



# GreenScape

**UNLOCKING YOUTH CIVIC ENGAGEMENT FOR  
A SUSTAINABLE FUTURE - GREENSCAPE**

**EXTENSIVE LITERATURE REVIEW REPORT  
(WP2)**

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## TABLE OF CONTENT

1. Introduction .....	4
2. Evaluation .....	4
2.1 Czech Republic .....	4
2. 1. 1. Key Documents Reviewed .....	4
2. 1. 2. Main Insights & Highlights .....	4
2. 1. 3. Relevance for an Escape Room Experience .....	4
2.2 Greece .....	5
2. 2. 1. Key Documents Reviewed .....	5
2. 2. 2. Main Insights & Highlights .....	5
2. 2. 3. Relevance for an Escape Room Experience .....	5
2.3 Spain .....	5
2. 3. 1. Key Documents Reviewed .....	5
2. 3. 2. Main Insights & Highlights .....	5
2. 3. 3. Relevance for an Escape Room Experience .....	6
2.4 Finland .....	6
2. 4. 1. Key Documents Reviewed .....	6
2. 4. 2. Main Insights & Highlights .....	6
2. 4. 3. Relevance for an Escape Room Experience .....	7
2.5 Bulgaria .....	7
2. 5. 1. Key Documents Reviewed .....	7
2. 5. 2. Main Insights & Highlights .....	7
2. 5. 3. Relevance for an Escape Room Experience .....	8
3. Cross-Country Synthesis .....	8
3.1. Effectiveness of Gamification & Escape Rooms .....	8
3.2. Culture and Context Matter .....	8
3.3. Environmental Awareness & Youth Engagement .....	8
3.4. Inclusive and Constructivist Pedagogy .....	8
3.5. Challenges .....	8
4. Recommendations .....	9
4.1. Culturally Responsive Design .....	9



4.2. Integrate Real-World Sustainability Challenges .....	9
4.3. Balance Competitive and Collaborative Elements .....	9
4.4. Invest in Educator Training .....	9
4.5. Monitor and Evaluate .....	9
4.6. Ensure Accessibility and Inclusivity .....	9
5. Conclusion .....	10



## 1. Introduction

This study evaluates the main points of the literature review of the five partner countries. The main aim of this study is to illuminate how gamification, environmental awareness, youth engagement, and innovative pedagogical methods intersect in five different countries. Ultimately, these insights will support the design and implementation of a virtual escape room (or similar gamified experiences) that fosters sustainability education, youth participation in civic processes, and problem-solving skills.

## 2. Evaluation

### 2.1 Czech Republic

#### 2.1.1. Key Documents Reviewed

- *Digital Escape Game as an Innovative Form of Teaching (2022)*
- *Environmental Education as a Cross-Curricular Theme (2017)*
- *Conclusions of the Council on the Social Dimension of a Sustainable Europe for Youth (2023)*

#### 2.1.2. Main Insights & Highlights

- **Use of digital escape games**
  - Demonstrated as an engaging strategy to motivate students and boost problem-solving, collaboration, and analytical skills.
  - Different forms (motivation, expository, fixation, verification) can be adapted to address sustainability topics.
- **Environmental education in schools**
  - Must go beyond simple “knowledge transfer,” foster critical thinking and real-life problem-solving approaches.
  - Simulations and role-playing—similar to immersive escape rooms—can increase engagement with sustainability issues.
- **Linking youth to policy**
  - Calls for greater inclusion of youth in decision-making related to environmental and climate policies.
  - Emphasizes the role of youth as “agents of change” within the European Green Deal and 2030 Agenda frameworks.

#### 2.1.3. Relevance for an Escape Room Experience

- Highly supports the notion of hands-on, immersive gamified education.
- Encourages addressing real-world environmental challenges through collaborative puzzles that reflect local contexts and EU-level climate goals.
- Suggests designing tasks that empower youth to negotiate policies, evaluate solutions, and articulate positions on climate issues.



## 2.2 Greece

### 2.2.1. Key Documents Reviewed

- *Gamification in Education: A Systematic Review of the Literature (2017)*
- *Inclusion Classes in Greek Education: Political and Social Articulations (2024)*
- *COP29: What Was Achieved and What Remains to Be Done (2024)*
- *How to Teach Climate Change So 15-Year-Olds Can Act (2024)*

### 2.2.2. Main Insights & Highlights

- **Systematic Review of Gamification**
  - Gamified learning strategies (points, badges, leaderboards) significantly enhance motivation but must be adapted to learner profiles (intrinsic vs. extrinsic motivation balance).
  - Goal clarity, progress tracking, and narrative integration are crucial for success.
- **Inclusion in Greek Education**
  - Inclusive classrooms face structural and attitudinal barriers.
  - Emphasizes empathy, flexibility, and an institutional shift toward social/rights-based approaches—important considerations when designing inclusive puzzles or content.
- **European Youth Goals & COP29**
  - Highlights the increasing role of youth delegates and activists in shaping climate policy.
  - Offers a blueprint for tasks that simulate climate negotiations, resource allocation, or policy debates within an escape room context.
- **Teaching Climate Change to 15-Year-Olds**
  - Encourages critical thinking to distinguish factual climate data from misinformation.
  - Argues for interactive, hands-on approaches (e.g., project-based or gamified activities), equipping youth with the decision-making skills to confront real-world environmental dilemmas.

