## Serious Games for Creativity and Social Cohesion in Teacher Education (EduGame)







Serious Games in Higher Education – from Gamification to Al

Judita Kasperiuniene judita [dot] kasperiuniene [at] vdu [dot] It





## Objectives of the seminar

#### Theoretical

- Introduce the concepts of serious games and gamification as innovative pedagogical tools for higher education.
- Explore how game mechanics can be aligned with educational objectives, ensuring meaningful learning experiences.
- Demonstrate practical examples and creation tools for designing serious games using accessible digital and AI-based platforms.

#### Practical

- Apply the Serious Game Design Conceptual Framework (SGDCF) focusing on learning, storytelling, gameplay, and user experience — to participants' own educational contexts.
- Engage participants in a hands-on workshop to collaboratively design a prototype of a serious educational game using tools like Miro and AI assistants.
- Encourage reflection on how serious games can promote creativity, social cohesion, inclusion, and digital literacy in teacher education.



## Serious games





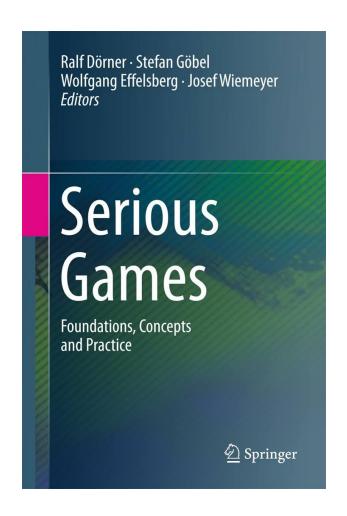


Serious games are games designed for a purpose beyond pure entertainment (Susi et al., 2007). They use the motivation levels of game design (competition, curiosity, collaboration, individual challenge) and game media (avatars and 3D immersion) to enhance the motivation of participants to engage in complex or boring tasks.



Serious games are used in a variety of professional situations such as education, training, assessment, recruitment, knowledge management, innovation and scientific research.

## Books on serious games

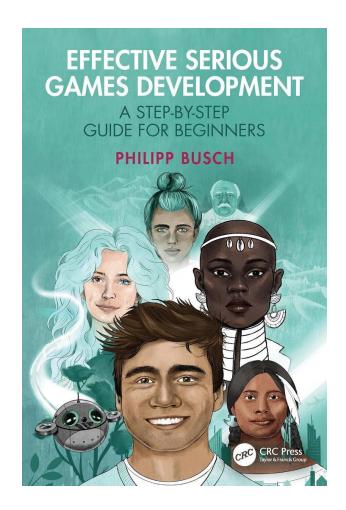


#### **Serious Games Cookbook**

A beginner's guide to using and designing serious games









## Balancing game mechanics with educational objectives

- > Avatars & Personalization. Allowing students to create avatars can foster engagement and ownership of their learning journey.
- Easter Eggs. Hidden elements can encourage exploration and deeper interaction with educational content.
- Goals: Clear learning objectives aligned with game mechanics ensure students understand the purpose of their activities.
- > Hints. Provide hints or scaffolding to help students overcome challenges and ensure progression in their learning.
- > Levels and Progression. Gradually increasing difficulty to challenge students at the right times, mirroring their learning curve.
- Medium and Genre. Selecting the right type of game (e.g., puzzle, simulation) to best match the subject matter and learning outcomes.
- Number of players. Design for single or multiplayer modes to encourage collaboration or individual reflection.
- Obfuscation. Strategically withholding information to encourage critical thinking and problem-solving.
- Randomness. Introducing variability in game outcomes to keep students engaged and ready for new challenges.
- Rewards and Achievements. Provide feedback through badges, points, or progress markers to encourage continued effort.
- Game Rules. Provide clear instructions and boundaries to ensure fair play and effective learning.
- > Skill, Strategy, and Chance. Balance skill-based challenges with strategy and elements of chance to accommodate diverse learners.
- > Timing. Structuring game sessions to fit into instructional schedules while maintaining momentum.
- > Tools. Using tools that complement the educational content, such as digital platforms or physical manipulatives.

# Most popular scenarios for educational games

#### **Role-Playing Simulations**

• Example. Medical students acting as doctors in virtual hospitals or law students participating in mock trials.

