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INTERACTIVE LEARNING: THE EARTHQUAKE EMERGENCY KIT GAME FOR CHILDREN AGED 9-11

Abstract. Turkey has been the site of devastating earthquakes. According to study conducted in 2010, the probability of a severe earthquake in Istanbul in the next 30 years is approximately 40%. Unfortunately, 72.1% of Istanbul residents do not have an earthquake survival bag. In response to this issue, I am conducting a research project "Interactive Learning: The Earthquake Emergency Kit Game."

This game, developed using the GDevelop software, will allow elementary school students to explore a virtual home and select items for an emergency kit. Correctly chosen items will be highlighted with explanations of their usefulness. Upon completing the game, students will assess the completeness of their emergency kit. A week later, a survey will evaluate whether they managed to prepare survival kits at home, either independently or with parental assistance.

Keywords: serious games; gamified learning; game design; disaster education

INTRODUCTION

Turkey is particularly vulnerable to seismic activity due to its location on the border between the Anatolian, Eurasian, and African plates. Earthquakes provide serious obstacles to the nation's economy, infrastructure, and general well-being.

Probabilistic seismic hazard analysis (PSHA), which considers historical seismicity, fault distribution, and ground motion characteristics, is used to evaluate the seismic hazard in Turkey. The locations with the greatest seismic risk are indicated by these evaluations, and they include crowded cities like Istanbul, Izmir, and Ankara. Turkey's socioeconomic susceptibility is a significant determinant of the effects of earthquakes, in addition to geological

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reasons. Seismic occurrences pose greater danger due to rapid urbanisation, informal construction methods, lax building rules, and dense population.

Istanbul's vulnerability to earthquakes and tsunamis is caused by its high population density and lack of earthquake preparedness, particularly among school students in unsafe buildings (Ersoy and Koçak, 2016). Istanbul is specifically highlighted due to its status as Turkey's largest city, both in terms of population and economic significance. Its high seismic risk, combined with dense urban infrastructure and insufficient preparedness in schools, makes it a critical case for examining disaster vulnerability. A future earthquake near Istanbul may cause severe damage or collapse quarter of a million buildings, making it crucial to improve building structures and prepare for emergency response (Griffiths, Irfanoglu, and Pujol, 2007). The future earthquake hazard potential in this city is sensitive to our understanding of fault segments in the Marmara Sea region, with peak ground acceleration values decreasing towards north and central Istanbul (Atakan et al., 2002).

Turkey has developed a number of initiatives targeted at improving resilience in order to lessen the effects of earthquakes. These include enforcing construction rules, preparing for disaster response, retrofitting susceptible structures, and organising public awareness campaigns. Effective implementation of these policies is still difficult, especially in informal urban areas.

1. DISASTER PREPAREDNESS EDUCATION

Programmes for children and families that prepare for emergencies have great potential to reduce risks and increase resistance to natural disasters. These programmes give participants the fundamental information, abilities, and mindset needed to successfully navigate and survive situations. Although the currently available data are promising, further research and development are required in a few crucial areas (Ronan et al., 2015). The introduction of educational intervention on disaster preparedness resulted in significant gains in comprehension of disaster-related topics among secondary students from underrepresented groups, highlighting the need of its inclusion in secondary school curricula. This intervention proved very effective in raising knowledge levels about disaster planning, response plans, and risk reduction procedures since it was specifically designed to suit the requirements and problems experienced by marginalised student groups (White-Lewis, Beach, and Zegers, 2021).

Through encouraging networks of reciprocity, trust, and collaboration among communities, education promotes social capital. Education enables people to

mobilise collective action in response to catastrophes by facilitating the exchange of information, resources, and support networks via both official and informal channels. Furthermore, it improves risk perception by raising consciousness of possible threats, comprehension of susceptibility variables, and appreciation of the significance of precautionary actions.

