scaling new business models, for instance, through choosing between traditional and digital sales and service platforms, and on balancing physical sales channels with online marketing budgets. Economic news and VUCA scenarios introduce disruptions and volatility from the beginning, teaching participants how to manage digital transformation processes under uncertainty.

The goal is sustainable growth in company value, profit, and market share. After each period, the TOPSIM Cloud generates automated reports containing financial and production metrics as well as competitive benchmarks. These provide immediate, data-driven feedback and support an iterative learning process.

Teams consist of three to five participants. Four to six teams typically compete in parallel to ensure sufficient competitive pressure. Total playtime ranges between 10 and 24 hours, usually distributed over two to three sessions of 4–8 hours each.

TOPSIM offers a full-day facilitator training (8-hour live webinar) and recommends an additional 4–6 hours of self-study using manuals and demo scenarios to familiarize instructors with the interface, analytics tools, and didactic applications.

The simulation is grounded in research-based theories of business model innovation, strategic marketing, and financial management. Scale Up realistically simulates internal interdependencies and external disruption factors. It is a clearly structured digital scenario that distinguishes itself from classic business simulations by its strong focus on digital transformation mechanisms.

Learning Objectives & Educational Fields of Application

Scale Up imparts practice-oriented management competencies focused on scaling strategies, data-driven decision-making, and digital transformation. Participants lead a company intending to develop a sustainable business model that adapts effectively to market changes and enables long-term growth.

The simulation supports these learning goals through realistic scenarios in which participants must analyze large volumes of information and react flexibly to market changes. This dynamic environment strengthens strategic thinking as players continuously adjust their decisions to evolving competitive conditions. Regular evaluation of financial metrics and market analyses actively guides the learning process. The simulation includes a detailed feedback and reward system that facilitates reflection on decisions.

Instructors serve in a supportive and moderating role. They introduce the scenario, guide decision-making processes, and lead reflection discussions to foster knowledge transfer. Typically, one instructor per seminar is sufficient. The simulation is suitable for universities, professional training programs, and corporate learning environments focused on strategic management and business decision-making.

In addition to business-related learning goals, the simulation also strengthens social competencies. Participants work in teams, discuss strategies, and make joint decisions. This fosters communication skills, teamwork, and negotiation abilities. By basing the simulation on strategic management and digital transformation models, Scale Up provides realistic training for entrepreneurial thinking and behaviour. The simulation-based environment allows participants to apply theoretical content directly and better understand complex economic relationships.

Effectiveness

No specific empirical studies on the effectiveness of Scale Up are currently available. However, practical reports from educational institutions indicate positive effects. For instance, it was successfully integrated into programs at Hochschule Osnabrück, where students created companies and applied strategic planning. Participants demonstrated enthusiasm and improved their self-organization skills in online learning environments (TOPSIM GmbH, 2020).

At CBS International Business School in Mainz, Scale Up is used across academic programs, allowing diverse perspectives to enrich entrepreneurial orientation (TOPSIM GmbH, 2022b).

Indicators of engageability suggest that the realistic simulation and dynamic market conditions increase player engagement. While anecdotal evidence suggests positive learning effects, further empirical research is needed for definitive conclusions.

Potentially Problematic Aspects

Scale Up contains no sensitive themes such as violence, drug abuse, or discrimination. The sustainability of virtual companies is partly measured through social factors, though deeper socio-political discussions are not included. Ethical considerations of corporate responsibility can be integrated through additional tasks, even if not explicitly part of the simulation.

As a digital business simulation, Scale Up poses no physical risks. However, participants with visual or motor impairments may encounter barriers without adequate accessibility adjustments. Furthermore, the simulation presumes business knowledge, which may challenge some learners.

Reviewer: Hannes Hamester

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Signs of the Sojourner

Developed by: Echodog Games
Article contributed by: Marcel Seibt

<https://doi.org/10.5281/zenodo.15938090>

Keywords

Abuse, Communication Dynamics, Communication Studies, Empathy, Ethical Decision-making, Relationships, Self-reflection

Introduction

Signs of the Sojourner is a narrative-driven card game developed by Echodog Games and released in 2020. The game revolves around the themes of communication and relationships. The player assumes the role of a character who takes over their mother's shop after her death and embarks on journeys to collect new goods. Along the way, the player encounters various characters with whom they interact through card play. The deck of cards represents the character's experiences and relationships and evolves throughout the game.

The story of *Signs of the Sojourner* is very relatable through the protagonist's relationship with their mother and a close friend. These emotional connections add a vivid, profound layer to the narrative, motivating the player to collect goods from the game world for the shop. This personal journey and its associated challenges make the story not only captivating but also meaningful. Additionally, the game offers multiple endings depending on the player's decisions, which adds to its replayability and depth. Each choice influences the direction of the story and the relationships, leading to a variety of possible conclusions.

A particularly emotional moment in the game is when the initial attempts to gather enough goods to keep the shop running fail. These moments of disappointment and frustration, when the protagonist is forced to give up, deepen the emotional aspect of the story. They illustrate the real-life challenges one can face, making the successes in the game even more meaningful.

Facts

Release date:	2020
Developer:	Echodog Games
Game type:	Digital Card Game
Number of players:	Single player
Format:	Asynchronous
Time frame:	Approximately 30 minutes to several hours, depending on game pace
Languages:	Available in multiple languages, including English and German
Environment:	PC or Mac with internet connection
Material:	All necessary materials are available online
Price:	One-time purchase, no subscription required

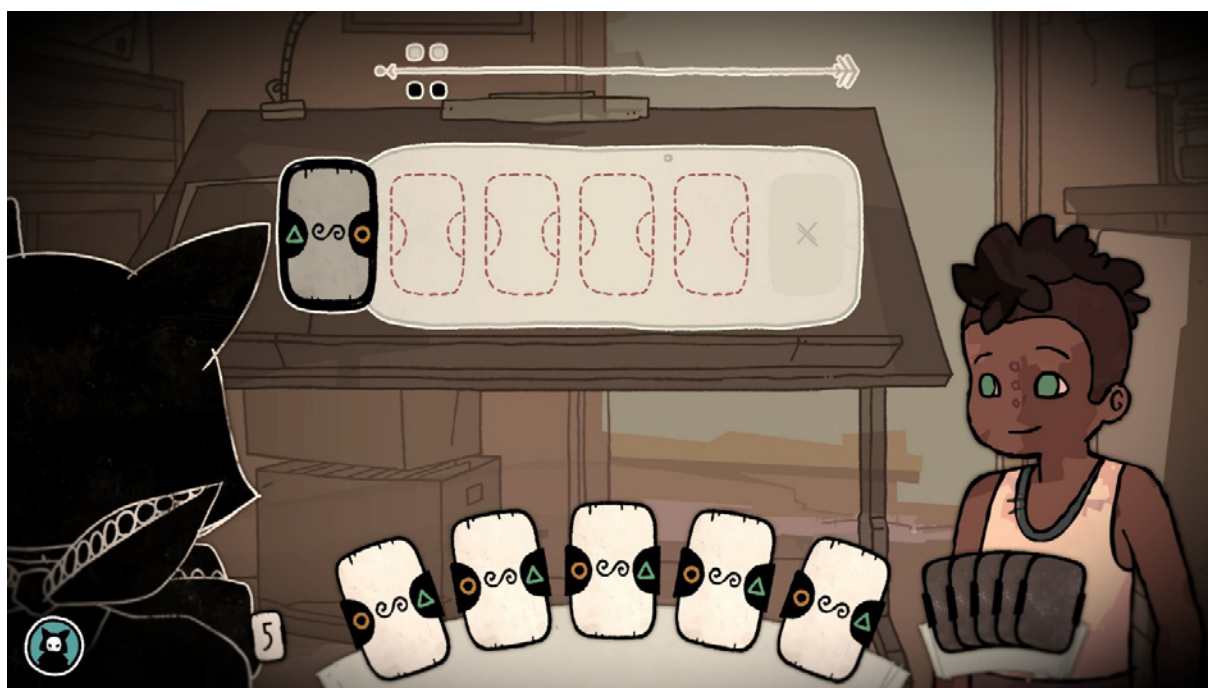
Resonance & Criticism

Signs of the Sojourner has been praised for its innovative game mechanics and deep narrative. It stands out from other games for its unique portrayal of communication and relationships. Critics have highlighted that the game offers an empathetic and thoughtful gaming experience. The game has established itself as a valuable tool for understanding communication dynamics.

It received a significant recognition at DreamHack Anaheim 2020, where it won the Best RPG Award in the Indie Playground. This award underscores the game's creative excellence and innovative approach to depicting interpersonal interactions.

Game Principle & Process

In Signs of the Sojourner, everything revolves around interacting with various characters through card play. Each card represents a communication pattern, and the player must connect these patterns to have successful conversations (see Figure). The player's deck evolves over the course of the game based on their experiences and decisions.



In-game screenshot showing the card-based communication system in Signs of the Sojourner (Echodog Games). Used for educational review. Rights remain with the creators.

Simple communication concepts are introduced at the beginning, while the tasks become increasingly complex as the game progresses. Players must learn to strategically use their cards to achieve successful interactions, with each decision having consequences for relationships and the progression of the story.

Throughout the game, special events, such as an earthquake, affect the dynamics of communication. In this situation, an additional communication style, referred to as "Grief," is introduced.

This extension adds additional emotional depth to interactions and highlights the impact of external events on communication.

Initially, the player possesses only cards from the starting area, featuring circles and triangles. Depending on where the player travels, they can randomly acquire new cards on the way or during conversations. However, they must always give up one card, so the number of cards in the deck remains the same. The game is turn-based and consists of 5 rounds during which the player can explore the world of Signs of the Sojourner. The player has 50 days to complete tasks and explore locations. During this time, the player accumulates fatigue cards that cannot be used in conversations but still take up space in the deck. As the game progresses, it becomes more difficult to have successful conversations.

There is a caravan that the player can accompany through the world. However, not all locations are unlocked at the beginning. The player must find out through successful conversations how to reach new locations. Characters provide information about available routes, allowing each round to be individually designed. Each game can thus be individually designed through this mechanic. However, there are advantages to staying with the caravan, such as more tasks and more goods received.

Each area has two preferred communication styles. Since players receive cards corresponding to the area after a conversation, the first conversations in new regions are often complex. The longer the game goes on, the more complicated the card mechanics become. For example, special effects can be included randomly, increasing complexity and motivating players to use different tactics.

Learning Objectives & Educational Fields of Application

Signs of the Sojourner aims to provide players with a deeper understanding of communication dynamics and interpersonal relationships. The game promotes empathy and self-reflection by immersing players in various social interactions and encouraging them to reflect on the impact of their choices.

The game is particularly useful in educational settings to teach topics such as communication, decision-making, and empathy. It can be used in courses that focus on psychology, sociology, and interpersonal communication.

Effectiveness

Although there are no specific studies on the effectiveness of Signs of the Sojourner as a learning material, playful experiences suggest that the game can improve players' ability to recognize and manage complex communication situations. Immediate feedback and the opportunity to learn from mistakes promote problem-solving and self-reflection.

The study by Barr (2018) shows that commercial video games can contribute to the development of skills such as communication, adaptability, and resource management. These findings support the assumption that Signs of the Sojourner can also help to promote communication skills through its playful elements.

Overall, *Signs of the Sojourner* cleverly combines the elements of an adventure game with the teaching of communication skills. The direct link between the cards played and the game's visible actions makes the abstract topic of communication livelier and motivating.

Potentially Problematic Aspects

While *Signs of the Sojourner* aims to represent communication patterns through card game mechanics, it eventually became clear that the cards functioned more as elements of colour compatibility rather than actual communication tools. Since it was previously known which two communication styles a character had, it was less about communicative difficulties and more about the compatibility of the cards. This could lead players to focus more on the strategic selection of cards rather than engaging with the deeper aspects of communication.

For my taste, it would have been more interesting if the game had offered the possibility of responding to assertive characters with empathy and soothing them over the course of communication. This would have added more depth to the card mechanics and focused more on actual communication rather than just choosing the right colour. Thus, the cards often remain tools that need to fit, without representing the diversity of real communicative challenges.

Reviewer: Johannes Katsarov

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children needed to find a way to communicate with each other, signing in ways that weren't allowed in their classrooms and sharing signs on the playground and on bus rides to and from school (Nicaraguan Sign Language Projects). In this game, players role-play specific deaf child personas and devise their own ways to communicate with other players during "recess" and during "class". Though the gameplay is highly simplified and not meant to reflect the genuine experiences of the Deaf community, it aims to give players a unique experience that challenges them to communicate in a silent environment and to work together to build something new.

Facts

Release date:	2017
Developer:	Kathryn Hymes & Hakan Sayalioglu, Thorny Games
Game type:	Analog
Number of players:	4–7
Format:	Synchronous
Time frame:	2 hours
Languages:	English, Dutch, Norwegian
Environment:	Quiet room with one "classroom" space with chairs, and one open "recess" space. A table is lovely to have in the classroom, and simple toys in the "recess" space.
Material:	Game book, Language Deck, note cards, markers.
Price:	\$20 USD for the physical version; free for the digital edition. All proceeds from the physical version are donated to the Nicaragua Sign Language Projects.

Resonance & Criticism

Like other games by Thorny Games, Sign has received praise for showing how language can foster human connection through a collaborative role-playing game that centers on the experiences of marginalized people. The game won the 2015 Best Free Game (Indie RPG Awards), 2015 Most Innovative Game Runner Up (Indie RPG Awards), Game of the Year Runner Up (Indie Game Developer Network), Honorable Mention (Golden Cobra 2015 Awards), and was a 2017 Indiegade Finalist.

Game Principle & Process

The objective of the game is for all players to share their characters' aspirations and social goals and to learn those of the other players. There is no winner or loser, as this is a collective effort. The game deck consists of 68 cards: 12 character cards, 14 word cards for developing signs, and six cards for each of the seven turns of gameplay.

The game starts with one player serving as the teacher. The teacher presents the background and context for the game, leads players in warm-up exercises to focus on nonverbal communication, guides them through the game's stages, and concludes with a group debriefing. The rest of the players each receive a student character card, loosely based on real students at the Nicaraguan Deaf school, and are tasked with sharing their stories and learning about others'

stories. Character cards include the name, personality traits, one “truth” for the character (e.g., “I want to be a children’s book author someday”), the character’s relationship goals (e.g., “learn a trick from someone”), and a short narrative to help the player inhabit the role of their character.

The central gameplay is done silently, switching between Class and Recess turns, each having a focal goal and specific cards from the game deck. The class turns are structured by the teacher, with deliberate creation of signs. The recess turns are unstructured; students must work together to create meaning and achieve shared understandings. For example, the goal of the First Class is for all players to develop a sign for their character’s name, introduce themselves to the rest of the class, and remember the signs for any other students that might help them achieve a relationship goal. The goal of the First Recess is to interact with the other students, being guided by their relationship goals. They must also keep track of compromises, the times in which they felt they were not fully understood, or did not understand another, to help remind them of the frustrations and struggles they experienced. Sign asks players to keep track of compromises by marking the backs of their hands, but Clynes 2024 suggests using a clicker or tally counter to help players maintain eye contact during gameplay. The final debriefing gives players a chance to discuss and reflect on their experiences playing the game.

Learning Objectives & Educational Fields of Application

Sign was created for a live-action role-playing game (LARP) challenge to design a game centered on unheard voices and incorporating touch (Golden Cobra). Already familiar with the Nicaraguan sign language story, the game developers focused on the everyday struggle to communicate and be understood within the Deaf community (Witte & Bindewald 2020, p. 61).

In terms of educational content, the game book provides brief information about the Nicaraguan story. Still, the warm-up exercises do not explain how they relate to any particular features of signed languages. The Debriefing includes some points on the differences between the game and the stories that inspired it. The discussion questions posed during the debriefing guide players to reflect on their feelings during gameplay, their challenges in understanding and being understood, and how their communication changed throughout the game. On its own, the game has the potential to meet learning goals related to perspective-taking, developing a sense of group belonging, and adapting to using different senses in non-verbal ways.

For a richer experience that goes beyond mere gameplay, it is recommended that instructors supplement the game with additional information on signed languages, language development, child socialization, or other content relevant to their use of the game. Such materials could be presented to students after they finish the game, so that the added content does not affect their experience. In addition, Clynes (2024) suggests that including deaf players in the gameplay “is likely to give a more authentic experience” (p. 71e).

The game could be adapted to accommodate more than 4 to 7 players. It includes 12 distinct character cards; theoretically, the game could be played with up to 13 players, 12 students, and one facilitating teacher, without the need for additional characters. One can imagine the teacher dividing these students into two groups, with one group in class while the other is at recess, to keep each group within the intended size (during recess turns, it is up to the teacher whether

they participate). In classes with more students, the game might be played by only some students, with the rest of the class observing. If there is sufficient space, one could also play the game with more players by duplicating the character cards. However, it is recommended that players be grouped into “classes” of 5 to 6 players, and that there is one teacher for no more than two classes, to give players an experience as close to the original gameplay as possible.

Effectiveness

Players have found the game to be very effective in helping them experience the difficulties of communicating without a shared language. As one reviewer put it, “It’s a game about encountering strangers and building sympathy and solidarity with them, and it is, in general, really good at that” (Ashwell, 2019).

After playing the game as part of a graduate seminar, education students found that Sign was more effective in giving players an authentic experience of marginalization than other role-playing activities (Witte & Bindewald 2020, p. 62). Clynes (2024) found that playing the game increased the empathy and awareness of deaf experiences in assistant language teachers in Japan: “Disability simulations have the risk of creating pity rather than empathy. However, the tools provided seem to have promoted a more capable and positive view of the experience” (p. 72e). The game is meant to be played in smaller groups of 4 to 7 players, so it may not be as effective if played with a larger number of people. The effectiveness of the game also relies on players’ willingness to interact and engage non-verbally. Players with greater familiarity with live-action role-playing games, or those who are more open to them, have more impactful gameplay.

Potentially Problematic Aspects

Some critics highlight that games like Sign often profit from presenting the experiences of marginalized peoples in simplified and/or stereotyped ways (eclectic meeple). Though the game may instil empathy for the Deaf community, players of such games are often unintentional and do not reflect the characters represented in the game without explicit instructions to do so (Belman & Flanagan, p. 15–16). The game designers were conscious of this weakness, so they consulted the Nicaraguan Sign Language Projects and American Sign Language speakers during game development. In an interview, Hymes states, “This is a game about a community that we’re not a part of. Deaf children are represented here and embodied [...] [but the game] isn’t meant to be an experience about what it is to be a modern deaf person” (Witte & Bindewald 2020, p. 64). There is a risk that non-deaf players may draw on preconceived, inaccurate notions of signed languages, reinforcing those notions in gameplay rather than developing their own non-verbal communication. However, the initial Warm-Up exercises and the closing Debriefing can help mitigate these issues and, therefore, should be treated as essential framing components of the game.

Reviewers: Johannes Katsarov, Kevin Rebecchi

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Social Management

Developed by: TOPSIM GmbH

Article contributed by: Robert Galiard

<https://doi.org/10.5281/zenodo.15924052>

Keywords

Business, Care Management, Economics, Geriatrics, Health Policy, Healthcare Systems, Human Resource Management, Medical Ethics, Nursing, Political Science, Quality Management, Social Insurance Law, Social Management, Social Policy, Strategic Decision-making



Graphic from Social Management. Rights owned by TOPSIM GmbH; used here for educational review.

Introduction

Social Management (see Figure) is a serious game that simulates the management of a nursing home. Participants assume the role of executive management and make decisions on staffing, finances, infrastructure, and care quality. The aim is to combine financial stability with high care standards.

The simulation is designed for students, professionals, and leaders in the health and social sector, as well as decision-makers in care facilities.

As a serious game, Social Management combines practice-oriented learning with playful decision-making and teaches management competencies in the care sector.

The game follows a round-based approach: Over up to six periods (simulated fiscal years), participants analyze operational indicators, respond to events, and refine their strategies as a team.

Social Management was developed in 2022 by TOPSIM GmbH in collaboration with experts from the care sector. Version 1.1 was released in November 2024.

Facts

Release date:	Initial release: 2022, Current version: 1.1 (2024)
Developer:	TOPSIM GmbH
Game type:	Digital, hybrid (at least one player per team needs internet access)
Number of players:	Optimum: 9–25 (3–5 groups of 3–5 people per market). Multiple markets are possible. The number of players is infinitely scalable.
Format:	Asynchronous, Hybrid
Time frame:	Approx. 2–4 days, depending on the number of periods played, how the simulation is implemented, and whether evaluations or additional tasks are integrated. Time and effort depend on the intended learning outcomes.
Languages:	German
Environment:	Device: Tablet, PC, or laptop with at least 720p. Browsers: Chrome, Firefox, or Safari. Internet connection required.
Material:	Participants receive an introduction, a participant manual, and seminar materials. Short description: https://www.topsim.com/wp-content/uploads/2024/05/Social_Management_Flyer.pdf ; Blog article: https://www.topsim.com/blog/ein-pflegeheim-leiten-mit-social-management/
Price:	TOPSIM simulations are fee-based. Exact prices depend on the simulation, the number of participants, and the usage model. For precise information, direct inquiry with TOPSIM is recommended.

Resonance & Criticism

Social Management was developed in collaboration with Niederrhein University. It is used mainly in academic contexts, e.g., at University of Kempten in the master's program "Management in Health and Social Care" (Learning by Doing for Master Students – Social Management Simulation, 2024).

Students and professionals appreciate the practical simulation and the opportunity to make business decisions in a risk-free environment. Social Management received the Brandon Hall Group Excellence Award in 2022 in the category "Best Use of Games or Simulations for Learning". Concrete user numbers have not been published.

No criticisms were mentioned in the available sources. The simulation was developed for the German market, is based on German regulatory conditions, and is currently only available in German.

Game Principle & Process

The game proceeds in rounds over several periods, with each period requiring specific decisions. Participants analyze reports, evaluate the effects of previous decisions, and adjust strategies accordingly. They have complete control and can choose between various actions to achieve their goals.

The main goals are clearly defined: ensuring the financial stability of the nursing home while maintaining or improving care quality. Detailed reports provide continuous feedback after each period, helping participants understand the consequences of their decisions.

Depending on group size, participants can play individually or in teams. In team settings, the simulation promotes cooperation, communication, and joint decision-making—skills essential in care facility management.

The simulation is based on business administration theories and social management models. It integrates aspects of health economics, quality management, and strategic corporate management in the care sector.

The simulation is designed so that instructors with basic knowledge in care and social management can use it effectively. Preparation and familiarization with the mechanics and scenarios are recommended. TOPSIM GmbH regularly offers facilitator training. Required preparation time depends on prior experience; however, the game is designed to be easy to learn.

Learning Objectives & Educational Fields of Application

Social Management teaches the business and strategic competencies required to manage care facilities. Participants make decisions in staffing, finance, and quality management, constantly balancing profitability and care quality.

The simulation fosters several key competencies. These include a solid understanding of business administration, especially the analysis of financial indicators and forward-looking planning. Strategic thinking is developed through the development of sustainable management strategies, while realistic challenges strengthen problem-solving skills. Team communication improves through group decision-making. Another essential learning objective is understanding the social sector, including relevant legal and organizational frameworks.

To enable practice-oriented learning, the simulation is based on realistic scenarios simulating daily care operations. Interactive decisions with direct consequences help clarify complex relationships. Detailed analysis reports support reflection and strategic adjustments. Dynamic events such as unexpected staff shortages or new legislation add further challenges.

Instructors introduce the simulation, moderate reflection phases, and analyse results with participants. One instructor is generally sufficient; with larger groups, additional support may be helpful.

Realistic market conditions and regulatory requirements create a practice-oriented environment that prepares participants for challenges in the care sector. The simulation-based approach connects theory and practice while providing a risk-free platform for training management skills.

Effectiveness

No specific empirical studies on the effectiveness of Social Management have yet been conducted. However, general research on business simulations shows positive effects on knowledge acquisition and engagement. A longitudinal study by Lohmann (2019) indicates that simulations contribute sustainably to learning (Rappenglück, 2023). They also promote political participation and support the transfer of values and norms (Rappenglück, 2023).

Regarding engageability, simulations create sustainable learning effects through social action-based orientation (Goldmann et al., 2020). The immersive experience can induce a flow state in which challenges and participants' skills align.

Although no specific data exist for Social Management, these general findings suggest that the serious game fosters both engagement and effective learning.

Potentially Problematic Aspects

Social Management deals with complex topics such as staffing, finances, and care quality without explicitly addressing sensitive subjects like suicide, drug abuse, or violence. However, realistic simulations of staff shortages or budget cuts may be emotionally challenging.

Since economic decisions in the game often involve cost reductions or staffing changes, insufficient reflection could lead to neglect of ethical considerations. Additionally, the simulation relies on current economic conditions in the care sector, which may change quickly; updates aim to compensate for this.

Accessibility concerns may arise for users with visual or cognitive impairments, as the simulation relies heavily on extensive data tables and analyses. A more accessible version would be a helpful improvement.

Reviewers: Saskia Sterzl, Hannes Hamester

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SOLUTRÉ

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Keywords

Economics, Land-use Planning, Natural Heritage, Protected Areas Management, Rural Development, Stakeholder Management, Strategic Decision-making, Sustainability, Territorial Governance, Tourism



Photo of a SOLUTRÉ play session (authors' team). Used for educational review. Rights remain with the creators.

Introduction

SOLUTRÉ (see Figure) is an analog board game developed in a French context that explores how a rural area can develop by reconciling local quality of life, tourism development, and a good ecological status. Thanks to this semi-cooperative game, players can take on the perspective and actions of a territorial actor, aiming to manage the territory while navigating their conflict-

ing interests collectively and sometimes antagonistic sustainability challenges. This game is used in higher education and by professionals in geography and land planning to teach territorial planning and governance, and to encourage students and professionals to consider different paths to sustainable development. It helps students to understand the complexity of a territory by modeling its dynamics. Students can gain a better understanding of these intertwined dynamics and even observe how the territory evolves throughout the game. The game's researchers and authors have been working on this project since 2016. It required four successive research programs to reach this edition. In 2017, territorial diagnostics based on qualitative field surveys enabled the 2017–2018 cohort of the BIOTERRE Master's program to develop a beta version of the game. This version was refined by a game designer starting in 2020. The game's formalization was further refined by a society called PlayTime.

Facts

Release date:	June 2024
Developer:	Anne Jégou, Damien Marage, David Simiand, Nicolas Bécu, Brice Anselme, Laurent Simon, Catherine Carré
Game type:	Analog
Number of players:	5–10 (one box – one game table)
Format:	Synchronous
Time frame:	90 minutes.
Languages:	French, English (Box is in French; English is a Print & Play version)
Environment:	A classical classroom
Material:	No additional material needed
Price:	Print & Play versions are freely available. Board game costs €55 per box.

Resonance & Criticism

Surveys were conducted after the session, one with 268 students and another with 31 planning professionals. The game was very well received: 87% of students and nearly all professionals recommended it.

In 2024, SOLUTRÉ received the Grand Prize from ISAGA (International Simulation and Gaming Association), with the jury recognizing it as a highly accomplished land-planning game.

Two main criticisms emerged. First, the game has been criticized for its weak emphasis on sustainability in territorial development. The relevance of strong sustainability and degrowth can be a key topic in the debriefing session. The second criticism concerns the game's complexity, which makes it less accessible to the public. However, managing territorial complexity is precisely the game's main learning objective, making SOLUTRÉ particularly relevant for higher education.

Game Principle & Process

SOLUTRÉ requires five players, each of them representing a different role: mayor, inhabitant, tourism professional, conservationist, and winegrower. In turn, the five players carry out territorial development actions, generating resources, improving hospitality facilities, preserving bi-

odiversity, etc. These actions contribute to both the players' secret objectives and their common objectives. They make decisions, which can be more or less organized. Having a degree of control over each part of the territory, they have some room for manoeuvre. However, for optimal results, it is in their interest to share or even negotiate around their actions. For example, the inhabitant can set up a health service and several leisure and cultural activities, regulate the influx of tourists by offering bed-and-breakfast accommodation, or increase the appeal to tourists (auditorium, music festival). Of the five players, the inhabitant is the only one with actions that enable them to act directly and alone on brush clearance, eco-pasturing, and volunteer brush clearance.

SOLUTRÉ is highly sensitive to the way facilitators introduce individual and collective objectives to the players. Because the game is designed for learning purposes, determining the winner matters less than debriefing about the players' experience and the implicit content.

Depending on where SOLUTRÉ is played and on the players' expectations, facilitators can present the individual and collective objectives as having the same importance, and let the players accomplish both; they can also make individual success conditional on achieving the common objective (renewing the label); alternately, facilitators can leave this question aside and let the players set their own goals and hierarchies.

SOLUTRÉ is part of the case study sheets of the companion modelling approach: <https://www.commod.org/en/case-studies/solutre>. Our observation sheet and questionnaires are also directly inspired by the Serious Games Observation Manual. To develop the game, an ARDI diagram (Actors, Resources, Dynamics, Interactions), derived from the Commod methodology (Etienne, 2010), was formalized to model the territorial dynamics of the Grand Site de France Solutré-Pouilly-Vergisson.

Learning Objectives & Educational Fields of Application

SOLUTRÉ is primarily a geography and planning game, but it is also relevant to a wide range of disciplines, including ecology, economics, and the humanities. It can be played by both students and planning professionals. Its main learning objective is to help players understand the conflicting issues involved in the sustainable management of a heritage territory.

More specifically, SOLUTRÉ allows players to experience the complexity of territorial governance by taking on the role of a local stakeholder. Students not only gain insight into the dynamics between stakeholders in land-use planning, but they also have the opportunity to position themselves, collaborate, and develop strategies. Through the game, they experiment with power relations among local actors and engage in the collective resolution of territorial issues.

Players are particularly invited to navigate the balance between personal strategies and collective decision-making, often through moral dilemmas. The debriefing session provides an opportunity to reflect on and discuss the sustainability model represented in the game.

In surveys, students highlighted the acquisition of soft skills. Playing SOLUTRÉ enables them to engage in collective intelligence, applying their negotiation skills, persuasive abilities, initiative, patience, and capacity for compromise. They also gain experience in collective decision-making within a complex environment.

Facilitating a game session is highly flexible: it can be adapted to different educational objectives and requires varying levels of preparation. Numerous resources are available on the website. One teacher can oversee up to four gaming tables simultaneously for a group of approximately 35 students.

Effectiveness

Based on 268 respondents, survey results indicate that the game is a success. Professionals rated their enjoyment at 8.3/10, while students rated it at 7.5, highlighting a well-balanced game flow. The enthusiasm among professionals can also be seen as validation of the knowledge embedded in the game. Over 82% of students would like to play the session again. Over 87% of them would recommend the game to their colleagues or friends (Marage et al., 2024).

Less than 38% of students feel they avoid academic work. However, more than 73% of them have learned about governance and regional and urban planning. A discourse analysis was conducted. Students valued cross-disciplinary skills such as dialogue, listening, and negotiation. However, very few mentioned the moral dilemma and sustainable development. The lexical field of the economy, development, attractiveness, and tourism is much broader than that of the environment and nature conservation. Starting from the simulated reality, the game appears to represent a weak sustainability model linked to the Anthropocene era. Gameplay and debriefing allow for critiquing weak sustainability and help students and their teachers grasp the moral dilemmas and critical engagement that arise.

Potentially Problematic Aspects

SOLUTRÉ does not present any significant problematic aspects, as it is semi-cooperative and does not involve violent scenarios. As a board game, it does not contain any hazardous situations. Players with disabilities can participate by playing in pairs or receiving assistance from a teammate. The graphics have been designed to accommodate color blind players, though they are less optimized for those with myopia.

However, SOLUTRÉ is not particularly gender-inclusive, despite the creators' efforts to avoid masculine biases in stakeholder names and objectives. Overall, the game remains well-suited for higher education students.

Reviewer: Saskia Sterzl

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StarsEngines

*Developed by: Siegfried G. Zürn et al.
Article contributed by: Siegfried G. Zürn*

<https://doi.org/10.5281/zenodo.15794427>

Keywords

Business, Collaborative Problem-solving, Project Management, Simulation-based Learning, Stakeholder Management, Strategic Decision-making, Systems Thinking



Example setup of StarsEngines during facilitated gameplay. The image is used for illustrative purposes only.

Introduction

StarsEngines is a digital simulation game developed in 2020 and significantly modified in 2024 under the leadership of Siegfried G. Zürn at Esslingen University of Applied Sciences. Designed to integrate systems thinking into project management education, the game provides an immersive, interactive learning environment for students and professionals. StarsEngines leverages the impactation® Method to emphasize the interdependencies within technical, organizational, and social systems (Zürn & Holzner, 2025).

Participants engage in realistic project scenarios that simulate the complexities of modern R&D project management in the automotive industry. Based on the findings of Bakhshi et al. (2016) and Morcov et al. (2020), project complexity scenarios have been created to challenge players to balance technical, strategic, and interpersonal skills while adapting to dynamic conditions such as resource constraints and stakeholder shifts. The actions the players can take are selected based on the ICB4 competence areas (IPMA, 2015). StarsEngines has been applied successfully in academic training at various universities, demonstrating its versatility and effectiveness for project management training.

Facts

Release date:	2020; new version: 2024
Developer:	Siegfried G. Zürn and team, Esslingen University
Game type:	Digital Simulation
Number of players:	3–6 players per team
Format:	Classroom, online, and hybrid feasible
Time frame:	120–180 minutes
Languages:	English
Environment:	For digital play
Material:	Predefined scenarios, interactive dashboards, and instructional guides
Price:	Free for public education institutes, licensing agreements for others

Resonance & Criticism

No large-scale peer-reviewed empirical study of StarsEngines has yet been published; formal data collection is planned for 2025. Course-level evaluations across several universities report that StarsEngines is both engaging and highly transferable. In recent undergraduate cohorts at Esslingen, more than 90% of participants recommended its continued use, even though about 70% had never worked with a simulation before. They emphasize the game's lifelike pressure, the visibility of feedback loops, and the need for tight team coordination as major drivers of learning (Zürn & Brunner, 2021). Some players find the initial complexity daunting and request concise theory cues or quick-reference aids during play; others suggest either extending the run time or reducing the team size to allow deeper discussion. These enhancements have already been included in the current version.