#### **Problem-solving and Puzzle Games**

•Science-based games where students solve foreign language, physics or chemistry puzzles.

#### **Adventure Quests**

•Students embark on virtual historical quests to learn about different time periods.

#### **Strategic Decision-Making Games**

•Business or economics students making strategic decisions to run virtual companies or cities.

#### **Collaborative Team-Based Games**

•Students work together to solve a crisis or complete a group project within the game.

#### **Quizzes and Trivia Games**

•Students participate in quiz battles where they answer questions based on their learning.

#### **Simulation of Real-World Processes**

• Environmental science students manage ecosystems, or urban planners design sustainable cities.



## Serious game creation tools

Serious Game Genre	Free and/or Open Source Tools	Licensed / Commercial Tools	
Role-Playing Simulations	Twine, Godot, Ren'Py, RPG Maker MV (free trial)	Unity, Unreal Engine, Classcraft	
Problem-Solving and Puzzle Games	GDevelop, Construct 3 (free tier), Scratch, Blockly Games	Unity, GameMaker Studio, Unreal Engine	
Adventure Quests	Twine, Ren'Py, Inklewriter, Adventure Game Studio  Unity, Articulate Storyline, Genially (Pr		
Strategic Decision-Making Games	Godot, GDevelop, NetLogo	Unity, SimCity EDU, Topia, Gamefroot	
Collaborative Team-Based Games	Mozilla Hubs, Roblox Studio	Gather.Town, Minecraft: Education Edition, Unity Multiplayer	
Quizzes and Trivia Games	Kahoot!, Quizizz, Wordwall, Educaplay	Blooket Premium, Mentimeter, ClassPoint	
Simulation of Real-World Processes	PhET Interactive Simulations, NetLogo, Tynker	Unity, SimCity EDU, Simul8, AnyLogic	

# How far can presentation tools go in serious game creation?

Serious Game Genre	Use of Genially / Canva / PowerPoint / Google Slides	Explanation
Role-Playing Simulations	△ Partially possible	Can be used to design <i>interactive storytelling</i> or <i>branching dialogue</i> activities (e.g., mock interviews or ethical dilemmas), but not full 3D or AI-driven simulations.
Problem-Solving and Puzzle Games	✓ Fully possible (simplified)	Great for logic puzzles, drag-and-drop tasks, or visual problemsolving challenges with feedback.
Adventure Quests	√ Fully possible (simplified)	Especially suitable for "escape room"—style educational quests or interactive stories using hyperlinks and visuals.
Strategic Decision-Making Games	△ Partially possible	Can represent <i>decision trees</i> and consequences in branching slides, but lacks data-based simulation or complex systems.
Collaborative Team-Based Games	△ Partially possible	Enables cooperative play via shared links or group discussions, but not real-time multiplayer collaboration.
Quizzes and Trivia Games	√ Fully possible	Perfect for quizzes, competitions, and rapid feedback activities integrated with scoring systems or slide interactivity.
Simulation of Real-World Processes	X Not suitable	These tools cannot simulate dynamic systems or real-time interactions—use Unity, PhET, or NetLogo instead.

## Serious Game Design Conceptual Framework (SGDCF)

- Based on four important game elements: Learning, Storytelling, Gameplay and User Experience
  - Learning refers to the content to be learned by players through the game with specific and measurable learning outcomes.
  - Storytelling refers to the background story of the game and includes a description of the character(s), the setting, and the ultimate goal of the game.
  - Gameplay refers to the way in which the player interacts with the game, or with other players (if a multiplayer game). It encapsulates the type of activity (e.g., puzzle, trivia, etc.) found in the game.
  - User Experience refers to the player's emotions and attitudes while playing the game, as well as how the player interacts with the game.



### Character Profile – Arta Dervishi

**Role:** Mentor / Secondary Protagonist

Age: 41

Origin: Tirana, Albania

Occupation: University Lecturer in Educational Technology

#### **Narrative Role**

Arta is the player's mentor and moral compass — a warm yet demanding university lecturer who guides young educators and researchers on their journey to design meaningful, human-centered learning experiences. She appears throughout the story as both a source of wisdom and a reminder that change in education requires courage, collaboration, and heart.

