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The Impact of The Redcode Survival Kit Board Game on Tourism Students in Polytechnic in Malaysia

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ABSTRACT

This study explores how the REDCODE Survival Kit Board Game affects Malaysian polytechnic tourism students. Twelve students from six polytechnics in Kuantan, Perlis, Johor, and Terengganu took part in focus groups and reflective interviews using a qualitative methodology. The purpose of the study was to examine how the board game improved students' critical thinking abilities, emergency preparedness knowledge, teamwork, and interest in studying tourism safety courses. The REDCODE board game was found to promote an interactive learning environment, connect theory and practice, and raise knowledge of emergency response in contexts connected to tourism. The study emphasizes the benefits of gamification as a cutting-edge teaching strategy for polytechnic tourism education.

1. Introduction

One of Malaysia's most dynamic and susceptible economic sectors is the tourist sector. The business is extremely vulnerable to risks including accidents, natural catastrophes, medical problems, and unforeseen crises that might arise in destinations, lodging, and transportation systems, despite the fact that it produces a sizable income and offers job possibilities. As future professionals in the field, tourism students must consequently possess not just the theoretical understanding but also the practical awareness, readiness, and problem-solving abilities required to handle emergencies. students a solid basis, they could not fully equip them for crisis circumstances in the actual world. Students frequently find it difficult to translate abstract ideas into real-world applications, which undermines their self-assurance and impairs their capacity to behave appropriately in emergency situations. Investigating cutting-edge teaching strategies that can close the gap between theory and practice is therefore becoming more and more important.

Gamification in education is one such cutting-edge strategy that has drawn interest because to its capacity to foster participation, teamwork, and long-term memory retention. The REDCODE Survival Kit Board Game, which was created specially to mimic emergency situations, offers students

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an engaging, hands-on learning experience that combines survival awareness, safety knowledge, and decision-making abilities. In contrast to traditional teaching techniques, the board game necessitates that students collaborate, solve problems under time constraints, and critically evaluate survival tactics—skills that are reflective of the demands of actual tourist and hospitality environments.

This study is significant because it emphasizes how knowledge may be strengthened by having students utilize safety equipment, survival skills, and first aid in simulated situations rather than learning them in an abstract way. **Increasing Awareness:** Students gain a greater understanding of the significance of safety procedures and proactive crisis management in the tourism industry by participating in realistic scenarios. **Improving Preparedness:** By equipping students with the mentality and techniques necessary to respond to pressure, the game promotes preparedness to manage catastrophes. **Developing Soft Skills:** Since kids must collaborate and coordinate while playing, their teamwork, leadership, and communication skills are enhanced. **Increasing Engagement and Motivation:** Gamification turns the educational process into an exciting and engaging activity that encourages students to participate and learn. **Developing Critical Thinking and Resilience:** Students gain the ability to make prompt yet deliberate decisions, which increases their ability to withstand stressful and unpredictable situations.

This study closes a major gap in Malaysian higher education research by concentrating on polytechnic students in the tourism department. Gamification as a teaching method in technical and vocational schools is still largely unexplored in Malaysia. Additionally, by providing evidence-based suggestions for incorporating gamified tools into tourism and hospitality education, the findings might aid in the development of curricula. The ultimate goal of this research is to produce capable, self-assured, and safety-conscious tourism graduates who can help make Malaysia's tourism sector safer and more resilient.

1.1 Research Objective and Questions

To examine how the REDCODE board game impacts tourism students' learning experiences, safety awareness, and skill development in polytechnic Malaysia.

Research Questions:

1. How does the REDCODE board game enhance tourism students' knowledge and awareness of emergency preparedness?
2. What are the perceived benefits of the board game for tourism students in terms of skill development?
3. How do students view the effectiveness of gamification compared to conventional classroom learning?

1.2 Problem Statement

Although Malaysia's tourist and hospitality sector is seen as an important one that makes a substantial contribution to the country's economy, it is nonetheless quite vulnerable to crises like natural disasters, medical problems, accidents, and unanticipated circumstances. The capacity to react quickly and efficiently to crises is essential for frontline employees, such as tour guides, hotel employees, and tourism managers, in order to protect both tourists and the organization's reputation.