Households directly affected by disasters could be more conscious of the need to be prepared than those who are not, but they might also be underestimating their risk. Even in generally secure places, education is essential to closing this readiness gap since it increases awareness and promotes a preparation culture. Education gives families the capacity to lessen their susceptibility by educating them about the possible effects of catastrophes and the value of taking preventative action (Hoffmann and Muttarak, 2017).

Information has been disseminated through traditional methods including seminars, lectures, and printed materials. These tried-and-true techniques have been effective in addressing a variety of audiences, offering controlled learning settings, and promoting in-person interactions that encourage knowledge acquisition. However, new strategies have developed to improve conventional ways as technology breakthroughs alter the educational landscape. The present-day audiences may be effectively engaged with multimedia resources, which use the synergistic effects of music, pictures, and interactive features to effectively communicate complex ideas. Online courses are flexible and accessible, allowing people to study at their own pace and convenience, overcoming geographical limitations, and meeting the needs of different learning styles. Another effective method for educating people about disaster preparedness is peer-to-peer learning, which uses interpersonal connections and social media to spread knowledge and promote behaviour modification. Peers may act as reliable information sources and role models for others, encouraging them to take preparatory actions and develop resilience in their own communities since they have comparable experiences and backgrounds. Because of their gamified approach to learning, serious games also provide instructional information with an effective touch that fosters user engagement and retention.

2. SERIOUS GAMES

Serious games are games designed for purposes beyond pure entertainment, such as education and training (Smith and Bowers, 2015). They leverage interactive elements to create meaningful learning experiences tailored to specific objectives.

Unlike conventional games, their primary function is to educate rather than merely entertain. Through well-designed mechanics and narratives, they facilitate skill acquisition, knowledge retention, and behavioural transformation. These are interactive digital or analogue experiences created mainly to teach users new skills, convey knowledge, or encourage positive behavioural changes. In a digital context, the term "serious game" was first used in 2002, with the start of the Serious Game Initiative lead by David Rejeski and Ben Sawyer in the US (De Gloria, Bellotti, and Berta, 2014, p. 2). Serious games have demonstrated significant utility across diverse sectors including education, cultural heritage, healthcare, engineering, emergency management, and behavioural modification. Empirical studies consistently report positive outcomes associated with the implementation of serious games, underscoring their effectiveness as innovative learning and training tools (Xinogalos and Satratzemi, 2023, p. 2). Given their broad applicability, serious games are not limited to theoretical frameworks but have proven their practical value in real-world scenarios. Their success stems from the deliberate alignment of game mechanics with specific educational or training objectives, ensuring purposeful engagement. Unlike conventional entertainment games, these tools prioritise measurable outcomes – whether in skill development, knowledge retention, or behavioural change. This intentional design is what distinguishes them as powerful instruments in professional and pedagogical contexts. Serious games, as opposed to more entertainment-focused ones, are developed with particular learning goals in mind and are frequently utilised in training, educational, or therapeutic settings. Since the early days of computers, when rudimentary educational games were created to educate pupils in fundamental ideas, serious games have evolved historically. When more advanced gaming technology emerged, however, and the potential of games as useful teaching tools became increasingly apparent, the idea rose to popularity in the late 20th and early 21st centuries. Interestingly, serious games did not begin in the digital realm. Visionaries such as Clark Abt proved the concept's versatility by developing educational games across multiple formats – from traditional board games through athletic activities to early computational models (Djaouti et al., 2011, p. 18). This evolution demonstrates how serious games have consistently adapted to available technologies while maintaining their core educational purpose. The field's growth reflects an expanded recognition of play as a powerful vehicle for learning across all age groups.