Game Principle & Process

StarsEngines immerses players in a fictional yet realistic R&D project environment: a technology development initiative for a hybrid engine control unit. Participants assume the role of a project manager, tasked with achieving predefined objectives while navigating the complexities of the interdependent project system.

The game is structured into multiple rounds, each representing one month of project duration. Dynamic events, such as budget constraints and unforeseen technical setbacks, add layers of complexity, requiring adaptive decision-making. Players choose from a variety of actions, such as reallocating resources, addressing technical challenges, and engaging with stakeholders.

These actions influence interconnected elements, including team dynamics, project outcomes, and resource utilization. They also affect the occurrence and severity of new or recurring events (Zürn & Brunner, 2021).

By integrating the principles of the impactation® Method, StarsEngines emphasizes the systemic impact of decisions. Players must consider short- and long-term consequences to foster a holistic understanding of a project management dynamics. The game's iterative nature allows participants to refine strategies and improve outcomes over successive rounds.

Learning Objectives & Educational Fields of Application

StarsEngines enables learners to think and act systemically in complex project environments. By steering a hybrid-engine R&D project through 12 monthly rounds, participants experience how every action – hiring staff, postponing a review, reallocating budget – impacts the whole system of cost, schedule, quality, and stakeholder satisfaction. They enhance their strategic foresight and decision-making skills under pressure through (1) diagnosing, reinforcing, and balancing feedback loops, (2) weighing short-term gains against long-term systemic impact, and (3) coordinating decisions in cross-functional teams where communication is as critical as analysis.

Facilitators play a central role in transforming these experiences into lasting insights. A 15-minute briefing introduces the impactation® framework, followed by a 5-minute video clip presenting the case and project framework. Micro-debriefings on a project dashboard after each round uncover potential deviations from project goals and prompt participants to consider next actions. In a 30–45-minute final discussion, the simulation results are reviewed, and observed patterns are linked to project management best practices.

As the game mechanics mirror real project pressures (resource scarcity, dynamic stakeholder behavior, and some accidental events) and the complexity can be adjusted by selecting different scenarios, StarsEngines is versatile across educational settings. It can be used in undergraduate and master-level project management courses, MBA and executive programs, corporate talent training, and interdisciplinary team-building workshops. The digital format also supports full online delivery or hybrid realization.

Effectiveness

Feedback from participants highlights StarsEngines' effectiveness in bridging theoretical concepts with practical application. Students report increased awareness of systemic interdependencies, improved communication skills, and a deeper understanding of adaptive strategies. Structured debriefings at the end of the simulation further reinforce learning by encouraging reflection on decision-making processes and outcomes.

Potentially Problematic Aspects

StarsEngines relies heavily on facilitator guidance and structured debriefing to translate gameplay experiences into learning outcomes; without sufficient facilitation, key systems-thinking insights may remain implicit. In addition, the simulation's domain-specific focus on automotive R&D may limit immediate transferability to non-technical or non-industrial project contexts un-

less explicitly contextualized by instructors. However, similar simulations based on cases of different domains are available from the same author by request.

Reviewers: Barbara Holzner, Daniel Geist

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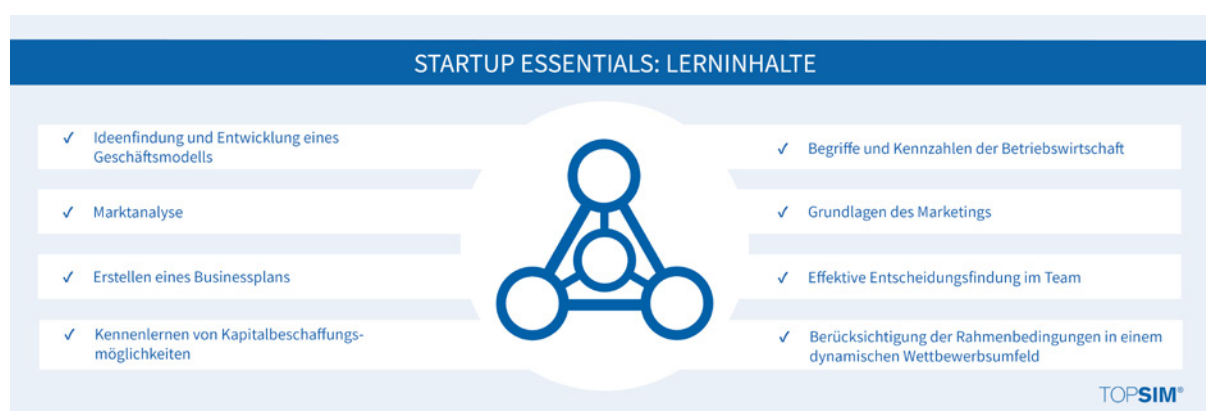
Startup Essentials

Developed by: TOPSIM GmbH
Article contributed by: Robert Galiard

<https://doi.org/10.5281/zenodo.15924723>

Keywords

Business, Entrepreneurship, Financial Management, Human Resource Management, Innovation Management, Investment, Marketing, Project Management, Strategic Decision-making



Screenshot from Startup Essentials (TOPSIM GmbH). Used for educational review. Rights remain with the creators.

Introduction

The *Startup Essentials* simulation models the founding and management of a company using the example of a surfboard manufacturer. The thematic focus lies on the essential steps of starting a business—from ideation to business model development and financial and strategic planning. The goal is to convey economic relationships in a practical way and promote entrepreneurial thinking.

The primary target groups include students in business-related programs, founders, and professionals seeking to improve their business decision-making skills. As a serious game, Startup Essentials combines playful elements with a realistic learning approach, fostering interactive, application-oriented knowledge transfer.

The game is based on a step-by-step decision-making process: Participants analyze market conditions, make financing decisions, and develop management strategies. The simulation was released in 2017 by TOPSIM GmbH and has been continuously developed since then.

Facts

Release date:	Initial cloud release: Version 1.0 (2017). Current version: 5.1.0 (26.06.2024)
Developer:	TOPSIM GmbH
Game type:	Digital hybrid (at least one player per team requires internet access)
Number of players:	The number of players is infinitely scalable.
Format:	Asynchronous, Hybrid
Time frame:	Approx. 10–24 hours depending on how many of the six periods are played, how the simulation is conducted, and whether evaluations or additional tasks are included. Time and effort also depend on the intended learning objectives.
Languages:	English, German
Environment:	Device: Tablet, PC, or laptop (minimum 720p). Browsers: Chrome, Firefox, or Safari. Internet access required.
Material:	Participants receive an introduction, a participant handbook, business news, and seminar materials. The facilitator gets a seminar leader's handbook. Short description: https://www.topsim.com/wp-content/uploads/2024/05/Startup_Essentials_Flyer.pdf ; Blog article: https://www.topsim.com/blog/von-der-existenzgruendung-zur-unternehmensfuehrung-mit-startup-essentials/
Price:	TOPSIM simulations are fee-based. Licensing costs depend on the simulation, number of participants, and usage model. Direct inquiry with TOPSIM is recommended.

Resonance & Criticism

Startup Essentials allows participants to experience the typical steps of business creation without risk and to run a virtual company. No precise user numbers or detailed distribution statistics are currently publicly available. Its integration into university curricula and the frequent use of facilitator training programs suggest that the simulation is mainly used in teaching and professional development. Overall, Startup Essentials appears to be perceived as an innovative teaching tool in entrepreneurship education, though further evaluation is needed.

Game Principle & Process

In Startup Essentials, participants go through up to six simulated fiscal years (periods), during which they complete the stages of starting a business—from developing an idea and creating a business and financial plan to operational company management.

Teams use the specially developed “Startup Web” platform for market research, create a complete business plan using the business plan tool, and pitch it to virtual investors or the seminar leader to secure financing. In each round, they make up to 14 decisions across sales, research & development, procurement, finance & accounting, production, and human resources.

In the TOPSIM Cloud—the digital learning platform of TOPSIM—they monitor simulated market reactions in real time. Continuous feedback through dynamic reports and KPI charts enables

participants to reflect on and adjust their strategies in short cycles. Economic news keeps them informed of changing market conditions. Moderation analyses show that learners benefit most in serious-game settings when they work in teams, repeat the intervention, and combine game-play with traditional teaching (Wouters et al., 2013).

The simulation's structured design provides complete decision control and, through teamwork under time pressure, strengthens communication and problem-solving skills. To prepare instructors to lead the simulation, TOPSIM offers a full-day (8-hour) live webinar facilitator training and recommends approximately 4 hours of self-study using the handbook and demo scenario.

Learning Objectives & Educational Fields of Application

Startup Essentials develops business competencies by guiding participants through the phases of starting and running a company. The focus lies on the ability to manage complex entrepreneurial situations. Learners analyze market information, identify demand potential and competitive advantages, and design a viable business model. With support from a business plan assistant, they develop a structured plan incorporating market analysis, financing strategies, and operational implementation.

A key aspect of the simulation is capital acquisition. Participants compare financing options and practice negotiation skills through dialogues with investors. After securing funding, they run the company and make decisions in production, marketing, and personnel management. The simulation enables them to develop strategies, consider economic conditions, and use company data to inform decision-making.

Teamwork plays a central role. Participants make decisions under time pressure, improving teamwork, communication, and problem-solving skills—mirroring real entrepreneurial challenges. Instructors accompany the simulation, introduce the process, and guide reflection phases. One instructor is generally sufficient to supervise multiple teams.

The game's mechanics support learning objectives through practical decision-making, real-time feedback, and a realistic market simulation. The immediate responses to decisions deepen understanding of economic relationships. Combining strategic planning, capital negotiation, and market analysis makes Startup Essentials particularly valuable for business education and prepares participants for entrepreneurial challenges.

Effectiveness

No specific studies on Startup Essentials have been conducted yet. However, practice reports and external research support the effectiveness of entrepreneurial simulations. A report on its use at Business School Stegersbach highlights that the practical design makes economic content tangible and encourages active engagement with business strategies (TOPSIM GmbH, 2021).

A quasi-experimental study by Sofiullah et al. (2023) demonstrated that online business simulations significantly improve entrepreneurial self-confidence, knowledge, and skills in university students. According to Samašonok et al. (2020), participants also reported improvements in

leadership, management, and entrepreneurial competencies following simulation-based training.

The meta-analysis by Wouters et al. (2013) further found that serious games enhance motivation and flow experience through interactive elements and immediate feedback. These findings support the conclusion that Startup Essentials can be an effective tool in entrepreneurship education.

Potentially Problematic Aspects

Startup Essentials teaches business decision-making processes realistically and refrains from including problematic content such as violence, addiction, or discriminatory depictions. The simulation of business creation enables practical learning without relying on stereotypes or distressing topics. The challenges of entrepreneurial risk and financing decisions may be demanding, but they foster a deeper understanding of economic relationships. Basic business knowledge is advantageous for optimal participation. Individuals with visual or motor impairments may encounter barriers in the digital environment.

Reviewer: Hannes Hamester

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SuperPArk

Developed by: Britta Werksnis, Oguzhan Demir, Timon Freyer

Article contributed by: Britta Werksnis

<https://doi.org/10.5281/zenodo.18230631>

Keywords

ADKAR Model, AI Literacy, Business Ethics, Change Management, Change Resistance, Collaborative Problem-solving, Digital Transformation, Ethical Decision-making, Human-Computer Interaction, Innovation Management, Media Literacy, Organizational Behavior, Systems Thinking, Technology

Introduction

SuperPArk is a collaborative workshop game developed in 2024–2025. It addresses automation and human factors through narrative-driven problem-solving. Groups of 4–5 participants save a futuristic theme park from complete automation by antagonist Dr. Disruptor. Dr. Disruptor attempts to win over park employees. The game combines digital scenarios with analogue puzzle elements and role-based collaboration.

The central tension is that if players fail to improve working conditions and digital change through appropriate automation and change management, employees defect to Dr. Disruptor. Success requires balancing technological efficiency with human welfare.

The target audience consists of university students and professionals in business administration, computer science, and organizational psychology. A single-player version also exists. This article focuses on the collaborative workshop version.

Participants assume expert roles and visit four park stations. Each station features an employee facing automation challenges.

Facts

Release date:	December 2025
Developer:	Britta Werksnis, Oguzhan Demir, Timon Freyer (Leuphana Universität Lüneburg)
Game type:	Hybrid
Number of players:	4–5 per group, multiple groups possible (total 15–30 participants)
Format:	Synchronous
Time frame:	90 minutes
Languages:	German
Environment:	Workshop room with tables, 1 computer/laptop per group, offline-capable after initial download

Material:	1 game board per group, 4 sets of expert role cards (one per station), 1 solution card, 1 ADKAR-Galli card set, 1 process card set, 1 ADKAR card set, 1 bag of tokens for point distribution, 1 table bell or similar per group
Price:	–

Resonance & Criticism

As a newly developed game completed in 2025, SuperRPark lacks extensive user data. It represents an innovative approach combining theoretical frameworks within collaborative gameplay and narrative tension.

The hybrid design distinguishes it from purely digital games: digital scenarios alternate with analogue group challenges. The villain narrative provides clear motivation. Participants particularly appreciated the thematic setting and visual style, which made complex change management topics approachable and engaging. Early feedback highlights success in making abstract concepts concrete through character-driven scenarios and role-based collaboration. The game is particularly suitable as an introduction to change management, as it covers foundational concepts rather than expert-level knowledge.

However, empirical validation is pending as of 2025. The complexity spanning multiple frameworks may challenge time-constrained settings. The facilitation-intensive format requires instructor preparation and time management.

Game Principle & Process

SuperRPark employs hybrid station-based progression alternating between digital scenarios and analogue group work (see Figure). The 90-minute workshop contains four 20-minute stations.

Groups of 4–5 divide into expert roles: Team Lead, People Expert, Process Expert, Tech Expert, and Ethics Expert. Each role receives specialized knowledge cards. The narrative: Dr. Disruptor seeks full automation; players must prevent this by supporting employees. Failed interventions cause employees to defect to Dr. Disruptor.

At each station, groups (1) watch a digital scenario with an employee struggling with automation, (2) diagnose problems using expert knowledge, (3) solve analogue puzzles on a physical board, determining interventions, (4) collaboratively deduce passwords through combined solutions, and (5) enter passwords to unlock the next station.

Station 1 introduces the Technology Acceptance Model (TAM) and analyses resistance to ticketing software. Station 2 focuses on six resistance types (existential anxiety, status loss, control loss, identity loss, technical anxiety, and powerlessness). Station 3 implements the ADKAR Change Management Model, diagnosing which change phase staff occupy and matching interventions—station 4 addresses AI governance using the IEEE 7000 Standard, with roles developing ethical frameworks.



Example setup of SuperRPark, showing the physical game board, cards, tokens, and digital interface used during station-based group play (Britta Werksnis, Oguzhan Demir, Timon Freyer, Leuphana Universität Lüneburg). Used for educational review. Rights remain with the creators.

Employees react based on intervention quality. Well-handled processes increase loyalty; poor decisions cause defection to Dr. Disruptor. The narrative creates stakes—incorrect application has visible consequences in the story.

Learning Objectives & Educational Fields of Application

SuperRPark enables collaborative application of change management theories within a narrative framework. Players diagnose resistance through role-based expertise while preventing employee defection. Secondary objectives include ethical reasoning about AI, understanding the socio-technical dimensions, developing communication skills, and practicing interdisciplinary collaboration.

Players learn to: (1) identify resistance using the Technology Acceptance Model (TAM) developed by Davis (1989), which explains technology adoption through perceived usefulness and perceived ease of use, (2) apply the ADKAR Change Management Model (Awareness, Desire, Knowledge, Ability, Reinforcement) developed by Prosci to diagnose change phases and select interventions from role perspectives, (3) analyze ethical dimensions using the IEEE 7000 Standard for addressing ethical concerns during system design, (4) integrate diverse perspectives, (5) balance competing objectives, (6) understand consequences of poor change management, and (7) recognize AI as supporting human judgment. The game also draws on Kotter's 8-Step Change Process as an underlying framework for organizational transformation.

The narrative consequence system makes learning tangible. Misdiagnosing resistance or applying the wrong interventions causes visible defects, demonstrating failure modes. This emotional investment enhances motivation. The role-based structure (groups of 4–5) ensures active engagement. Diagnostic challenges require integrating perspectives—People Expert identifies emotional factors while Tech Expert considers feasibility, mirroring real teamwork. Collaborative password deduction requires synthesizing learning. Groups cannot progress without correctly applying frameworks, ensuring mastery before advancement.

Teachers facilitate group dynamics, time, and technical support. One teacher supports multiple groups (15–30 participants each). Preparation requires 2–3 hours. Teachers circulate, ensuring progress, clarifying frameworks, and resolving issues. The critical moment is the post-game debrief (15–20 minutes), which facilitates reflection on: how insights complemented each other, which interventions worked and why, how narrative consequences illustrated principles, and how these connections relate to real organizations. Mechanics support collaborative learning: experiencing situations together, observing patterns across roles, forming shared concepts, and testing applications.

Effectiveness

As of 2025, SuperRPark lacks published validation. Its foundation in established frameworks (Davis's Technology Acceptance Model from 1989, Prosci's ADKAR Model, Kotter's 8-Step Change Process from 1995, and the IEEE 7000 Standard from 2021) provides conceptual validity. Still, quantitative evidence of outcomes, retention, or transfer is unavailable.

Future research should examine: diagnostic accuracy compared with traditional methods; ADKAR/TAM application in novel scenarios; perspective integration; role-based learning effectiveness; narrative engagement's impact; and persistence. Evaluation would require pre-post designs with individual and group measures, comparisons with traditional methods, and include follow-up to assess retention and transfer.

Design incorporates engagement principles: clear goals with narrative stakes (save the park), immediate feedback through employee reactions, role-based participation, and progressive challenges. The villain narrative provides extrinsic motivation, while mastery of the framework offers intrinsic satisfaction. Participants particularly appreciated the thematic setting and visual style, finding that these elements made complex topics more approachable than traditional presentations. Groups of 4–5 allow genuine dialogue. Tangible materials and collaborative password deduction create memorable moments. Explicit framework labelling supports transfer through shared vocabulary.

Potentially Problematic Aspects

Character design attempts diversity, though explicit representation of marginalized groups is not evident. Language is primarily German, limiting access. Frameworks may not reflect cutting-edge research; supplement with current literature.

The futuristic setting may not map to professional contexts. Framing automation as a villain-driven threat could bias against innovation. Time pressure may disadvantage slower groups. Group dynamics may privilege dominant voices without facilitation.

The game is suitable for advanced undergraduate or master's students, but inappropriate for early undergraduates or executives. Facilitation skills are essential for managing multiple groups. The format requires space, digital devices per group, and complete physical game materials per group.

Reviewer: Johannes Katsarov

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Survival of the Best Fit

Developed by: Gabor Csapo, Jihyun Kim, Miha Klasnic, Alia ElKattan

Article contributed by: Johanna Willich

<https://doi.org/10.5281/zenodo.15824768>

Keywords

AI Literacy, Algorithmic Bias, Business Ethics, Data Science, Discrimination, Ethical Decision-making, Human-Computer Interaction, Inclusion, Machine Learning, Media Literacy, Technology



Example visual from *Survival of the Best Fit*, illustrating biased hiring decisions and algorithmic discrimination (Gabor Csapo, Jihyun Kim, Miha Klasnic, Alia ElKattan). Used for educational review. Rights remain with the creators.

Introduction

Survival of the Best Fit is an educational digital game about hiring biases in artificial intelligence (see Figure). It was developed by an international group of former computer science students and published in 2019. The game aims to sensitize people to how AI mechanisms work and how easily incautious application can lead to misuse with drastic consequences. For example, as shown in the game, biased decision-making in hiring processes can result in discrimination against job candidates. By making hiring decisions, players provide data that is later used to train the game's hiring AI. Over time, problems arise that require the player to familiarize themselves with how machine learning works to understand the issues and mistakes that were made. The game teaches responsible use of artificial intelligence in a simple, comprehensible way. The

game is therefore well-suited as a starting point for digital literacy education for students in schools and universities.

Facts

Release date:	2019
Developer:	Gabor Csapo, Jihyun Kim, Miha Klasnic, Alia ElKattan
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	About 6 minutes
Languages:	English
Environment:	Computer or mobile device
Material:	None
Price:	Free of charge

Resonance & Criticism

In 2018, *Survival of the Best Fit* gained public attention when it was funded through a \$25,000 grant from “Mozilla’s Creative Media Awards” (Gaylor, 2021). The game was further promoted in various tech publications, including *Medium* (Mozilla, 2021), *TechTalks* (Dickson, 2019), and *Quartz* (Edwards, 2022). The game has been criticized for offering an oversimplified, layperson’s explanation of how AI bias takes shape. However, it communicates the fundamentals of machine learning in a comprehensible way to a vast audience (Dickson, 2019). The learning effects have not yet been scientifically investigated; however, the game uses mechanics such as ‘delayed consequences’ and ‘guidance through questioning’ that are considered valid and robust (Formosa, 2016; Joeckel et al., 2012).

Game Principle & Process

In the game, players become CEOs of a startup tasked with hiring new employees (orange and blue applicants) by manually reviewing applicants’ CVs. Investors push players to increase hiring speed, which soon becomes difficult to manage. To address this, the game introduces machine learning to automate the hiring process. An AI algorithm analyzes previous hiring decisions to identify patterns in whom the player accepted or rejected and combines this data with hiring data from other companies. The AI then replicates the player’s hiring patterns.

At first, the AI appears to solve the problem: hiring speeds up, and investors are satisfied. Over time, however, players receive complaints from highly qualified candidates who were rejected by the algorithm, putting the company at risk of a discrimination scandal. This forces players to examine the AI’s decisions and identify the source of the error: because existing employees are mostly blue people, the algorithm learns to favor blue over orange applicants. To encourage real-world transfer, the game ends with short explanatory texts that highlight how similar biases can occur in real life, such as AI systems prioritizing male hires over female ones.

The game follows an experiential learning approach (Kolb, 1983). Players have concrete experience of hiring under time pressure, limited information, and delayed consequences, factors

that can also occur in real life. Critical reflection is gradually prompted by sceptical in-game questions such as “A machine will think like me?” before the discrimination scandal finally makes it evident that something is wrong with the algorithm. The scandal shifts players’ perspectives, allowing them to recognize the ethical implications they had forgotten while distracted by the goal of efficiency. Abstract conceptualization and transfer to new situations are fostered by a debriefing at the end that provides further examples for biases that occur in real life.

Learning Objectives & Educational Fields of Application

Through the game, players develop digital literacy in artificial intelligence by strengthening their critical thinking and ethical reasoning skills in this domain. Survival of the Best Fit provides a fundamental understanding of how AI works and improves players’ ability to recognize and reflect on algorithmic biases. It creates awareness of how likely biases in AI are to occur and to go unnoticed by humans. It shows how algorithms work with feedback loops and can reproduce biases present in human decision-making.

Through time pressure and limited information, the game initially pushes players to make the mistake of trusting an AI without understanding how it works, and then highlights the hidden biases of automation by demonstrating its drastic consequences. In this way, the game ensures that players experience the dangers and likelihood of creating or falling prey to AI biases themselves.

The game itself is self-guided and takes only six minutes. Its short duration and simple mechanics make it easy to integrate into classrooms and workshops with minimal training. To improve and broaden reflection beyond the aspects addressed within the game (such as the real-world examples provided), it could be complemented by teacher-guided reflection and debriefing afterward.

Effectiveness

There has been no scientific investigation into the effectiveness of Survival of the Best Fit to date.

Potentially Problematic Aspects

Although the game addresses minority groups and their discrimination, which always carries the risk of reproducing stereotypes, it avoids this problem by symbolically representing different groups through neutral colors. However, the game is only available in English, and its language is somewhat complex, assuming a certain level of education and digital literacy. Furthermore, the phone version has minor formatting errors that cause overlapping selection buttons, making it more challenging to play and understand the game. This problem does not occur in the computer version.

Reviewers: Saskia Sterzl, Zachary Fitz-Walter

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Sustain2030® SDG simulation game

Developed by: iCONDU GmbH

Article contributed by: Carina Heyer, Barbara Holzner

<https://doi.org/10.5281/zenodo.15828511>

Keywords

Climate-change Education, Collaborative Problem-solving, Economics, Simulation-based Learning, Strategic Decision-making, Sustainability, Systems Thinking, Transparency



Image from Sustain2030® SDG simulation game (iCONDU GmbH). Used with permission for educational publication. Rights remain with the creator.

Introduction

The *Sustain2030*® SDG simulation game (see Figure) is based on the UN Sustainable Development Goals (SDGs) and addresses their interrelationships. Sustain2030 outlines approaches for addressing these goals by presenting the basics of systems thinking.

The target group of the simulation game includes employees in companies and municipalities, as well as employees and students at universities. The idea is to playfully raise awareness of sustainability and motivate participants to take sustainable action.

In the simulation game, players take on the role of a Citizens' Council for sustainable development, representing different perspectives on the SDGs. Their mission is to make a substantial contribution to achieving the 17 Sustainable Development Goals by selecting suitable measures.

A key element of the simulation is the SDG system model, which visualizes the interrelationships among the goals and the indirect effects of decisions. The players face challenges they can only solve together.

Sustain2030 was developed in 2021 by iCONDU, a small consulting company dedicated to driving sustainable transformation.

Facts

Release date:	2021 (first publication: 2019)
Developer:	iCONDU GmbH
Game type:	Digital
Number of players:	8–15 (optimum: 8–12) per group
Format:	Synchronous
Time frame:	3–6 h (depending on the number of players; more time is recommended for larger groups)
Languages:	English, German
Environment:	laptop, projector, internet access, and group areas for each game group
Material:	Role packages with action and role cards, interactive dashboards, and instructional guides
Price:	Semester licenses (including all material as PDFs and a link to the digital dashboard) for educational institutions, and license agreements for organizations and companies (license models on request).

Resonance & Criticism

The Sustain2030 simulation game is used at over 20 universities and in training in various organizations. Many players, like sustainability experts, have expressed strong support for its integration in different contexts.

In June 2022, Sustain2030 won 1st place in the category “Online Platform – Consulting” at the German Award for Sustainability Projects from the German Institute for Service Quality (DISQ).

Sustain2030 is highly effective, but it has its limitations. We have received feedback from lecturers that the simulation would be more robust if the interrelations of the SDGs had been scientifically assessed. Another point raised is that the simulation starts in the year 2021, as it is based on the 2021 German Sustainability Strategy. The feedback will be considered in ongoing adaptations.

Game Principle & Process

As the Citizens’ Council, the players face the challenge of achieving the SDGs in Germany by 2030 while keeping all goals equally in mind, as unforeseen events and setbacks may otherwise occur. The interactive dashboard visualizes the status of each goal and the total performance.

In a total of 20 game rounds, with one round corresponding to a period of half a year, the Citizens’ Council gathers to discuss which actions should be taken next. Both the actions chosen and the initial events affect only the system’s individual goals. Still, the interrelations of the

SDG goal model will then pass these direct changes on to the system in subsequent simulation rounds.

Players work together as a group, taking on different roles with different areas of interest. In each game round, they must agree on which actions to take to use the limited resources as effectively as possible. Their task is to weigh up risks against opportunities and set goal- and resource-oriented priorities. The players represent different interests and therefore must collaborate to develop a strategy. The challenge is to build a shared understanding, make collective decisions, and pursue a common approach. Finding common ground is key to success.

The game has been developed in a way that enables achieving the SDGs and allows many groups to achieve significant improvements. However, the confrontation with the different interests and some coincidental events poses challenges for the players that can be overcome.

The simulation game is based on systems thinking methods and a glass-box simulation that helps players to develop an understanding of the systemic impact of decisions. Dealing with short- and long-term consequences and cause-and-effect mechanisms helps to create a holistic understanding of sustainability.

Learning Objectives & Educational Fields of Application

The game demonstrates potential approaches to addressing the complexity of the SDGs by teaching the basics of systems thinking and improving the ability to shift perspectives and collaborate across disciplines. The focus is on developing an understanding of systems, thinking in complex contexts, and fostering decision-making skills (Zürn et al., 2022, p. 15).

The SDG system model enables visualization of the interrelationships among the SDGs. Furthermore, the interactive glass-box simulation allows users to examine the interrelations and the indirect effects of the decisions made. The long-term effects are documented and displayed in the evaluation area of the interactive dashboard, allowing players to analyze the simulation's course and, by extension, their progress.

The game aims to develop a sustainability mindset by encouraging people to reflect on their own actions and strengthening their perceived self-efficacy, motivation, and ability to act towards a sustainable future. Only if players focus equally on all SDGs and the interrelations can they identify and use leverage points and avoid undesirable side effects (Zürn et al., 2022, p. 16).

After each round of the game, the SDG system model provides students with direct feedback on the effectiveness of their decisions and whether they improved the status of the goals. This helps them to evaluate their decisions and adapt their strategy as the simulation proceeds.

Teachers can be trained as facilitators for Sustain2030. In a six-hour train-the-trainer seminar, teachers experience the simulation game from the player's perspective and gain insights into the scenario and possible debriefing exercises.

Teachers support the simulation game with an introduction to the SDGs and to the game scenario. During the game sessions, they provide support with both technical and thematic questions. Multiple game groups can play autonomously in parallel. For younger students with little prior knowledge of the SDGs, it can be helpful to provide moderators for the game groups to

assist in discussions and the handling of the interactive dashboard. Teachers guide the game phase and the debriefing, for example, with reflective questions or additional exercises on the SDGs.

Effectiveness

Zürn et al. (2022) states that the lessons learned particularly mention the complexity of interdependencies and that one should act proactively rather than reactively. This shows that Sustain2030 raises awareness for systems thinking skills. The potential of Sustain2030 is being evaluated in various theses. One thesis investigated the role of Sustain2030 in developing a culture of sustainability, grounded in the Inner Development Goal framework of transformational skills for sustainable development. A further thesis explored the influence of the complexity of simulation games on learning effects on systems thinking skills, using the example of Sustain2030. The evaluation of the surveys shows the importance of awareness of interrelations and understanding for collaboration among players. Another thesis investigated the feasibility of the Sustain2030 simulation game as an integration tool designed to improve the transfer of research into a political context.

The underlying method of Sustain2030 has also been used in different research projects. In one work, the Sustain2030 method was used to implement the SDGs as a basis for a company's CSR reporting (Zürn, 2023).

Potentially Problematic Aspects

The Sustain2030 SDG simulation game spans 2021 to 2030, making its timeliness a key factor. In the reflection phase, participants often draw parallels between the simulation and actual political decisions or discussions, which strengthens their long-term thinking skills. The timeliness will be considered in ongoing adaptations.

In higher education, some lecturers indicate that the scientific assessment of the interrelations between the SDGs is a relevant aspect. The underlying model simplifies reality and is based on assumptions, which are, however, well documented in the model and transparent to the players.

Reviewers: Björn Warkalla, Ivelina Dimitrova Karaatanasova

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Sustainability Management Simulation: Net Zero

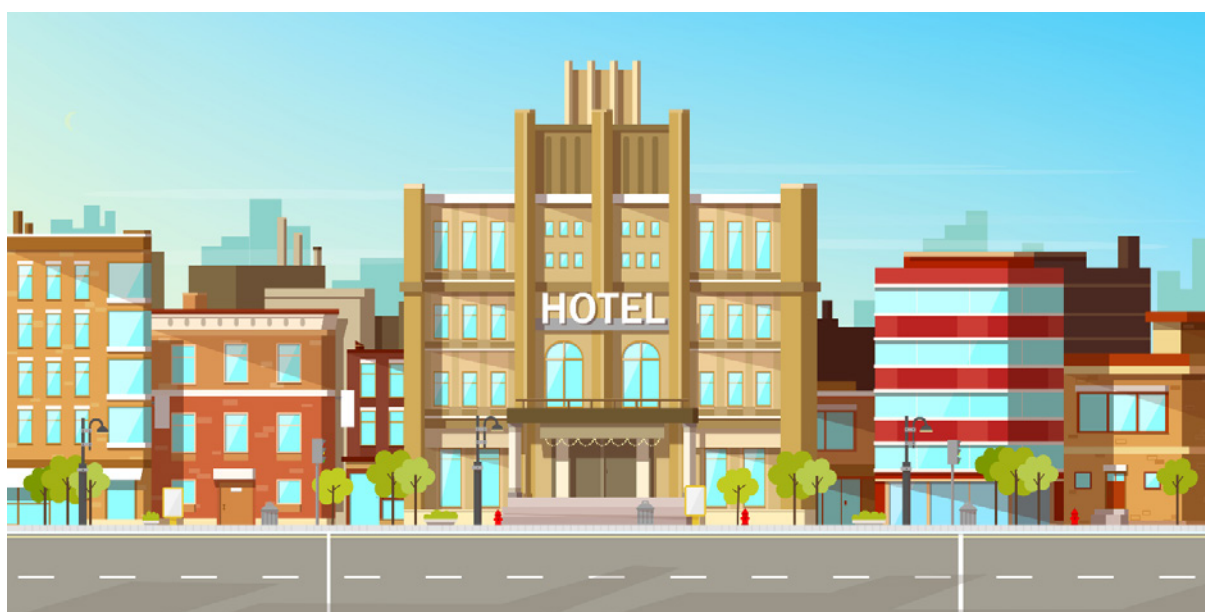
Developed by: Tim Rogmans, Sim Institute

Article contributed by: Tim Rogmans

<https://doi.org/10.5281/zenodo.15824796>

Keywords

Business, Climate-change Education, Economics, Environmental Management, Hospitality Management, Stakeholder Management, Strategic Decision-making, Sustainability



Screenshot from Sustainability Management Simulation: Net Zero (Sim Institute). Used for educational review. Rights remain with the creators.