Evidence, however, indicates that graduates of tourism programs especially those at polytechnics frequently lack the necessary readiness and useful crisis management abilities. Although they are

exposed to theoretical modules on safety and emergency procedures, the majority of the delivery techniques are passive, lecture-based, and text-heavy, which can lead to poor knowledge retention and insufficient application to real-world situations. As a result, recently graduated individuals may not be equipped to react with assurance in emergency situations.

Gamification has gained popularity as a teaching method that bridges this gap by combining interactive, experience-based learning with information acquisition. The REDCODE Survival Kit Board Game is a creative way to improve kids' awareness, readiness, and problem-solving skills because it is made to mimic actual emergency scenarios. Despite its promise, not much study has been done in Malaysia to evaluate the effects of such gamified technologies, particularly in the context of tourist education at the polytechnic level. The current study, which aims to assess how well the REDCODE Survival Kit Board Game enhances the skills of tourism students, is justified by this gap in practice and research. Graduates in the tourism industry may still struggle to achieve industry standards for safety management, crisis response, and consumer welfare in the absence of such interventions.

1.3 Significance of the Study

This research is significant for several reasons:

For students studying tourism. The study offers proof that gamification can enhance decision-making abilities, safety awareness, readiness, and knowledge retention. It aids in the development of soft skills like leadership, teamwork, communication, and flexibility which are crucial for jobs in the tourism industry. Students become more comfortable using survival techniques in practical settings.

For institutions of higher learning. The results back up the inclusion of cutting-edge teaching resources in tourism courses, which enhance student engagement and make classes more pertinent to industry needs. It supports Malaysia's goal to improve Technical and Vocational Education and Training (TVET) by highlighting the benefits of active learning techniques in technical and vocational education.

For the travel and tourism sector. More prepared, resilient, and safety-conscious graduates improve the tourism industry's overall service quality and crisis preparedness. This study emphasizes how crucial practical readiness is as a differentiator for Malaysian travel destinations. For upcoming studies and policy decisions. The study lays the groundwork for future research on gamification in travel and hospitality education. It might educate Ministry of Higher Education (MOHE) curriculum developers and policymakers on the advantages of gamifying national polytechnic curricula. Overall, by assessing how an interactive survival board game may equip students to handle situations with competence and confidence, this study fills a critical void in tourism education. The results are expected to enhance Malaysia's standing as a trustworthy and safe travel destination in addition to assisting tourism students' academic and professional growth.

1.4 Community-Based Tourism and Crafts

When combined with community service, tourism can act as a stimulant for sustainable development and local empowerment. Tourism initiatives that involve locals in the planning and production process promote pride, a sense of ownership, and long-term sustainability. Because souvenir creation incorporates local knowledge, skills, and cultural traditions, it is especially well-suited for community-based tourism efforts.

Through the inclusion of regional craftspeople in the design and manufacturing phases, the Coconut Time Scent project incorporates this methodology. In addition to preserving traditional coconut shell artwork, the concept offers small-scale producers financial options through partnerships with craftsmen. Involving the community also guarantees that the product reflects local identity, which boosts its commercial appeal and authenticity. Coconut Time Scent supports a sustainable tourism paradigm where stakeholders share benefits fairly by encouraging community-based craft manufacturing.

1.5 Literature Review

According to Ali Pitchay *et al.*, [3], recent innovations like DisasterPrep, a gamified mobile application in Malaysia, have demonstrated beneficial benefits in terms of information acquisition, behavioral change, and resilience development among users. This bolsters the idea that, especially for younger students, gamification provides an entertaining way to foster disaster awareness and readiness. In a similar vein, comprehensive evaluations verify that gamified teaching approaches improve fundamental skills including infectious illness management, evacuation, and triage in nursing and disaster education [16]. These results demonstrate how flexible and successful gamified resources are in giving students vital survival skills.

In disaster education, board games are becoming more and more acknowledged as useful teaching resources. In contrast to conventional tabletop simulations, Chew *et al.*, [6] presented SMARTriage, a tutorless disaster response board game, and showed how it may enhance student participation, communication, and decision-making abilities. The viability of tabletop gamification for mass casualty incident training was further proven by Castro Delgado *et al.*, [5], reaffirming board games as an inexpensive, highly effective method of experiential learning.