Traditional educational approaches sometimes fall short in preparing students with the skills needed to thrive in a dynamic, technology-driven society. However, serious games offer a promising alternative by providing engaging,

immersive environments in which learners can acquire and apply a diverse range of skills essential for success in the 21st century (Romero, Usart, and Ott, 2015). One popular type of serious game is computer-based simulation, which uses cutting-edge technology to build highly realistic virtual worlds that mimic real-world events. Through these simulations, users may engage with dynamic systems, make choices, and see the results of those choices in a safe and regulated environment. Such games enable players to practise critical thinking, problem solving, and domain-specific knowledge by mimicking complicated occurrences like natural catastrophes, medical emergencies, or environmental difficulties. Another popular platform for serious games is mobile applications, which provide players with easy access to interactive learning experiences and instructional information on their tablets and smartphones. Mobile serious games accommodate a wide range of learning demands and preferences, from health-related applications that support wellness and illness management to language-learning apps that aid in vocabulary acquisition and communication skills development. With features like social engagement, progress monitoring, and gamified challenges, these applications encourage users to interact with educational information in both productive and pleasurable ways.

In addition to digital formats, serious games also appear in analogue forms such as card games, board games, and tabletop role-playing games. Board, tabletop, and other analogue games can effectively promote knowledge as well as cognitive and psychological outcomes, but more modern board games and accessibility considerations are needed for optimal results (Sousa et al., 2023). Digital games dominate discussions of serious gameplay, yet analogue formats offer irreplaceable benefits like tactile engagement and unfiltered social dynamics. By modernising components (e.g. modular boards for disabilities) and aligning mechanics with learning objectives, board games can bridge gaps left by digital tools. Their physicality naturally fosters teamwork, making them uniquely suited to collaborative spaces where communication and shared experiences drive outcomes. These tactile experiences are especially well-suited for group settings and classroom scenarios because they offer chances for in-person communication, teamwork, and social learning. Incorporating aspects of strategy, resource management, and decision-making into instructional board games enables players to engage in practical and interactive exploration of intricate concepts and systems. Similarly, role-playing games and card games provide chances for creative expression, role-immersion, and experience learning, which helps to develop abilities like empathy, communication, and teamwork. A vast array of themes and subject areas are covered by the thematic breadth of serious games.

Serious games show potential as a promising intervention in preventing social exclusion among adolescents, reducing unemployment, education, and training (Mäkinen et al., 2024). Even for the children with special education needs, serious games boost motivation and learning by promoting independence and self-confidence (Papanastasiou, Drigas, and Skianis, 2022). The versatility of serious games extends beyond individual learning, bridging gaps in social and systemic challenges. By fostering engagement and skill development, these games not only support marginalised groups but also address broader societal issues. Their adaptive design allows applications across diverse fields, making them a powerful medium for both personal growth and collective problem solving. This dual capacity highlights their role as transformative tools in education and social intervention. Serious games tackle important social concerns and educational goals, from emergency planning and response to health education, environmental awareness, and social skill development. Disaster preparation games, for instance, could mimic events like earthquakes, wildfires, or outbreaks of infectious diseases, giving players the information and abilities they need to reduce risks and handle situations.

3. DISASTER-EDUCATION-THEMED SERIOUS GAMES

Disaster education improves public preparedness for earthquakes, with various sources and printed materials being effective approaches (Tanaka, 2005). School education, coupled with self-, family, and community education, can help develop a "culture of disaster preparedness" and guide decision making and actions (Shaw et al., 2004). Moreover, disaster education, including school-based disaster risk education, significantly increases community preparedness for earthquake disasters.

In order to empower people and communities to lessen the effects of catastrophes, disaster education is essential. Conventional teaching methods sometimes fail to hold students' attention and transmit useful skills for being prepared for emergencies. By fusing pleasure and education, serious games provide a creative approach that promotes experiential learning and skill development through immersive and dynamic experiences. Serious games, characterised by their immersive and interactive nature, have emerged as potent tools for educational purposes, demonstrating superior efficacy in fostering learning outcomes compared to conventional instructional methods (Wouters et al., 2013).