Introduction

The *Sustainability Management Simulation: Net Zero* (see Figure) is designed for students at all levels to experience the challenges and opportunities of reducing corporate greenhouse gas emissions in line with the objectives of the Paris Agreement while managing business performance. In the simulation, participants play the role of a hotel manager tasked with reducing the hotel's greenhouse gas emissions by 50 percent over 7 years. Each year, students choose up to three initiatives that can help reduce the hotel's emissions and determine the level of spending on staff training and guest awareness communication. At the end of 7 years, students need to have reduced the hotel's emissions by 50 percent, and cumulative emissions should not have exceeded the hotel's total greenhouse gas emissions budget for the game. At the same time, emission-reduction efforts should not come at the expense of profitability.

Net Zero was developed by Tim Rogmans of the Sim Institute and published by Harvard Business Publishing in March 2022. The simulation was updated in 2024. A Spanish language version was published in 2023, and AI-generated feedback was incorporated in 2025.

Facts

Release date:	2022
Developer:	Tim Rogmans, Sim Institute
Game type:	Digital
Number of players:	1–1000
Format:	Asynchronous
Time frame:	60 minutes
Languages:	English, Spanish
Environment:	Laptop or PC with internet access
Material:	Brief & debrief slides, along with teaching notes, are available. Simulation includes one tab with the required information on climate change.
Price:	\$16.25 per student for academic use. \$47.95 per participant for corporate use. Facilitator materials provided free of charge.

Resonance & Criticism

Net Zero won the Gold Medal at the 2022 Serious Play Awards in the Higher Education category. It was also Highly Commended in the FT Responsible Business Education Awards.

It has been used by over 50,000 learners worldwide. Most users are university students, though companies also use the simulation for corporate training and sustainability planning.

The reception has generally been positive, and there have been no strong or consistent points of criticism. There have been some user observations relevant to enhancing the simulation's success. For example, it has been mentioned that students need adequate time to play the simulation.

Game Principle & Process

In the simulation, students learn that there is a business case for emissions reduction, as illustrated by Bhattacharya and Polman (2017), Polman and Winston (2021), and Topping (2019). These and other studies have argued that emissions reductions and improvements in financial performance (lower costs, higher revenues, and lower risk) can go hand in hand.

As a direct illustration of this concept in the hospitality industry, Rogmans (2022) has written a case study on the emissions-reduction efforts of IHG Hotels & Resorts, which served to validate and refine the simulation. These studies are examples from a growing body of literature that underpins the simulation.

In Net Zero, students manage a successful 4-star hotel located in one of five cities. At the start of the game, the greenhouse gas (GHG) emissions are in the same range as other 4-star hotels in the city, and there is a lot of opportunity to improve sustainability performance.

The hotel must reduce its GHG emissions by 50% over the next seven years while staying within its carbon budget and optimizing financial performance. Each year, students are presented with a set of initiatives that can help lower the hotel's emissions. Purchasing carbon offsets is not an option in the simulation. The initiatives fall into three categories: energy, purchasing, and management, and up to three can be selected per year. After entering their choices in the Decisions section, participants review the outcomes in the Dashboard before moving on to the next year to make new decisions.

The simulation can be played individually or in teams.

Net Zero is supported by explanations of emissions and climate change, including a glossary of terms.

Learning Objectives & Educational Fields of Application

The central learning objective is for students to experience the opportunities and challenges related to corporate emissions reductions. By playing Net Zero, participants will learn that making significant cuts in greenhouse gas emissions is challenging for companies but possible. Students learn that reducing emissions does not need to go at the expense of business performance and can, in fact, help to reduce costs and increase revenues (i.e., there is a business case for sustainability).

Related learning objectives include that choosing emission reduction strategies requires managers to think through all the consequences of their decisions and to prioritize. Not all initiatives that look "green" have a significant impact on emissions. Finally, corporate emission-reduction efforts benefit from employee, customer, and supplier involvement, and sustainability performance measurement and analysis are critical to achieving results.

The teacher's role can be broken down into three phases: the brief, play, and debrief.

In the brief, the teacher can recap climate change information and explain the game mechanics. This can be provided by watching the student video, using the brief slides, or playing the simulation in front of students for one round. When playing in teams, the teacher needs to assign students to teams in the facilitator interface.

The instructor has various resources available to support the simulation, including briefing and debriefing slides, as well as a teaching note that explains the learning objectives, teaching strategies, and details of the underlying model. Instructors will benefit from trying the simulation before using it in class, but there is no need to be an expert in every aspect of it.

During play, the teacher should not interfere; only help students who are stuck or have issues they can't solve on their own. The teacher can follow student progress on the Class Results page in the facilitator interface.

The debrief can start with a general discussion of the student experience, followed by a review of the leaderboard and a discussion of decisions made and results obtained by students or teams. Details of all simulation runs are available to teachers. The debrief slides can help guide and structure the discussion and consolidate critical learning points.

Effectiveness

To date, there have been no scientific studies or surveys of the simulation's effectiveness. Evidence of improved student engagement and learning outcomes is, so far, only anecdotal, coming from educators around the world who have provided feedback and continue to use the simulation in their classes.

Typical comments from educators include: "I simulated my programme. It is excellent.", "It helped surface many issues we were discussing practically and tangibly and brought the discussion to life.", and "The videos, teaching notes, and deck were superb".

A critical feature of the simulation is that the level of difficulty can be matched to students' skill sets. This can be done by changing settings in the facilitator section and by including or excluding topics that may be challenging for some students (e.g., emissions by scope, carbon budget, cash flow).

Potentially Problematic Aspects

The simulation's difficulty level is high, partly to reflect reality and partly to help students learn that a target for emissions reduction inevitably involves an arbitrary element.

The simulation is available in English and Spanish. Online translation tools have worked well in a variety of languages.

The simulation assumes that the evidence for climate change is objective and then focuses on how best to reduce corporate emissions. People who believe that emissions reduction is unnecessary may have issues with the simulation. However, students concerned about the costs of emissions reduction can learn that cost-effective methods are available.

The simulation has been developed according to WCAG 2.1 AA accessibility standards.

Reviewers: Elisabeth Johnston, Birgit Zürn

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Svoboda 1945: Liberation

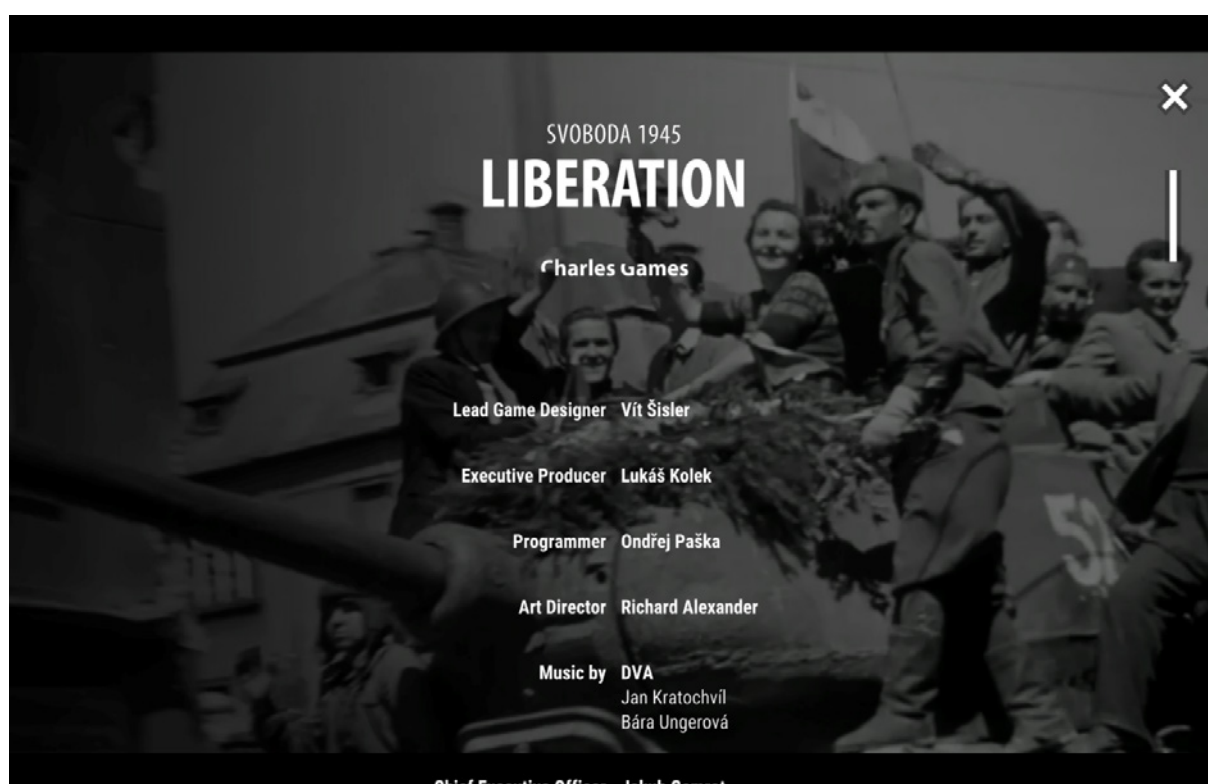
Developed by: Charles Games Studio

Article contributed by: Richard Boampong Boateng

<https://doi.org/10.5281/zenodo.15938680>

Keywords

Archival Documents, Communism, Death, Empathy, Forced Displacement, Migration, Political Science, Population Expulsions, Property Law, Trauma, World War II History



Screenshot from Svoboda 1945: Liberation (2021). © Charles Games Studio. Reproduced from the official game.

Introduction

Svoboda 1945: Liberation (see Figure), created by Charles Games and released in 2021, is an educational point-and-click adventure game set in the year 2001. The game delves into the post-war period, focusing on the implications of the forcible expulsion of Germans and the emergence of communism in Czechoslovakia.

As a serious game, Svoboda 1945 integrates full-motion video (FMV), interactive storytelling, and historical accuracy to produce an emotionally resonant experience. The player takes on the role of an official entrusted with determining whether a schoolhouse in the Czech village of

Svoboda deserves historic classification. To decide, the player must explore the village's history by interviewing residents, looking through archival documents, and solving basic puzzles.

The game is particularly well-suited for high school and university students, history educators, and anyone interested in serious games that blend emotional engagement with political and historical depth.

Facts

Release date:	August 2021
Developer:	Charles Games Studio
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	2–3 h
Languages:	Czech with English subtitles
Environment:	PC, macOS, Linux, Nintendo Switch, iOS (digital)
Material:	–
Price:	15€

Resonance & Criticism

Svoboda 1945 is a popular instructional game that explores postwar history. It was nominated for “Best Civics Game” and “Most Significant Impact” at the 2022 Games for Change Awards, winning the latter. Reviewers such as Game Critics appreciated its educational value and character authenticity. On Steam, the user rating is 99% positive out of 123 reviews, with around 1,700 followers in the community center.

However, some criticism focused on its linear narrative, in which choices rarely change outcomes, and on its slow pacing, particularly during full-motion video scenes (Hey Poor Player, 2022). Additionally, players without a background in Czechoslovak history sometimes struggle to follow because of limited in-game contextual information, which reduces accessibility for those unfamiliar with post-war Czechoslovakia.

Game Principle & Process

Svoboda 1945 is a serious educational game that focuses on interactive storytelling. Players take on the role of a government investigator entrusted with determining the historical significance of a schoolhouse in the Czech village of Svoboda. This expedition offers a more in-depth look at the village's postwar past, including themes of displacement and ideological strife.

The game's structure is narrative-driven and primarily unfolds through dialogue with villagers, the examination of archival documents, and the analysis of historical artifacts. Players navigate through branching dialogues and simple puzzles, piecing together fragmented personal and historical narratives. While the player can make choices during conversations, the overall plot remains mostly linear, limiting their influence on the outcome. This design preserves narrative coherence but reduces agency.

Objectives in *Svoboda 1945* are clearly presented through unfolding storylines, with each interaction serving the investigation and gradually revealing the game's central themes. Rather than traditional scoring or achievements, feedback is embedded in emotional responses, plot progression, and character revelations, encouraging reflection over competition.

As a single-player experience, *Svoboda 1945* lacks direct social interaction, but it invites discussion and collaborative interpretation in classroom settings, mainly when used as a teaching tool.

The game is influenced by theories from memory studies and trauma theory, focusing on how individual and collective histories are remembered, silenced, or contested. It also reflects principles from serious game design aimed at fostering empathy, critical historical thinking, and active learning through immersive, narrative-based exploration.

Learning Objectives & Educational Fields of Application

The central learning objective of *Svoboda 1945* is to deepen players' understanding of post-World War II history, particularly in Czechoslovakia. It encourages players to critically engage with historical themes such as memory, forced displacement, collective trauma, and political transformation. The game presents these themes through a narrative that highlights the personal and emotional dimensions of historical events, helping learners grasp their complexity and relevance.

The game achieves these objectives by combining an interactive narrative with historically accurate facts. Its primary mechanics, branching discussions, puzzle-solving, and analyzing historical documents, require players to understand several perspectives and reconstruct fragmented narratives. Full-motion video (FMV) scenes using live actors add emotional depth and realism, helping students to engage more directly with the topic. These strategies promote historical thinking, empathy, and interpretative skills by putting pupils in emotionally and intellectually demanding situations.

Teachers provide a supporting yet necessary role. A single teacher is sufficient to implement the game in a classroom environment. Teachers can provide a brief contextual background beforehand and then facilitate reflection and conversation. The game can be used as a platform for in-depth lectures on European history, ethics, memory studies, and political education. It is particularly appropriate for upper secondary and university students.

Although *Svoboda 1945* is a single-player experience, its educational potential is amplified when paired with group discussions or written reflections. The game's format makes it ideal for differentiated instruction, catering to students who benefit from visual, narrative, or interactive learning styles. By inviting players to step into the perspectives of various historical actors, the game supports critical thinking and the development of nuanced historical consciousness.

Through its mechanics and structure, *Svoboda 1945* exemplifies the potential of serious games to make history accessible, affective, and personally meaningful. It fosters skills such as empathy, historical interpretation, and critical reflection, aligning with contemporary pedagogical goals in history education.

Effectiveness

There are currently no peer-reviewed empirical studies on the effectiveness of *Svoboda 1945*. However, critical reviews and awards suggest a substantial educational impact. The game won “Most Significant Impact” at the Games for Change Awards (2022), indicating expert recognition of its pedagogical value. It engages players emotionally through full-motion video and realistic character portrayals, fostering empathy and deeper historical understanding.

Players report being drawn into a “flow” state by the game’s immersive structure, which balances simple puzzles, narrative tension, and interpretive tasks. This balance helps match cognitive effort with skill level, supporting engagement and sustained attention. While evidence of long-term learning effects is limited, the game’s design promotes reflective thinking, thereby facilitating deeper processing of historical content. Supplementary classroom use can further extend and sustain learning outcomes.

Potentially Problematic Aspects

While *Svoboda 1945* is educationally helpful, it has numerous potentially harmful characteristics. The game relies on prior historical knowledge, and references to ideology and post-war events are not always fully explained, which may confuse or alienate players who lack context. Although the content is polite, the emotionally charged themes of displacement and historical tragedy may be complex for young or sensitive players. The game is a digital point-and-click experience, so there are no physical risks involved. Minor technical issues have been observed, including subtitle sync errors and the occasional freeze. Supplemental guidance and contextual materials are needed to ensure full accessibility and effective learning, particularly when used with diverse learner groups.

Reviewers: Johannes Katsarov, Torben Schmidt, Saskia Sterzl

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Swiss Island®

*Developed by: Spirit at PM GmbH
Article contributed by: Daniel Geist*

<https://doi.org/10.5281/zenodo.15828386>

Keywords

Agile Project Management, Business Ethics, Competition, Conflict Management, Cooperation, Effective Resource Management, Governance Models, Negotiation, Political Science, Project Management, Risk Management, Stakeholder Management, Strategic Decision-making



Photo from Swiss Island® training session (Spirit at PM GmbH). Used for educational review. Rights remain with the creators.

Introduction

Swiss Island® is a coach-supported, stochastic, and turn-based business game that simulates project implementation under uncertain conditions. Its thematic focus is on project management and agile organizations, with the primary objective of training participants to analyze, communicate, and make situational decisions. Target groups are individuals in project manage-

ment and Scrum-related roles, including project managers, team leads, consultants, and students with basic knowledge and first project experience. Unlike deterministic simulations, Swiss Island® introduces unpredictable situations that mirror real-world dynamics and apply the principles of Experiential Learning (Kolb, 1984). Participants assume roles such as sponsor, project manager, steering committee member, or subcontractor, and must collaborate to complete a project within the given framework. The game is available both physically on a dedicated board and digitally in predictive (waterfall), hybrid, and agile versions. Swiss Island® was developed in 2017 by Rüdiger Geist and has since been used internationally in higher education and professional training.

Facts

Release date:	2017
Developer:	Spirit at PM GmbH
Game type:	Analog/Digital/Hybrid
Number of players:	6–60
Format:	Synchronous
Time frame:	1–2 days
Languages:	English, German
Environment:	Classroom, seminar room, or online environment with stable internet access
Material:	Game board and physical materials (for analog version), online platform access, trainer and participant guides (provided by the trainer)
Price:	There are two options: institutions can either train their own certified coaches under a license model or book Swiss Island® directly with our trainers. In both cases, pricing depends on the number of participants.

Resonance & Criticism

Swiss Island® has been widely recognized for its innovative contribution to project management education. It has received multiple awards, including the PMI Continuing Professional Education Product of the Year Award 2017, the Innovation & Excellence Award 2023, and the Project Management Firm of the Year 2022/23 and 2024. Feedback from both students and educators consistently highlights its ability to improve knowledge retention, teamwork, dealing with uncertainty, and practical application. Criticism is rare and mainly relates to the complexity of introducing stochastic game mechanics, which may initially challenge participants unfamiliar with them. However, this challenge has since been successfully addressed through improved facilitation and training, ensuring a smoother learning experience.

Game Principle & Process

Swiss Island® is a simulation-based learning game in which teams take over a project that has already been planned or started but failed in its original setup. The participants, organized in roles such as sponsor, project manager, steering committee, or subcontractor, must analyze the initial situation, decide on corrective measures, and then lead the implementation over a simulated time span of 23 months (23 rounds). Each round represents a reporting cycle in which

new, randomly generated, or predefined events occur. These stochastic elements ensure that no two sessions are alike and force players to adapt continuously to uncertainty, limited resources, and changing conditions.

Players retain control of the process: they must interpret new variables, align within their teams, and make joint decisions. Outcomes are immediately visible through project progress, resource allocation, and risk dynamics. Social interaction is central, as participants prepare and stage conversations between roles, while observers analyze communication strategies and group dynamics.

The core of Swiss Island® lies in systematic debriefing after each interaction. Using a four-step structure—analysis, reflection, transfer, and observable learning effects—participants examine what happened, how it can be explained, how it relates to reality, and what they can apply in their own practice. This repeated cycle transforms mistakes and uncertainties into valuable insights and strengthens both methodological and interpersonal competencies.

Rather than focusing on winning, the reward system emphasizes learning outcomes, knowledge transfer, and comparison of strategies across teams. The game is grounded in Kolb's Experiential Learning Theory (1984) and aligned with recognized frameworks such as PMI and ISO 21500. This ensures participants not only practice project management methods but also reflect on their application, making Swiss Island® a bridge between theory and professional reality.

Learning Objectives & Educational Fields of Application

The central learning objectives of Swiss Island® are to strengthen project management skills under conditions of complexity and uncertainty and to enhance decision-making, teamwork, adaptability, and negotiation. Participants develop competencies in communication, leadership, team coordination, risk management, priority negotiation, and strategic problem-solving. The game emphasizes the application of both agile and traditional project management methods, allowing learners to develop these skills in realistic, dynamic scenarios.

The game mechanisms strongly support these learning goals. The stochastic design creates unpredictable events that challenge teams to analyze situations, align perspectives, and make joint decisions. This forces participants to deal with incomplete information and resource constraints, replicating the complexity of real projects. Because success depends on effective collaboration and negotiation, interpersonal skills are trained alongside methodological competence. The continuous cycle of action, reflection, and debriefing transforms challenges and mistakes into valuable insights and ensures long-term learning effects.

Teachers act as facilitators rather than instructors. Their main tasks are to moderate the process, initiate structured debriefings, and provide opportunities for reflection that link simulation experiences to professional practice. Typically, one trained coach is sufficient per 10 participants. Only limited preparation time is required once the facilitator is familiar with the rules and debriefing methods. However, strong emphasis is placed on the quality of debriefing, as this is the key to consolidating knowledge and transferring it to real-world application.

In summary, Swiss Island® enables learners to experience authentic project dynamics rather than abstract case studies. By combining experiential learning with structured debriefing, it

fosters sustainable knowledge transfer and builds a broad set of technical, strategic, and interpersonal skills essential for modern project environments.

Effectiveness

Swiss Island® is based on Kolb's Experiential Learning Theory (1984), which emphasizes learning through direct experience. According to participant and educator testimonials, the stochastic design enhances critical thinking, collaboration, and knowledge retention. Many participants report being immersed in a flow state due to the simulation's unpredictability and interactive nature. Educators consistently highlight the improved transfer of learning into professional practice. Awards and recognitions further underline its effectiveness and value in higher education and professional training.

Gabriella Signer: "Without hesitation, I can say that the learning success is immense."

Beat Dietziker: "Swiss Island® is a project management simulation that, in my opinion, leverages unpredictability and uncertainty to model the project management process realistically."

Christian Hertneck: "I highly recommend the simulation for all new projects within my company, as well as a great consulting product that enhances project management skills beyond pure technical knowledge."

Potentially Problematic Aspects

The game requires participants to have a basic understanding of project management principles, which may exclude complete beginners. No sensitive topics arise in Swiss Island®. Potentially problematic aspects lie instead in the ethical dimension of role play: issues such as fairness, respect, and the temptation to bribe can arise in project scenarios. These aspects are intentionally addressed in line with the four pillars of the project management code of conduct and provide valuable opportunities for reflection. Careful facilitation ensures that such situations are handled constructively and that inclusivity is maintained throughout the learning process.

Reviewer: Saskia Sterzl

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That Dragon, Cancer

Developed by: Ryan and Amy Green, Numinous Games
Article contributed by: Justus Hoffbuhr

<https://doi.org/10.5281/zenodo.15927209>

Keywords

Cancer Journey, Death, Empathy, End-of-life Decisions, Family Dynamics, Grief, Health, Human Diseases, Religion, Resilience, Vulnerability



Screenshot from *That Dragon, Cancer* (Numinous Games). Used for educational review. Rights remain with the creators.

Introduction

That Dragon, Cancer (see Figure) is a digital interactive game that was created by Ryan and Amy Green with Numinous Games. The game was released on 12th January 2016 and is based on their real-life experience of raising their son Joel, who was diagnosed with terminal cancer as a baby.

The game explores themes of love, grief, hope, and faith, telling the story of Joel's short yet impactful life. Its main objective is not to win or achieve specific goals, but to immerse players in an emotional narrative that fosters empathy and understanding in the face of tragedy.

The gameplay guides you through different scenes and moments from Joel's life. Players interact with objects, listen to conversations, and explore symbolic environments that show both the challenges and the love that carried the family through their experience.

The game's target audience includes players who are open to emotional and reflective stories, especially those who want to explore themes of illness and grief. As a serious game, it is less about entertainment and more about creating understanding and empathy, challenging the player with emotionally difficult environments.

Facts

Release date:	12.01.2016
Developer:	Ryan and Amy Green, Numinous Games
Game type:	Digital
Number of players:	Single player
Format:	Hybrid
Time frame:	3–4 h
Languages:	English
Environment:	Laptop or PC. Headphones are highly recommended.
Material:	No additional material necessary, possibility of using a controller.
Price:	€9.99

Resonance & Criticism

That Dragon, Cancer is mainly known for its emotional depth and innovative approach, but it remains more niche than mainstream, appealing primarily to players interested in serious and artistic games. The deeply personal storytelling is considered groundbreaking and marks a new approach rather than following a well-known concept. The game is often used in educational contexts to foster empathy and in discussions about the potential of games to explore sensitive topics (Muncy, 2016). While specific user numbers are unavailable, it has proven itself by winning awards such as the 2016 BAFTA for Game Innovation and the Best Emotional Indie Game. Critics praise its narrative and emotional impact but note its limited interactivity, which some felt restricted player engagement (Carless, 2016).

Game Principle & Process

That Dragon, Cancer is a narrative-driven game structured as a series of interactive vignettes that follow the real-life journey of the Green family as they navigate their son Joel's battle with cancer. The game's design focuses on storytelling and emotional engagement rather than traditional gameplay objectives. The game is divided into loosely connected scenes representing different moments in Joel's life. These include hospital visits, family interactions, and moments of reflection. Players navigate these spaces by exploring environments, interacting with objects, and engaging with symbolic and abstract representations of events. The mechanics are minimal and intuitive, involving simple point-and-click or movement-based interactions.

Unlike conventional games, players have little control over the narrative's outcome. Events unfold linearly and therefore reflect the Greens' lack of control over Joel's illness. This design

choice reinforces the game's emotional impact. It encourages players to empathize with the family's experience rather than focusing on achieving specific goals.

The game's objectives are implicit rather than clearly stated. Players are guided through the story by visual cues, narration, and environmental elements. Progression feels natural, and there are no explicit win-or-fail conditions. Feedback is primarily emotional and narrative-driven, featuring poignant voice-overs, symbolic visuals, and musical changes that reflect shifts in tone. Rewards come in the form of deeper understanding and emotional resonance rather than tangible in-game achievements.

Social interaction is not a direct component of the gameplay itself. However, the game often inspires discussions among players, particularly about grief, resilience, and the potential of video games to tell personal stories.

Learning Objectives & Educational Fields of Application

The game is a powerful educational tool designed to help players develop empathy, emotional intelligence, and an understanding of grief and resilience. It offers a sensitive way for players to experience the emotional complexities of coping with a terminal illness in a loved one. Therefore, the central learning objective is to foster emotional awareness and perspective-taking, which are important skills in ethical contexts.

The game's mechanics align with the learning objectives. They are intentionally simple to ensure accessibility and to focus attention on the narrative and its emotional impact. Players interact with objects, listen to dialogues, and explore symbolic environments representing the Greens' journey. These mechanisms are thoughtfully crafted to draw players into the family's experiences. The limited player agency could reflect the real-life helplessness faced by those caring for someone with a terminal condition, which trains the players for similar situations in their own lives. This design choice ensures that players focus on the game's emotional and reflective aspects, which align with its educational goals. The game offers subtle feedback that prioritizes understanding and emotional resonance over traditional rewards.

For the game-playing process, one teacher functioning as a facilitator should be enough. In an educational setting, the teacher can provide context before gameplay and lead discussions afterward to help players process their experiences. In ethics courses, the game could offer a platform to discuss emotional resilience and the complexities of grief counseling. The game's design supports these learning objectives by creating a safe space for players to engage with difficult emotions, while educators can guide and frame these experiences for deeper understanding.

Effectiveness

The effectiveness of *That Dragon, Cancer* has been examined through studies and feedback, although empirical evidence is limited. One study on empathy in video games found that many players preferred learning empathy through gaming rather than traditional teaching methods, citing it as more effective (Chen et al., 2018). This suggests growing acceptance of video games as tools for teaching emotional skills, with potential benefits for educators. This finding is somewhat aligned with the goals of *That Dragon, Cancer*. In addition, a private study conducted at

Abilene Christian University found that the game was a powerful tool for teaching students about the complexities of family stress and bereavement. Participants highlighted its ability to make course concepts emotionally impactful and relatable, though some found the emotional depth overwhelming, limiting the fun factor. Despite challenges with gameplay complexity, students generally found it a worthwhile educational activity and recommended its continued use in educational settings (Brooks, 2020).

However, some criticisms revolve around its linear structure and limited interactivity, which may not appeal to all gamers (Seregni & Toniolo, 2020).

Potentially Problematic Aspects

That Dragon, Cancer deals with the very sensitive topics of terminal illness, grief, and faith, making it emotionally intense and potentially overwhelming for certain audiences. Players who have recently experienced loss may find the content triggering. It is important to note that the game has a Christian perspective on faith that may not resonate with everyone and might feel exclusionary to players from different cultural or religious backgrounds.

The game avoids violence and inappropriate language and is generally respectful. The emotional weight and reflective nature make it less suitable for younger audiences or those seeking easy entertainment, so emotional readiness is essential for the intended experience.

Reviewer: Johannes Katsarov

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The Art of Science

Developed by: Acabo Games

Article contributed by: Dave Carlgren

<https://doi.org/10.5281/zenodo.15937855>

Keywords

Biology, Chemistry, Competition, Cooperation, Mathematics, Physics, Science, Technology



Photograph of The Art of Science game board and components. © Acabo Games.

Introduction

The Art of Science (see Figure) is a trivia game for the nerdy and knowledgeable, with categories of Physics, Biology, Technology, Mathematics, Chemistry, and Other Science, all aimed at the undergraduate or higher levels. It has an interesting point system as well, but the real potency comes from the challenge and diversity of the questions.

This game should appeal to undergraduate science students or instructors looking to see how well-rounded students are.

It can be essential to recognize what students know and how broadly their knowledge extends. The Art of Science can provide such insights.

The game works like a Trivial Pursuit-style game, with players on teams taking turns asking and answering questions from a variety of categories. There is a scoring system that allows players to take fewer questions from categories that they find challenging and incorporate them into their win condition. This introduces a tactical component to the gameplay as well.

The game was developed by Acabo Games and released by TerrorBull Games in 2010.

Facts

Release date:	2010
Developer:	Acabo Games
Game type:	Analog
Number of players:	2–6
Format:	Synchronous
Time frame:	30 minutes
Languages:	English, Swedish
Environment:	Tabletop
Material:	No additional material required.
Price:	£29.95

Resonance & Criticism

The Art of Science has largely gone unrecognized, possibly because of the nature of the game (science and math) and the level of difficulty.

The Art of Science has not received awards or ratings of any prominence.

The most prominent point of criticism is the limited number of players with whom one can play this game, given the high level of required knowledge to play adequately. The questions are tricky and span a diverse range of topics with depth.

Game Principle & Process

The Art of Science is a high-level, challenging trivia game with an interesting scoring and dueling mechanic. Players can play individually or in teams (recommended).

The objective is to answer a predetermined number of questions correctly from categories that player choose. One can define their win condition based on a certain number of correct answers in each category. Duels and challenges can amplify this effect.

There is a clear point system for tracking successes and misses that is only somewhat novel. There is limited social interaction in the game, unless you are playing as a team.

Learning Objectives & Educational Fields of Application

The Art of Science is a trivia game that draws on knowledge from multiple strands of science and mathematics at the undergraduate or graduate level. The mechanics support answering questions correctly while also allowing individual strengths to be utilized and incorporated.

There is no requirement for a teacher to be interactive during gameplay, apart from rule clarifications.

Effectiveness

No empirical evidence has been found to date on the effectiveness or learning impacts of The Art of Science.

Potentially Problematic Aspects

There are no issues with this game, aside from the two available languages and the difficulty level of the questions.

Reviewers: Hannes Hamester, Johannes Katsarov

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The Beginner's Guide

Developed by: Davey Wreden, Everything Unlimited Ltd.

Article contributed by: Maxi Sophie Burfeindt

<https://doi.org/10.5281/zenodo.15939553>

Keywords

Artistic Ethics, Cognitive Bias, Critical Thinking, Interpretation, Mental Health, Privacy, Psychology



Screenshot from *The Beginner's Guide* (2015). © Everything Unlimited Ltd. Used under fair use for educational and critical commentary.

Introduction

The Beginner's Guide (see Figure) was developed by Davey Wreden and was released on October 1st, 2015 (Steam, n.d.). It tells the story of a narrator, also called Davey, who guides players through the unfinished games of a developer named Coda. Davey interprets the games as a reflection of Coda's struggles, framing them as a cry for help. As the story unfolds, it seems that Davey may have imposed his own views on Coda's work. Central themes include creativity, mental health, artistic interpretation, and the ethics of sharing one's work (art without consent). The game challenges players to reflect on bias, privacy, and boundaries. Because of that, it fits into the context of serious gaming. Although it is not explicitly instructive, the game encourages critical thinking and emotional engagement by exploring these topics. It prompts play-

ers to reflect on them without directly teaching or providing clear answers. This approach is reflected in the gameplay design. Players must explore a series of incomplete games while listening to the narrator's interpretations, with minimal player interaction. The focus is on storytelling, not challenges. In the context of serious gaming, the target audience includes students and professionals in the arts, game design, mental health, and ethics, as well as individuals interested in exploring themes such as creativity, privacy, and psychology.

Facts

Release date:	01.10.2015
Developer:	Davey Wreden/Everything Unlimited Ltd.
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	Approximately 1.5 h
Languages:	English, German, French, Spanish, Russian
Environment:	PC (Windows, macOS, SteamOS+Linux) and a Steam account
Material:	no additional material
Price:	9.75 €

Resonance & Criticism

On Steam, a platform where the game can be purchased and played, the overall rating is very positive, with 88% of the 17,830 reviews being positive. Expert opinions are also often favourable towards the game. Both the game and its developer, Davey Wreden, have received various placements on different sites (cf. Dale, 2015; cf. Parkin, 2015). Overall, it was nominated for five awards, with innovation and narrative always being key factors (cf. Nunneley, 2016a; cf. Nunneley, 2016b; Most Innovative - IGN's Best of 2015 Guide - IGN, 2016). However, there are also negative voices, such as Brittany Vincent, for example, who writes in her review on Shacknews: "[it] felt extremely forced and silly by the end of it all" (Vincent, 2015).

