ESC4SDG

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Case Study

ESC4SDG Project

Escape Games and Gamified Challenges for Sustainable Development Goals

Erasmus+ KA220-SCH | Project No 2025-1-LT01-KA220-SCH-000356191

0. Case details

Title of the escape room	Týnd í Danmörku (Lost in Denmark / Forsvundet i Danmark)
Country	Víkurskóli, Vík, Iceland
Subject(s)	Danish as a Foreign Language (Elective Class) & Cultural Studies / Sustainable Development Goals (SDG 4 & SDG 17)
Grade / age group	10th Grade / 10. bekkur (15–16 years old)
Number of students	20–24 students (4 groups of 5–6 students each)
SDG addressed	SDG 4 – Quality Education & SDG 17 – Partnerships for the Goals

1. Pedagogical purpose

Subject and curricular unit / content	Danish as a Foreign Language (Elective Class) – Introductory unit at the beginning of the school year focusing on general knowledge about Denmark, Danish vocabulary, geography, reading comprehension, media literacy, and cross-border investigation/communication.
Learning outcomes (2–3, observable)	1. Apply receptive reading comprehension skills in Danish and Nordic context clues to solve linguistic and geographical puzzles under time constraints. 2. Demonstrate collaborative teamwork and effective communication in Danish/Nordic contexts using digital tools (iPad/QR scanning, blacklight inspection) and physical locks. 3. Analyze cross-cultural connections and international cooperation mechanisms (Icelandic-Danish police & embassy partnership) in alignment with global citizenship.
Key competences	• Multilingual competence (Danish reading, vocabulary decoding, listening, and translation) • Personal, social and learning to learn competence (cooperative problem-solving, role sharing in 5-6 student teams) • Digital competence (QR code scanning, digital clue verification using iPads) • Cultural awareness, expression and global citizenship competence (Nordic cooperation)

2. SDG and playable problem

SDG chosen	SDG 4 (Quality Education) & SDG 17 (Partnerships for the Goals)

Specific SDG target	Target 4.4 – Substantially increase the number of youth who have relevant skills for employment and global citizenship; Target 17.16 – Enhance global partnerships and cross-border cooperation to share knowledge and solve complex challenges.
Problem presented to students	An Icelandic couple travelling in Denmark has mysteriously vanished in Copenhagen. The Danish police have requested assistance from Icelandic authorities. As investigators from the Icelandic Police Department, your team must analyze clues left in the couple's hotel room to locate them.
Curricular justification	Directly fulfills the Icelandic National Curriculum (Aðalnámskrá grunnskóla) objectives for Nordic language learning (Danish elective) by using real-world narrative immersion, authentic language puzzles, digital QR tools, and collaborative investigation to spark student motivation at the start of the school year.

3. Narrative and structure · MOOC Task 3

Students' mission	Investigate the missing couple's hotel room, uncover UV blacklight clues, scan hidden QR codes, and open four distinct locks (Word lock, 3-Digit lock, 4-Digit lock, and Directional lock) on the Breakout EDU box within 30 minutes to find the missing couple's message ('Det lykkedes').
Students' role	Investigators from the Research Department of the Icelandic Police (*rannsóknardeild lögreglunnar á Íslandi*) deployed on an emergency mission to Copenhagen.
Narrative context	A hotel room in Copenhagen, Denmark, containing forgotten newspapers, clues hidden on the Danish flag, UV blacklight tools, and locked boxes.
Opening story (max. 10 lines)	"Et islandsk par, der har været på rejse i Danmark, er forsvundet, og det danske politi har bedt de islandske myndigheder om hjælp. Den islandske ambassade i København sender derfor en anmodning til politiet på Island om at bistå i sagen. I arbejder i efterforskningsafdelingen hos det islandske politi og tager et fly til København for at hjælpe med eftersøgningen. Under flyvet læser I en artikel om sagen i Fréttablaðið og beslutter jer for at tage avisen med, når I lander. I tager direkte til parrets hotelværelse og arbejder der ud fra de spor, der kan findes på stedet."
Type of structure	Pyramidal / Hybrid Lock-Box Structure: Solving clue 1 (Word lock: 'HOTEL') unlocks the small box containing the UV blacklight torch and hidden QR code. These tools then allow teams to decode the 3-Digit (957), 4-Digit (7820), and Directional (← → → ↑ ↑) locks on the main Breakout box.
Final goal of the game	Unlock all 4 locks on the main Breakout EDU chest to retrieve the victory message ('Det lykkedes!') and the secret letter from the missing couple, completing the investigation.