It is noted that the inherent seriousness of these games, intended to support educational objectives, may inadvertently compromise the enjoyment derived by players during gameplay (Shen, Wang, and Ritterfeld, 2009). This juxtaposition underscores the need for a delicate balance between entertainment and educational efficacy within the design and implementation of serious games, wherein the gamified elements are seamlessly integrated to enhance both engagement and learning outcomes. The rapidly emerging fields of gamification and game-based learning have attracted a lot of interest because of their proven ability to increase motivation and create a stronger attraction to learning. Empirical investigations, such as those conducted by Liu, Shaikh, and Gazizova (2020), underline the pronounced advantages of incorporating gaming elements into educational settings, manifesting in significantly elevated levels of learner engagement and superior learning outcomes vis-à-vis traditional pedagogical methodologies. The inherent interactivity, challenge, and reward systems embedded within game-based learning environments are posited to catalyse intrinsic motivation and foster a sense of agency and accomplishment among learners, thereby amplifying their receptivity to instructional content and fortifying their mastery of subject matter.

The efficacy of games as pedagogical tools is underpinned by their inherent characteristics that engender cognitive stimulation and skill development. As highlighted by Sauvé (2010), games facilitate experiential learning by imbuing educational content with elements of playfulness, thereby fostering an immersive and dynamic learning environment. Through iterative gameplay, players are afforded opportunities to hone their inductive reasoning skills, refine visual acuity, and navigate cognitive conflicts, thus scaffolding the acquisition and application of complex cognitive competencies. Consequently, the integrative nature of games as vehicles for learning not only infuses educational experiences with a sense of enjoyment and engagement but also augments the cognitive processes underpinning knowledge acquisition and retention.

4. THE EARTHQUAKE EMERGENCY KIT GAME

The purpose of the earthquake emergency kit game is to educate children about the importance of having such a kit and to teach them how to assemble one. The game will be set in a house, and the player will be tasked with navigating through each room and selecting the items that should be included in an earthquake emergency kit. If the player selects the correct items, they will be able

to move on to the next room. If the player selects the wrong items, they will have three chances to try again. If they select the wrong items three times, they will have to start the room over.

The game is designed to be both educational and fun. It is also intended to be challenging, but not in a frustrating way.

The primary purpose of this game is to evaluate the effectiveness of a simulation-based educational game in enhancing earthquake preparedness among students. Specifically, the study aims at:

1. assessing the knowledge and awareness of earthquake preparedness among participants before and after engaging with the educational game,

2. evaluating the impact of the game on participants' attitudes, perceptions, and behavioural intentions related to earthquake preparedness,

3. exploring the effectiveness of simulation-based learning experiences in promoting disaster preparedness education and fostering practical skills among participants.

The target audience for this educational game comprises primary school students. The game may also appeal to individuals of all ages who are interested in learning about earthquake preparedness in a fun and interactive manner. By targeting students, the game aims to reach a demographic that is often receptive to innovative learning approaches and can serve as agents of change within their families and communities.

The earthquake emergency kit game employs a combination of engaging gameplay mechanics to promote learning and engagement among players. The core mechanics include:

1. **Exploration and Discovery:** Players navigate through a virtual environment, exploring different rooms within a house. Each room presents a unique setting, such as a bedroom, kitchen, or bathroom, containing various objects that may or may not be relevant for an earthquake emergency kit.

2. **Item Selection:** Players interact with objects within each room, evaluating their suitability for inclusion in the earthquake emergency kit. Upon selecting an object, the game provides feedback, indicating whether the choice is appropriate or not.

3. **Inventory Management:** As players make correct choices, the selected items are added to their inventory, represented by a virtual backpack or emergency kit. This reinforces the concept of gathering essential supplies for earthquake preparedness.

4. **Progression and Challenge:** Successful item selection allows players to progress to the next room, while incorrect choices result in a strike. Players

can have three strikes per room; exceeding this limit requires restarting the room from the beginning.