Game Principle & Process

The Beginner's Guide is a linear game in which players explore short, unfinished games while listening to the narrator's commentary. The interaction is minimal: players can walk, click, or perform simple actions, but they have no control over the story's progression. This lack of control is a deliberate game mechanic that supports the contemplative nature of the experience. Consequently, the game has no explicit objectives, and its purpose is primarily reflective. Players are meant to interpret and think critically about the games and the narrator's perspective. The absence of feedback or reward systems further emphasises that the player is not meant to "win", but to reflect. The learning process seems to come from the story and the ongoing reflection on it. The simplicity of the mechanics, which consist primarily of walking through Coda's fragmented game spaces, allows players to fully concentrate on interpreting these environments and the accompanying commentary. This supports learning goals such as critical thinking, interpretation, and emotional engagement. As more of Coda's perspective is revealed (which seems to differ from Davey's), players' interest could be sustained, and the reflection

process encouraged. Since the game is single-player, it lacks social interaction. But the mentioned reflection process seems to be something shared afterwards, possibly inviting individual players to share their thoughts and interpretations. The game does not seem to be directly based on specific theories or models. However, it is worth briefly mentioning its parallels to certain literary works. The *Beginner's Guide* has been described as Kafkaesque and shows similarities to a book by Vladimir Nabokov from 1962, which one scholar referred to as a beginner's guide to *The Beginner's Guide* (cf. Moulthorp, 2020).

Learning Objectives & Educational Fields of Application

The game encourages critical thinking and reflection. The central learning objective is to help players explore concepts related to creativity, narrative structure, and the subjective nature of art. By exploring themes of mental health, frustration, and creative expression, the game promotes emotional understanding and could train empathy. The game also invites participants to question the narrator's perspective, fostering the ability to evaluate and interpret information from multiple viewpoints. One could also argue that the game helps build self-awareness and an understanding of how personal biases affect perceptions, in this case, of Coda's games and, by extension, art in general. This is because it emphasises introspection, encouraging players to reflect on their own interpretations and how they relate to Coda's creations. The game's mechanisms are going hand in hand with those objectives. Especially the storytelling, the narrator's commentary, and the gradual unveiling of Coda's perspective ensure that the learning objectives are met by promoting reflection, critical thinking, and emotional engagement without being obvious.

The mechanics, like walking through Coda's games, are deliberately simple, allowing players to focus on interpreting and reflecting on the narrative rather than on gameplay complexity. This allows for a personalised learning experience, where each player's journey and conclusions may differ, making the learning process more flexible and engaging.

If a teacher intended to run this game with a group, they would need little preparation. They would need to ensure that there are enough computers, one for each student, with Steam accounts set up. Additionally, the fee of 9.75 euros per game must be paid, as the game is not free. It would also be helpful if students had headphones to hear the narration and focus on their individual gameplay. Once these conditions are met, the game essentially runs on its own, but teachers should adequately prepare for the thematic content to lead a group reflection and discussion afterwards.

Effectiveness

Although there is no direct study on the effectiveness of *The Beginner's Guide* as an educational game, it is still worthwhile to examine user comments to gain a sense of its impact. Even though such comments are not always representative, they still provide at least an impression. In his review on *Rock Paper Shotgun*, John Walker writes about the game: "[...] it made me think, made me worry about people I care about, made me uncomfortable. And for that, I think, it deserves praise" (Walker, 2015). Darren Nakamura says in his review: "More than anything else, it has caused me a lot of introspection, a feat few games ever achieve." (Nakamura, 2015). At least, it seems to fundamentally have the potential to move people and encourage reflection.

This impression is supported by research from Bormann and Greitemeyer (2015), who showed that narrative video games can increase players' sense of immersion, which in turn can help satisfy basic psychological needs such as autonomy and relatedness. Their study compared a narrative-driven game with a non-narrative control game and found that players of the narrative game reported higher levels of emotional, cognitive, and narrative immersion (Bormann & Greitemeyer, 2015). Although the study did not focus specifically on *The Beginner's Guide*, it supports the idea that the emotional and reflective responses reported by its players align with the general effects observed in story-driven games.

Further research examining *The Beginner's Guide* directly would be valuable, especially given that the game relies almost entirely on storytelling as its primary mode of engagement. Another interesting aspect of *The Beginner's Guide* is that players do not need to adapt to different difficulty levels to keep the gameplay engaging. Furthermore, an article on the subject even states: "Action in the game is so railed-in that it approaches not free play but its opposite, recorded video" (Moulthrop, 2020). Nevertheless, this does not necessarily affect engagement. In this case, it is the storyline that keeps players engaged and gradually immerses them mentally into the game's world.

Potentially Problematic Aspects

Overall, no problematic aspects of the game are apparent, but a trigger warning might still be appropriate. After all, the game deals with topics like depression and anxiety without revealing much beforehand about what it is actually about. In the description on Steam, it simply says, "[...] it tells the story of a person struggling to deal with something they do not understand" (Steam, n.d.). For some people, these topics can be deeply moving, and they may want to consider whether they are ready to engage with them.

Reviewers: Torben Schmidt, Johannes Katsarov, Saskia Sterzl

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The Cascades Game

Developed by: Centre for Systems Solutions

Article contributed by: Johanna Willich

<https://doi.org/10.5281/zenodo.15938269>

Keywords

Cascading Systems, Climate-change Education, Climate Policy Education, Crisis Management, Economics, EU, Negotiation, Political Science, Risk Management, Stakeholder Management, Sustainability, Systems Thinking

Introduction

The Cascades Game is an interactive educational social-simulation game for university settings. It aims to foster systems thinking by introducing the concept of cascading climate impacts and the policy responses to address them. The game was developed in 2023 as part of the Project CASCADES (Cascading Climate Risks: Towards adaptive and resilient European Societies) and builds on their empirical research and policy models (CASCADES, n.d.). Simulating a global food crisis in 2028, players take on the roles of different global stakeholders and become members of the “European Task Force on global food supply”. Their goal is to develop recommendations for setting regulations to counter the global crisis. Therefore, they not only have to discuss, negotiate, and agree on solutions but must also react to the latest political, economic, and societal changes.

Facts

Release date:	28.03.2023
Developer:	Centre for Systems Solutions
Game type:	Hybrid
Number of players:	5–60
Format:	Hybrid
Time frame:	1.5–2 h
Languages:	English
Environment:	1–3 rooms, computer with stable Wi-Fi connection
Material:	printout materials from the game’s website, headsets, or speakers
Price:	available free of charge

Resonance & Criticism

While the Cascades Project received funding from the “European Union’s Horizon 2020 research and innovation program”, The Cascades Game itself has not acquired that much public attention yet. Although its educational effectiveness has not been empirically investigated to date, the social simulation mechanisms it uses are widely considered valid and powerful (Remmer & Jernstedt, 1982). Furthermore, it can be emphasized that the cascading climate risks addressed

in the game result from a multi-perspective and high-level real-world investigation (CASCADES, n.d.).

Game Principle & Process

The game is a future-oriented social simulation that combines experiential learning, which involves learning through direct experience (Kolb, 2014), and social learning, a reflective process that happens when one shares their experiences, ideas, and environments with others (Dyball & Keen, 2012).

The game presents a complex challenge, shaped by uncertainty and ambiguity, that players must navigate with creativity, communication, and collaboration to understand interconnections and diverse perspectives (see Figure). The strategies players develop are constantly tested against external scenarios, which require flexible thinking and adaptation. The game is open-ended and has no specific goal. Its primary targets are the social, transformational, and reflective processes during play.



Overview of cascading climate-related impacts and interconnected effects across policy, economy, and society in The Cascades Game (Centre for Systems Solutions). Used for educational review. Rights remain with the creators.

The game consists of two modules. It starts with the “Exploration Module”, a digital map that serves as an online multimedia introduction to a fictional yet plausible story of impact transmission, from the point of origin outside Europe to the very heart of the European Union. This is followed by the “Classroom Module”, which constitutes the actual social simulation workshop. The module begins with a simulated political summit focused on roleplaying and negotiating the global food crisis. Each player takes on the role of a country or organization and joins one of 3 working groups investigating the topic from different perspectives. The players and groups are provided with various media giving contextual information. Based on this information, the

players develop, discuss, negotiate, and vote on policy proposals to counter the crisis. This is followed by a debriefing phase in which all three working groups present their voting results and reflect on the simulation experience. The debriefing can be supplemented with the conceptual framework for the cross-border impacts of climate change and can help bridge the gap between the simulation experience and the real world.

Learning Objectives & Educational Fields of Application

Taking on the different roles in the scenario and having multimedia materials provided, players are encouraged to actively engage in multiple behaviors, such as future-directed thinking and problem anticipation, taking and considering interdisciplinary perspectives, communicating and discussing interests and opinions, and finding compromises through collaboration. In addition to basic knowledge of the forms of cascading climate impacts and resource management skills, the game provides an opportunity to train in developing opinions and active policy responses that aim to inspire change and action in the real world. Furthermore, it fosters systems thinking, reflection on social situations, and insight into the dynamics of change. By doing so, it creates an inclusive space for developing future visions and allows players to understand key challenges along the way to their desired future.

The Cascades Game was designed for policy and climate educators as well as university teachers searching for an interactive introduction to cascading climate risks. The game targets adolescents and young adults and can be played during classes, workshops, or other initiatives that engage policymakers. Although the target group is not further specified, it is an advantage if players have some background knowledge of the main political, economic, and societal objectives beyond the game's input to better engage in discussions.

Although very detailed preparation materials for facilitators are provided, the game requires multiple hours of preparation time and 1-3 facilitators to create a summit atmosphere and guide participants through the simulation, as well as a reflective debriefing at the end.

All game and preparation materials can be accessed via the following link: <https://cascades.socialsimulations.org>.

Effectiveness

There are no purely empirical studies on the game. However, Adamczak and Jarzabek (2023) note in their Handbook that multiple factors determine how effectively the game's learning objectives can be achieved.

The facilitator bears the demanding responsibility of guiding the storyline and discussions comprehensively.

The high-level multimedia materials are very engaging, create an immersive experience, and stand out from non-gamified teaching methods. However, students must be willing to get involved in their roles and the overall simulation, which is challenging because the complex storyline demands sustained concentration. Additionally, the debriefing process, designed to link the simulation experience and its content with the participants' real-world needs and practices, must be conducted with care and attention.

Nevertheless, through the broad range of skills that can be learned with social simulations (Remmer & Jernstedt, 1982), most players will have their own takeaways, including at least some of the main learning goals.

Potentially Problematic Aspects

In addition to the difficulties already mentioned, there are a few limitations to consider when choosing it for educational purposes.

Although the game developers specify a time horizon of 1.5–2 h, The Cascades Game can easily take longer depending on how deeply players dive into the discussions and reflect during the debriefing.

It might already be playable with 5 participants, but the feeling of an actual summit and the involvement of transdisciplinary perspectives are only achieved when more players participate.

Furthermore, the game presents a very Eurocentric perspective, depicting the European Union as the main executive body capable of solving the global food crisis.

Reviewers: Torben Schmidt, Johannes Katsarov

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The Debriefing Cube

Developed by: Julian Kea, Chris Caswell

Article contributed by: Julian Kea, Ivelina Dimitrova Karaatanasova

<https://doi.org/10.5281/zenodo.15926045>

Keywords

Brave Space, Critical Thinking, Debriefing, Facilitation, Gamification, Guided Discussion Techniques, Psychological Safety, Reflection Strategies, Team Performance



Example materials from The Debriefing Cube, a facilitation tool for structured reflection and debriefing in serious games and learning contexts. © Julian Kea and Chris Caswell. All rights reserved for the creators.

Introduction

Workshops can be fun, but people often forget most of what they learned by the next day. Experience alone is not enough: reflection is an important catalyst that enhances learning. Without reflection, key lessons fade fast from memory or are completely missed. Studies show that reflection is not just a nice-to-have but a game-changer. Teams and individuals who reflect after an activity perform better (Tannenbaum & Cerasoli, 2013). Crookall (2010) found that debriefing turns experience into real learning. That is why structured reflection matters.

A simple yet powerful way to facilitate and keep discussions meaningful is *The Debriefing Cube* (see Figure). Originally developed as an educational tool for team growth, capability development, and corporate learning, it now enriches diverse learning moments across professional and personal development. The tool helps facilitators ask the right questions, stay focused, and ensure real insights emerge. Its primary purpose is to guide participants through thoughtful discussions, enabling them to reflect on shared experiences, connect them to broader concepts and future applications, and foster psychological safety for honest feedback.

Facts

Release date:	2019
Developer:	Julian Kea & Chris Caswell
Game type:	Hybrid
Number of players:	Flexible (can be used in individual, small-group, or large-group settings)
Format:	Synchronous
Time frame:	Time depends on the game played, the goals of the workshop, and the number of participants
Languages:	As of early 2025, the tool is available in more than nine languages, including English, German, Spanish, Russian, French, and Italian.
Environment:	A deck of structured debriefing question cards; physical cubes with icons have been produced occasionally
Material:	–
Price:	The resource is openly available under a CC-BY license, though some printed versions may incur associated costs.

Resonance & Criticism

The Debriefing Cube is widely used in training, education, and facilitation communities for its ability to simplify and enhance reflection processes. Although it has not received official awards, it is valued for its clear structure, which keeps discussions focused and purposeful; its versatility, which enables adaptation across various learning environments; and its engaging nature, which makes debriefing interactive and participant-driven. As an open educational resource (OER), The Debriefing Cube has inspired the development of various digital versions, translations, and adaptations by an international facilitation community.

Game Principle & Process

Making debriefing more impactful involves several key steps. In preparation, facilitators select relevant questions aligned with the learning goals. During the opening, they set a welcoming tone for open and meaningful discussion. The guided reflection involves methodically exploring relevant perspectives, allowing diverse voices to be heard. In action planning, facilitators conclude with a takeaway perspective and a “What now?” reflection, ensuring that insights lead to real-world action. Finally, the follow-up involves checking in later to reinforce learning transfer. McGaghie et al. (2010) found that structured debriefing significantly improves skill acquisition in simulation-based medical education, with similar principles applying in corporate training and team learning.

The process works as follows: participants engage in an activity, whether a game, simulation, or interactive exercise. The facilitator brings in The Debriefing Cube to ensure important insights do not slip away. Participants use question cards to explore key aspects of their experience. Facilitators or participants lead the debrief, selecting or drawing questions to direct the conversation. Special cards guide participant-led debriefs through an interactive, turn-based format. The session concludes with actionable takeaways.

Facilitators can use the framework in four ways. In Design mode, they plan by choosing the right questions to keep interventions focused. In Hold mode, they adapt in the moment, choosing questions live as the game unfolds. In Guide mode, they let players lead, handing out pre-selected cards and letting participants reflect together. In Explore mode, they embrace spontaneity, shuffling the cards and letting participants draw at random. Real learning occurs when we take the time to process and connect our experiences (Hoffmann & Kea, 2023).

Learning Objectives & Educational Fields of Application

The Debriefing Cube is designed to achieve several key learning objectives. It enhances retention, as studies indicate that structured debriefs significantly improve performance and knowledge retention compared to unstructured reflections (McGaghie et al., 2010). It strengthens critical thinking by helping participants dig deeper, analyzing what shaped their experience and why it mattered, rather than just recalling what happened (Crookall, 2010). It expands cognitive and social perspectives by helping participants see different perspectives, challenge their assumptions, and sharpen their thinking (Hoffmann & Kea, 2023). It improves group dynamics by facilitating structured discussions on communication, emotions, and decision-making, fostering team cohesion, trust, and collective problem-solving. Finally, it turns insights into action through the takeaway perspective, ensuring that lessons do not just stay in the game but translate into real-world applications. Structured debriefing helps participants connect their experiences to practical strategies they can use in their work and daily life (Hoffmann & Kea, 2023).

While engaging activities create enthusiasm, thoughtful debriefing transforms these experiences into lasting insights that participants can apply meaningfully in real-world contexts. With The Debriefing Cube, facilitators can turn discussions into lasting learning experiences that shape real growth.

To name two examples: The Debriefing Cube has been successfully implemented in educational settings where instructors use it to help students extract deeper learning from simulations and case studies. In corporate environments, it has served as a framework for effective retrospectives, enabling teams to analyze their work processes and identify meaningful improvements systematically.

Effectiveness

The Debriefing Cube is a facilitation tool designed to structure and enhance in-game debriefs and post-activity debriefing discussions. It provides a six-perspective framework that enables participants to systematically analyze their experiences from multiple dimensions, leading to deeper learning and more actionable insights: Goal (what was the objective and how did it evolve), Process (what happened and in what sequence), Group Dynamics (how team interac-

tions shaped the experience), Communication (what was said, heard, and understood), Emotions (what emotions surfaced and how they influenced decisions), and Takeaway (what key insights emerged and what actions will follow).

Debriefing is a critical phase in the learning process, transforming experiences into meaningful insights and long-term skill development. Structured, facilitator-led debriefs significantly enhance knowledge retention and skill acquisition (McGaghie et al., 2010), while Crookall (2010) emphasizes that debriefing is essential for translating experience into meaningful application. Despite their importance, intentional reflection practices remain underutilized in facilitation work.

Potentially Problematic Aspects

The Debriefing Cube offers the structure, but facilitators and participants bring the reflection to life. By staying self-aware and impartial, facilitators create a safe space for discovery, skilfully framing the conversation and supporting participants as they uncover their own insights. This work includes knowing when to challenge assumptions to prevent discussions from becoming superficial. When tensions arise, the goal is not to force agreement but to clarify the different ways a shared experience can be perceived, turning potential friction into an opportunity for growth. This requires facilitators to use their mediation skills to guide the group toward a deeper, more nuanced understanding.

Reviewers: Robert Galiard, Michael Louis Eulenstein

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The Durga Puja Mystery

Developed by: Xenia Zeiler, Satyajit Chakrabarti

Article contributed by: Xenia Zeiler

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Keywords

Culture, Durga Puja, History, Indian Festival Culture, Intercultural Communication, Religion, South Asian Studies



Screenshot from *The Durga Puja Mystery* (Zeiler & Chakrabarti). Used for educational review. Rights remain with the creators.

Introduction

The educational video game *The Durga Puja Mystery* (see Figure) introduces Indian festival culture by focusing on the popular and widespread Hindu festival Durga Puja. Today, Durga Puja is not only widely celebrated in India but is also a significant event for global Indian communities (e.g., Guha-Thakurta, 2015; Zeiler, 2025). The game is a third-person 3D adventure filled with mystery, featuring educational puzzles, riddles, and tasks. It takes place in and around a majestic heritage mansion near Kolkata, India, during Durga Puja, naturally!

The game is part of a set of two educational video games at the festival, developed specifically for university teaching. *The Durga Puja Mystery* (2020) and *Durga Puja Beyond Borders* (2021) can be played in combination or as stand-alone games, depending on the player's interest.

Facts

Release date:	2020
Developer:	Collaboration between Xenia Zeiler, University of Helsinki, Finland, and Satyajit Chakrabarti, Flying Robot Studios, Kolkata, India
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	60–120 minutes, depending on the options the player chooses
Languages:	English
Environment:	Windows PC
Material:	The game is downloadable from a public website that additionally offers game-accompanying academic context information on the festival Durga Puja (two academic lectures, one academic blog post, and one documentary), produced specifically for the two educational video games on Durga Puja, see https://blogs.helsinki.fi/durgapuja-the-videogame/
Price:	Fully open access and free of charge, as the game development was fully funded by the University of Helsinki

Resonance & Criticism

The Durga Puja Mystery was selected as a finalist in the Finnish Hacking Higher Education contest 2020 (see <https://blogs.helsinki.fi/durgapuja-the-videogame/hacking-higher-education-finland-2020-finalist/>). Collected voluntary student feedback praised the game's innovative, playful approach to learning about the festival. Additionally, the game has gained international awareness among university teachers.

Sample course titles in which the game has been used so far include "Globalization, Global Communities, and Transcultural Encounters", "Who has got the Power? Communicating and Negotiating Authority and Identity in Indian Festival Cultures", and "Identities and Digital Networks of Migrant Communities".

Game Principle & Process

As mentioned above, The Durga Puja Mystery is an educational video game developed to introduce selected core aspects of Indian culture and society by using the festival of Durga Puja as a case study.

In this game, the player plays as Laura, a Finnish student who is visiting India for the first time. She has been invited by her Indian friend Vani to celebrate Durga Puja with her and her family. Vani takes Laura to her ancestral home, where the festival of Durga Puja is about to begin. Both arrive at the majestic house expecting a fun-filled and educational time, only to find that all the celebrations are on hold. The ancestral metal statue of the goddess Durga, which is a key part of the celebration, is missing. At the request of the lady of the house, Vani's aunt, Laura takes on the task of finding the statue. She gains more profound insights into and knowledge of the festival's history, mythological contexts, iconography, and modes of worship and celebration –

and employs this new knowledge and her investigative skills to find the statue. As she progresses, the mystery deepens.

Educational games have several specific pedagogical characteristics and requirements that set them apart from non-educational games (as noted as early as 2007; see, e.g., Mishra & Foster, 2007). They include, but are not limited to, acknowledging and accepting that they can, and at times must be rather text-heavy and that there is a constant need to balance the learning and the play experiences – and to combine these two skilfully. This is an ongoing challenge, especially for educational games designed for humanities disciplines. One of our solutions that helped bring together the play and the learning experiences was implementing an academic library into the gameplay of *The Durga Puja Mystery* and supporting the learning process initiated by the game through an accompanying website with academic context information.

Learning Objectives & Educational Fields of Application

The Durga Puja Mystery has an overall objective, as well as more specific and detailed learning subgoals. The primary, overarching goal is to provide students and interested general audiences with access to knowledge of the Durga Puja festival—including its complex history, celebratory practices, and global spread—in a playful yet academically sound way. The game's sub-goals include specific classroom usability across a variety of courses suited to the academic disciplines of South Asian studies, Asian studies, religious studies, and area and cultural studies.

Throughout gameplay, the player is tasked with educational activities and investigative puzzles, gradually learning about Durga Puja. That is, the player collects various items, including reference books, texts, and images, that can help with the investigation and play a key part in winning the game. Simultaneously, and as is characteristic of educational games, these items introduce the player to various key themes related to Durga Puja and support the player in their educational and academic quest. They are selected with the aim of conveying information about and inspiring further interest in Indian culture.

That is, the game takes an open approach to learning objectives, aiming to inform and spark interest in the selected theme. It does not use specific, quantifiable learning tasks and/or objectives because it does not target quantifiable learning outcomes. Instead, one of the game's main objectives is to allow players to have their own experiences, in addition to content knowledge about Durga Puja. For example, the choice of location, a heritage mansion and surrounding garden park, was a conscious attempt to boost the players/students' immersion experience. This setting requires much walking during gameplay and allows the player/student to explore, at their chosen pace, specific cultural aesthetics we tried to capture, such as various architectural styles and the native landscape (Zeiler, 2025).

The Durga Puja Mystery is easy to use on Windows PC or laptop with the required system requirements (<https://blogs.helsinki.fi/durgapuja-the-videogame/play/>). After a free download, the game can be played immediately. All practical instructions, as well as game-accompanying academic content that can support the player during gameplay are free of charge and easily accessible. This design reflects the fact that using an educational video game in classroom settings should always be supported by other learning activities, such as assigned academic readings on the game's content matter, group discussions, and the use of different media formats.

As this is a single-player game, it is even more advisable to embed it in collaborative class discussions and in further information sources and learning activities on the theme.

Effectiveness

A postmortem of the game by Zeiler & Chakraborti (2024) further investigated the pros and cons of The Durga Puja Mystery (and of the second game in the mentioned duo, Durga Puja Beyond Borders, 2021). This report discusses reflections and assessments on the effectiveness, successes, and challenges in both the development process and the final game product. It builds on student feedback to evaluate how the game was received as a learning material. This voluntary student feedback, collected over several courses where the game was an assignment and including short statements as well as several page-long game reviews, ascertains that the game succeeded in enhancing the learning experience by utilizing components such as soundscapes, colors, narrative structures, and the overall interactive element of video games to create an extended level of immersion into the theme (e.g., Blumberg & Blumberg, 2014; Mayer, 2014).

This report reiterates the specific pedagogical characteristics and requirements that set educational games apart from non-educational games. They include, but are not limited to, acknowledging and accepting that such games can and, at times, must be rather text-heavy, and that there is a constant need to balance the learning and the play experiences. This is an ongoing challenge to date, especially for educational games designed for humanities disciplines.

For The Durga Puja Mystery, one of our solutions to bring together the play and the learning experiences was to integrate an academic library into the gameplay and to support the learning process initiated by the games through the accompanying website, providing academic context information.

Potentially Problematic Aspects

The game is most effectively and smoothly played when the specified PC/laptop system requirements (including a minimum Intel Core 2 Duo 3.0 GHz or AMD Athlon 64 X2 6400+ 3.2 GHz, and a graphics card minimum NVIDIA® GeForce® GT 600 or AMD Radeon™ equivalent) are met. At the moment, the game must still be downloaded and installed to play. We actively continue to seek funding to improve this and other technical issues and hope to offer a browser-based solution in the future.

Because educational games on complex cultural and social themes will likely always require extended text (dialogue, instructions, etc.), it is challenging to find a workable balance between integrating text and allowing for more play- and story-driven elements. This should be communicated to students before playing.

Reviewers: Walter Dettling, Lucian Jueterbock

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The Fishing Game

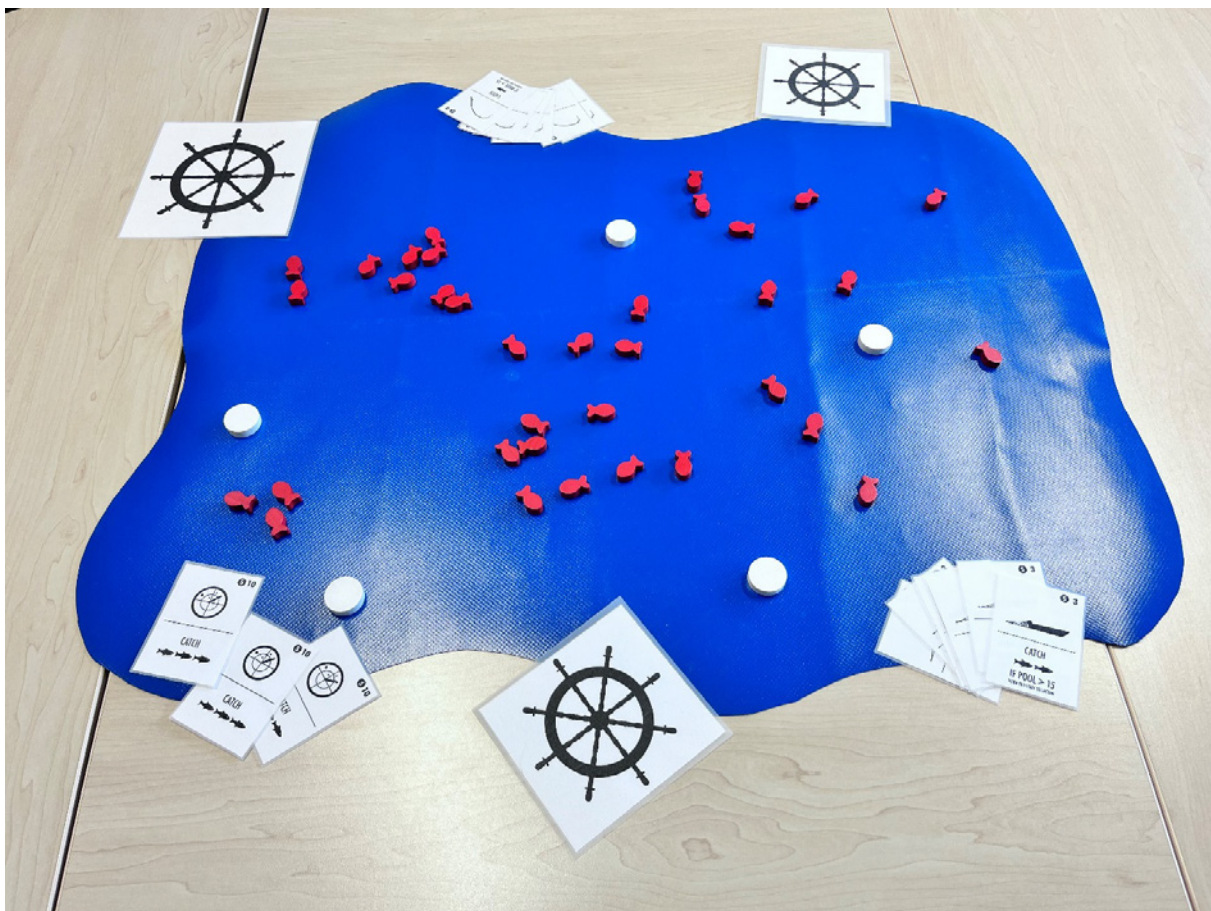
Developed by: Paolo Pedercini, Liam Burke

Article contributed by: Birgit Zürn

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Keywords

Competition, Conflict Management, Cooperation, Environmental Ethics, Negotiation, Strategic Decision-making, Sustainability, Systems Thinking, Tragedy of the Commons



Overview and game setup of The Fishing Game, an analog serious game on overfishing and common-pool resource dilemmas. © Paolo Pedercini and Liam Burke (Molleindustria). All rights reserved for the creators.

Introduction

The Fishing Game (see Figure) addresses handling scarce resources, economic behavior, coordination with others, and topics such as common goods, ethics and morals, common goods vs. personal profit, and much more. It thus joins a series of simulation games on overfishing

(Fishbanks by Dennis Meadows, Fish Pond by iconomix/UCS Markus Ulrich), which focus on everyday goods and share a similar game mechanism.

The target user group comprises individuals aged 12 and over from all sectors, professions, and social classes. The game addresses a serious sustainability issue and can therefore be described as a serious game.

Four companies are located at a pond from which they can take fish. Initially, they only have one fishing rod at their disposal. Over the course of the rounds, the revenue generated can be used to buy more boats, regardless of fishing conditions. Market and price developments, as well as fish stocks, must always be considered. Molleindustria developed the game for the 2013 Allied Media Conference, and it is freely available.

Facts

Release date:	June 2013
Developer:	Paolo Pedercini and Liam Burke from Molleindustria
Game type:	Analog
Number of players:	4 teams (fixed number!) with 2 to 5 persons each, optimum 12–16 persons
Format:	Synchronous
Time frame:	Total time about 90 min. for briefing, playing time plus in-between-debriefings and a debriefing session in the end
Languages:	English
Environment:	A table with the fish pond in the centre, four areas for the teams around it
Material:	Pond with fish, playing cards for the boats, overviews of market prices, coins as money if available. The rules and materials are available here: https://www.molleindustria.org/blog/fishing-game .
Price:	No license costs, possibly wooden fish or similar, and coins

Resonance & Criticism

Concrete figures on the use of these simulation games are challenging to find, as they are often used in various educational institutions and projects worldwide. For example, Fishbanks is used in schools from the 9th grade onwards (Kursawe, n.d.). The effects of these simulation games are manifold, as examined, for example, in this evaluation study (Luidold et al., 2023). They help participants to understand the complexity of overfishing and raise awareness of sustainable practices. By simulating real-life scenarios, participants learn how important it is to make sustainable decisions and consider the long-term effects of their actions. The Fishing Game has not yet received an award.

Game Principle & Process

In the Fishing Game, four teams compete against each other to earn the most money from a pond with 24 fish in 10 rounds. At the start of the game, each team is given a fishing rod with which to catch a fish. The price of the fish depends on the quantity caught; the more fish caught, the lower the price. In addition, all teams must catch at least seven fish across the market

during three consecutive rounds to prevent the population from starving. The income generated can be utilized to procure new boats and ships with varying catch capacities. Some of these vessels have additional conditions, such as only catching when there are more than 15 fish in the pond. Fishing is conducted in turns, with one team after the other taking their turn. The fish stock is replenished after each round according to well-defined rules.

There is complete clarity and transparency among the participants about the rules and the goal from the very beginning. The current fish population and regeneration are also openly communicated to everyone. There is no coincidence; everything can be planned. Nevertheless, there is usually a moment when the fish stock becomes critical. As soon as a vital fish stock is reached, the game organizer asks the teams to devise a solution, giving them free rein to do so.

This phase is crucial for the learning process, because ideas for solutions are generated, discussed, and set against each other in often heated debates (you have the big fleet, you have emptied the pond, we do not want a zero round ...). If the group does not find a solution, the facilitator must intervene as a moderator.

The game is based on the “Tragedy of the Commons”. This is an economic theory that describes a situation in which individuals, acting in their own self-interest, deplete a shared resource, thereby harming the entire group. This concept was popularized by ecologist Garrett Hardin, who built on the work of William Forster Lloyd (Lloyd, 1833; Hardin, 1968).

Learning Objectives & Educational Fields of Application

The example of fishing in this game illustrates the problem of visualizing the consequences of one’s own actions in complex systems. It also demonstrates that it is difficult for people to break away from established patterns of thought and behavior, and, for example, to give up competitive thinking in favor of cooperation.

The multi-layered game mechanism ensures that practically all participants bring the fishpond to the brink of collapse. In addition to sustainability aspects, general market mechanisms are also integrated and can be addressed in the debriefing. For example, the declining price is counterproductive when catch quotas are high, but this is rarely recognized. There is also room for overarching discussions about the mechanism that some ship cards only take effect when there is a minimum stock of fish. During the debriefing, it is essential to transition from the discourse on overfishing to that of overall sustainability.

The facilitator’s key responsibilities include explaining the rules of the game, moderating the rounds, and clarifying questions. During the game phase, the facilitator should generally keep a low profile, unless there are unresolvable conflicts. One facilitator is sufficient for four teams; ideally, the facilitator should have played the game once as a participant and have internalized the rules. This requires about half a day of facilitation training.

Effectiveness

There is a lack of research on learning effectiveness. However, its frequent use in schools and universities suggests it may have lasting learning effects. The game can potentially lead to con-

flict and frustration if the fish stock cannot be saved, a concern that can be addressed through a structured discussion during the debriefing.

Potentially Problematic Aspects

The rules of the game and the consequences of one's actions are always visible and understandable to all participants. Nevertheless, strong emotions can be triggered if teams, for example, do not adhere to agreements or refuse to make any agreements. In such cases, it could be the facilitator's task to act as a conflict manager. Additionally, the game is about the survival of a fictional population, which can lead to ethical and moral discussions that should be seen as an opportunity to foster in-depth exchange on this topic.