#### **Personality**

**Visionary:** Arta dreams of transforming higher education in the Balkans through creativity and digital innovation.

**Empathetic but Honest:** She genuinely cares about her students but doesn't sugarcoat the truth. Her feedback is sharp yet constructive.

**Philosophical:** Often quotes Albanian proverbs or educational thinkers, connecting modern ideas with cultural roots.

Playful: Despite her seriousness, she loves humor, irony, and small pranks that make learning fun.

**Reflective:** Frequently pauses to question whether technology truly serves people — or the other way around.

#### Catchphrases

"If the system won't change, then we must start the game."

"Technology without empathy is just noise."

"Every challenge is a lesson — but only if you dare to look."



Title: The Ant and the Algorithm

Genre: Educational / Inspirational Visual Novel

Setting: Modern university classroom in Tirana, filled with sunlight, laptops, and curious students from

different disciplines.

#### Scene 1: Morning in the Innovation Lab

• The screen fades in to the warm glow of morning light. Students gather around computers, their chatter fading as Arta enters, carrying a laptop and a cup of herbal tea.

#### Scene 2: Interactive Task

Player choice appears:

[Choice A] "Ask Arta to demonstrate an AI writing assistant."

[Choice B] "Ask how AI can support student creativity."

[Choice C] "Ask whether AI is ethical in education."

Each branch unlocks a short dialogue with examples of real AI tools:

A: Arta demonstrates ChatGPT for brainstorming and reflection writing.

B: Arta introduces tools like Canva Magic Studio and Pika for creative storytelling.

**C:** Arta guides a discussion about bias, ethics, and transparency in Al-generated work.

#### Scene 3: Late Evening in the Office

• The classroom is empty. Arta stays behind, still working — glowing computer screens, stacks of papers, and her calm determination fill the room.







#### Maracter: Professor Elira

• Name: Elira Dervishi

• Age: Around 42

• Specialization: Educational Technology and Ethics

#### · Personality:

- Empathetic and patient, yet has unshakable principles.
- Believes that real learning happens when students struggle and find their own way out.
- Passionate about innovation, but skeptical of trends that lack substance.
- Uses subtle irony and intelligent humor to keep her students alert.
- Her calm presence hides a sharp analytical mind; she always sees the puzzle beneath the surface.

#### Appearance:

- Wears elegant but practical clothes neutral colors with a bold accent (like a red scarf or digital brooch).
- Often carries a tablet covered in cryptic sticky notes and a mug labeled "Decrypt your thoughts."
- Her classroom resembles a modern lab mixed with an escape room cables, sensors, screens, and coded clues everywhere.

#### Catchphrases:

- "Freedom starts with critical thinking."
- "If you can decode this, you deserve an A."
- "Every puzzle hides an ethical choice."