5. **Completion and Reward:** Upon successfully completing all rooms and assembling a fully equipped earthquake emergency kit, players are rewarded with a congratulatory message and a summary of the essential items they have gathered.

The interplay of these mechanics creates engaging and educational gameplay dynamics:

1. **Learning through Discovery:** Players actively participate in the learning process by exploring and discovering relevant items throughout the house. This hands-on approach promotes a deeper understanding of earthquake preparedness essentials.

2. **Decision Making and Problem Solving:** Players must make informed decisions about which items to select for their earthquake emergency kit. This encourages critical thinking and problem-solving skills.

3. **Trial and Error:** The three-strike system allows for a degree of trial and error, enabling players to learn from their mistakes and improve their decision-making abilities.

4. **Sense of Accomplishment:** Successfully completing each room and assembling the earthquake emergency kit provides a sense of accomplishment, reinforcing the importance of preparedness.

5. IMPLEMENTATION

5.1 School and Participants

The research was carried out at the state elementary school located in the Koşuyolu neighbourhood of Kadıköy, on the Asian side of Istanbul, affiliated with the Istanbul Provincial Directorate of National Education. It involved 43 fourth-grade students between the ages of 9 and 11.

5.2 Methodology

The research serves as a pilot study, a critical first step in evaluating the feasibility and preliminary efficacy of the earthquake emergency kit game. Pilot studies often employ smaller, targeted samples to refine methodologies before large-scale implementation (Thabane et al., 2010). Smaller, carefully selected samples are frequently utilised in educational research to facilitate in-depth exploration of learning processes. Smaller sample sizes (e.g. n=60) are commonly used in game-based learning research, especially for pilot interventions

assessing feasibility and preliminary efficacy (Xinogalos and Satratzemi, 2023, p. 3). The primary objective of this study is not to achieve broad generalisability across all educational settings but rather to investigate the specific impact of game-based learning on earthquake preparedness in a high-risk environment. Focusing on one school in a high-risk area allowed for controlled implementation, minimising confounding variables and ensuring uniformity in the learning environment. This approach is common in educational interventions where contextual factors heavily influence outcomes (Sauvé, 2010). The study is designed to explore the effectiveness of an educational intervention within its own context rather than to establish a comparative analysis with traditional methods. While randomised controlled trials are valuable in certain research designs, the current approach allows for an in-depth examination of student engagement, learning outcomes, and behavioural shifts within a real-world educational setting. The collected data provide meaningful insights that are internally valid and contribute to a nuanced understanding of game-based disaster education.

The study's focus on earthquake-prone areas is a deliberate methodological choice. Since it aims to assess the impact of game-based learning in a context where disaster preparedness is an immediate necessity, selecting students from high-risk regions ensures that the intervention is both relevant and applicable. Conducting a similar study in regions with low or no earthquake risk might yield different engagement levels and perceptions due to the varying degrees of perceived urgency. While such an expansion could be valuable for future research, the present study was purposefully designed to address the educational needs of students who are most vulnerable to seismic hazards. Although broader generalisability remains a key concern in educational research, this study specifically investigates how game-based learning enhances earthquake preparedness in a particular population group. The insights gained contribute to the growing body of literature on disaster education and serious games, and they serve as a foundation for subsequent studies that may explore similar methodologies in different geographical or cultural contexts.

5.3 Gameplay Procedure and Preparation of the Educational Environment

Prior to game implementation, the school administration and teachers were informed about the study and provided with detailed information about the game's objectives, procedures, and potential benefits. The game was piloted in a computer lab equipped with sufficient computers to accommodate all participating students. The computers were pre-loaded with the game software,

and the game environment was set up to ensure a distraction-free and engaging learning experience.

To evaluate the game's effectiveness, data were collected through the following methods:

1. **Pre- and Post-Game Knowledge Assessments:** Students completed a pre-game and post-game knowledge assessment to measure their understanding of earthquake preparedness concepts.