### 2.2.3. Relevance for an Escape Room Experience

- Competition vs. Collaboration: Must balance leaderboard features (competitive) with puzzle-solving tasks requiring teamwork.
- Inclusive Design: Must consider diverse needs, ensuring tasks are accessible and collaborative.
- Climate-Focused Narrative: Potential for role-playing as youth delegates or policymakers, reflecting Greek experiences with environmental policy.

## 2.3 Spain

### 2.3.1. Key Documents Reviewed

- *Gamification as an Alternative to Increase Students' Motivation: A Scoping Review (2024)*
- *Enhancing Business School Engagement through a Gamified Experience (2024)*
- *Using Product, Processes, and Gamification to Motivate Users for Positive Habit Formation (2022)*

### 2.3.2. Main Insights & Highlights



- **Mixed Outcomes in Gamification**
  - Reviews show mostly positive impacts on motivation, yet some elements like points/leaderboards can harm intrinsic motivation if overemphasized.
  - Critical to identify which specific game mechanics truly foster sustained engagement.
- **Human-Centred Design**
  - From a case study with MBA students, gamification can overcome initial resistance if the system is efficient, goal-oriented, and tailored to user preferences.
  - Immediate feedback, intuitive design, and alignment with participants' objectives (e.g., personal, professional, or environmental) are essential.
- **Habit Formation & Positive Behaviours**
  - Demonstrates how combining gamification and supportive tools (hardware or software prompts) can influence lasting habit change.
  - Emphasizes external triggers, user rewards, and data analytics to maintain engagement.

### 2. 3. 3. Relevance for an Escape Room Experience

- **Player-Centric Approach:** Adapt puzzle difficulty and feedback loops to varying skill levels.
- **Efficiency & Clarity:** Provide fast onboarding; too much complexity or unclear instructions can lead to user frustration.
- **Promoting Sustainable Habits:** The experience can reward environmentally responsible choices (e.g., sorting waste in a puzzle or adopting “green” policies in a simulated scenario).

## 2.4 Finland

### 2. 4. 1. Key Documents Reviewed

- *Climate Change Education through Gamification: Escape Room as an Educational Tool (2023)*
- *Environmental Education in Finland: A Case Study of Environmental Education in Nature Schools (2009)*
- *Implementation of Digital and Physical Learning Environment to 21st Century Skills – Case Escape Room in the University of Eastern Finland (2021)*

### 2. 4. 2. Main Insights & Highlights

- **Escape Rooms & Teacher Training**
  - Using escape rooms to train pre-service teachers fosters reflection, consensus decision-making, and climate change awareness.
  - Students demonstrate increased creativity, collaboration, and willingness to address complex issues within a gamified context.
- **Environmental Education & Nature Schools**
  - Centred on immersive, hands-on learning, underscoring the importance of real-life applications and active engagement.
  - Emphasizes a constructivist approach: teachers guide, but learners build their own understanding—mirrored by puzzle-based escape room design.
- **21st-Century Skills in a Finnish Context**



- Essential for bridging technology, coding, and subject integration.
- The “Sm4rt LOC” pilot found that well-designed puzzle-based experiences can enhance collaboration, problem-solving, leadership, and curiosity.

#### 2. 4. 3. Relevance for an Escape Room Experience

- Consensus & Reflection: Incorporate tasks that require group discussion and decision-making, mirroring Finland’s emphasis on communal learning.
- Nature-Oriented Themes: Real-life environmental challenges (e.g., forest management, recycling) can be embedded as puzzles.
- Constructivist Pedagogy: Provide minimal guidance so that learners collaboratively discover solutions, fostering deeper cognitive engagement.

### 2.5 Bulgaria

#### 2. 5. 1. Key Documents Reviewed

- *Gamification in the Field of Education, Culture, and Tourism: Cases from Bulgaria (2023)*
- *Reflections on the Relation Between National Cultures and Innovations in Education – The Case of Bulgaria (2016)*
- *Analysis of the Participation of Young People in Decision-Making Processes in Bulgaria and the EU (2022)*
- *Sustainability and Green Initiatives in Bulgaria (2023)*

#### 2. 5. 2. Main Insights & Highlights

- **Growing Interest in Gamification**
  - Bulgarian research on gamification remains limited but is expanding, particularly in education, marketing, and tourism.
  - Key reasons for adoption include ease of perception, quick user engagement, and the potential for digital integration.
- **Cultural Dimensions Affecting Innovation**
  - High uncertainty avoidance and power distance can block the swift adoption of novel teaching methods (e.g., escape rooms)
  - Collectivist tendencies can foster group loyalty, though it sometimes manifests in unproductive classroom behaviours (e.g., cheating).
  - Teachers and learners may be slower to embrace new pedagogies unless trust and clarity are established.
- **Youth Participation & Green Solutions**
  - The government recognizes the need to engage young people in “green” decision-making processes but struggles with low youth motivation or lack of structured platforms.
  - Emphasizes volunteer activities, civic education, and legal frameworks to formalize youth involvement in sustainability.
- **Environmental Awareness & Education**
  - Partnerships between NGOs, schools, and the public sector are key to raising sustainability awareness.