Reviewers: Saskia Sterzl, Johanna Willich

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The Fontanian Question

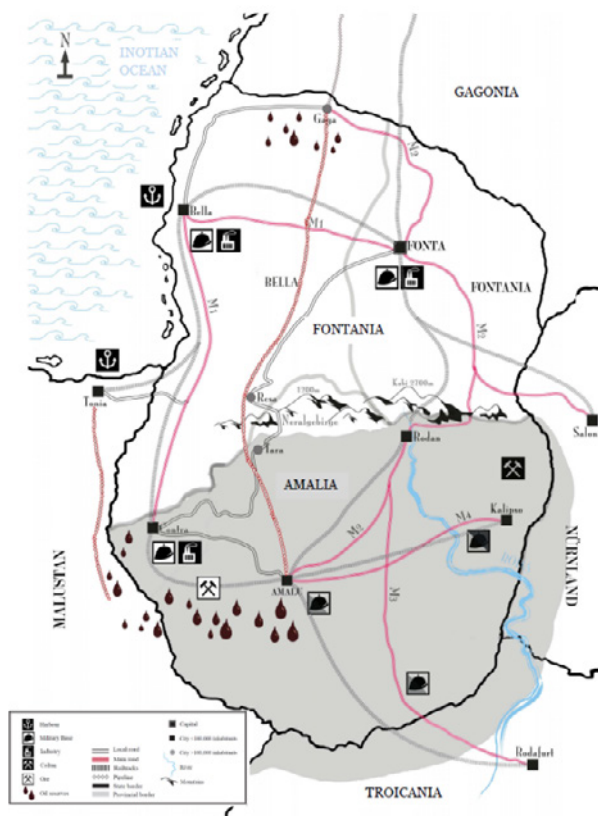
Developed by: planpolitik

Article contributed by: Björn Warkalla, Simon Raiser

<https://doi.org/10.5281/zenodo.15870001>

Keywords

Collaborative Problem-solving, Conflict Management, Economics, Negotiation, Political Science, Political Violence, Power Dynamics, Resource Competition, Stakeholder Management, Team-work



Map of the fictitious country Fontania used in The Fontanian Question (planpolitik), illustrating regions, infrastructure, and resource distribution. Used for educational review. Rights remain with the creators.

Introduction

The Fontanian Question is an on-site, analogue simulation game that immerses participants in the socio-economic and security dilemmas faced by a fictitious country endowed with abundant natural resources (see Figure). By placing participants in the roles of various stakeholders – from government entities and oil companies to rebel groups and local communities – the game explores who profits from resource extraction and how competition over valuable commodities fuels or mediates internal conflicts.

As a serious game, it combines experiential learning with real-world political and economic dynamics. Through direct engagement in negotiation and conflict-resolution processes, participants gain a deeper awareness of the complex interplay between wealth, power, and violence in resource-rich settings.

The game is suitable for ages 16 and up, though its complexity makes it better suited to university students. Prior knowledge of the subject is not required, making it ideal for students from a variety of disciplines. However, it fits most naturally with undergraduate and graduate students in political science, international relations, development, and peace studies. The game was developed by planpolitik in 2012.

Facts

Release date:	2012
Developer:	planpolitik GbR
Game type:	Analog
Number of players:	Typically 15–40 participants (adaptable)
Format:	Synchronous
Time frame:	1–2 full days or multiple shorter sessions, depending on setup
Languages:	English, German
Environment:	Classroom or workshop setting with sufficient space for group negotiations
Material:	Role descriptions, country background sheets, negotiation guidelines, briefing materials (provided in print or via facilitator)
Price:	Implementation facilitated by planpolitik trainers. Costs depend on group size and the effort required for facilitation.

Resonance & Criticism

The section links to debates on serious-game pedagogy and conflict research by offering experiential access to dynamics described by Collier & Hoeffler (2005) and reflected in simulation studies by Asal & Blake (2006) and Crookall (2010). Participants report gains in empathy, analytical depth, and appreciation of open-ended negotiations. At the same time, the format inevitably simplifies the drivers of conflict, and outcomes depend heavily on participant engagement and facilitator expertise.

Game Principle & Process

During this simulation, participants assume one of several distinct roles, such as national governments and local authorities, balancing national development goals against regional demands; private and state-owned oil companies, seeking profitable extraction agreements under varying regulatory frameworks; and opposition or rebel groups, challenging existing power structures, sometimes violently, to secure revenue or political concessions.

The scenario unfolds in Fontania, a fictitious resource-rich country on the brink of internal strife. The simulation is structured into several negotiation rounds, each representing different phases of escalation and potential de-escalation. Crucially, all developments in the game stem directly from the participants' decisions and interactions. Actions such as forming alliances, launching

offensives, or drafting agreements generate consequences that reshape the political and economic landscape. These consequences are communicated to all players through “breaking news” bulletins, which document and amplify the ripple effects of earlier choices. In this way, power shifts, the emergence of new crises, or opportunities for cooperation are never externally imposed but rather emerge organically from the strategies and conflicts pursued by participants. The game concludes with an open outcome: escalation into violent conflict, fragile cease-fires, or sustainable settlements are all possible, depending on how players themselves navigate negotiation, confrontation, and compromise.

Outcomes are not scored numerically but are evaluated against the stated objectives of each stakeholder group. For example, governments may consider themselves successful if they maintain power while limiting unrest, while rebels succeed if they secure political concessions or access to revenue streams. From an educational perspective, success is also measured by whether participants manage to achieve cooperative outcomes rather than zero-sum victories, reflecting insights from negotiation theory (Fisher, Ury & Patton, 1991).

Learning Objectives & Educational Fields of Application

The simulation pursues several interconnected learning objectives that extend beyond the acquisition of factual knowledge. The first aim is to foster a nuanced understanding of conflict dynamics in resource-rich settings, encouraging participants to explore how political, economic, and social grievances interact to produce or mitigate violence. Equally central is the development of negotiation skills, as participants must engage in multilateral bargaining processes that require balancing divergent security, economic, and humanitarian considerations under conditions of uncertainty and pressure.

The exercise also seeks to strengthen participants’ capacities in conflict resolution and teamwork, providing a practical arena to apply theoretical insights from conflict management literature while collaborating across different roles and interests. In addition, the game promotes a broader socio-economic awareness by illustrating the ripple effects of natural resource exploitation on questions of equity, legitimacy, and long-term stability. In doing so, it highlights how decisions taken in one sector reverberate across political and societal domains.

These objectives make the simulation a valuable tool in a range of educational contexts. It is particularly suited for university-level courses in political science, international relations, development studies, or peace and conflict studies. Still, it can also be employed in professional training settings for NGOs, government institutions, and policy think tanks working on resource governance or conflict mediation. Furthermore, its open-ended design makes it adaptable for workshop formats at conferences and professional development programs, where the interplay between economics, security, and local agency in conflict zones can be fruitfully examined.

Effectiveness

Over multiple iterations at universities and workshops, The Fontanian Question appears to consistently engage participants and foster deep learning. Students often remark in feedback and debriefing sessions that taking on stakeholder perspectives broadens their understanding of resource disputes, sharpening both analytical and interpersonal skills. By requiring real-time

interactions and strategic decision-making, the game cultivates empathy, adaptability, and collaboration under pressure.

Facilitators report that participants emphasize the open-ended nature of the simulation, which encourages creative problem-solving and critical thinking. Attempts to forge uneasy alliances or impose top-down solutions illustrate how rapidly conflicts can escalate when certain voices are marginalized. At the same time, proactive consensus-building shows how structured negotiation can reduce tensions and support more sustainable resource management.

Empirical, peer-reviewed studies evaluating the game's effectiveness have not yet been conducted, so existing insights rely on facilitator observations and participant feedback.

Potentially Problematic Aspects

Implementing such a simulation entails several critical considerations. First, there are notable logistical requirements. The exercise requires adequate physical space to accommodate dynamic interactions among participants, along with sufficient time and careful coordination to ensure complex conflict scenarios can evolve in a structured and meaningful manner. Equally important is the emotional intensity inherent in simulations that depict violence, exploitation, or potential human rights violations. Because such themes may be distressing, especially for younger or less experienced participants, it is essential to provide a clear content warning in advance and to include well-designed debriefing sessions and, where appropriate, access to emotional support.

Finally, the role of the facilitator is central to the simulation's effectiveness. Successful moderation requires prior knowledge of conflict-resolution methods and the ability to respond flexibly when negotiations stall or tensions rise. If facilitators are underprepared, there is a significant risk that discussions will remain superficial, that sensitive issues will be mishandled, or that participants may feel unsafe or unheard. Skilled facilitation thus ensures not only that participants stay engaged and that learning objectives are met, but also that the simulation maintains a balance between realism and a safe learning environment.

Reviewers: Saskia Sterzl, Zachary Fitz-Walter

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The Gamification Quest

Developed by: Lucian Jueterbock, Johannes Katsarov, Maya Kim

Article contributed by: Lucian Jueterbock

<https://doi.org/10.5281/zenodo.17679726>

Keywords

Behavioral Design, Collaborative Problem-solving, Competence Development, Educational Ethics, Gamification, Octalysis Framework, Psychology, Reflective Learning



Participants playing The Gamification Quest during a workshop at Leuphana University. © Game Didaktik Project, Leuphana University.

Introduction

The Gamification Quest (see Figure) is an educational board game that introduces the core principles of gamification through the Octalysis Framework, a model that describes human motivation through eight core psychological drives that shape engagement and behaviour in gamified systems (Chou, 2014). The Gamification Quest was developed in September 2025 by Lucian Jueterbock, Johannes Katsarov, and Maya Kim within the Game Didaktik Project at Leuphana University, in the hope of helping university educators explore how motivational design can enhance teaching and learning.

Its movement system echoes classic race games such as Ludo, Dog, or Snakes and Ladders, where players advance toward a goal but risk being sent back if they fail a challenge or collide with another player. The path is color-coded according to the eight Core Drives of Octalysis, and progress depends on players solving scenario-based tasks that require identifying, matching, and justifying game mechanics for each drive.

Situated within the field of serious games, The Gamification Quest bridges theory and practice by turning abstract ideas about motivation and behaviour design into a tangible, collaborative learning experience.

Facts

Release date:	10.11.2025
Developer:	Lucian Jueterbock, Johannes Katsarov, Maya Kim, within the Game Didaktik Project at Leuphana University
Game type:	Analog
Number of players:	2–4
Format:	Synchronous
Time frame:	20–40 minutes
Languages:	English, German
Environment:	The board game and the cards need to be printed.
Material:	All the material can be downloaded for free and printed. https://doi.org/10.5281/zenodo.17570890
Price:	Free

Resonance & Criticism

As The Gamification Quest is a newly developed prototype, it has been tested only twice to date in two workshops by the Game Didaktik Project at Leuphana University. Early feedback from educators and participants was positive, emphasizing the game's ability to stimulate meaningful reflection on motivational design and learning mechanisms. However, some participants in the first workshop noted that the pace of play could be improved and that additional interactive elements might enhance engagement. These criticisms were taken into consideration, and adjustments were made accordingly for the second workshop, which received only positive feedback, although it should be noted that the sample size was very limited. As a recent prototype, the game has not yet been widely implemented or received formal ratings or awards.

Game Principle & Process

The game is played with 2–4 participants, called Candidates within the game lore. Players journey across the board toward the Castle of Mastery. The game is turn-based and uses three decks: the Main Deck (with Spark and Risk cards), the Challenge Deck, and the Sabotage Deck. Each player also receives a small reference card summarizing the eight Core Drives.

On their turn, a player draws from the Main Deck. Spark cards describe a gamification mechanism, and the player must match it to one or more Core Drives. A correct answer allows the player to advance along the matching colour path to the corresponding tile. An incorrect answer

keeps the player in place. Risk cards describe common pitfalls in gamification design; a correct response lets the player remain on the space, while an incorrect response obligates the player to step back to the previous mushroom tile.

Mushroom tiles act as checkpoints. Landing on a mushroom tile triggers a Challenge card that presents a classroom scenario in which the player must choose the most suitable gamification mechanism. If the answer is correct, the player is awarded a Sabotage card. Sabotage cards allow the player to hinder another player's progress or improve their own position, depending on the effect written on the Sabotage card, and may be used immediately.

If two players land on the same space, the one who was already there is sent back to the previous mushroom and must answer a Challenge card; failure sends them back to the start. Each turn is limited to two minutes, ensuring the pace remains dynamic and that all participants stay engaged. The game concludes when a player reaches the castle and successfully answers a final Challenge card, demonstrating mastery of the journey.

The authors of the game drew upon several sources in motivational psychology and gamification to inform the cards' content (e.g., Ryan & Deci, 2000; Mihaly Csikszentmihalyi, 2018; Liberty, 2024; Chou, 2014; Hamari et al., 2014; Sailer et al., 2017).

Learning Objectives & Educational Fields of Application

This game is designed to foster a conceptual and practical understanding of motivational design in higher education. Its central learning objective is to help educators recognize, analyze, and apply the principles of the Octalysis Framework to their own teaching contexts. Through play, participants explore how specific gamification mechanisms, such as leaderboards, follower systems, or time-bound rewards, can influence learner motivation and engagement.

The game promotes three interrelated competencies:

1. Analytical competence: Identifying and differentiating the eight Core Drives through Spark cards
2. Design competence: Selecting and justifying appropriate mechanics for specific educational goals through Challenge cards
3. Reflective competence: Evaluating the ethical and pedagogical implications of motivational design choices through Risk cards

The Spark cards encourage pattern recognition between theoretical drives and concrete mechanics. Challenge cards simulate authentic classroom dilemmas that demand applied reasoning and justification. Sabotage cards introduce a meta-layer of strategic and emotional engagement, prompting reflection on how competitive and cooperative dynamics affect motivation, mirroring real-world challenges in teaching (for example, leaderboards might, in some contexts, reduce student motivation by rewarding only the top-performing students and ignoring others).

The game is designed to serve as a stand-alone educational tool. Therefore, the role of facilitators is limited to moderating the game. This role does not require any prior knowledge. However, familiarity with the basics of gamification and motivation theory can be helpful at times.

Preparation time is minimal: after a brief (10-minute) introduction to the game based on the rule book, the facilitator can start the session.

Educationally, The Gamification Quest falls under teacher training, instructional design, educational psychology, and higher education pedagogy. It can be used as a stand-alone workshop, a seminar exercise, or a reflective intervention in professional development programs.

Effectiveness

As this game is a newly developed prototype, no empirical studies have yet been conducted. However, initial players found it engaging and valued the opportunity to reflect on the gamification mechanisms as they explored the motivational foundations behind each. Future research could empirically evaluate the game's effectiveness in transferring knowledge and in fostering engagement.

Potentially Problematic Aspects

The game does not address any sensitive topics such as violence, discrimination, or mental health issues. However, minor concerns may arise from the competitive elements introduced by Sabotage cards, which could disadvantage less confident participants if not carefully moderated. The game relies on abstract examples and simplified scenarios, which may limit cultural inclusivity. Ethical facilitation is recommended to ensure balanced participation and sensitivity to differing teaching contexts.

Reviewer: Saskia Sterzl

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Thirsty Sword Lesbians

Developed by: Evil Hat Productions

Article contributed by: Emma Heberle

<https://doi.org/10.5281/zenodo.15939753>

Keywords

Collaborative Storytelling, Creativity, Empathy, Gender Studies, Healing, Inclusion, Queer Studies, Relationships



Official cover art of Thirsty Sword Lesbians, published by Evil Hat Productions (2021). Image sourced from the publisher's press materials.

Introduction

The game *Thirsty Sword Lesbians* (TSL, see Figure) focuses on queer adventurous stories. Its main objectives are to provide queer literacy and relational and emotional skills in a fun way.

It was developed by Kit Walsh, illustrated by Kaneshia Bryant, and supported by a group of illustrators, writers, and two sensitivity advisors. It was published in 2021 by Evil Hat Productions.

The target group is broadly people who are open to empathizing with queer characters. The idea is that this might also be interesting to people who do not identify as queer.

TSL is a storytelling and role-playing game. There is one game master narrating the story, and the other players decide what their characters do. This is supported by practical game mechanics and oriented towards (intimate) relations, fantasy, and fighting elements.

Trying to localize this game in the context of serious games shows that it doesn't fully or exclusively fit into this category. Overall, the entertainment effect is more emphasized than the intended serious effects. The intended learning effects are emotional learning regarding interpersonal relations and self-empowerment, the representation of queer lives, and empathizing with marginalized experiences in general.

Facts

Release date:	2021
Developer:	Evil Hat Productions
Game type:	Analog
Number of players:	3–9, >6 might be rather difficult
Format:	Synchronous
Time frame:	Preparation time before the first round: 1–2 h for players, ca. 5+ hours for the gamemaster. Playing time is flexible, from a single 2 h session to multiple, shorter or longer sessions.
Languages:	English
Environment:	Calm settings
Material:	6-sided dice, pens, handouts, and playbooks printed out.
Price:	15€ for pdf, 30€ for hardcover book

Resonance & Criticism

Thirsty Sword Lesbians was funded by a very successful Kickstarter campaign with 8152 backers. In 2022, the expansion "Advanced Lovers & Lesbians" was published. There are many positive or very positive reviews online, but I did not analyze them systematically.

The game has won two awards so far (as of December 2024). In 2022, it won a Nebula Award in the "Best Game Writing" category. The Nebula Awards are conducted every year by the Science Fiction and Fantasy Writers of America across different categories of science fiction and fantasy. TSL also won the 2022 ENNIE Awards for "Best Game" and "Product of the Year". The ENNIEs are awards for role-playing games and are hosted by Gen Con, a yearly tabletop gaming convention in Indianapolis.

Game Principle & Process

The game is based on the structure of the game “Powered by the Apocalypse”. It is a storytelling and role-playing game. One player serves as the game master. They prepare the adventure and have the role of moderating the game and acting out non-player characters. The other players each play one character. The handbook includes characters and adventures prepared for the players. The adventures are described and are to be used freely or adapted by the game master or the group. There are playbooks for the characters, including each specific move, a central inner conflict, and the “Stats” describing their strengths and weaknesses in the areas of “daring”, “grace”, “heart”, “wit”, and “spirit”.

In the beginning, through a series of questions, the relationships between the characters are established in a co-creative process. This sets the basis for the adventure. The game mechanics include basic moves in the areas of “Danger”, “Heartstring”, and “Recovery”. Additionally, there are moves specific to each character. The moves include throwing dice to set the effectiveness of the move, then being narrated into the story.

Throughout the game, each character can collect “Conditions”, meaning to be in an emotional state (angry, frightened, guilty, hopeless, insecure) and also recover from them. For recovery, other players can offer the move “Emotional support”. Conditions have both narrative and mechanical effects by negatively affecting the character’s moves.

Furthermore, the characters can gain “Strings” on one another, which represent emotional influence over another. They can be gained through the move “Becoming smitten” with somebody or also through finding out blackmail material about another character. These strings can be used with the move “Influence with a String” for good or bad when the other character makes a move.

For individual character advancement, players can earn experience (XP) through some moves and character-specific triggers. XP can be used to choose advancements such as unlocking new moves or adding to their “Stats”. After 5 advancements, players can choose to change the playbook or let their character “live happily ever after” when the inner conflict of the character is resolved.

Additionally, there are tools included for safety and awareness: a palette for checking in on which topics to include or not, a check-in card, a card to remove something from the game, and check-out prompts for the end of the game.

There are no specific game objectives other than having fun together, telling adventurous queer stories, and supporting each player to shine. Social interaction and creative narration around the game mechanics are central to the game.

Self-motivation and encouraging group dynamics are intended to keep players interested. As it is a storytelling game, the mechanics are rather supportive, and the players can decide together how to play and what happens.

Learning Objectives & Educational Fields of Application

As for the primary motivation for the development of the game, the developer Kit Walsh states that they “urgently want[ed] to tell stories about dashing queers having adventures and connecting emotionally” and did not find this in other games.

The learning objectives are about emotions, interpersonal relationships, and (marginalized) queerness. The game mechanics relate to the character’s interpersonal conflict and its resolution. The game also provides structures to explore complex and intimate relationships. Embedded in the game are queer culture, queer theory, and current discourse on safety & awareness, which players can learn about throughout play and even more when they look deeper into the handbook. Moreover, some of the adventures explore marginalized perspectives and play them out in an empowering way.

As the game is not strictly a serious game and is published for a broad audience, with an emphasis on its entertainment and social aspects, there are no extensive statements from TSL’s makers about the game’s learning goals.

The game is not designed for a teacher-student setting. It is playable in groups of 3-9 players, where one player takes the role of game master and narrates, but not authoritatively above the other players. The role of the teacher might be to provide a safer space for (multiple groups of) students playing the game. Being familiar with queer theory and awareness might support the learning objectives. Possibly, the teacher’s task could be to build emotional sensitivity for the playing process and to provide debriefing.

The play and preparation are time-consuming and, therefore, might be harder to implement into educational settings than shorter games. Additionally, close personal relationships might make it easier to reach the emotional intensity intended by the game.

Effectiveness

I did not find empirical evidence of TSL’s effectiveness. There is, however, research and literature on queer tabletop role-playing games (TTRPG) that also examine TSL.

Researchers have analysed how these games provide structure and safety for interacting with queerness in relationships and society (Zabala et al., 2023). Furthermore, queerness is included beyond representation and embedded in the games’ themes and mechanics (Zabala et al., 2024; Berge 2021).

TSL is made by, for, and about queer people, which is critical for the representation of queer people (Zabala et al., 2024). Queer TTRPG, including TSL, have structures that “actively support queer narrative possibility” as their key elements. Outcomes include encouraging emotions, showcasing messy characters, clarifying the power of fiction, recognizing tension between community and self, reframing violence, and building inter-player support” (Berge, 2021). This might also be founded on the suggestion that, because of the immersiveness of role-playing games, playing a character as queer can lead to reflection on the player’s relationship to queerness (Zabala et al., 2023).

Potentially Problematic Aspects

The goal of the game is to sensitize people to issues of gender, sexuality, and broader marginalization. It was carefully designed, and two sensitivity consultants worked on finalizing the game. The accuracy of the information does not seem to be a problem, as the stories are fictitious.

Nevertheless, the intense occupation with emotional and sexual intimacy and the emotional challenges and conflicts inscribed into the characters are delicate to deal with. The game can raise sensitive topics that might be painful or emotionally challenging for players. There is a risk that players may trigger or hurt each other emotionally. It is an open question whether such a situation can be adequately addressed or avoided with the built-in safety tools.

Reviewers: Saskia Sterzl, Johannes Katsarov

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This War of Mine

Developed by: 11 bit studios

Article contributed by: Lucian Jueterbock

<https://doi.org/10.5281/zenodo.17169772>

Keywords

Civilian Perspectives on War, Death, Empathy, History, Human Rights Education, Military Ethics, Psychology, Strategic Decision-making



Screenshot from *This War of Mine* (11 bit studios, 2014). Used under fair use for academic purposes.

Introduction

This War of Mine (TWOM, see Figure) is a 2D survival game where players manage civilians in a besieged city, focusing on the human cost of war. Instead of heroic soldiers, players experience starvation, fear, and moral ambiguity from a civilian perspective. Survival requires balancing needs, health, and morale while scavenging for supplies amid threats. Inspired by the Siege of Sarajevo, the game offers a bleak, authentic experience to provoke reflection on war by confronting players with their own emotions (Maiberg, 2014; Hutchinson, 2019). Its visuals and ethical dilemmas make it suitable for use in conflict studies, psychology, or ethics courses for mature audiences. Considered a serious game, it fosters empathy and critical thinking about humanitarian crises. It is available on PC, consoles, and mobile devices since its 2014 release.

Facts

Release date:	First release in 2014 (PC). Later console/mobile ports; major “Final Cut” update released in 2019.
Developer:	11 bit studios
Game type:	Digital
Number of players:	Single player
Format:	Synchronous
Time frame:	Flexible. A meaningful session can be ~45–90 minutes; a single game play typically spans several hours and may take a full day.
Languages:	Multilingual UI/subtitles (e.g., English, German, Polish, French, and others). Minimal voice lines (primarily Polish) with subtitles available.
Environment:	PC or console (Windows/macOS/Linux versions available; also PlayStation/Xbox/Switch/mobile ports). Requires a quiet setting; headphones recommended. For classroom use, either individual play (one device per student/group) or facilitator-led play via projector/screen.
Material:	No physical materials required beyond the device and the installed game. Optional: controller on consoles; instructor-created worksheets/discussion prompts for teaching contexts.
Price:	Paid commercial title (base game with optional DLC/editions). The exact price varies by platform, region, and sales (for example, in Germany on 14 August 2025, the game for a computer is around 18 euros, while it is approximately 4 euros for a mobile phone).

Resonance & Criticism

Since 2014, TWOM has been widely recognised in the games and education sectors. It won the IGF Audience Award (2015) and the SXSW Matthew Crump Cultural Innovation Award (2015); by 2019, it had sold over 4.5 million copies across PC and consoles (2015 Finalists & Winners, 2015; Gamespresso, 2015; Jones, 2019). In 2020, Poland added the game to the national school reading list (Tilles, 2020). Some critics, however, argue that the game’s unrelenting bleakness is depressing and that its mechanics simplify complex issues, including depression (Kaar, 2018).

Game Principle & Process

The game is played from a side-on cross-section of a ruined house in the fictional city of Pogoren. Players control multiple civilians with different skills, personalities, and needs. During the day, players manage their shelter, craft furniture, cook food, and tend to the sick or wounded. At night, they send characters to scavenge locations for vital supplies, facing risks from soldiers, looters, and desperate civilians. The characters can also remain in their shelter to guard or sleep. Each choice for the night has consequences for the characters’ well-being and the story’s unfolding.

The game lacks a win condition beyond survival. Characters can die, become depressed, or abandon the group. Moral choices (e.g., refusing help to others) shape the emotional state of characters and, by that, influence the ending. The mechanics incorporate permadeath, limited

resources, and emotional status bars (hungry, sad, sick, tired). The game was developed based on the real testimonies from the Siege of Sarajevo (Kaar, 2018).

Learning Objectives & Educational Fields of Application

TWOM was not developed as an educational game; however, several clear educational objectives have been identified. These include: helping players gain an understanding of war from a civilian's perspective (Bos, 2021); practising ethical reasoning in uncertain situations, where there are no simple solutions (Sayilgan, 2017); and encouraging a shift in perspective from heroism to care, with an emphasis on cooperation and managing vulnerability (Saklofske et al., 2019).

These objectives connect play to course debates in ethics, philosophy, history, and the social sciences. The game is already recommended for exactly these subjects in Poland's secondary education (This War of Mine, n.d.).

The character's needs in the face of constant resource scarcity, and elements such as irreversible death, mean players must make hard trade-offs, such as deciding who gets to eat or who takes the risk of scavenging. These decisions often involve morally difficult and high-stakes situations, for example, stealing from an elderly couple to feed your child and friends (Roy, 2016). Features like systems for fatigue and illness, dependency, and loss are elements that 11 bit studios deliberately designed to encourage moral reflection (de Smale et al., 2017). Together, these systems create moral tension and raise questions about care and justice without telling players what the "right" choice is (Roy, 2016; de Smale et al., 2017). The game also differs from previous war games by including children (since 2016, with The Little Ones DLC) who were previously absent from such games. This inclusion enables the game to portray a more realistic image of war (de Smale et al., 2017). The civilian focus and routine care tasks directly support learning about human dignity, vulnerability, and the social fabric under siege (Roy, 2016).

Debriefing is especially crucial in *This War of Mine* due to its emotionally charged scenarios and ethical ambiguity. Players often experience guilt, frustration, or moral dissonance after making survival decisions that harm others. A structured debrief allows learners to process these emotions and connect them to course concepts such as moral injury, empathy, or the ethics of care. Instructors might invite reflection on questions like: How did it feel to make choices that hurt others? What moral justifications did you use to decide who to help or harm? How do these feelings mirror real-world civilian dilemmas in war? Discussing these tensions helps transform emotional responses into critical understanding rather than mere distress. The role of the instructors, therefore, is to help students contextualise their emotional reactions within theories of moral judgment and empathy.

The game needs little tech training; the controls can be learned during class. Most of the time should go to discussion and reflection, not trying to "finish" the game, since a full playthrough of a story can take 2–15 hours.

Effectiveness

Evidence is still limited and mixed. In a medical school course, integrating the game prompted students to reflect on new perspectives on life in urban conflict and on their engagement with ethical dilemmas (Mishori et al., 2017). One small experiment showed no big change in empathy after a single session, but a slight improvement after several sessions (Wulansari et al., 2020). Analyses of player reviews further suggest the game often prompts reflection on civilian suffering and the moral complexity of war (Bos, 2021), though these results should be interpreted with caution. Moreover, there is still a need for controlled, long-term studies to examine the duration of the mentioned effects and their generalizability.

Potentially Problematic Aspects

Because the game depicts starvation, violence, suicide, and mental illness, it may distress younger players or those with trauma histories. Its simplified handling of depression, where characters recover mood with food and sleep, may trivialise complex conditions (Kaar, 2018). The game forces players to make morally troubling choices that can provoke discomfort. Teachers should warn about sensitive content and offer support. It is not suitable for children and may be inaccessible for those with visual or motor impairments due to small icons.

Reviewers: Saskia Sterzl, Johannes Katsarov

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To Be or Not To Be

Developed by: Ryan North, Breadpig, Tin Man Games

Article contributed by: Krista Bonello Rutter Giappone,

Emma Cassar, Ivan Callus

<https://doi.org/10.5281/zenodo.15870047>

Keywords

Adaptation, Comedy, Critical Thinking, Discussion Skills, Drama, Gender Studies, Literary Studies, Queer Studies, Shakespeare, Tragedy



Image from To Be or Not To Be (Ryan North; Tin Man Games). Used for educational review. Rights remain with the creators.

Introduction

The choose-your-own-adventure game *To Be or Not To Be* (see Figure) reimagines and remediates William Shakespeare's "Hamlet". The digital game was released in 2015 by the developer Tin Man Games, based on the gamebook by Ryan North (2013). It offers players the option to play as Hamlet, Ophelia, or King Hamlet, and manipulate events, thereby altering the narrative. The main objective is for players to experience alternative storylines through their decisions as the game progresses. The game caters to a diverse audience by appealing to those interested in literature, comedy, and interactive storytelling. Thematic elements include fate versus free will, while the formal aspects encompass satire, parody, and the reinterpretation of classic literature through a modern, humorous lens (Bushnell, 2021; Novitz, 2020). Though not strictly designed as a serious game, "To Be or Not To Be" may be seen as combining educational content with entertainment, engaging users in active decision-making while also offering insights into the play's structure and themes. The player reads text and selects options that influence the story's direction.

Facts

Release date:	2013 (gamebook); 2015 (digital)
Developer:	Ryan North (gamebook)/Breadpig (publisher); Tin Man Games (digital)
Game type:	Analog, Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	At least 10 minutes, Optimal: c. 20–40 minutes. The duration depends on the choices made.
Languages:	English
Environment:	For the analog version, no requirements. The digital version is available on various platforms.
Material:	Shakespeare's "Hamlet". While in-depth knowledge of the play is not essential to enjoy the game, it does help enable more rounded, meaningful, and revealing interaction with what the game offers.
Price:	€4.99 (digital), on Steam; €22.41 (paperback) on Amazon.de

Resonance & Criticism

There has been increasing interest in the pedagogical usefulness of "Shakespeare games" (Roberts-Smith & DeSouza-Coelho, 2021), sometimes used in educational settings to make Shakespeare's work more accessible and engaging (Boyd, 2022). *To Be or Not To Be* also contributes to "a long history of adaptive performance" in the "popular and academic history of the Shakespeare network" (Harrison & Lutz, 2017). It blends interactive play with literature, thus offering a fresh approach to the text and having broad appeal. While the exact number of users is not public, the game has received mostly positive reviews, achieving a "Very Positive" rating on Steam (Steam, 2024) and "universal acclaim" on Metacritic. Similarly, critics praise its humor and creative narrative approach (Bushnell, 2021).

Game Principle & Process

As an interactive narrative, “To Be or Not To Be” allows players to “interact with embedded narratives to create new emergent narrative experiences” (Way, 2021) by playing as Hamlet, Ophelia, or King Hamlet. Inspired by traditional “choose-your-own-adventure” books, the game’s mechanics involve reading modern, comedic rewrites of Shakespeare’s play—blending paraphrased lines, playful narration, and humorous asides—before making choices that affect the narrative’s path. By replacing Shakespeare’s Early Modern English with satirical, contemporary language, the text becomes more accessible while still referencing the original’s themes and iconic scenes. Players have considerable control over how the tale unfolds, with more than 100 possible endings.

The game’s objectives are clearly defined through the narrative, wherein players must overcome the challenges their chosen character faces (e.g., investigating the afterlife, avenging a death, or making scientific discoveries). The game uses a feedback method, reinforcing players’ choices with immediate narrative consequences. Rewards include new storylines, achievements, artwork, and replayability (Bushnell, 2021).

To Be or Not To Be offers a single-player experience. However, players are involved and engaged through dynamic conversations with in-game characters.

The game uses interactive storytelling to foster engagement, promoting critical thinking and a deeper understanding of Hamlet by enabling students to actively reshape the narrative, heightening their investment in and sense of “ownership” (Novitz, 2020) of the material.

Ryan North’s gamebook requires the reader/player to follow a set of rules to make sense of the story. Breaking the rules risks the narrative not making sense – which may even be the player’s goal. In this way, the gamebook paves the way for the video game to give players considerable control over the story’s events, encouraging deviation from the source text throughout the game.

Learning Objectives & Educational Fields of Application

Shakespeare is regularly taught in both literature and drama courses at higher education levels. By presenting multiple narrative paths, the game provides an alternative way of approaching the text and opens up debate on topics such as gender and character, decisions and turning points in tragedy (connecting with Rebecca Bushnell’s 2016 and 2021 work), and on stories untold and routes not taken. It also offers a way to broaden discussion to retellings of “Hamlet” in other media and genres, e.g., Tom Stoppard’s “Rosencrantz and Guildenstern Are Dead” or Ian McEwan’s “Nutshell”. It can sharpen critical reading skills, supplementing critical approaches, and can be applied to other literary/dramatic works. The game’s multiple storylines, centering different characters and plot junctions, highlight the play’s structure and directly engage with discussion topics that tend to arise in class, offering discussion prompts and encouraging student participation. The game may also be used in schools; however, the discussion topics and depth would vary across educational levels.