#### • Role in Escape Academy-style world:

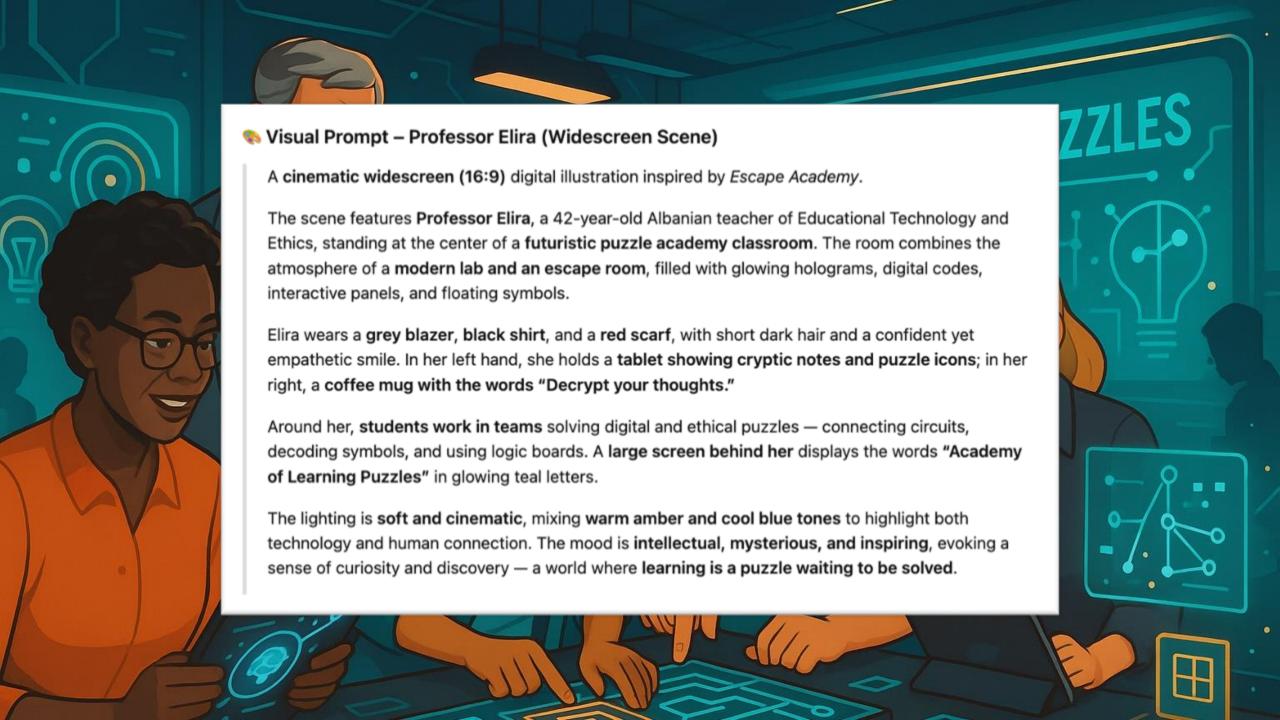
Professor Elira is a leading mentor at the **Academy of Learning Puzzles**, where she runs the *AI Ethics Wing*.

Her students are challenged to escape from simulated moral paradoxes — corrupted algorithms, privacy mazes, and bias loops.

Elira never gives direct answers. Instead, she leaves fragments of wisdom scattered across the room — in digital screens, reflections, and even her jokes.

Those who complete her challenges leave not only smarter but more self-aware.





Al tools for digital stories and serious games

 Scenario, texts, learning materials -ChatGPT, Gemini, Copilot, Storybird

 Image, scene and background generation - Midjourney, Leonardo, Firefly, Nano Banana, CanvaAl

 Characters (2D, 3D) - rodin.ai, copilot 3D, artguru

https://kripeshadwani.com/free-aiart-generators/

 Video creation - synthesia, dream machine (luma AI), CanvaAI

• Synthetic voice - elevenlabs



## Comics creation tools









ComicsMaker.ai Aicomicfactory



PRICIN

MY STORYBOARDS

LOGIN



Powerful Visual Communication, Made Easy

CREATE A STORYBOARD →



Gaming environments, characters and comics strips without Al













Create your own at Storyboard That



LOG IN FRANÇAIS ESPAÑOL



Darbo su Pixton komiksų kūrimo įrankiu mokomieji filmukai (anglų kalba, pačiame įrankyje) arba youtube video <a href="https://youtu.be/gTCI0H87x84">https://youtu.be/gTCI0H87x84</a>