- Emphasizes that hands-on, interactive methods can help shift attitudes and practices in communities.

### 2. 5. 3. Relevance for an Escape Room Experience

- Culturally Sensitive Design: Provide clear instructions and scaffolding to reduce uncertainty avoidance.
- Group Cohesion: Spread collectivist values positively by creating cooperative team challenges.
- Local Context: Incorporate Bulgarian examples of “green” initiatives and highlight real issues to drive relevance and community involvement.

## 3. Cross-Country Synthesis

Bringing these country-specific findings together, several common threads emerge:

### 3.1. Effectiveness of Gamification & Escape Rooms

Across all countries, properly tailored game mechanics consistently enhance motivation, engagement, and learning outcomes. Digital or physical escape rooms can reinforce critical thinking, collaboration, and problem-solving.

### 3.2. Culture and Context Matter

Cultural attitudes toward hierarchy, uncertainty, and collective vs. individual goals significantly influence how gamification is perceived and adopted. Designing an escape room for diverse groups requires sensitivity to these cultural nuances.

### 3.3. Environmental Awareness & Youth Engagement

All countries emphasize the need to integrate sustainability education, real-life environmental challenges, and youth participation in policy discussions. An escape room can simulate decision-making processes around climate action, linking local context to global frameworks (e.g., European Green Deal, COP agreements).

### 3.4. Inclusive and Constructivist Pedagogy

Many studies highlight the importance of active, learner-centered pedagogies. Escape rooms provide a scenario where participants construct their own understanding by solving puzzles, exploring roles, and collaborating under time pressure.

### 3.5. Challenges

- Over-reliance on extrinsic motivation can hinder long-term behavioural changes.
- Teacher training and institutional support are crucial for sustaining innovative methods (Finland’s teacher-prep approach is a strong model).
- In contexts like Bulgaria or Greece, strong top-down hierarchies and limited resources can delay adoption, calling for strategic planning and clear educational policies.



## 4. Recommendations

Based on the aggregated insights, the following steps are advised when designing and implementing a gamified escape room experience focused on sustainability and youth engagement:

### 4.1. Culturally Responsive Design

- In contexts with high uncertainty avoidance, provide clear instructions, built-in hints, and well-structured tasks to reduce anxiety around new methods.
- In collectivist settings, emphasize cooperative puzzles that build group solidarity.

### 4.2. Integrate Real-World Sustainability Challenges

- Incorporate puzzles that mirror local environmental concerns, policy decisions, or climate negotiations.
- Link tasks explicitly to overarching frameworks like the European Green Deal or the UN 2030 Agenda to reinforce authenticity.

### 4.3. Balance Competitive and Collaborative Elements

- While leaderboards can boost engagement, ensure that the overall structure rewards collaboration, problem-solving, and reflection—key for building consensus around environmental issues.

### 4.4. Invest in Educator Training

- Provide scaffolding for teachers, social workers, or facilitators, especially in regions where novel pedagogy adoption is slow.
- Offer clear guidelines, best practices, and technology support to help them manage gamified learning environments.

### 4.5. Monitor and Evaluate

- Use both quantitative (score tracking, completion rates) and qualitative (feedback on teamwork, reflective discussions) metrics to assess effectiveness.
- Collect longitudinal data to see if short-term engagement leads to real changes in attitudes or behaviours toward sustainability.

### 4.6. Ensure Accessibility and Inclusivity

- Address diverse abilities and backgrounds by designing puzzles with multiple solution pathways, tiered difficulty levels, or language-friendly instructions.
- Consider special needs so that the experience remains open to the widest possible audience of youth.



## 5. Conclusion

The five national perspectives (Czech Republic, Greece, Spain, Finland, and Bulgaria) share a key theme: gamified experiences—particularly escape rooms—offer strong potential to heighten engagement, reinforce learning, and foster sustainability-oriented skills among youth. Whether examining how pre-service teachers in Finland tackle climate change discussions via escape rooms, or understanding the cultural barriers in Bulgaria’s educational system, the unifying observation is that active, collaborative, and context-rich approaches energize learners far more than traditional didactic methods.

Moving forward, effective implementation depends on understanding cultural contexts, balancing motivational elements, and embedding real-world environmental challenges. These elements form the blueprint for any ambitious project seeking to harness game-based learning to educate, inspire, and empower Europe’s youth for a more sustainable and inclusive future.