As Bushnell (2021) notes, the game “pit[s] the player against Shakespeare’s Hamlet” and thus lays the foundation for “both a critique of choice and character development”. For example, following Shakespeare’s choices as Ophelia (which deny Ophelia any agency) leads the narrator

to tell the player off and shift the play to Hamlet's character (in a manner that Bushnell suggests invites the audience to think critically about expectations for tragedy). In this way, the game "judges" the Shakespearean source itself and opens the play to further discussion.

For class use, teachers need only familiarize themselves with the game and ensure that students know something of the play. The teacher would then moderate the discussion. While class size could make a difference, one classroom practice could involve student discussions in small groups on individual experiences/playthroughs of the game, with the teacher guiding comparative discussion and integrating Shakespeare's play, thereby priming more searching discussion of "Hamlet". Though it is a single-player game, students can take turns making choices, shaping the narrative collaboratively; alternatively, they may vote for their preferred choice and be rewarded by the surprising outcomes, potentially prompting different angles on the play.

Effectiveness

As Roberts-Smith and DeSouza-Coelho (2021) note, Shakespeare games have the capacity to centre "the act of playing pedagogically—that is, of interpreting and performing a text". Novitz (2020) argues that game adaptations like North's, in discouraging reverence, offer new ways of engaging with the play. The game has not been empirically evaluated as a pedagogical tool, but in our experience, students enjoy playing it in class, as evidenced by the enthusiastic response and feedback. Accessible to players of various skill levels, it provides an opportunity for participatory engagement. Shared knowledge of the play may lead to collective surprise and laughter, making it a memorable communal learning experience.

Pedagogically, *To Be or Not To Be* works best when approached with foreknowledge of "Hamlet" for a better appreciation of the play's playful, parodic, and critical engagement with the material. It stimulates critical discussion of the play by encouraging, and sometimes forcing, departures from Shakespeare's plot. The humor's effectiveness, the scope of comparative discussion, and the critical angles produced by this divergence are enhanced by knowledge of the text.

Potentially Problematic Aspects

The game is only available in English and features mature themes, such as death, which echo Shakespeare's source work.

In broader discussions of the educational uses of digital Shakespeares, Casey (2019) cautions that excessive reliance on digital resources may favour superficial readings of Shakespeare. However, Boyd (2022) notes that Casey's view tends to underestimate the creativity of digital approaches and their pedagogical potential. By prompting the unpacking of issues dramatized in *Hamlet*, this game supports the development of well-rounded perspectives by engaging students' broader interest in games and fostering reciprocal understanding between *To Be or Not to Be* and Shakespeare's play.

Reviewer: Saskia Sterzl

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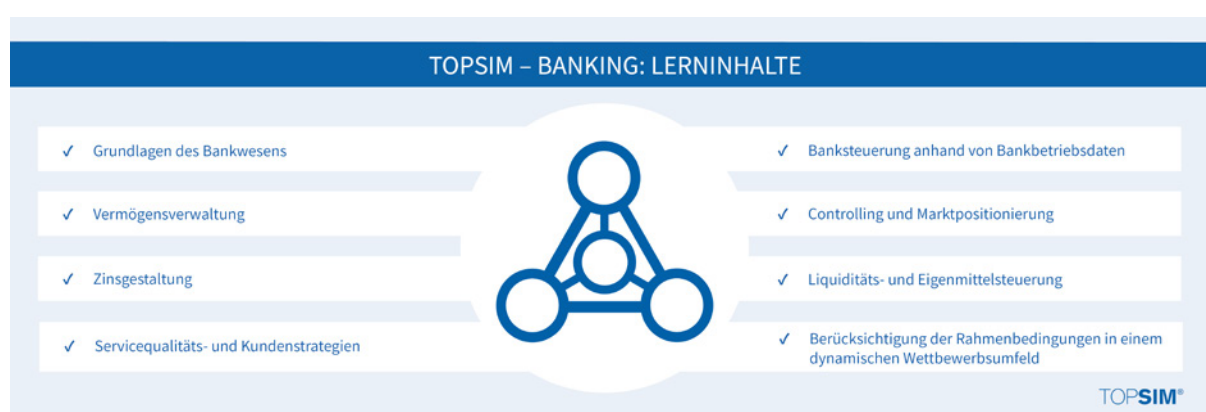
TOPSIM – Banking

Developed by: TOPSIM GmbH
Article contributed by: Robert Galiard

<https://doi.org/10.5281/zenodo.15923972>

Keywords

Accounting, Asset management, Banking Management, Business, Controlling, Corporate Governance, Equity Management, Financial Management, Human Resource Management, Liquidity Management, Market Positioning, Risk Management, Strategic Decision-making



Overview of learning contents covered in TOPSIM – Banking. Graphic provided by TOPSIM (CC BY 4.0).

Introduction

TOPSIM – Banking (see Figure) is a sophisticated business simulation that conveys a comprehensive understanding of banking operations. Participants take on the role of the executive board of a medium-sized universal bank. The simulation covers business banking, wealth management, investment banking, and financial management. It prepares participants for challenges in the banking sector.

The simulation is suitable for bachelor's and master's programs in banking & finance as well as for the training and continuing education of branch and department managers, bank clerks, and (junior) executives.

As a serious game, TOPSIM – Banking creates a practice-oriented learning environment in which strategic and operational decisions are made, and economic interrelationships become tangible. Participants develop solid management competencies and are prepared for real professional challenges.

The game, played online via the TOPSIM cloud, provides a deep understanding of the challenges of bank management. Acting in leadership roles, participants make decisions across different business areas while competing with other teams in the market.

TOPSIM – Banking was first released in 2020 by TOPSIM GmbH and has been continuously developed since.

Facts

Release date:	Initial release: 2020, Current version: 2.0 (2024)
Developer:	TOPSIM GmbH
Game type:	Digital, hybrid (at least one player per team requires internet access)
Number of players:	Optimum: 9–25 (3–5 groups of 3–5 persons each) per market. Multiple markets are highly scalable infinitely scalable.
Format:	Asynchronous, Hybrid
Time frame:	Approx. 1–3 days, depending on the number of periods played, implementation method, and inclusion of evaluations or additional tasks. Time requirements depend on the intended learning outcomes.
Languages:	English, German
Environment:	Device: Tablet, PC, or laptop with at least 720p resolution. Browser: Chrome, Firefox, or Safari. Internet access required.
Material:	Participants receive an introduction, a participant handbook, and additional seminar materials. Facilitators receive a seminar leader's handbook. Short description of the simulation: https://www.topsim.com/wp-content/uploads/2024/05/TOPSIM_%E2%80%93_Banking_Flyer.pdf ; Blog article: https://www.topsim.com/blog/banken-nachhaltig-zum-erfolg-fuehren-mit-topsim-banking/
Price:	TOPSIM simulations are fee-based. Exact costs depend on the specific simulation, number of participants, and usage model. Simulations are provided digitally. For precise pricing, a direct inquiry with TOPSIM is recommended, as costs are calculated individually.

Resonance & Criticism

TOPSIM – Banking has been positively received by participants and professionals. Participants praise the practical teaching of bank management while adhering to current regulatory requirements (Hochschule Trier – Trier University of Applied Sciences, 2018).

TOPSIM – Banking has not received awards. Some participants criticize the simulation's complexity, as it can be challenging. However, the simulation allows adjustments to difficulty levels to match different knowledge levels.

Game Principle & Process

TOPSIM – Banking is based on a realistic simulation of bank management. Participants assume leadership roles and make strategic and operational decisions. They must analyze market conditions, meet regulatory requirements, and ensure the long-term competitiveness of their bank. Up to five periods (financial years), each with up to 67 decisions, can be played, all of which directly influence gameplay.

The goal is to lead the bank to sustainable success. This includes maximizing profitability, ensuring liquidity, and meeting regulatory requirements. Clear KPIs—customer satisfaction, service quality, and brand index—help participants measure progress.

The simulation provides continuous feedback through financial indicators, market developments, and customer reactions. Decisions have immediate effects on company performance. Through data analysis, participants learn to adjust their strategies to achieve long-term success.

Participants compete in teams for market share. This fosters communication, collaboration, and strategic thinking. Team discussions and negotiations simulate real-world management challenges.

The game is based on business and financial models, including portfolio theory, risk-management strategies, and banking management instruments. It also incorporates principles of corporate management, market analysis, and strategic planning.

Learning Objectives & Educational Fields of Application

TOPSIM – Banking conveys a comprehensive understanding of banking operations and supports participants in achieving core learning and training goals. A key focus lies in recognizing company-wide interdependencies: participants understand the interactions between business areas and their influence on overall bank performance. They also learn to analyze market situations using controlling tools to make well-founded decisions.

Another objective is conducting strategic analyses. Participants develop competitive strategies for products, markets, and target groups and implement them purposefully. Analyzing bank-specific metrics—especially financial indicators for assessing bank stability—plays a central role. Participants also engage with various financing strategies, comparing equity and debt financing options while considering regulatory requirements.

The simulation realistically reflects banking operations. Participants make strategic and operational decisions across business banking, wealth management, and investment banking. Direct feedback on decisions enables hands-on learning. Current regulatory requirements are integrated to demonstrate their effects on bank management.

Facilitators act as moderators and guides. They introduce game mechanics, supervise processes, assist with questions, and lead reflection phases where decisions are analyzed. For groups of three to five teams, each with three to five participants, one instructor is sufficient.

The simulation of a competitive market requires well-founded decisions and analysis. Realistic market conditions and regulatory requirements create a practice-oriented learning environment that prepares participants for challenges in the banking sector.

Effectiveness

Empirical studies on the effectiveness of TOPSIM – Banking are limited. A report from Hochschule Trier indicates that participants developed a deeper understanding of bank management through the simulation, particularly regarding profitability, liquidity, and regulatory requirements (Hochschule Trier – Trier University of Applied Sciences, 2018).

While empirical data on long-term learning effects and immersive user experience are limited, realistic simulations of company-wide interdependencies and the direct application of control instruments promote active engagement with banking decisions. The combination of competition, decision pressure, and direct feedback may contribute to a flow state in which skills and challenges are balanced. Studies specifically measuring this effect within TOPSIM – Banking do not yet exist.

Potentially Problematic Aspects

TOPSIM – Banking does not include sensitive topics. The simulation focuses on economic decisions and bank management without using discriminatory content or stereotypes.

The simulation is based on fundamental economic mechanisms and is updated regularly to reflect regulatory and market changes. Accessibility may be challenging for individuals with visual impairments or motor limitations due to the game's reliance on complex tables and analyses.

Ethical considerations, such as banks' social responsibility, are not explicitly addressed. Facilitators may find it beneficial to encourage discussions on the societal impacts of decisions made within the game.

Reviewers: Saskia Sterzl, Hannes Hamester

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TOPSIM – Insurance

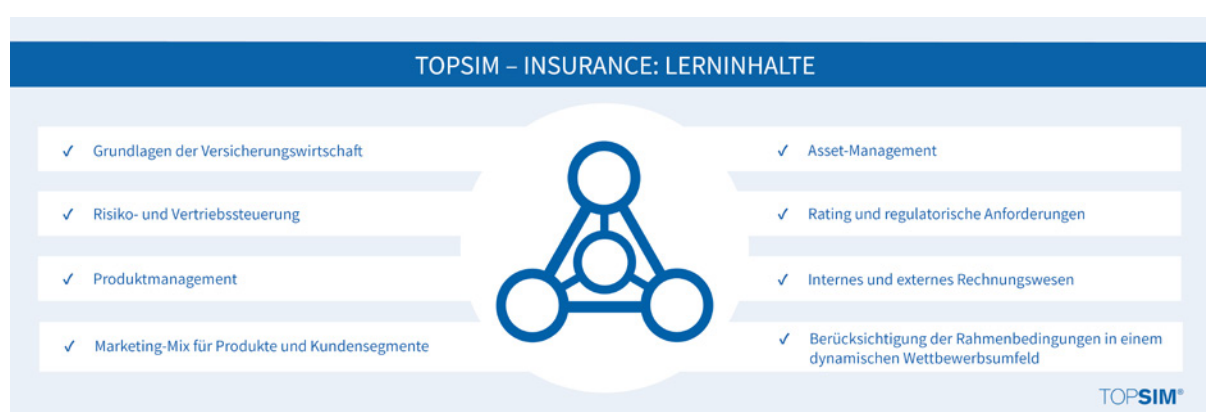
Developed by: TOPSIM GmbH

Article contributed by: Robert Galiard

<https://doi.org/10.5281/zenodo.15924120>

Keywords

Accounting, Business, Compliance, Corporate Management, Customer Management, Financial Management, Insurance Industry, Regulation, Risk Management, Sales, Strategic Decision-making



Graphic from TOPSIM – Insurance. Rights owned by TOPSIM GmbH; used here for educational review.

Introduction

TOPSIM – Insurance (see Figure) is a business simulation that makes the challenges of the insurance industry tangible. Participants assume management of an insurance company (primary insurer) and make strategic decisions across product development, risk management, and capital investment.

The simulation is aimed at students, company employees, and executives in the financial and insurance sectors. As a serious game, it combines practical learning with playful decision-making and fosters economic understanding and analytical skills.

The game is based on a round-based simulation: Teams analyze market conditions, develop strategies, and implement them to achieve long-term success. They must consider regulatory requirements, customer needs, and competitive dynamics.

TOPSIM – Insurance was developed in 2022 by TOPSIM GmbH and has been available online in the TOPSIM Cloud since 2024. The simulation is continuously updated.

Facts

Release date:	Initial release: 2022. Current version: 6.0 (2024)
Developer:	TOPSIM GmbH
Game type:	Digital hybrid (at least one player per team requires internet access)
Number of players:	Optimum: 9–25 (3–5 groups of 3–5 persons) per market. Multiple markets are possible. The number of players is infinitely scalable.
Format:	Asynchronous, Hybrid
Time frame:	Approx. 2–4 days, depending on the number of periods played, the implementation mode, and whether evaluations and additional tasks are included. The time requirement also depends on the intended learning outcomes.
Languages:	English, German
Environment:	Device: Tablet, PC, or laptop (minimum 720p). Browsers: Chrome, Firefox, or Safari. Internet access required.
Material:	Participants receive an introduction, a participant handbook, and seminar materials. Short description: https://www.topsim.com/wp-content/uploads/2024/05/TOPSIM_%E2%80%93_Insurance_Flyer.pdf ; Blog article: https://www.topsim.com/blog/herausforderungen-der-versicherungswirtschaft-erleben-mit-topsim-insurance/
Price:	TOPSIM simulations are fee-based. Exact licensing costs depend on the specific simulation, number of participants, and usage model. Costs are calculated individually; inquiries should be directed to TOPSIM.

Resonance & Criticism

TOPSIM – Insurance is primarily used in universities and for employee training and development in insurance companies. Official user numbers are not yet available.

The simulation received the Brandon Hall Group HCM Excellence Silver Award in the “Learning and Development” category for “Leadership Skills Refresher Training”. In the two-day seminar, executives strengthen their leadership skills by managing a virtual insurance company and making realistic strategic and operational decisions.

No comprehensive evaluations or documented critiques regarding game mechanics or goal achievement are yet available. Thus, participant and expert feedback cannot currently be fully assessed.

Game Principle & Process

TOPSIM – Insurance places participants in the role of an insurance company’s executive board. They make strategic and operational decisions for the business lines of liability, accident, and property insurance across customer segments: industry, commercial clients, and private households.

The simulation includes up to six financial years. In each period, teams analyze market conditions, evaluate company data, and make up to 121 decisions distributed across the five core

areas of marketing, sales, underwriting/controlling, asset management, and reinsurance. These decisions directly influence the game's progression and market position.

The goal is to maximize corporate success through strategic planning and operational measures. The clearly defined objectives are transparent to participants. After each period, they receive detailed feedback through reports and analyses that explain company development and the consequences of their decisions.

Participants work in teams of three to five people, discuss strategies, make decisions, and reflect on results. This strengthens social and communication skills.

The simulation is based on insurance-sector business models and integrates strategic, financial, and risk-management components to represent complex business relationships realistically.

To support efficient preparation, TOPSIM offers an 8-hour facilitator training webinar. This training covers all simulation functions, the user interface, performance indicator evaluation, and didactic applications. TOPSIM also provides manuals, detailed guides, preparation checklists, and a technical hotline to ensure a smooth start.

Learning Objectives & Educational Fields of Application

TOPSIM – Insurance is designed to provide participants with a comprehensive understanding of the insurance industry and improve their management competencies.

In terms of technical knowledge, participants learn the fundamentals of the insurance business and deepen their understanding in areas such as asset management and risk control. They develop the ability to formulate, implement, and adjust corporate strategies.

The simulation encourages holistic, cross-functional thinking while considering control aspects and market positioning. Team decision-making under time pressure trains additional soft skills, such as decision-making competence.

The simulation covers up to six periods, during which participants make up to 121 decisions across marketing, sales, underwriting, asset management, and reinsurance. These decisions directly affect the virtual company's development and market position, creating a realistic learning environment.

Instructors moderate and guide the simulation. They introduce the game, guide decision-making, and lead reflective discussions. Typically, one instructor is sufficient but should be familiar with both simulation methodology and the specifics of TOPSIM – Insurance.

The realistic simulation allows participants to apply theoretical knowledge in practice. The need to make decisions as a team and analyze their effects promotes both technical and social skills. Dynamic adaptation to market conditions and direct feedback from the game results effectively support the learning process and the achievement of goals.

Effectiveness

No specific studies on the effectiveness of TOPSIM – Insurance are currently available. However, general research shows that business simulations can enhance motivation and knowledge ac-

quisition. A systematic literature review of 58 studies highlights the importance of game quality and the influence of instructors and participants on learning success (Alf, 2022).

Studies also suggest that simulations support deep understanding and long-term knowledge retention. The immersive simulation enables participants to experience complex relationships in a realistic context (Reich, 2024).

In terms of flow experience, realistic simulations can lead to high concentration and motivation. This immersion increases engagement and learning outcomes (Rheinberg & Vollmeyer, 2003).

Further empirical research is necessary for robust statements about the specific effectiveness of TOPSIM – Insurance.

Potentially Problematic Aspects

TOPSIM – Insurance contains no problematic content such as violence, drug abuse, or discrimination. The simulation is based on realistic economic mechanisms of the insurance industry and does not use stereotypical representations.

However, ethical considerations—such as profit maximization versus social responsibility—may not be fully addressed. The simulation assumes a certain level of economic understanding, which may limit accessibility for some participants.

As a digital simulation, there is no risk of physical harm. However, individuals with visual or motor impairments may encounter accessibility barriers. A more accessible version could enhance inclusivity.

Reviewer: Hannes Hamester

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Transaction

*Developed by: Center für Lehr- und Lernservices,
RWTH Aachen University*

*Article contributed by: Wolfram Barodte,
Paul Gamper, Marcus Gerards*

<https://doi.org/10.5281/zenodo.15828400>

Keywords

Business, Economics, Logistics, Production Planning, Strategic Decision-making, Systems Thinking

Introduction

Transaction is a web- and browser-based business simulation that began development in 2014. It was designed to offer bachelor's students in business administration and industrial engineering the opportunity to participate in a value chain throughout an entire semester actively. Participants act as executives of a virtual company and improve their game performance by applying the knowledge they have acquired during their studies. All actions within the simulation are automatically recorded and evaluated, providing students with continuous, individual feedback on their learning progress.

Facts

Release date:	First used in 2014, continuously developed
Developer:	Center für Lehr- und Lernservices (CLS)
Game type:	Digital
Number of players:	Scalable
Format:	Asynchronous
Time frame:	Around one hour per week
Languages:	English, German
Environment:	Laptop, PC, or mobile device with internet access
Material:	All required materials are included in the game or provided through the accompanying course
Price:	Part of the CLS service offering at RWTH Aachen University; licensing for external universities is available

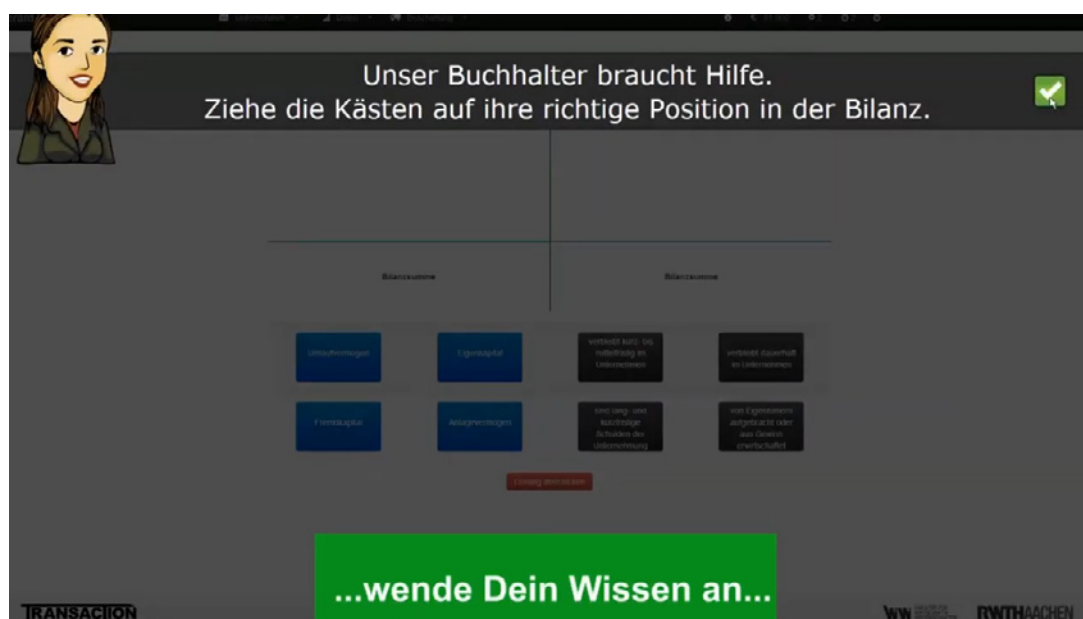
Resonance & Criticism

Student feedback has been predominantly positive. In surveys, 80% reported that the simulation improved their understanding of the lecture content. Only a few participants expressed criticism regarding its integration into face-to-face teaching, while many wanted to see it expanded to additional courses. *Transaction* is perceived not as a mere computer game but as a serious, exam-relevant challenge. Conscious and reflective decision-making intensifies the

learning process. At present, only internal evaluations are available; no scientific studies on effectiveness have yet been published.

Game Principle & Process

Transaction is a digital serious game in which participants take over the management of a virtual car factory and must lead it to success through economically sound decisions. The game spans an entire semester, with one game round completed each week. In each round, students go through the whole production cycle of an automobile and handle all related management tasks. These include determining production quantities within production planning, procuring required parts and materials, and hiring qualified staff. In addition, participants sell components and finished products under the best possible market conditions. Furthermore, they support computer-generated colleagues in solving business-related problems within the company (see Figure). Through this holistic structure, students realistically experience operational interdependencies and gain a deeper understanding of how different business areas are interconnected.



Screenshot from Transaction (RWTH Aachen University) showing a drag-and-drop accounting task in which players assign balance sheet components to their correct positions. Screenshot taken from a video tutorial published by RWTH Aachen University. Used for educational review. Rights remain with the creators.

Learning Objectives & Educational Fields of Application

The primary objective of Transaction is to promote and sustainably anchor a comprehensive business-oriented way of thinking and acting among students. The simulation conveys an in-depth understanding of key business relationships, particularly regarding cost structures, opportunities for efficiency, and the economic effects of different batch sizes and production decisions. Students learn how operational decisions have direct and indirect impacts on costs, revenues, and a company's competitiveness.

In addition, Transaction specifically strengthens strategic decision-making skills by enabling participants to independently develop business strategies, make market decisions, and continuously adapt them throughout the simulation. A particular focus is placed on applying theoretical content to practice-oriented problem situations: Concepts taught in lectures are implemented directly within the virtual company, and their consequences are systematically reflected upon. In this way, the transfer of theoretical knowledge into practical competence is promoted. The simulation is completed independently by students as self-directed work; continuous supervision is not required.

Effectiveness

Since its introduction, the Transaction simulation has been used by more than 80,000 students and has become an integral component of bachelor's-level teaching at RWTH Aachen University. It is employed in several courses, each tailored to specific learning objectives.

In the courses "Production and Logistics" and "Marketing – Sales and Procurement", a self-directed learning concept is emphasized, with varying content priorities. The simulation runs throughout the entire semester, allowing students to review learned content and deepen their understanding without in-class discussions.

In the course "Introduction to Business Administration", Transaction is an integral part of a blended-learning concept using a flipped-classroom format. Video tutorials are integrated directly into the business simulation game, and students address current issues from the lecture each week in the context of their virtual company. In addition, modified versions of the simulation exist for courses on operational accounting.

Regardless of the application concept, the simulation can account for up to 30 percent of the final semester grade. The assessment is based on the students' problem-solving skills and the overall economic success of their virtual company.

Potentially Problematic Aspects

Despite its success, there are challenges to consider in the game's further development. Some mechanics have been deliberately simplified to focus clearly on key learning objectives, but this can lead to repetitive processes. In addition, the simulation completely dispenses with random events such as supplier failures or price fluctuations. While this ensures fair assessment in an exam context, it only reflects the dynamics of fundamental markets to a limited extent. Furthermore, Transaction does not automatically account for differences in students' prior knowledge, which can leave them under- or overchallenged depending on their individual experiences.

Reviewers: Saskia Sterzl, Johannes Christian Mieth

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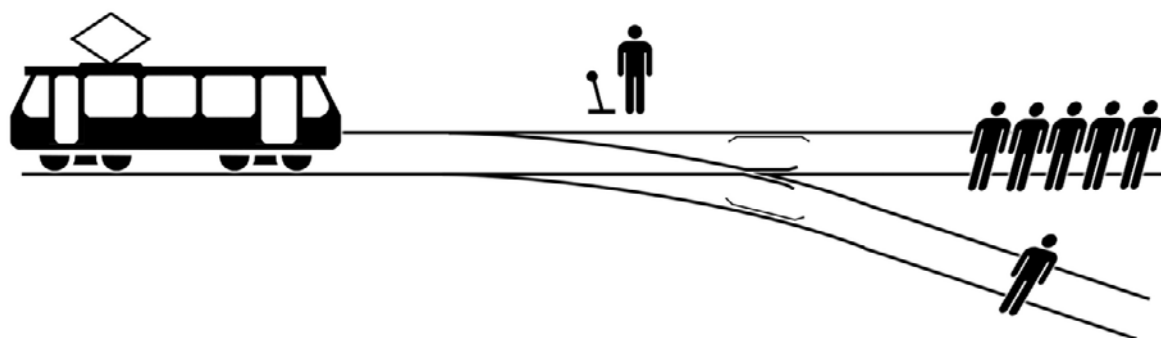
Trial by Trolley™

*Developed by: Cyanide & Happiness, Explosm LLC,
Skybound Games, Lucky Duck Games
Article contributed by: Kevin Rebecchi*

<https://doi.org/10.5281/zenodo.15824614>

Keywords

Competition, Cooperation, Creativity, Critical Thinking, Empathy, Ethical Decision-making, Ethical Dilemmas, Philosophy, Psychosocial Skills, Rhetoric



Schematic illustration of the trolley problem, the core dilemma of Trial by Trolley™ (Cyanide & Happiness, Explosm LLC, Skybound Games, and Lucky Duck Games). Used for educational review. Rights remain with the creators.

Introduction

Trial by Trolley™ is a social and ethical decision-making game developed and published by Cyanide & Happiness, Explosm LLC, Skybound Games, and Lucky Duck Games in 2019. The game is based on the well-known trolley problem (see Figure), a thought experiment in ethics that presents players with a moral dilemma: should they divert a runaway trolley to save one group of people at the expense of another?

While Trial by Trolley was not originally designed as an educational game, it can be effectively adapted for use in higher education, particularly in psychology, philosophy, ethics, education, law, and cognitive or social sciences. The game can serve as an engaging tool to help students develop critical thinking, argumentation skills, and ethical reasoning by evaluating complex moral choices. Moreover, it is highly relevant in the context of psychosocial skills (World Health Organization, 1994) training, which aims to enhance individuals' cognitive (self-awareness, self-control, constructive decision-making), emotional (the ability to understand, identify, and regulate one's emotions and stress), and social skills (constructive communication, relationship-building, and resolving difficulties) (Lamboy et al., 2022).

Facts

Release date:	first published in 2019, continually updated with new extensions
Developer:	Cyanide & Happiness, Explosm LLC, Skybound Games, and Lucky Duck Games
Game type:	Analog
Number of players:	3–13 (recommended for groups)
Format:	Synchronous, adaptable to classroom discussions
Time frame:	Each round, including setup and discussion, takes about 15–30 minutes, depending on the number of players and the type of dilemma
Languages:	English, German, French, Italian, Spanish, Dutch
Environment:	Physical board game or online adaptation
Material:	Base game available commercially
Price:	About 30€, but varies by retailer and country.

Resonance & Criticism

Trial by Trolley was funded through a Kickstarter campaign between 8 July and 8 August 2019. During this period, 55,024 contributors from around the world (including the United States, Canada, the United Kingdom, Australia, Germany, France, the Netherlands, Denmark, Sweden, and Spain) pledged a total of US\$3,538,065 to support the project. The game was launched in English but is now also available in German, French, Spanish, Italian, and Dutch.

This party game facilitates engaging, humorous discussions of moral dilemmas. The game's casual, accessible format can make it particularly effective at sparking student debates, encouraging them to analyze ethical problems from multiple perspectives.

However, the humorous, exaggerated nature of some scenarios may undermine the seriousness of ethical discussions. Teachers may need to create new situations and cards, and guide discussions carefully to ensure students engage critically rather than purely for entertainment.

Game Principle & Process

In Trial by Trolley, one player takes on the role of an “operator” who must decide (after the debate) which of two tracks the runaway trolley will take. The other players split into two teams, each advocating for one of the tracks.

These teams use randomly drawn cards to populate the tracks with individuals or scenarios — some morally compelling (e.g., “a scientist on the verge of curing cancer”, “a group of diplomats on the verge of concluding world peace”), some negative (e.g., “a person who always double-parks”, “the guru of a dangerous sect”) while others can affect players personally or emotionally (e.g. “your families”, “all the nurses on Earth”). Players then present arguments to the operator to influence their decision. Players must also place modifier cards associated with any card on either track (e.g., “is about to meet his/her soulmate and fall in love”, “is one month away from finishing a machine that will put you out of work”).

Each team has to discuss the matter internally, then try to convince the operator not to choose their track for sending the trolley.

In an educational context, teachers can easily modify the game by adding personalized scenario cards tailored to the learning objectives, depending on students' level (e.g., first or fifth year of university studies) and their course/discipline (e.g., education, psychology, philosophy, law ...).

Learning Objectives & Educational Fields of Application

Trial by Trolley can be beneficial in courses related to philosophy and ethics by enabling students to explore ethical theories and moral reasoning; to psychology to analyze cognitive biases, decision-making, and empathy; to law by discussing legal responsibility and judicial ethics; to education Sciences by teaching conflict resolution and perspective-taking; and/or to Political Science and Public Policy to evaluate real-world policy decisions and ethics in artificial intelligence.

As mentioned earlier, the game is also valuable for teaching psychosocial skills, as defined by the WHO as "a person's ability to cope effectively with the demands and challenges of daily life" and the "ability to maintain a state of psychological well-being and to demonstrate it through appropriate and positive behavior in their interactions with others, their culture and their environment" (World Health Organization, 1994). These skills include problem-solving, creative thinking, effective communication, self-awareness, stress management, decision-making, critical thinking, interpersonal skills, empathy for others, and emotional management.

By actively engaging students in formal and continuing education in these dilemmas, Trial by Trolley can help them develop reasoning skills, justify and criticize moral decisions, and understand the complexity of ethical choices in real-world settings.

Effectiveness

While empirical studies on the use of Trial by Trolley in education are currently limited and unpublished, anecdotal evidence from teachers suggests it may be highly effective in stimulating discussion, engaging students in ethical reasoning, and fostering creative problem-solving.

The game's humorous, interactive format reduces resistance to discussing complex topics that can sometimes arise in more formal teaching, as it allows students to explore moral dilemmas in a low-stakes environment.

The game can also reinforce debate and argumentation skills, particularly when students have to defend their positions based on ethical principles. Combined with structured reflection and debriefing sessions, Trial by Trolley can be an exciting game for highlighting current and future ethical challenges (e.g., teachers can easily create cards and dilemmas on topics such as artificial intelligence, new technologies, and climate change).

Potentially Problematic Aspects

The first aspect to mention is that some situations in the game are exaggerated for comedic effect, which may reduce the depth of ethical analysis (e.g., cards about pop stars, reality TV stars, pets, and fictional characters). Secondly, some scenarios may address controversial or triggering topics (e.g., political opinions, cultural practices), and teachers should choose which cards to use in an academic setting. Finally, since the game involves convincing the operator,

students might focus on rhetorical strategies rather than genuine ethical analysis. It is therefore essential for teachers to encourage students to discuss the game situations afterwards, rather than treating the game as a self-contained educational tool.

Reviewer: Saskia Sterzl

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UBONGO Flow Game

*Developed by: Jan Fischbach
Article contributed by: Birgit Zürn*

<https://doi.org/10.5281/zenodo.15828425>

Keywords

Agile Project Management, Process Optimization, Project Management, Teamwork, Workflow Simulation



Photo of the UBONGO Flow Game setup (Jan Fischbach; KOSMOS Verlag). Used for educational review. Rights remain with the creators.

Introduction

The *UBONGO Flow Game* (see Figure) is based on the classic UBONGO Game, in which players quickly place geometric shapes on a board, similarly to Tangrams. The first player to fit the correct pieces into the given space on the board wins.

The UBONGO Flow Game is an analog serious game with a learning focus that uses materials from the original game. The only adopted element is the mechanism of placing pieces on a mold. However, the participants work together in teams with distributed roles and have an extended task (work packages) to be completed.