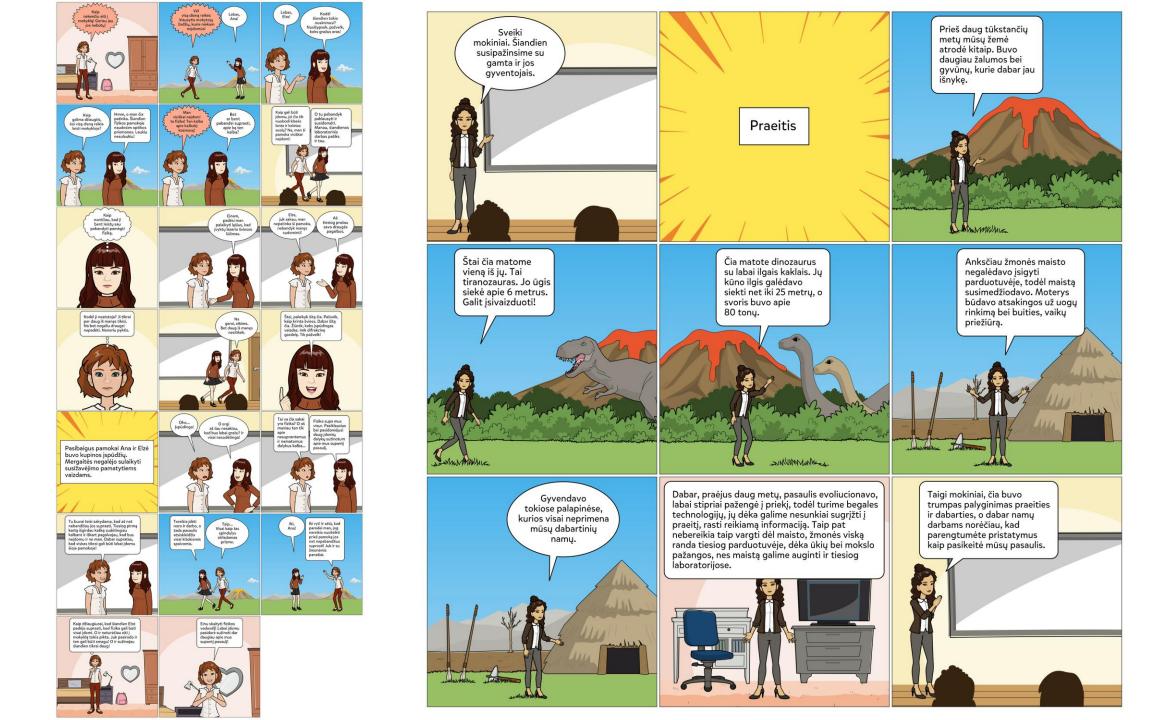




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## Pixton Add-ins





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#### WELCOME BACK TO YOUR CLASSROOM!

HERE ARE SOME OF OUR NEW FEATURES FROM MAKEBELIEFSCOMIX FOR THE FALL OF 2022. HAVE FUN!