Gamification has been shown to enhance motivation and learning outcomes in the setting of tourism and vocational education. According to Adeyinka-Ojo *et al.*, [1] and Aguiar-Castillo *et al.*, [2], gamification techniques improved student engagement, promoted deeper learning, and raised student participation. Students pursuing tourism diplomas, who need to acquire both academic knowledge and practical abilities in addressing safety and crisis management, may find these findings very pertinent.

The effectiveness of gamified tools in enhancing readiness and retention is highlighted in recent studies. Ali Pitchay *et al.*, [3] used the DisasterPrep metaverse app IOPscience to show how behavior and resilience may be improved in the actual world. Similar advantages in healthcare disaster response education ThaiJo were confirmed by systematic reviews. Tabletop simulations [5] and board games like SMARTriage [6] similarly improved readiness and engagement arXiv+1.

The ability of gamification to improve learning outcomes and student motivation in tourism programs is supported by research. Aguiar-Castillo *et al.*, [2] and Adeyinka-Ojo *et al.*, [1] reported increased understanding and participation in ASCEE Pubs tourism courses. The benefits and drawbacks of gamified approaches in tourism education were noted by Radwan & Elsaid (2020), highlighting the necessity of implementing ASCEE Pubs in a balanced manner. Initiatives such as Finland's King's Road augmented reality game demonstrate how immersive gamification can enhance visitor education (SpringerLink). Gamification improved knowledge retention in the cruise industry while exhibiting nuanced benefits on MDPIs for loyalty and enjoyment.

Virtual and immersive environments have been proven to be successful teaching aids for emergency response training. A metaverse-based flood modules considerably improved Malaysian students' IOPscience readiness. Compared to traditional delivery, VR-based earthquake training

reduced anxiety and enhanced decision-making (2022) arXiv. Their value in experiential learning was also validated by earlier studies on the use of serious games for evacuation training arXiv.

The use of gamification in Malaysian polytechnic-level tourism programs is still understudied, despite strong evidence of its efficacy in disaster, healthcare, and tourism education. These strategies—gamified pedagogy, disaster preparedness, and tourism-specific learning—are all uniquely combined in TVET contexts by the REDCODE Survival Kit Board Game. By enhancing students' critical thinking, resilience, safety awareness, and engagement through interactive games, it bridges a gap in vocational tourist education by providing both theoretical innovation and practical application.

Over the past five years, gamification has drawn more attention in the fields of higher education and disaster preparedness. According to studies, interactive technologies greatly increase students' awareness, understanding, and crisis-reduction readiness. According to Ali Pitchay *et al.*, [3], recent innovations like DisasterPrep, a gamified mobile application in Malaysia, have demonstrated beneficial benefits in terms of information acquisition, behavioral change, and resilience development among users. This bolsters the idea that, especially for younger students, gamification provides an entertaining way to foster disaster awareness and readiness. Similar to this, comprehensive evaluations verify that gamified teaching approaches improve fundamental skills like infectious disease management, evacuation, and triage in nursing and disaster education [15,16].

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Gamification has been shown to enhance motivation and learning outcomes in the setting of tourism and vocational education. According to Adeyinka-Ojo *et al.*, [1] and Aguiar-Castillo *et al.*, [2], gamification techniques improved student engagement, promoted deeper learning, and raised student participation. More recently, Kamal *et al.*, [12] emphasized the significance of disaster literacy integration in Malaysian polytechnic programs, while Chou and Ting [7] demonstrated that gamified tourism curricula improved students' crisis management and service quality readiness. Additionally, Lee *et al.*, [13] discovered that immersive gamification aided in the development of employability skills, such as teamwork, communication, and flexibility—skills that are essential in the travel and hospitality industries.