The game simulates the effects of process changes on results. Project work across several workstations is further developed over three rounds, gradually optimizing processes to create a more agile and open system. It is for high school students aged 14 and over, university students, and corporate training. The design is characterized by clear role definitions and continuous optimization in each round. Participants recognize the significance of effective collaboration on outcomes. It is based on the LEGO® Flow Game, developed by Karl Scotland and Sallyann Freudenberg in 2014, and refined by Jan Fischbach in 2016.

Facts

Release date:	October 2016 (German version), July 2019 (English version), based on the LEGO® Flow Game (May 2014)
Developer:	Jan Fischbach, use of Grzegorz Rejchtman's Ubongo Game (Publisher: KOSMOS Verlag)
Game type:	Analog
Number of players:	4–8 players per set, optimum of 6 players
Format:	Synchronous
Time frame:	The total duration is about 90 minutes; 3 rounds of 6 min each, plus in-between debriefings and a final debriefing session.
Languages:	English, German
Environment:	Each team needs a table (about 1.4 m x 1.4 m) with places for each team member, no digital requirements
Material:	One set of the UBONGO! Classic game per team, plus a set of cards and poster templates
Price:	The cost of the UBONGO! Classic Game is about 25 Euro, additional material (Specification and Role cards) for free, if applicable, post-it notes, and a flipchart for the result slide

Resonance & Criticism

At present, no official user figures for the game are available. Given that the material is available as open source in addition to the purchase of the game, which is available in every toy shop, it can be assumed that the game is spreading through experience in use. An extensive website (Fischbach, 2019) with downloadable material is available. It has not yet received any awards.

The participants had a good flow during our sessions; there were strong emotions, especially during competition between several teams, and the feedback after playing the game was consistently positive. The game mechanics are well-balanced, ensuring the desired effects and results are achieved.

Game Principle & Process

The UBONGO Flow Game enables participants to experience processes and organizational models interactively in a short time, making the advantages and disadvantages of classic versus multifunctional/open team structures directly noticeable and available for reflection (Buntrock et al., 2019).

Each team receives role cards with a specific task, for example, sponsors who select work packages, which are passed to the analyst, who selects the puzzle board. The supplier delivers the parts. The developer covers the board with the parts that fit the mold. The test manager checks that everything is correct and reports to the facilitators. An observer and/or scribe can be included (Fischbach, 2019).

The game is played in three six-minute rounds with interim debriefings. The goals and rules for each round are clear, but they change from one round to the next. The production structures are rigid, and it is hard to reach the goal in the first round, but more flexibility is added to improve the processes.

After 2 or 3 minutes, there is time for one or two interim debriefings where the team reflects on their collaboration. When multiple teams are engaged, the objective is to accrue the most points possible after three rounds. Participants become emotionally engaged, experiencing impatience and stress. It is crucial to provide space for the expression of these intense emotions during the debriefing, ensuring that reasons for initial goal failures are thoroughly discussed (Buntrock et al, 2019).

In the contemporary business world, agility has become vital to effective project management. Its ability to enhance responsiveness to changes and uncertainties in a dynamic business environment has been shown to lead to more successful project outcomes (Stare, 2013). Agile methodologies enable teams to adapt to today's fast-paced environment, improving project efficiency in organizations.

Learning Objectives & Educational Fields of Application

In the game, players experience three distinct workflows that introduce them to various project management approaches: Waterfall, Kanban, and Scrum. This immersive setup enables players to compare the efficiency, flexibility, and collaborative dynamics of traditional and agile methods. For more on these process models, see Gaborov et al. (2021). A key takeaway from the game is the significant impact of process design: how a team works together can influence outcomes more than individual skills or motivation.

Workflows and bottlenecks are made tangible through puzzle boards representing work packages. This allows players to observe how tasks move through the system and identify points of delay or inefficiency. Each participant assumes a specific role, such as analyst, developer, or manager, thereby fostering role-based collaboration and enhancing team communication.

Value creation is measured through points earned for completed work packages, giving teams a way to gauge their productivity and consider how different approaches influence their results. After each round, teams discuss their experiences, promoting a culture of iterative learning and continuous improvement.

By making abstract agile principles concrete and experiential, the game helps players to better understand and apply these concepts to real-world projects (Fischbach, 2019). Ultimately, it challenges teams to tackle a complex task that requires thoughtful optimization, thereby reinforcing the importance of adaptive processes and collaborative problem-solving. Therefore, the UBONGO Flow Game can be used to achieve a broad range of learning objectives for participants.

Regarding the role of the facilitator, effective learning outcomes are achieved when they create a conducive learning atmosphere by clearly defining the rules in the briefing, accompanying the game phase with an appropriate mix of active and restrained involvement, and asking suitable questions during the debriefing. Preparation by the facilitators involves a thorough study of the game documents and, if possible, a trial run, and can be completed in about a day. Due to clear objectives and possibly a competitive environment with other teams, the participants are highly engaged in the event and experience strong emotional responses, which promote the achievement of the learning objectives.

Effectiveness

Regrettably, there is a lack of studies or scientific evidence supporting this game's effectiveness. However, participants have reported high enjoyment levels, citing insights into various process models. Additionally, the optimization discussions have motivated them to engage.

The development – from initial high stress and frustration to peak productivity – is an immersive learning experience. The participants reported back: "I would never have thought it possible that we would improve so much!" or "The effect of small adjustments is amazing!"

The debriefing after each round follows a four-step recommendation. First, emotions are collected: How are you feeling? Who was stressed, who was bored, or who became frustrated because the process took too long? Next, managers report on what happened, how they proceeded, and where they noticed weaknesses. This is followed by a joint reflection on possible solutions based on these experiences. In the final step, the innovations and rules for the next game phase are presented; after the last round, this step becomes an open discussion in which parallels to real situations are identified and the overall picture is brought together.

Potentially Problematic Aspects

The game focuses on process optimization and does not promote discrimination or other insensitive behavior. However, the time and social pressure experienced by players in bottleneck roles are deliberate design features. Role owners can feel stressed even when players act calmly. The game allows players to swap roles, and those in "stressful" roles often want to swap with someone else, which helps with social pressure. Players in these roles do not require warnings about the pressure. The pressure encourages ideas for preventing it. These issues are discussed during team debriefings to develop solutions. The facilitator should only intervene if the behaviour becomes accusatory or aggressive. The information provided is invaluable and is suitable for all target groups.

Reviewers: Tim Rogmans, Elizabeth Peacock

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uFood

*Developed by: Johannes Katsarov, Tammo Rabener, Tim Wagenbach,
Evgeniya Zakharova, Yolanda Blanco Hoppmann,
Lisa Tran, Paul Drews, Hannah Trittin-Ulbrich
Article contributed by: Maya Kim*

<https://doi.org/10.5281/zenodo.17679716>

Keywords

Advertisement, Business Ethics, Cognitive Bias, Communication Studies, Critical Digital Skills, Ethical Decision-making, Gamification, Marketing, Media Literacy, Misinformation, Stakeholder Management

Introduction

uFood is a digital serious game developed at Leuphana University Lüneburg within the DigiTal/DI-SZENARIO project (Katsarov et al., 2025). The game addresses the ethical risks of social media marketing and aims to train students in business, management, and communication to be more ethically sensitive. Players take the role of a social media manager promoting a protein shake brand called uFood. Within 10 simulated weeks, they are tasked with growing the brand's reach and revenue. Ethical challenges—such as misleading nutritional claims or collaborations with problematic influencers—are integrated into gameplay without being explicitly flagged. This design encourages players to identify ethical dilemmas autonomously and assess their impact on stakeholders. The game draws on research from moral psychology and behavioral ethics (Bandura, 1999; Bazerman & Tenbrunsel, 2011) and provides an engaging tool for classroom-based ethics reflection.

Facts

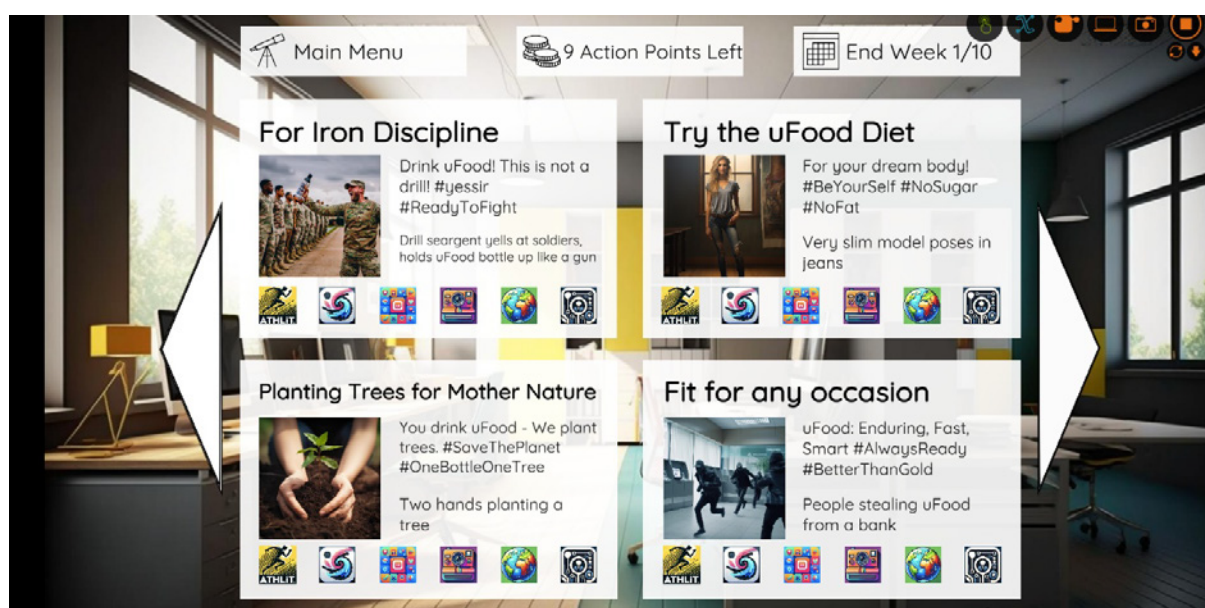
Release date:	First release 2023; latest update 2025
Developer:	Johannes Katsarov, Tammo Rabener, Tim Wagenbach, Evgeniya Zakharova, Yolanda Blanco Hoppmann, Lisa Tran, Paul Drews, Hannah Trittin-Ulbrich
Game type:	Digital
Number of players:	Single player
Format:	Hybrid
Time frame:	Approximately 45 minutes of gameplay, 90 minutes including debriefing
Languages:	English, German
Environment:	Browser-based, playable on computer or smartphone
Material:	Download package with installation guide, educational materials, and debriefing slides
Price:	Open-access educational material (https://serious-games.web.leuphana.de/serious-games/#uFOOD)

Resonance & Criticism

Since 2023, uFood has been used in several courses at Leuphana University and at other universities, reaching more than 300 students. Early feedback indicates that the game stimulates ethical reflection and helps connect theoretical knowledge with marketing practice. While no peer-reviewed evaluation of learning outcomes has yet been published, preliminary classroom observations suggest that uFood effectively raises awareness of moral blind spots in digital marketing. Educators highlight its strong potential for guided ethical dialogue and structured debriefing discussions.

Game Principle & Process

Players act as the new social media manager for uFood and must meet ambitious business targets within 10 simulated weeks. Each week, they receive a set of action points, which can be spent on advertising campaigns, influencer collaborations, or market research (see Figure). Some actions yield rapid gains but involve ethically problematic strategies—such as manipulating followers' emotions or promoting unrealistic beauty standards. Players must balance business pressure with moral responsibility.



Example gameplay interface from uFOOD, showing weekly action options for social media marketing decisions within the simulation (Johannes Katsarov et al., DigiTal/DI-SZENARIO project). Used for educational review. Rights remain with the creators.

Immediate feedback is provided by a “Supportive Ally,” a mentor who reacts to player choices with encouragement or concern. Over time, delayed in-game consequences—such as public backlash or reputation loss—make the ethical implications of prior actions visible. While uFood is mainly a single-player experience, group reflection in the debriefing phase enables social interaction and shared learning. The design is grounded in behavioral ethics and moral cognition theories (Bandura, 1999; Treviño, Weaver, & Reynolds, 2006), emphasizing how situational pressures and goal fixation can cloud moral judgment.

Learning Objectives & Educational Fields of Application

uFood develops three interrelated forms of ethical sensitivity as described by Katsarov (2023). First, it enhances recognitional sensitivity, enabling players to identify ethical issues even when they are under time pressure or facing conflicting business goals. Second, it fosters sympathetic sensitivity, encouraging players to understand how their marketing decisions affect different stakeholders. Third, it strengthens critical sensitivity, helping players recognize mechanisms of moral disengagement and organizational blind spots such as conflicts of interest, goal fixation, and slippery-slope effects (cf. Bazerman & Tenbrunsel, 2011).

The game is applied in university courses on marketing, management, communication, and applied ethics, as well as in professional training programs focusing on corporate social responsibility and ethical leadership. Teachers play a key role in facilitating structured debriefing sessions that help participants consolidate insights, compare experiences, and connect gameplay to real-world ethical challenges in marketing.

Effectiveness

Preliminary classroom observations indicate that most players make ethically questionable decisions during the simulation, making the debriefing phase essential for reflection. Research on comparable serious games (Tanner et al., 2022; Katsarov, 2023) indicates that experiential learning, combined with immediate feedback, enhances ethical sensitivity and self-awareness. While experimental data on uFood has not yet been published, early feedback from students suggests that the game creates significant “aha moments” about how business incentives shape moral awareness.

Potentially Problematic Aspects

The game covers sensitive topics such as body image, eating disorders, and consumer manipulation. These scenarios are necessary for realism but may be distressing to some players. Educators are encouraged to provide supportive framing and contextualization. The game’s fictional advertising examples are designed to illustrate unethical behavior, not to normalize or trivialize it.

Reviewers: Hannes Hamester, Johannes Katsarov

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uMed: Your Choice

Developed by: Johannes Katsarov, Sandra Rossi, Maika Schelb, et al.

Article contributed by: Maxi Sophie Schwinkendorf

<https://doi.org/10.5281/zenodo.15928151>

Keywords

Cognitive Bias, Empathy, End-of-life Decisions, Ethical Decision-making, Health, Medical Ethics



Screenshot from uMed: Your Choice (Katsarov et al., 2019). Used for educational review. Rights remain with the creators.

Introduction

uMed: Your Choice (see Figure) is a serious moral game developed in cooperation with the Institute for Biomedical Ethics and History of Medicine and the UZH Digital Society Initiative Zürich (Katsarov et al., 2020).

Players follow the story as young medical assistants and make decisions about patients' well-being and their interactions with patients, staff, and relatives.

The primary focus is to improve moral sensitivity, integrity, and professional decision-making. It was developed for medical students in clinical ethics courses and serves as a complementary

educational tool. Its dialog-based gameplay allows participants to make decisions and explore different outcomes (Eichinger & Katsarov, 2022).

"uMed" emphasizes self-study combined with reflective group discussions, aligning with the ethos of serious games to foster engagement and applied learning (Christen et al., 2021).

Therefore, it combines content on medical ethics with game features like rules/goals, fantasy, challenge, sensory stimuli, and player autonomy. With feedback and reflection, the game fosters sustained motivation and ethical reasoning (Eichinger & Katsarov, 2022; Caserman et al., 2020).

Facts

Release date:	2019
Developer:	Johannes Katsarov, Sandra Rossi, Maika Schelb, Nikola Biller-Andorno, Tobias Eichinger, Markus Christen & Koboldgames
Game type:	Digital
Number of players:	can be played alone as well as in small groups of 8–9 players
Format:	Asynchronous
Time frame:	The estimated playtime for one person is about 90 minutes; if played in small-groups, discussion sessions usually take longer.
Languages:	German
Environment:	Any device with a pointing device; works on Windows and macOS.
Material:	The game itself is explained in the introduction; only a device such as a computer, tablet, or phone is required. The player needs to be able to click on action and dialogue options. There is a handbook for teachers.
Price:	The game is not publicly available for playing, but can be played as part of a course at universities

Resonance & Criticism

The University of Zürich's medical students' ethics curriculum now includes uMed, which is increasingly recognized as a tool for medical ethics teaching (Eichinger & Katsarov, 2022). As it incorporates interactivity and reflection, which previous approaches do not, it is seen as an innovative approach to teaching ethics (Katsarov et al., 2020).

Overall user numbers are not given, but 270 students used it during their studies in 2021 (Christen et al., 2021). According to feedback, the game is enjoyable and beneficial for both teachers and students (Eichinger & Katsarov, 2022).

However, the scoring system has been criticized for potentially oversimplifying complex moral decisions, leading to debates about its effectiveness in assessing morality (Katsarov et al., 2020).

Game Principle & Process

The game's visual landscape is a static 2D space with limited interaction options. To progress, players must choose between laudable and problematic dialogue and action options and investigate still scenes. In-game responses vary depending on the user's choices. A scoring system provides immediate feedback after each scene. It consists of lightning bolts, which indicate effectiveness regarding objectives; laurels, which represent integrity and accountability; and hearts, which measure empathy and interpersonal happiness. They further show how different values and expectations can collide and conflict in practice (Christen et al., 2021).

Players receive a debriefing session following each scenario, during which their results are reviewed and explained verbally to facilitate reflection (Eichinger & Katsarov, 2022).

uMed introduces characters, including other medical personnel, patients, and their relatives. Players experiment with their behavior in a safe yet realistic environment, simulating the pressures and ethical challenges of medical practice (Katsarov et al., 2020). The game's design does not require advanced medical knowledge, making it accessible to a broader audience while still being relevant to medical professionals (Christen et al., 2021).

Dynamic thought experiments that encourage thinking about appropriate medical treatment are part of the game elements. Players usually follow what they believe to be socially acceptable or ethically ideal behaviors during their first sessions, underscoring the need for personal moral reflection. The instructional design incorporates action-based learning to foster ethical awareness and decision-making skills, drawing heavily on ideas from moral psychology, such as "moral intelligence". As players debate their choices and results in groups under teacher supervision, social interaction is a crucial aspect (Eichinger & Katsarov, 2022; Katsarov et al., 2020).

Learning Objectives & Educational Fields of Application

Overall, the game aims to sensitize participants to the value conflicts inherent in medical practice and to complement existing medical training by addressing five goals that are difficult to achieve within the current curriculum (Christen et al., 2021). These goals are empathic concern, awareness of cognitive biases, development of moral schemas, sensitivity to moral disengagement, and moral courage. They align with the concept of "moral intelligence", which synthesizes research in moral psychology into a coherent educational framework (Eichinger & Katsarov, 2022).

It is done through action-based learning where players decide, imagine outcomes, and consider the repercussions. The game also uses mechanisms such as placing players in a realistic environment as newly-graduated doctors beginning their residency, thereby enhancing the transfer of knowledge and skills into practice. Players can personalize their character by selecting a name and gender or adopt a different identity, encouraging engagement and self-reflection. This immersive role-playing fosters empathy and moral development, enabling players to explore diverse perspectives and ethical challenges (Christen et al., 2021).

Teachers are essential in helping students reflect and connect ethical theory to gaming. Students play scenarios either alone or in small groups and then use guided questions and conversations to reflect on their experiences (Eichinger & Katsarov, 2022).

Effectiveness

The game has been successful in fostering moral sensitivity and attentiveness to ethical dilemmas (Eichinger & Katsarov, 2022). Research indicates that after playing the game, players demonstrated increased respect for patient autonomy and the capacity to identify ethical dilemmas in clinical practice (Christen et al., 2021). These results were observed after just two hours of play, demonstrating the game's effectiveness in teaching ethics (Eichinger et al., 2022).

A study conducted in labs and classrooms has demonstrated that "uMed" is more effective than other digital training resources at promoting ethical awareness and reasoning. According to students' qualitative responses, the game increased their awareness of ethical dilemmas in work environments and was seen as a crucial educational resource (Christen et al., 2021). The game's immersive design induces a state of flow, engaging players through well-balanced obstacles that prompt the recall of ethical principles (Eichinger & Katsarov, 2022). Players continue to exhibit heightened ethical awareness weeks after playing, according to follow-up research (Christen et al., 2021).

Potentially Problematic Aspects

The game's scoring system serves as feedback on the character's actions, but this could lead players to mistakenly believe it offers absolute moral judgments (Eichinger & Katsarov, 2022). To avoid bias during games, sensitive subjects such as discrimination and resource allocation must be carefully handled. Since the game is not currently accessible in various languages, accessibility may be limited by language barriers (Christen et al., 2021). Furthermore, without appropriate instruction, audiences outside healthcare training may find it challenging to understand ethical issues (Eichinger & Katsarov, 2022). Before-and-after discussions are also essential, as otherwise users may assume that completing the game equates to having mastered the relevant moral skills (Christen et al., 2021).

Reviewers: Torben Schmidt, Johannes Katsarov

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Unterricht mit Fairdinand

Developed by: Pädagogische Hochschule FHNW, Koboldgames GmbH

Article contributed by: Markus Neuenschwander, Binan Woll,

Koboldgames GmbH, Fabienne Girsberger, FHNW

<https://doi.org/10.5281/zenodo.15939332>

Keywords

Cognitive Bias, Critical Thinking, Equal Opportunities, Fairness, Inclusion



Example screens and visual material from the digital simulation game Unterricht mit Fairdinand. © Pädagogische Hochschule FHNW; Koboldgames GmbH. All rights reserved for the creators.

Introduction

In *Unterricht mit Fairdinand* (see Figure), players take on the role of a teacher. They are asked to assess various characteristics of students in the classroom based on short profiles—for example, their performance in mathematics and German, their acceptance within the class, and their problem behaviour. Based on a mathematical model, players receive feedback on their assessments. This feedback shows how their judgments affect students and whether they have overestimated or underestimated them.

Research shows that teachers' and parents' expectations and attributions of success can influence students' academic performance. This simulation game uses fictional case stories from everyday school life to illustrate these findings. It aims to raise awareness of unfair assessments in classroom practice. The game is aimed at teachers, school leaders, teacher education stu-

dents, social pedagogues, school social workers, school authorities, university lecturers, and interested parents and adolescents.

The game was developed by the University of Teacher Education FHNW in collaboration with Koboldgames GmbH and funded by the Swiss National Science Foundation.

Facts

Release date:	1 April 2025
Developer:	Pädagogische Hochschule FHNW, Koboldgames GmbH
Game type:	Digital
Number of players:	Single player
Format:	Hybrid
Time frame:	Workshops last at least 60 minutes; optimal duration is 90–120 minutes
Languages:	German
Environment:	Browser-based online game; computer, notebook, or tablet; game is embedded in workshops for 3–30 participants
Material:	Additional materials available at www.fhnw.ch/ph/fairdinand . The game can be accessed via this website.
Price:	The game is free. It is currently password-protected to prevent professionally inappropriate gameplay. The password can be provided on request to individuals with the required professional background.

Resonance & Criticism

The game addresses issues of fair assessment and equal opportunities in schools, which are currently the subject of intense debate. It combines the latest teaching research with applications in the school environment, thereby raising awareness of equal opportunities. It demonstrates a highly innovative approach to communicating research findings to the school community. Feedback highlights the novel and inspiring game concept and the appealing design. Online access is easy. The idea of experiencing the consequences of one's own expectations and attributions, and of testing their connections and effects playfully, is praised. A short introduction is recommended to make complex concepts and mechanics understandable.

Game Principle & Process

In Unterricht mit Fairdinand, players assume the role of Fairdinand, a teacher who teaches a class over two semesters. The fictional class consists of four eighth-grade students (approximately 14 years old), whose stories are presented over two semesters. The students differ in gender, socio-economic status, migration background, academic performance, behaviour, and leisure activities. The objective of the game is to improve students' performance in German and mathematics.

Players are repeatedly asked to assess various student characteristics: How does the teacher assess the student's performance? How might parents evaluate it? How does the student assess themselves? How popular is the student within the class? How problematic is the student's behaviour? These assessments significantly influence students' academic outcomes.

Game segments also change depending on the personal relationship the teacher develops with individual students. For example, it is easier to talk about personal problems and mistakes with a student with whom the teacher has a positive relationship. After each assessment, players receive feedback on student performance and other characteristics, as well as on the accuracy of their judgments. These calculations are based on a research-informed theoretical model operationalised through mathematical equations.

Optionally, two additional students are included for whom no narrative background is provided; assessments are made solely based on profile information. This allows interested players to experiment with the model and better understand and apply it.

Learning Objectives & Educational Fields of Application

The theoretical model underlying the game draws on educational theories and research on expectation effects (Rosenthal & Jacobson, 1974) and attribution effects (Weiner, 1985). Studies show that teachers' and parents' expectations in German and mathematics, as well as internal attributions of success, are influenced—after controlling for achievement—by students' gender, socio-economic status, and migration background (Neuenschwander & Niederbacher, 2021). The game makes these theories and findings tangible and applies them to classroom practice.

The learning objective of the game is to deepen understanding of these theories and their application in teaching, thereby increasing diagnostic self-efficacy. Feedback on players' assessments helps them apply theory to concrete situations, identify over- and underestimations, and become more sensitive to unfair judgments and educational inequality (Neuenschwander et al., 2021).

The simulation game is typically embedded in workshops. Before gameplay, facilitators should introduce the underlying theory. During gameplay, they should answer questions and moderate plenary discussions about players' experiences. After the game, facilitators support the transfer of new insights to assessment situations in participants' own professional contexts (e.g., classroom teaching). One facilitator can simultaneously accompany groups of approximately 25–30 participants.

Effectiveness

Because the game is very new, no impact study has yet been conducted; one is planned. Feedback on players' assessments motivates experimentation and improvement, as participants engage more deeply with the underlying theory and its mechanics.

The game offers several variants with differing cognitive demands: (a) experimental exploration of assessment effects for students without narratives; (b) immersion in student stories constructed according to the theoretical model, which is particularly accessible for students and parents without extensive theoretical knowledge; (c) exploration of supplementary theoretical materials on the website and application to concrete cases; and (d) workshop discussions that deepen understanding and support transfer to professional practice.

Potentially Problematic Aspects

The simulation addresses stereotypical prejudices and assessment biases based on structural characteristics, which may be emotionally challenging. Stories include narratives of students with migration backgrounds and Black students, which may be emotionally moving.

Gender-sensitive language is used throughout. Players can choose Mr., Ms., or no title and select avatars that are depicted as typically male, typically female, or without gender signals. This supports gender-sensitive discussion. The game was reviewed by the research ethics committee of the University of Teacher Education FHNW (Switzerland) and found to be ethically sound.

Reviewers: Michael Louis Eulenstein, Johannes Katsarov

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Valiant Hearts: The Great War

Developed by: Ubisoft Montpellier

Article contributed by: Theo Schulze

<https://doi.org/10.5281/zenodo.15939761>

Keywords

Death, Empathy, Military Ethics, Trauma, World War I History



Screenshot from Valiant Hearts: The Great War (Ubisoft Montpellier). Used for educational review. Rights remain with the creators.

Introduction

Valiant Hearts: The Great War, developed by Ubisoft, is a unique puzzle-adventure game that explores the human stories behind World War I (see Figure). Released in 2014, the game stands out for its hand-drawn art style, emotional storytelling, and educational elements. Instead of focusing on combat, it highlights the personal struggles and resilience of four characters, Emile, Karl, Anna, and Freddie, each with a distinct perspective on the war, accompanied by a loyal dog named Walt.

The game weaves historical accuracy into its narrative, offering players not only an emotional journey but also an educational one, with real-life artifacts and facts integrated seamlessly. Through puzzles, exploration, and rhythm-based sequences, Valiant Hearts brings the harrowing realities of the Great War to life without glorifying violence. Its ability to evoke empathy while informing players about a pivotal historical event has made it a standout in narrative-driven gaming.

Facts

Release date:	23rd June 2014
Developer:	Ubisoft Montpellier
Game type:	Digital
Number of players:	Single player
Format:	Synchronous
Time frame:	6–8 h
Languages:	English, French, Italian, German, Spanish, Russian, Portuguese, Dutch, Japanese, Polish
Environment:	PC/PS/Xbox/Nintendo
Material:	Compatible digital device
Price:	approx. €15 base price

Resonance & Criticism

Players and critics widely praised the game for its emotional depth, artistic design, and ability to humanize the tragedies of World War I. Its storytelling, driven by personal narratives and historical context, was celebrated as both moving and educational. The hand-drawn visuals and heartfelt soundtrack were particularly effective in enhancing the emotional impact. However, some players felt the puzzles were too simplistic and repetitive, potentially limiting the gameplay's depth. A few also found the comic-inspired art style slightly at odds with the gravity of the subject. Despite these minor criticisms, the game's powerful themes and innovative approach earned it accolades, including the Games for Change Award (see *Valiant Hearts: The Great War*, 2024).

Game Principle & Process

The gameplay of *Valiant Hearts* focuses on solving puzzles, exploring environments, and progressing through emotionally charged sequences. Players take control of four different characters, each with unique abilities that suit specific challenges. For example, Anna treats the wounded in quick mini games, while Freddie uses his strength to clear obstacles. Walt, the dog character in the game, helps players by retrieving items, activating switches, or offering comfort in tense moments.

The puzzles are straightforward but engaging, often requiring players to manipulate objects, navigate tricky environments, or find creative solutions to progress. These challenges are seamlessly tied to the narrative, ensuring that the gameplay enhances the emotional connection to the story rather than distracting from it.

At certain points, players need to evade enemies or time their movements to avoid danger, adding moments of tension without overwhelming complexity. The game also includes rhythm-based segments, such as treating injuries or escaping bombings, which help break up the gameplay and keep it varied. Exploration is rewarded with collectibles that unlock historical facts, offering players insight into the real events and artifacts of World War I.

The game's flow is linear, guiding players through a series of chapters that correspond to significant events in the characters' journeys. Combat is absent, emphasizing survival, problem-

solving, and acts of humanity over violence. This approach reinforces the game's anti-war message and distinguishes it from other war-themed games.

Learning Objectives & Educational Fields of Application

Valiant Hearts is mostly useful for education about WWI. However, the mini-games and puzzles can also help with building problem-solving and critical thinking skills.

The educational focus should lie on the historical aspects. A teacher might use it as a visual and narrative supplement during lessons, guiding students through scenes while providing context. Alternatively, students could play independently, followed by structured discussions to analyze the historical content and ethical dimensions. Teachers who use Valiant Hearts should be well-versed in the history of World War I, especially the specific battles, technologies, and civilian experiences portrayed in the game. The narrative touches on topics such as conscription, displacement, and trauma, making it suitable not only for history classes but also for ethics or social studies courses. These cross-disciplinary applications allow for meaningful discussions about war, morality, and human resilience. By inviting empathy and critical engagement, Valiant Hearts goes beyond surface-level fact delivery. It allows students to feel history, not just learn it, an important step toward making the past emotionally relevant and tangible for younger generations.

Effectiveness

Although empirical studies on Valiant Hearts remain limited, Gee (2003) suggests that effective games foster learning through identity and immersion, both of which the game achieves. Its structure encourages empathy and ethical reflection, making it a powerful resource for classroom discussions. The game's accessibility and minimal depiction of violence make it appropriate even for younger students. However, it does simplify complex events and can sometimes blur historical accuracy. Boelmann (2024) observes that the transition from the game's colorful early stages to later black-and-white sequences, which depict trenches, death, and evolving weapon technology, effectively conveys the brutality of WWI without overwhelming the player.

Potentially Problematic Aspects

Although the comic-like visuals soften the presence of the brutalities of WWI, the events still unfold during a cruel and violent time. This contrast should be discussed so students understand that war remains brutal despite artistic choices. The portrayal of Germans as villains, especially the fictional antagonist, should also be examined critically. Students must learn about all sides of the war. Stalmach (n.d.), Boelmann (n.d.), and Hicks (n.d.) recommend the game from grade seven onward, as younger students may be overwhelmed by the war themes. Hicks (n.d.) also warns that the game's complexity and potential frustration when players get stuck on tasks could discourage younger players.

Reviewers: Hannes Hamester, Johannes Katsarov

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Was ist los mit Jaron?

*Developed by: Independent Commissioner
for Child Sexual Abuse Issues (UBSKM)
Article contributed by: Dustin Thulke*

<https://doi.org/10.5281/zenodo.17679623>

Keywords

Abuse, Child Protection, Educational Ethics, Prevention, Psychology, Resilience, Social Work, Trauma



Example screenshot from the digital educational game Was ist los mit Jaron? © UBSKM. All rights reserved for the creators.

Introduction

Was ist los mit Jaron? (see Figure) is a digital educational game developed in 2023 by the Office of the Independent Commissioner for Child Sexual Abuse Issues (UBSKM). The game aims to raise awareness and strengthen decision-making and response skills when dealing with suspected cases of child sexual abuse. Players assume the roles of five reference persons across five scenarios. One scenario, for example, focuses on a fictional boy named Jaron who shows

behavioural changes that could indicate possible abuse. Through interactive dialogues and decision-making situations, players learn to recognize warning signs, respond appropriately, and provide support. The game offers practical courses of action, thereby strengthening prevention competence in schools, families, and social institutions.

Facts

Release date:	2021
Developer:	Independent Commissioner for Child Sexual Abuse Issues (UBSKM)
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	3–5 hours
Languages:	German
Environment:	Computer/Tablet
Material:	Educational handouts, worksheets, and accompanying guidelines for professionals
Price:	Free of charge (login required for saving progress)

Resonance & Criticism

Since its release, “Was ist los mit Jaron?” has received media recognition in outlets such as Tagesspiegel and DER SPIEGEL. Tagesspiegel highlighted the function of the four-hour digital tool—described as a “major project”—as comprehensive training for educational professionals, aiming to establish a “human early-warning system” in schools (Bachner, 2021). DER SPIEGEL discussed the game as a “serious game as teacher training against sexual abuse”, describing the experience as “extremely distressing—and very informative” (Unterberg, 2021). Coverage praised the innovative approach of providing concrete guidance for sensitive conversations and clarifying key issues such as the limits of confidentiality. Official recognition of the half-day professional development program was also noted positively. However, it should be critically emphasized that the game alone cannot guarantee correct action in real situations and should always be accompanied by training and supervision.