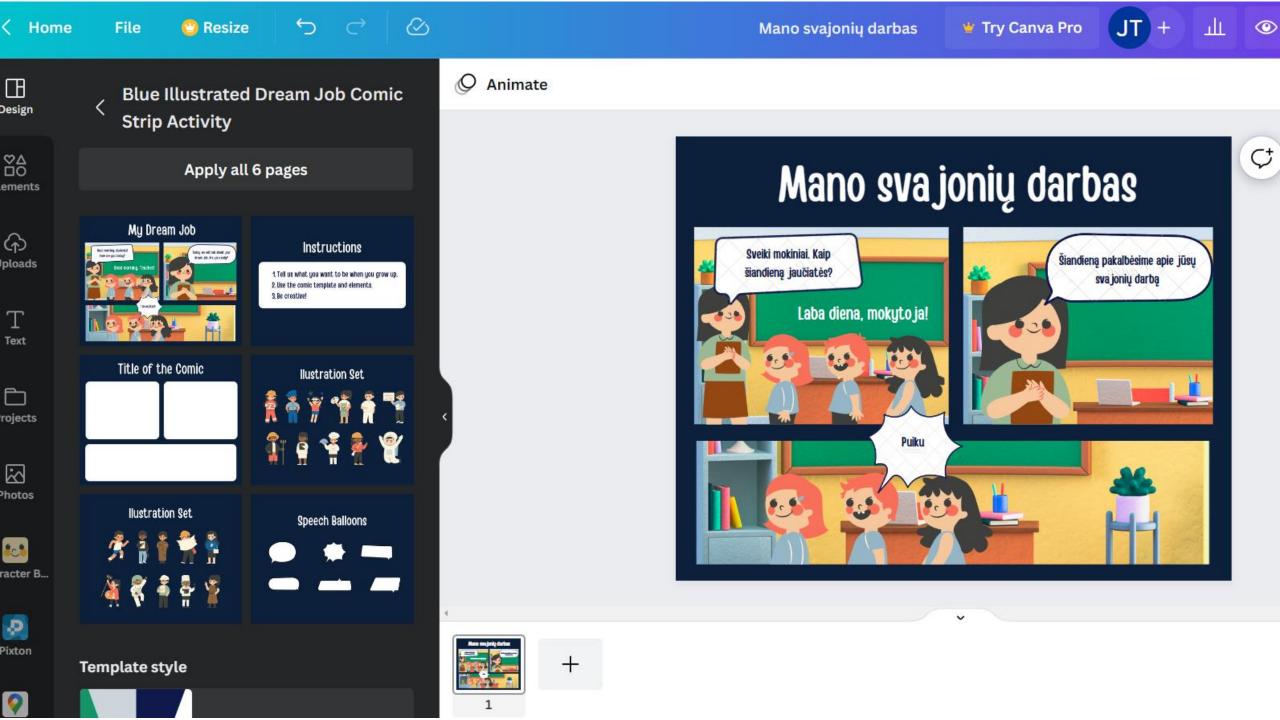


**FUNSTER!** 



HAVE MORE CREATIVE FUN WHEN YOU ADD OUR NEW SOCK PUPPETS TO YOUR COMIC PANELS!

To Our Educators and Comic Creator Community: If you're looking for a constructive way to discuss the war in Ukraine and the need for peace, please look upon MakeBeliefsComix.com as a useful resource for young people to create stories about what is going on in Ukraine and Russia. Send us your comics about the war for our Comix Gallery to: billz@makebeliefscomix.com YOU CAN ALSO WRITE DIRECTLY INTO OUR INTERACTIVE PDFs ON CURRENT EVENTS BELOW!





# Examples to inspire

### Examples of comics



Darbą atliko : III kurso specialiosios pedagoginės pagalbos studentė Miglė Kulikauskaitė



Aleksas mėgsta leisti laiką su draugais. Mokykloje Aleksas mėgsta žaisti žaidimus ir kalbėtis su visais. Tačiau kartais Aleksas nežino, kaip arti stovėti kalbant su draugais







Vieną dieną Aleksas kalbėjosi su Simu per pertrauką. Aleksas stovėjo labai arti Simo, apie tai negalvodamas. Simas atrodė kiek nejaukiai, bet Aleksas to nepastebėjo.







Kitą dieną Aleksas tai praktikavo per pertrauką. Aleksas pamatė keletą draugų ir nuėjo pasikalbėti. Šį kartą Aleksas prisiminė sustoti per ranką. Aleksas patikrino jų draugų veidus, kad pastebėtų, kaip jie jaučiasi.

## SKIRTINGOS STIPRYBĖS

ypatingą užduotį! Kiekviena komanda sukurs "Draugystės plakatą". Jūs visi turite skirtingas stiprybes, todėl labai svarbu dirbti kartu.



Bet man sunku ilgai susikaupti... Kaip aš galiu padėti komandai?

galėsiu atlikti viską, kas reikalinga... Mano rankos kartais nesiklauso dėl mano

nesuprantu, ka kiti nori man pasakyti? Aš geriau dirbu

MIKAS



Nesijaudinkite, jūs visi turite ypatingų gebėjimų. Dirbdami kartu, galėsite padėti vienas kitam. Būkite komanda ir įveiksite bet kokius sunkumus.

ŠYPSODAMASI MOKYTOJA LINA PRIĖJUSI PRIE VAIKŲ



JONAS (RAMUS,

BET SUSIRUPINES)

Aš padėsiu išdėlioti visas medžiagas! Man patinka organizuoti dalykus, bet... kai reikia rašyti, man sunku.

Aš galiu piešti! Man patinka spalvos ir formos! Tik... sunku ilgai susikaupti.

LUKA

(ABEJOJANTI)

LUKA (DŽIUGIAI): Mes įveiksime tai kartu! Tai bus taip smagu!

VISI SUMUŠA RANKOMIS



Jūs darote puikų

darba! Bet atminkite -

turite remtis vienas

kito stiprybėmis.

JONAS (ŽIŪRĖDAMAS Į PIEŠINĮ):

Oi... Ar mano piešiniai ne per paprasti? Gal jie nėra tokie gražūs...

LUKA (RAMINDAMA) Jonai, tavo piešiniai yra nuostabūs! Be jų mūsų plakatas nebūtų toks gyvas!

MIKAS (TVIRTAI) Viskas gerai išdėstyta. Dabar viskas turi savo vietą, kaip ir planavome.