4. Challenges and cognitive progression

At least three challenges, from basic to high cognitive level (Bloom's taxonomy). Add rows if needed.

Challenge / level	Description	Learning evidence	Planned hint	Solution
1. Basic (remember / understand)	Stage 1: Hotel Room Identification & Word Lock • Analyze newspaper clues and initial Danish text to identify the location key word ('HOTEL').	Correct identification and spelling of the 5-letter Danish/English word 'HOTEL'.	Look closely at the accommodation details mentioned in the opening case file.	ABC / Word Lock solution: H-O-T-E-L (Unlocks small box containing UV flashlight & QR code)
2. Intermediate (apply / analyse)	Stage 2: UV Blacklight Inspection & Digital Scanning • Use UV light on the Danish flag to reveal written numbers in Danish ('NÍ FIM SYV' / 9 5 7). • Scan the hidden QR code under the small box using the iPad to access digital clues for the 4-digit lock.	Translation of written Danish numbers ('NI FEM SYV' -> 9-5-7) and execution of digital QR challenge.	Inspect the national symbol under ultraviolet light; read the written Danish numbers carefully.	3-Digit Lock: 9 5 7 4-Digit Lock: 7 8 2 0
3. High (evaluate / create)	Stage 3: Spatial Navigation & Directional Synthesis • Synthesize geographic/spatial directions across Copenhagen map clues to determine the 5-directional movement sequence.	Correct spatial reasoning and directional sequencing to open the final master lock.	Follow the path of the missing couple across the map from left to right and northwards.	Directional Lock: ← → → ↑ ↑ (Unlocks main Breakout EDU box containing 'Det lykkedes!')

5. Assessment and inclusion

Mini-rubric (3 observable criteria × 3 performance levels)

Criterion	Developing	Achieved	Excellent
1. Danish Language Comprehension & Vocabulary	Struggles to interpret basic Danish clues or written numbers ('NI FEM SYV'); relies on translation.	Correctly translates Danish terms and written numbers with minor peer prompting.	Flawlessly comprehends Danish texts, decodes language clues independently, and uses target vocabulary.
2. Digital & Investigative Problem Solving	Has difficulty operating QR tools or connecting physical UV tools to puzzle locks.	Successfully scans QR codes, uses UV tools, and inputs lock codes in logical order.	Efficiently coordinates physical and digital tools, demonstrating systematic problem-solving logic.

Criterion	Developing	Achieved	Excellent
3. Teamwork & Role Execution	Displays passive participation or lets one student control all locks and devices.	Actively participates within the group of 5-6, sharing equipment and ideas.	Promotes active collaboration, ensures equal participation across roles, and leads effective team communication.

Self-assessment mechanism	Exit ticket & Danish reflection debrief: Teams answer 'Which Danish word or number clue was most critical?' and rate their group collaboration and problem-solving strategy.
Inclusive adaptations (UDL) – at least 2	1. Multi-modal information representation: Combines physical props (Danish flag, UV light, locks), printed newspaper text, visual maps, and digital QR media on iPads to support diverse learning styles. 2. Role-based cooperative structure: Teams of 5–6 allow clear task differentiation (e.g., Reader/Translator, UV Operator, iPad/QR Specialist, Lock Master, Scribe) ensuring all students contribute according to their strengths.

6. Implementation in the classroom

Implementation	• Sessions: 1 session (45–50 minutes total: 5 min Briefing/Story, 30 min Breakout Game, 10–15 min Debrief). • Grouping: Teams of 5–6 students in the 10th-grade Danish elective class. • Materials: Breakout EDU kit (large box, small box, ABC lock, 3-digit lock, 4-digit lock, directional lock, hasp), UV blacklight pen/light, Danish flag, printed newspaper article, iPad per team, scratch paper & pencils. • Role of Teacher: Game Master, storyline narrator, timekeeper, facilitator.
Difficulties	Managing excitement and noise levels during high-pressure lock opening; ensuring larger groups of 5–6 maintain equal involvement without 1–2 dominant students taking over.
Areas for improvement	Add optional digital extension activities (e.g., writing a short follow-up police report in Danish) and introduce secondary clue sets for groups that break out very quickly.

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