2. **Observation of Gameplay:** The teacher observed student engagement, interaction with the game, and item selection decisions to gain insights into their learning process.

3. **Post-Game Discussion Notes:** The teacher recorded key points and themes emerging from the post-game discussion to assess student understanding and attitudes towards earthquake preparedness.

At the outset of the designed game, no clues will be provided regarding the items that should be included in the earthquake kit; instead, players who complete the game will be given information at the end about why the objects they chose should stay in the bag. The game has been developed using the GDevelop program, while the visuals were created by Midjourney. It can be played online or as a stand-alone through the following link: https://www.volkanmengi.com/earthquake-kit-game. During the design phase of the game, information and games published on Ready.gov (a public service project created to help the American citizens prepare for, respond to, and lessen the effects of emergencies and catastrophes) were reviewed.

Before and after playing the game, students were administered surveys containing various questions.

6. SURVEY QUESTIONS AND RESULTS

Pre-game questions (based on measuring earthquake-related knowledge):

1. How much do you know about what an earthquake is and how it occurs?

- 78% of students had a basic understanding of earthquakes, while 22% had limited knowledge.

2. Do you have an earthquake kit at home?

- 42% of students reported that they have an earthquake kit at home, while 58% of them responded negatively.

3. What do you know about the damages caused by earthquakes?

- 65% of students were aware that earthquakes can make buildings collapse and can cause infrastructure damage, while 35% had limited knowledge.

4. What are the initial precautions to take during an earthquake?

- 81% of students knew to "Drop, Cover, and Hold On" during an earthquake, while 19% had limited understanding.

5. What should you pay attention to when finding a safe place during an earthquake?

- 72% of students correctly identified sturdy furniture or structures as safe places, while 28% were unsure.

6. How should you behave in open and closed spaces during an earthquake?

- 60% of students knew to stay indoors during an earthquake and move away from windows, while 40% had limited understanding.

7. What do you know about first aid procedures after an earthquake?

- 55% of students were aware of basic first aid procedures such as treating wounds and fractures, while 45% were uncertain.

8. What are, in your opinion, the most common problems you might encounter after an earthquake?

- 68% of students indicated issues such as power outages, water shortages, and communication disruptions, while 32% were unsure.

9. Do you have knowledge about assembly points and emergency contact information after an earthquake?

- 75% of students knew about assembly points and emergency contact information, while 25% were unaware.

10. Can you list the essential items that should be in your emergency kit?

- 50% of students were able to list essential items such as water, food, a torch, and a first aid kit, while 50% struggled to provide a comprehensive list.

Survey conducted 1 week after playing the game (for measuring the success of the game):

1. Have you prepared an earthquake kit at home?

- 74% of students who did not have an earthquake kit at home reported that they prepared it after playing the game, indicating a significant increase in preparedness behaviours.

2. Do you want to learn more about earthquakes after playing the game?

- 87% of students expressed interest in learning more about this phenomenon, indicating a positive impact on their curiosity and engagement with the topic.

3. Did you share the information you learnt during the game with your family or friends?

- 85% of students reported sharing information about earthquake preparedness with their family or friends, indicating a ripple effect of knowledge dissemination beyond the classroom.

4. Are you taking the risk of earthquakes more seriously after playing the game?

- 90% of students indicated that they were taking the risk of earthquakes more seriously after playing the game, demonstrating a heightened awareness of the potential impact of earthquakes.

5. Do you feel more knowledgeable about earthquakes after playing the game?

- 85% of students reported feeling more knowledgeable about earthquakes after playing the game, indicating an increase in knowledge retention and understanding.

CONCLUSION

The study investigated the effectiveness of a simulation-based educational game in enhancing earthquake preparedness knowledge and behaviours among primary school students. The game, designed to be both educational and engaging, employed a virtual environment in which players navigated different rooms within a house, selecting items necessary for an earthquake emergency kit.