Kiekvienas iš jūsų turi ypatingų gebėjimų, ir kai jie susijungia, galite padaryti stebuklus. - Aš didžiuojuosi iumis visais! Jūs tikrai stipri komanda

JONAS (DŽIUGIAI) Tikrai! Kartu galime padaryti daugiau nei

MOKYTOJA LINA PRIĖJUSI PRIE VAIKŲ



VISA KOMANDA VERTINA SAVO DARBA



LUKA (PRITARDAMA) Taip, draugai visada padeda vieni kitiems.

> VISI LAIMIMGI SYPSOSI

## Katino Pūkio darbo paieška







Jonas jau 10 valandų dirba prie savo projekto



Kai staiga prieblandoje išvydo keistą figūrą



Nusprendęs patikrinti, žvilgtelėjo pro langą ir išvydo, jog tokių figūrų jo kieme yra ne viena



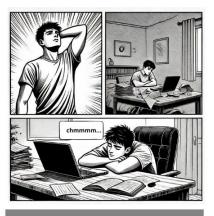
Pajutęs pavojų, Jonas ėmė bėgti iš namų, bet netrukus suprato, kad viena iš figūrų jį vejasi



Bėgdamas atsidūrė jam nematytoje vietoje ir aptiko paminklą, prie kurio buvo dar daugiau jau pažįstamų keistų figūrų



Priėjęs arčiau, Jonas palietė paminklą ir staiga viskas aplink jį pradėjo suktis



Jonas atsimerkia savo kambaryje, vis dar sėdėdamas prie darbo stalo.



Supratęs, kad nuovargis sukūrė šį keistą sapną, Jonas vėl užsnūsta darbo kėdėje

## Examples of serious games



























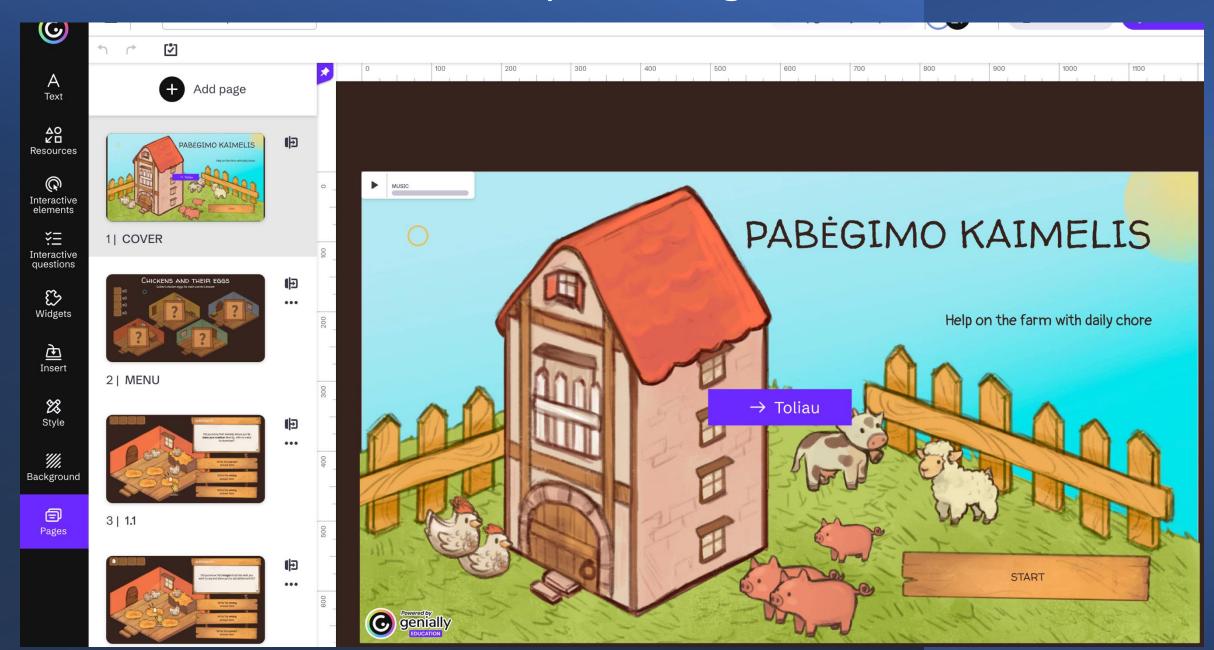








## Escape room games





Miro board for group activity

QR CODE

# Let's design your serious game!

WEDNESDAY GROUP

Workshop slides





## References

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