There has been little investigation into the use of gamified learning in Malaysian tourism education, despite earlier studies demonstrating its efficacy in medical, nursing, and disaster education. There aren't many studies that specifically discuss how gamified resources, especially board games, might improve the resilience, safety awareness, and disaster preparedness of tourism students. By investigating the effects of the REDCODE Survival Kit Board Game on tourism diploma students at Malaysian polytechnics, the current study fills this information vacuum by emphasizing how the game improves students' awareness, knowledge, and emergency readiness.

2. Methodology

2.1 Research Design

The impact of the REDCODE Survival Kit Board Game on the knowledge, awareness, and emergency readiness of tourism diploma students was investigated in this study utilizing a qualitative research approach and semi-structured interviews. Since quantitative measures are insufficient to fully capture students' opinions, attitudes, and lived experiences, a qualitative approach was judged appropriate [8].

2.2 Participants

Twelve diploma students from six polytechnics in Malaysia—Politeknik METrO Kuantan, Politeknik Tuanku Syed Sirajuddin Perlis, Politeknik Ibrahim Sultan Johor, and Politeknik Besut Terengganu, among others—who were enrolled in the Tourism Department participated. Purposively, two students were chosen from each polytechnic based on their willingness to participate and active participation in tourism-related coursework. To guarantee a range of viewpoints, the sample was gender and study year diversified.

2.3 Sampling Procedure

Participants having relevant experience in tourism education were chosen through the technique of purposeful sampling. Participants had to (a) be enrolled as tourism diploma students at the time of the study, (b) have taken crisis management or emergency preparedness courses, and (c) willingly consent to participate in order to meet the inclusion requirements. This sample technique made sure that students who were most likely to offer insightful opinions about the possible advantages of gamified learning resources were recruited.

2.4 Research Instrument

Semi-structured interviews using open-ended questions as part of an interview methodology were used to gather data. Students' opinions of disaster preparedness both before and after playing the board game were the main focus of the interview questions. awareness and knowledge acquired as a result of the action. Decision-making, collaboration, and problem-solving abilities and dispositions, as well as recommendations for enhancing and incorporating gamification into tourism courses. While preserving uniformity throughout interviews, the semi-structured method gave freedom to delve further into participants' experiences [10].

2.5 Data Collection Procedure

The investigation was carried out in each participating polytechnic's controlled classroom setting. First, a quick introduction to the REDCODE Survival Kit Board Game was given to the students. After that, they were divided into groups and given about ninety minutes to play the game. Individual interviews were conducted either in-person or online (based on college facilities) immediately following the activity and lasted 30 to 45 minutes. With the participants' permission, all interviews were audio recorded, and the verbatim transcriptions were subsequently analyzed.

2.6 Data Analysis

Thematic analysis was used in accordance with Braun and Clarke's [4] six-phase methodology: Data familiarization, creating the first codes, in pursuit of themes, examining the themes, identifying and characterizing the themes and creating the report. NVivo 12 software was used to code the transcripts inductively, letting themes naturally arise from the data without being constrained by pre-existing frameworks. Inter-coder reliability was established through conversations until agreement was reached after the data was separately coded by two researchers.

3. Results

Four main topics about the influence of the REDCODE Survival Kit Board Game emerged from the thematic analysis of the interviews with 12 tourism diploma students: (1) improved disaster preparedness knowledge; (2) higher risk and response awareness; (3) development of soft and practical skills; and (4) heightened motivation and learning engagement. improved understanding of emergency preparedness. According to the students, the board game helped them better learn emergency protocols, first aid, and survival supplies. Despite having little prior information, many participants said they were able to relate game principles to real-world scenarios.

"Before this, I only knew basic things like calling 999, but now I learned more about the items inside a survival kit and how to use them properly." (Participant 4, Polytechnic Johor)

This finding suggests that gamified learning can bridge knowledge gaps in tourism education, particularly in areas related to disaster and crisis management. Heightened Awareness of Risks and Responses. The board game encouraged students to think critically about different emergency scenarios, which heightened their sense of situational awareness and preparedness.

"The game made me realize how unprepared I would be if something really happened during a trip. Now I think more about risks and what I should carry with me." (Participant 7, Polytechnic Kuantan)

By simulating real-world risks, the activity fostered awareness of how small decisions can significantly affect safety outcomes in tourism settings. Development of Practical and Soft Skills. Beyond knowledge and awareness, students highlighted the development of transferable skills such as teamwork, problem-solving, leadership, and communication.