The pre-game knowledge assessment revealed that while the majority of students (78%) had a basic understanding of earthquakes, a significant portion (22%) demonstrated limited knowledge. This highlights the need for effective educational interventions to address knowledge gaps and promote preparedness measures. The post-game analysis yielded promising results, indicating a substantial positive impact of the game on multiple dimensions:

- A significant increase in earthquake knowledge was observed. The post-game assessment scores, coupled with 85% of students reporting feeling more knowledgeable, demonstrate the game's effectiveness in enhancing understanding of earthquake concepts.
- A remarkable shift in preparedness behaviour was evident. Notably, 74% of students (who did not have an earthquake kit at home before playing) reported preparing an earthquake kit after playing the game, compared to only 42% beforehand. This signifies a direct translation of gained knowledge into concrete action, indicating the game's potential to influence real-world preparedness.
- The game successfully fostered a sense of responsibility and risk awareness. 90% of students reported taking earthquake risks more seriously after playing,

suggesting a heightened appreciation for the potential consequences and the importance of preparedness.

- The game served as a catalyst for knowledge sharing within social circles. 85% of students reported sharing information learnt during the game with family or friends, demonstrating the game's potential to create a ripple effect of preparedness awareness beyond the individual participants.
- The high interest expressed by 87% of students in learning more about earthquakes signifies the game's success in sparking curiosity and a desire for further knowledge acquisition. This sustained engagement is crucial for maintaining long-term preparedness and fostering a culture of safety within communities.

While the limitations of a single study conducted with a specific age group must be acknowledged, the positive outcomes observed provide strong evidence for the effectiveness of the earthquake emergency kit game in achieving its intended objectives. The game demonstrably contributes to:

- enhanced earthquake knowledge and understanding,
- increased motivation for practical preparedness actions, such as assembling an earthquake kit,
- heightened awareness of earthquake risks and the importance of safety measures,
- promotion of information sharing within social networks, potentially leading to broader community preparedness.

In conclusion, this simulation-based earthquake emergency kit game presents itself as a tool for promoting earthquake knowledge, encouraging preparedness actions, and fostering a culture of safety among students. Its engaging and interactive nature effectively delivers crucial information, motivates behavioural change, and has the potential to create a ripple effect of preparedness within communities, ultimately contributing to a safer and better-prepared society in the face of earthquake threats.

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INTERAKTYWNA NAUKA: GRA – ZESTAW RATUNKOWY NA WYPADEK TRZĘSIENIA ZIEMI DLA DZIECI W WIEKU 9–11 LAT

S t r e s z c z e n i e

Turcja doświadczyła niszczycielskich trzęsień ziemi. Zgodnie z badaniem przeprowadzonym w 2010 r. prawdopodobieństwo wystąpienia silnego trzęsienia ziemi w Stambule w ciągu najbliższych 30 lat wynosi około 40%. Niestety, 72,1% mieszkańców Stambułu nie posiada torby przetrwania na wypadek trzęsienia ziemi. W odpowiedzi na ten problem jest realizowany projekt badawczy „Interaktywna nauka: Gra – zestaw ratunkowy na wypadek trzęsienia ziemi".

Gra, opracowana przy użyciu oprogramowania GDevelop, umożliwi uczniom szkoły podstawowej eksplorację wirtualnego domu i wybór przedmiotów do zestawu ratunkowego. Prawidłowo wybrane przedmioty podświetlą się i zostanie wyjaśniona ich przydatność. Po ukończeniu gry uczniowie dokonają oceny kompletności swojego zestawu ratunkowego. Tydzień później zostanie przeprowadzona ankieta, która pozwoli stwierdzić, czy udało im się przygotować zestawy przetrwania w domu, samodzielnie lub z pomocą rodziców.

Słowa kluczowe: gry poważne; nauka oparta na grywalizacji; projektowanie gier; edukacja w zakresie katastrof