Game Principle & Process

The game is based on five interactive stories in which players influence the course of events through their decisions. At the outset, they encounter Jaron, a boy who suddenly appears withdrawn and struggles at school. Players must assess subtle or direct behaviors through dialogue, conduct conversations (e.g., with Jaron, teachers, or professionals), and decide how to respond—such as by asking careful questions, involving specialist services, or setting boundaries. Each decision has consequences, reflected in feedback overlays that present evidence-based response options. Feedback is provided both within the narrative and in a subsequent debriefing.

Learning Objectives & Educational Fields of Application

The game is suitable for use in schools, youth welfare institutions, and professional development programs for educational professionals and other school staff.

It aims to help professionals and caregivers better recognize warning signs of child sexual abuse. Through interactive engagement and multiple storylines, players learn to interpret subtle behavioural changes such as withdrawal, aggression, or physical symptoms. At the same time, the game builds communication skills—for example, how to conduct sensitive conversations with affected children without exerting pressure or making false promises. Another key objective is raising awareness of appropriate courses of action. Players learn which steps are appropriate in cases of suspicion, including observation and consultation with specialist services, as well as legal reporting pathways. Emphasis is placed on the importance of networking and interdisciplinary cooperation, including with youth welfare offices, counselling centres, and school leadership.

In school contexts, the game can be used as part of prevention projects. For professionals and laypersons alike, it offers a low-threshold opportunity to engage with the topic without being directly confronted with real cases. Additional accompanying materials support deeper reflection, including worksheets for classroom use, guidelines for case discussions, academic publications, and role-play suggestions that help translate learning into practice. These resources enable educators and teams to integrate the game not merely as a standalone activity but as part of a comprehensive protection concept.

Effectiveness

Digital games and virtual reality applications are considered valuable tools for addressing child welfare risks. A study by Asadzadeh et al. (2022) shows that virtual reality applications can be successfully used across several domains, including prevention. Especially for such an emotionally demanding topic, digital simulations offer a protected and reflective space for essential training. This safe environment allows professionals and caregivers to explore options without the immediate pressure of a real case.

"Was ist los mit Jaron?" leverages this effect by immersing players in a realistic digital narrative. However, it must be noted that there are currently no game-specific studies demonstrating direct effectiveness. Its theoretical framing, therefore, primarily relies on the generally positive evidence base for serious games.

Potentially Problematic Aspects

Engaging with this sensitive topic can pose a significant emotional burden for players. Although the game is designed to foster action competence, there is a risk of oversimplifying real cases of suspicion. The complexity of real-life situations—often characterized by ambiguous indicators and multifaceted dynamics—is frequently greater than portrayed in digital simulations. Consequently, the transfer of competencies acquired in the game to real-world practice is not automatically ensured, reinforcing the need for additional training and supervision.

Occasional technical issues have been observed, such as so-called “soft locks” that can occur in certain sections of the game, for example, when switching between program windows. Such technical shortcomings can disrupt gameplay and detract from focus on the educational content.

Reviewers: Hannes Hamester, Saskia Sterzl

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Whispers of the Forest

Developed by: Nilufar Ernazarova

Article contributed by: Nilufar Ernazarova

<https://doi.org/10.5281/zenodo.17679665>

Keywords

Agile Project Management, Collaborative Problem-solving, Project Management, Risk Management, Strategic Decision-making



Title screen of Whispers of the Forest (2025). © Nilufar Ernazarova.

Introduction

Whispers of the Forest is a digital serious game designed to teach the principles of agile project management (APM) through interactive storytelling and experiential learning (see Figure). Developed in 2025 at Leuphana University Lüneburg by Nilufar Ernazarova, the game integrates game-based learning (GBL) methodologies with agile development principles, offering learners a practical and engaging approach to understanding iterative work processes. Set in a dynamic, metaphorical forest ecosystem, players assume the role of a guardian who must restore balance to the land by coordinating a team of tree spirits and managing resources effectively. Each mission, or sprint, corresponds to a phase of agile project work: planning, execution, and retrospective, allowing learners to experience agile values such as adaptability, collaboration, and

continuous improvement in a narrative-driven environment. The game exemplifies a constructivist, experiential learning approach, in which knowledge is acquired through active participation and reflection. It serves both as a teaching tool and as an applied example of research-based design, following the Learning Mechanics-Game Mechanics (LM-GM) framework (Arnab et al., 2015) to align gameplay actions with educational objectives.

Facts

Release date:	June 2025
Developer:	Nilufar Ernazarova
Game type:	Digital
Number of players:	Single player
Format:	Hybrid
Time frame:	20–40 minutes
Languages:	English
Environment:	Web-based; suitable for classroom and online use
Material:	Internet connection and a browser
Price:	Free

Resonance & Criticism

Since its release in mid-2025, *Whispers of the Forest* is projected to be implemented in university project management courses and professional training workshops focusing on agile learning. Preliminary testing with 15 lecturers and students has been received positively for its immersive storytelling, pedagogical structure, and alignment between gameplay and learning outcomes. Participants report that it fosters engagement and supports the comprehension of abstract agile concepts through metaphor and narrative embodiment.

Game Principle & Process

The structure of *Whispers of the Forest* is informed by both agile and educational design principles. The game consists of three iterative sprints, each corresponding to one of the central agile learning domains: planning and prioritization, team collaboration and communication, and risk management and adaptation. Players are guided through the narrative as they make strategic decisions that determine the health of the forest, symbolizing the success of a project ecosystem. In each sprint, learners must organize a backlog of tasks, assign tasks, and adapt to unexpected challenges such as environmental disturbances or resource shortages. Decisions are implemented through a drag-and-drop Kanban interface, enabling learners to experience task prioritization and iterative improvement firsthand. After every sprint, players enter a retrospective phase, receiving visual and textual feedback based on team performance and decision outcomes. The forest vitality meter and team harmony indicator serve as dual progress metrics, reinforcing the interdependence of productivity and collaboration. These mechanics are deliberately mapped to learning objectives following the LM-GM framework, ensuring that every gameplay activity corresponds to a cognitive or procedural learning outcome. The cyclical structure (plan, execute, reflect, adapt) mirrors both agile workflows and experiential learning loops, turning theory into actionable understanding.

Learning Objectives & Educational Fields of Application

The primary educational goal of *Whispers of the Forest* is to facilitate active learning of agile principles through simulation and reflection. By engaging with contextualized scenarios, players develop competencies in (a) sprint planning and backlog management, (b) collaborative communication and task delegation, (c) iterative improvement and feedback integration, and (d) risk management and flexibility under uncertainty.

The game is suitable for use in higher education, corporate training, and blended learning environments. It supports constructive alignment between learning outcomes, activities, and assessment, allowing instructors to guide post-game discussions that connect in-game experiences with theoretical agile models such as the Agile Manifesto (Beck et al., 2001) and eduSCRUM methodologies (Rodríguez et al., 2021). The game supports flexible facilitation formats: it can be played individually, with each participant making autonomous decisions, or in hybrid group sessions where 4-6 learners collaborate on shared decisions. In larger settings, multiple groups can play in parallel, with minimal instructor preparation required. The instructor's role is that of a facilitator or Scrum Master, guiding reflection and drawing connections between gameplay and real-world agile practices.

Effectiveness

Initial unpublished evaluations conducted in 2025 indicate that players demonstrate improved comprehension and retention of agile concepts after gameplay compared to traditional instruction. Learners reported improved understanding of iterative processes, team dynamics, and adaptive problem-solving. This aligns with findings by Plass et al. (2015), who found that GBL increases motivation, engagement, and higher-order cognitive outcomes. Although further large-scale studies are planned, current results suggest that embedding agile learning within a narrative framework enhances both conceptual understanding and emotional engagement, supporting the dual aims of education and entertainment in serious games.

Potentially Problematic Aspects

While accessible online, the game's reliance on visual feedback and narrative text may pose challenges for visually impaired learners unless assistive technology is enabled. The game avoids explicit or sensitive content and adheres to inclusive design principles, ensuring broad accessibility across learning contexts.

Reviewer: Saskia Sterzl

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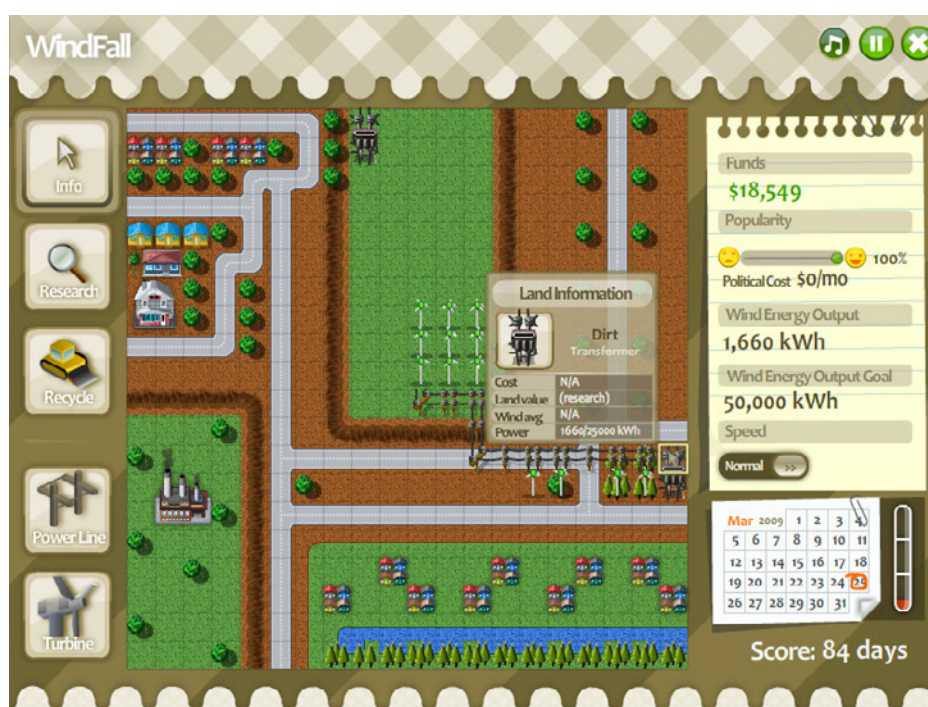
Windfall

*Developed by: Persuasive Games LLC
Article contributed by: Bui Phuong Anh*

<https://doi.org/10.5281/zenodo.15938576>

Keywords

Business Ethics, City Planning, Economics, Renewable Energy, Resource Management, Strategic Decision-making, Sustainability



Screenshot from Windfall (2009). © Persuasive Games LLC. Reproduced from the official browser version of the game.

Introduction

Windfall (see Figure) is a browser-based Flash game developed by Persuasive Games LLC in 2009. Given the game's design and mechanics, it's reasonable to assume the target demographic is teens and young adults.

The main objective of the game is to reach a specified energy offset goal as quickly as possible by strategically building wind turbines in locations with the best wind conditions and keeping the locals in one's good graces. Simply put, the player's goal is to generate profit from sustainable energy.

Through gameplay, Persuasive Games LLC aims to show players the struggles of profitably creating sustainable energy.

Facts

Release date:	2009
Developer:	Persuasive Games LLC
Game type:	Digital
Number of players:	Single player
Format:	Synchronous
Time frame:	20–40 minutes
Languages:	English
Environment:	Web game, accessible on a computer
Material:	None
Price:	Free

Resonance & Criticism

The concept and game mechanics of Windfall are well-established and can be seen in other resource management/city-building games, such as the “Anno” game series, where the player aims to reach a certain number of resources while staying aware of the locals’ satisfaction levels.

There is no information on the contexts in which the game is predominantly used, it has not received any awards, and no published ratings or reviews from experts or players are available. The game’s homepage mentions a leaderboard for its individual difficulty levels; however, I was unable to access it. Player numbers are also not available to the public.

Game Principle & Process

The educational goal of Windfall is to simulate the process of creating profitable wind farms. The player’s objective is to reach a specified energy offset goal within 3 years. They can achieve this by strategically building wind turbines in areas with the best wind conditions. These places can be uncovered by researching the selected location. The player, however, has to find the right balance between the value of the land and the wind conditions offered by each turbine built. The more turbines the player builds, the more energy they can produce and get closer to their goal. To manage their resources correctly, players are rewarded with funds, which are necessary to progress in the game. On the other hand, if the player builds turbines in the wrong spaces and lowers the land’s value too much, the locals will become angry, and the player will be punished by having to give up a chunk of their monthly earnings to appease the angry residents. Therefore, the player never directly engages in any social situations; however, they have to keep the potential social consequences in mind.

Learning Objectives & Educational Fields of Application

The gameplay and game objectives are fairly straightforward and do not require a supervisor or an additional teacher. The objective of showing the players the process and difficulties of creating profitable wind farms is woven through the game itself. The players have to ensure they have sufficient financial resources to expand their farms and conduct enough research to find the optimal placement for the turbines. However, they also have to remain aware and

mindful of the locals. While the game's objective is relatively straightforward, one could argue that the topic itself is subtle enough to get lost in the mechanics. In other words, when a player plays this game unquestioningly, without access to any information about it beforehand, they may perceive it as just another resource-management flash game, completely ignoring its theme of profitable clean energy.

Effectiveness

There is currently no research or empirical findings on the effectiveness of this specific game. Yet, suppose we apply Ian Bogost's rule of procedural learning from his book "Persuasive Games" (2007). In that case, Windfall's approach of teaching through interaction with systems that mimic real-world processes can be categorized as highly sustainable. This "learning by doing" approach is also viewed as a sustainable learning method by other academic publications (Pineda-Martínez et al., 2023; Janakiraman et al., 2018), especially for players who are already familiar with strategy and resource management games. It presents clear goals and gives immediate feedback, which supports player engagement. It also offers three difficulty levels, allowing players to adjust the game to their skill set. Overall, Windfall may successfully engage players who are already familiar with this genre of strategy and resource management games. Yet it may offer a less immersive experience for novices or first-time players of these genres.

Potentially Problematic Aspects

The financial punishment of players could create the impression that companies and larger organizations can do as they please, if they have the funds to appease the angry locals. While not wholly untrue, the game's lack of dialogue and direct interaction with the town's citizens leaves this problematic aspect lacking nuance. Additionally, the game's information is likely based on data from the time it was made (2009); therefore, some data or assumptions about profitable, sustainable energy may now be outdated.

Since Windfall is a browser-based, non-physical game, it does not pose any risk of physical injury, aside from those related to general long-term computer use.

Reviewer: Johannes Katsarov

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You're Just Imagining It

Developed by: npckc

Article contributed by: Lucian Jueterbock

<https://doi.org/10.5281/zenodo.15938006>

Keywords

Abuse, Disability Studies, Empathy, Healthcare Systems, Medical Ethics, Nursing, Psychology, Sociology

Introduction

You're just imagining it (often stylized in lowercase) is a short (~30 min) free-to-play simulation that immerses players in the challenges of living with an undiagnosed chronic illness. Developed by the indie creator npckc in 2024, the game was inspired by the developer's own diagnosis of a chronic health condition (you're just imagining it on Steam, 2024). Acknowledging the creator's caution that "this game is not meant to be medical advice" and "it is also not very fun", the game is designed not for leisure but as an experiential learning tool and personal expression (npckc, 2024). The game has minimalistic art and narrative, and its thematic focus is on the frustration, fatigue, and uncertainty faced by chronically ill patients who are seeking validation and treatment. The educational objective is to foster empathy and awareness of these struggles among players by allowing them to walk in the shoes of someone with an invisible illness. The target group thus ranges from those in health-related fields (who can use the game to understand patient perspectives better) to anyone interested in narrative-driven empathy games.

Facts

Release date:	March 30, 2024 (initial release on itch.io; Steam release on November 5, 2024)
Developer:	npckc
Game type:	Digital
Number of players:	Single player
Format:	Asynchronous
Time frame:	20–30 min
Languages:	English, Spanish, Japanese, Korean (fully translated), others
Environment:	PC (Windows, macOS, Linux; also Steam Deck Verified; keyboard/mouse required)
Material:	No additional materials needed. The game is downloaded or launched online; all instructions and content are included. An optional developer's zine is available for supporters, but it is not required for gameplay.
Price:	Free of charge (donation-supported "pay what you want"). The game is free on both itch.io and Steam, with an option to contribute about \$2 for bonus content.

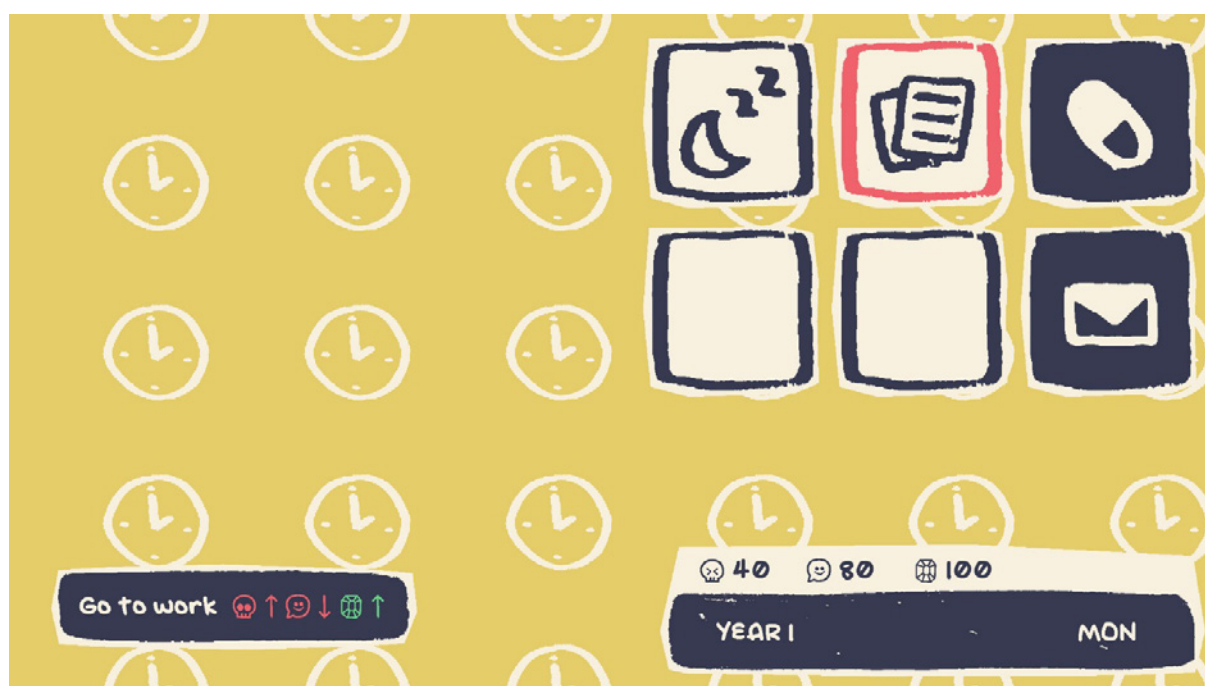
Resonance & Criticism

Since its release, the game has garnered positive reception from players, especially within chronic illness communities and the serious games scene. By mid-May 2025, it holds a 97% “Very Positive” rating on Steam (with over 300 user reviews) (you’re just imagining it on Steam, 2024). Many players praised the game’s realism and relatability, noting that it “accurately” mirrors their experiences and “made [them] feel seen” (you’re just imagining it – Comments, 2025). The title has also gained recognition in indie game circles; for example, it was showcased at the A MAZE (2025) International Games Festival in Berlin (A MAZE./Berlin, 2025).

A minor critique is the game’s predictable outcome, since the narrative ultimately leads to a diagnosis, and the extremely minimalist gameplay, as mentioned in some user reviews (Steam, 2024).

Game Principle & Process

The game places the player in the role of an unnamed protagonist who suspects they have a chronic illness and must manage daily life while searching for a diagnosis (npckc, 2024). The core gameplay loop is structured around the passage of time and daily decision-making. Players are presented with simple choices each in-game day (whether to go to work, rest at home, or so on). Every choice carries consequences for the character’s status, reflected in a few on-screen variables such as pain, mood, and money (see Figure next page). For example, choosing “Go to work” will increase the character’s pain (and fatigue) while slightly improving their finances, at the cost of lower happiness. These reflections are the only feedback mechanisms of the game, and they create a dilemma of pain or economic struggle, which is the reality of life for many people with chronic illness.



Gameplay screenshot from you’re just imagining it, developed by npckc (2024). © The developer.

One key element of the procedure is visiting doctors and specialists and encountering skepticism or dismissal to highlight the phenomenon of medical gaslighting. The player's agency in such encounters is limited; often, the character can only try another doctor or endure more tests. This limited control is intentional, underscoring the powerlessness patients feel when they are not believed. On top of that, social interaction in you're just imagining it is intentionally restricted. The only characters the player directly interacts with are the doctors. This design choice makes the game experience very lonely, as the only non-players in the narrative are hierarchically empowered over the player. This way, the game reinforces feelings of isolation and self-reliance that many chronically ill individuals face.

You're just imagining it is not explicitly based on a formal scientific model, but rather on the practical experiences of patients with chronic illness.

Learning Objectives & Educational Fields of Application

The central learning objective of the game is to cultivate empathy and understanding for individuals living with chronic illnesses, particularly those illnesses that are invisible or hard to diagnose. The game builds perspective-taking skills by simulating another person's daily life. It allows participants to develop a visceral sense of the physical and emotional challenges that chronically ill patients face. Additionally, studies show that simulations for students in healthcare disciplines usually translate to greater patient empathy, a crucial competency for effective, compassionate care (Karvelytė et al., 2021).

Beyond empathy, the frustration players feel when repeatedly told nothing is wrong can lead to discussions about the importance of clinical listening, diagnostic thoroughness, and patient advocacy. It brings attention to issues such as doctors' bias or the tendency to dismiss symptoms (especially in young or marginalized patients), thus opening a dialogue about how these issues might be addressed in medical training. In addition, the game can be used to train students to understand patient behavior, e.g., why patients might "doctor shop" or turn to alternative theories when they feel unheard.

The role of the teacher or facilitator when using this game in an educational context is primarily to frame and debrief the experience. You're just imagining it is straightforward to play, so typically only one instructor is needed to supervise a session, and minimal training is required. Educators usually familiarize themselves with the game by doing a playthrough beforehand.

Given the strong emotions the game can evoke, educators are advised to hold a debriefing session where players can share their feelings and insights. In practice, a teacher might ask questions like, "How did you feel when the doctor dismissed your concerns?" or "What surprised you about the experience?" to initiate conversation.

They may also connect the game events to course content (for example, linking to concepts of patient-centred care or healthcare policy). A helpful addition to the discussion can be familiarizing oneself and the class with the experience of people with chronic illness in navigating the health care system through social media posts, such as YouTube videos, or by inviting a person with chronic illness to the class.

Effectiveness

As of mid-May 2025, no formal empirical study has been conducted on you're just imagining it.

Potentially Problematic Aspects

The game deals with sensitive and potentially distressing subjects. As it so effectively simulates frustration, hopelessness, and invalidation, some players, especially those who have experienced similar medical journeys or those sensitive to health-related anxiety, might find the content triggering or upsetting. Facilitators should ensure players have an opportunity to debrief or step away.

Some might argue that the unrelentingly negative portrayal of doctors could foster distrust in medical professionals. It is important to clarify that not all providers are dismissive, but what the game emphasizes is still a common problem that requires improvement (Brown et al., 2023; Hildenbrand et al., 2021; Iglar et al., 2017; McManimen et al., 2019).

However, the game relies on reading text, which means it may not be fully accessible to visually impaired players.

Reviewer: Johannes Katsarov

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ZEITREISE

Developed by: Sarah Cortes Czech, Rana Zeynep Erkan

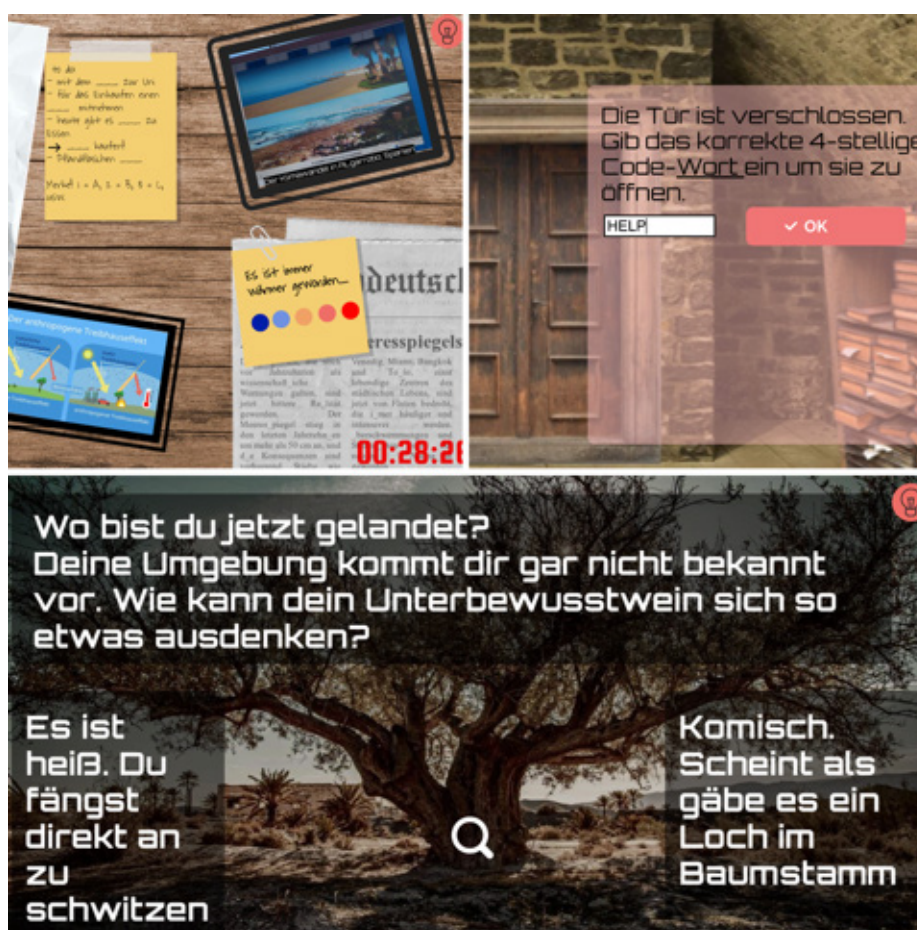
Article contributed by: Michael Louis Eulenstein,

Sarah Cortes Czech, Rana Zeynep Erkan

<https://doi.org/10.5281/zenodo.15939131>

Keywords

Climate-change Education, Greenhouse Effect, Paris Climate Agreement, Sustainability, Sustainable Development Goals, Systems Thinking



Screenshots from ZEITREISE (2024), developed by Sarah Cortes Czech and Rana Zeynep Erkan. © Authors. Reproduced from the publicly available Genially version of the game.

Introduction

ZEITREISE (see Figure) is a digital educational escape game that focuses on climate action and the United Nations Sustainable Development Goal 13 (climate protection). It was developed in 2024 by Sarah Cortes Czech, and Rana Zeynep Erkan as part of the “EscapeThis!” IT study pro-

ject. Set in a dystopian year 2050, the main objective is to educate players about the consequences of climate change while fostering environmental awareness and promoting sustainable behavioural changes (Gugerell et al., 2023; Costin et al., 2024).

The game targets participants aged 16 and above with basic digital literacy, with no prior environmental knowledge required. As a serious game, it combines science fiction elements with educational content, using a hybrid structure that begins with non-linear puzzle-solving in an enclosed room and transitions to linear progression through climate-devastated landscapes. Players navigate seven puzzles, encountering scenarios that demonstrate real impacts of climate change, such as sea level rise, the greenhouse effect, and environmental degradation. This single-player escape game exemplifies serious games methodology (Wolf et al., 2024; Pornsakulpaisal et al., 2023) by integrating immersive storytelling with problem-solving to inspire long-term environmental consciousness and responsibility.

Facts

Release date:	2024
Developer:	Sarah Cortes Czech, Rana Zeynep Erkan
Game type:	Analog/Digital/Hybrid
Number of players:	Single player
Format:	Synchronous
Time frame:	30–45 minutes (average completion time varies based on puzzle-solving speed)
Languages:	German
Environment:	Web browser, internet, mobile device, or computer, no installation is required.
Material:	No additional materials required
Price:	Freely available via Genially (embedded)

ZEITREISE can be played here: <https://view.genially.com/64f5db237ce5940019306bf2/interactive-content-escape-room>.

Resonance & Criticism

ZEITREISE has not yet been presented to a broader public audience beyond its initial development and evaluation context within the “EscapeThis!” IT study project in 2024. Primary criticism from initial testing focused on technical and usability aspects. Some participants found the puzzle complexity, particularly the crossword, difficult, as it required prior knowledge, though hint systems provided adequate support. Navigation clarity and end-game recognition needed refinement, as several users were uncertain when the escape game concluded. Minor technical issues included occasional loading delays in complex puzzle sequences, which were addressed in subsequent iterations.

Game Principle & Process

ZEITREISE employs a hybrid structure, beginning with nonlinear puzzle-solving within an enclosed space and transitioning to linear progression through climate-devastated landscapes.

Players navigate seven diverse puzzles in a web browser using the Genially platform, with complete control over their path during the initial phase—they may tackle challenges simultaneously or switch between them when stuck. Game objectives are explicitly stated in the briefing: “Escape the room and the dystopian 2050 world while learning about climate change consequences”. In-game prompts reinforce these goals before each puzzle, ensuring alignment with SDG 13 learning outcomes. Immediate feedback systems include audiovisual confirmation for correct solutions, contextual error messages, and progressive hints (up to three per puzzle) that provide scaffolded support without revealing complete answers. Social interaction is intentionally limited, as this is a single-player experience designed for focused individual reflection. However, the game can be used in classroom settings where students discuss findings afterward, promoting peer-learning and knowledge consolidation. The escape game is grounded in UNESCO’s Education for Sustainable Development framework (UNESCO, 2017). It integrates established climate science theories, including mechanisms of the greenhouse effect, sea-level rise projections, and Paris Climate Agreement targets. Reward systems operate through narrative progression, unlocking new areas and knowledge acquisition rather than competitive scoring, and maintaining educational focus while sustaining engagement through mystery and discovery elements.

Learning Objectives & Educational Fields of Application

ZEITREISE pursues three central learning objectives structured around Bloom’s taxonomy. Cognitive objectives focus on understanding climate change impacts, the Paris Climate Agreement, and mechanisms of the greenhouse effect; affective objectives emphasize developing environmental awareness, personal responsibility, and motivation for sustainable behavior change; and psychomotor objectives promote the practical implementation of eco-friendly alternatives in daily life.

Game mechanisms ensure learning-objective achievement through content-aligned puzzles that require applying climate science knowledge to progress, immediate feedback systems that reinforce correct understanding, and scaffolded hint structures that guide learning without revealing complete solutions.

The hybrid game structure begins with non-linear exploration, allowing autonomous discovery, then transitions to linear progression that systematically builds knowledge complexity. Post-game reflection questions consolidate learning by connecting game experiences to real-world applications and personal behavioural intentions. Teachers function primarily as facilitators rather than instructors, requiring minimal active involvement during gameplay. A single educator can supervise multiple students (recommended maximum of 12) as they work individually through the browser-based experience. Training requirements are minimal: approximately 30 minutes of familiarization with the Genially interface and escape game content should suffice for effective implementation.

Teachers provide brief introductions (5–10 minutes), offer occasional technical support, and facilitate post-game discussions (15–20 minutes) to reinforce learning outcomes. The seven puzzle types include crosswords, gap-fill exercises, hidden object searches, and interactive scenarios that directly support learning objectives by embedding climate science concepts within engaging problem-solving contexts. This approach transforms passive information consumption

into active knowledge construction while maintaining educational focus through immediate relevance to sustainability challenges (Gugerell et al., 2023; Costin et al., 2024).

Effectiveness

ZEITREISE was empirically evaluated through a pre–post comparison study involving 29 participants from diverse educational and professional contexts, including bachelor students in Business Informatics, teacher training programs, and professionals from various sectors. Findings revealed significant learning gains across all assessed domains. Only 50% of participants were initially familiar with the Sustainable Development Goals (SDGs), while 89% demonstrated improved understanding of climate action principles after gameplay. Knowledge acquisition was especially notable for specific content areas: 75% reported enhanced comprehension of the Paris Climate Agreement, and 72% indicated improved understanding of the greenhouse effect and sea-level rise. Measures of behavioural intention also reflected positive outcomes, with 72% expressing greater commitment to adopting environmentally responsible practices in everyday life. Although no long-term follow-up data have yet been collected, immediate post-assessment results suggest promising potential for lasting impact. Participants' open-ended responses demonstrated greater conceptual depth and accuracy. At the same time, 89% reported intent to share their climate knowledge with peers, an indicator of both sustained engagement and potential for knowledge diffusion.

ZEITREISE effectively balanced cognitive challenge and accessibility, fostering an immersive and enjoyable learning experience (Sánchez et al., 2023). Over 95% of participants encountered no comprehension difficulties, and 69% evaluated the puzzle complexity as appropriately challenging. The inclusion of diverse puzzle types (Lathwesen et al., 2024)—such as crosswords, gap-fill exercises, and interactive decision-making tasks—supported different learning preferences and maintained engagement. Overall, 97% rated the content as educational, and 72% perceived it as comprehensive yet manageable, confirming that the game achieved both pedagogical depth and flow-inducing design (Bilancini et al., 2023).

Potentially Problematic Aspects

The game content and design were carefully developed to avoid discrimination, stereotypes, and gender bias. No sensitive or potentially distressing topics such as suicide, depression, violence, drug use, sexual abuse, or eating disorders are addressed. The language is neutral and inclusive, and all information is scientifically verified and regularly reviewed for accuracy and timeliness. Ethical considerations guided the development process, ensuring accessibility and respect for diverse cultural backgrounds. The browser-based format eliminates physical risks, as no movement is required. The game is suitable for most audiences, though participants without sufficient English or German reading skills or without internet access may face limitations.

Reviewers: Saskia Sterzl, Johannes Katsarov

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