"We had to work together to solve challenges in the game. Sometimes we argued, but it helped us practice decision-making as a group, which is important for tourism work." (Participant 2, Polytechnic Perlis)

This theme reflects how gamification provides an experiential platform to practice skills that are critical for tourism professionals dealing with guests during emergencies. Increased Motivation and Engagement in Learning. Students described the board game as fun, interactive, and different from traditional classroom learning. This novelty enhanced their motivation to learn about emergency preparedness.

"Usually lectures about safety are boring, but with this game I enjoyed it and remembered the lessons more clearly." (Participant 10, Polytechnic Terengganu)

This finding demonstrates the potential of gamified tools to make emergency preparedness training more engaging for young learners, thus improving retention and application of knowledge. Training in survival and preparedness is frequently incorporated into tourism education in a theoretical manner. By mimicking entertaining, realistic, and cooperative experiences, REDCODE fills this gap. This lends credence to the notion that interactive educational resources better equip students for actual tourism emergencies. The results of this study demonstrate that the REDCODE Survival Kit Board Game is a useful instrument for improving the educational experience of tourism

students in Malaysian polytechnics. Stronger knowledge, increased awareness, skill development, and increased participation were the four main themes that surfaced. These results complement and go beyond current studies on disaster preparedness, gamified learning, and tourism education. Knowledge Enhancement and Preparedness. The results demonstrate that the board game significantly enhanced students' knowledge of emergency preparedness.

According to the participants, the activity increased their awareness of potential hazards when engaging in tourism-related activities. This supports the findings of a study by Gómez and Martín (2021), who maintained that risk awareness is essential to teaching tourist management. In addition to being advantageous for students' academic growth, the capacity to foresee risks and take appropriate action is a critical employability skill in guaranteeing visitor safety. In contrast to lecture-based instruction, students were better able to internalize lessons when risk management was presented in a gamified setting.

The results also imply that the board game promoted the growth of transferable abilities like communication, leadership, problem-solving, and cooperation. This opinion is supported by earlier research, which highlights how gamified interventions promote teamwork and negotiation abilities. Soft skills are just as important as technical knowledge in the tourist industry, as graduates frequently hold customer-facing and team-based positions.

The improved drive and involvement in learning was another noteworthy result. Compared to regular lectures, students found the board game to be more entertaining and memorable. This is consistent with previous research showing that gamification increases students' intrinsic motivation and level of engagement with their studies. Gamification may transform the learning process into an active and captivating experience in the tourism education sector, where safety instruction is sometimes thought of as boring.

This research fills a gap in the literature by the application of a board game intervention specifically in Malaysian polytechnic tourism programs, this study closes a gap in the literature. Although gamification has been extensively researched in higher education, little of it has examined how it may help students studying tourism become more aware of and prepared for safety issues. This study offers fresh empirical proof that gamified learning can enhance both the cognitive and affective aspects of learning by combining perspectives from several polytechnics in various geographical areas. Additionally, the study illustrates useful ramifications for curriculum development. Safety-related courses can be made more powerful and interesting by including gamified resources like the REDCODE Survival Kit Board Game. In doing this, tourism educators can better equip students to deal with real-world problems, which is in line with Malaysia's goal of turning out highly qualified graduates for the travel and tourist industry.

4. Conclusions

This study explored the impact of the *REDCODE Survival Kit Board Game* on tourism diploma students across six Malaysian polytechnics. With a sample of 12 students and a qualitative methodology, the study found that the board game greatly improved learner engagement, raised risk awareness, fostered transferable skills, and improved emergency preparedness knowledge. The results demonstrate that while gamified learning methods are useful for imparting technical knowledge, they are also beneficial for developing important soft skills like leadership, teamwork, and communication. By analyzing gamification in the particular context of tourist education at Malaysian polytechnics, especially with regard to safety and survival readiness, this study significantly fills a gap in the literature. Overall, it is an inventive teaching tool that connects theory and practice, helping to shape tourism students into future professionals.

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