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“Optimizing Innovation in Knowledge, Education and Design”

EXTENDED ABSTRACT



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Assalamualaikum warahmatullahi wabarakatuh,



First and foremost, I would like to express my gratitude to the organizing committee of i-Spike 2023 for their tremendous efforts in bringing this online competition a reality. I must extend my congratulations to the committee for successfully delivering on their promise to make i-Spike 2023 a meaningful event for academics worldwide.

The theme for this event, 'Optimizing Innovation in Knowledge, Education, and Design,' is both timely and highly relevant in today's world, especially at the tertiary level. Innovation plays a central role in our daily lives, offering new solutions for products, processes, and services. By adopting a strategic approach to 'Optimizing Innovation in Knowledge, Education, and Design,' we have the potential to enhance support for learners and educators, while also expanding opportunities for learner engagement, interactivity, and access to education.

I am awed by the magnitude and multitude of participants in this competition. I am also confident that all the innovations presented have provided valuable insights into the significance of innovative and advanced teaching materials in promoting sustainable development for the betterment of teaching and learning. Hopefully, this will mark the beginning of a long series of i-Spike events in the future.

It is also my hope that you find i-Spike 2023 to be an excellent platform for learning, sharing, and collaboration. Once again, I want to thank all the committee members of i-Spike 2023 for their hard work in making this event a reality. I would also like to extend my congratulations to all the winners, and I hope that each of you will successfully achieve your intended goals through your participation in this competition.

Professor Dr. Roshima Haji Said
RECTOR
UiTM KEDAH BRANCH



WELCOME MESSAGE (i-SPIKE 2023 CHAIR)



We are looking forward to welcoming you to the 3rd International Exhibition & Symposium on Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023). Your presence here is a clear, crystal-clear testimony to the importance you place on the research and innovation arena. The theme of this year's Innovation is "*Optimizing Innovation in Knowledge, Education, & Design*". We believe that the presentations by the distinguished innovators will contribute immensely to a deeper understanding of the current issues in relation to the theme.

i-SPIKE 2023 offers a platform for nurturing the next generation of innovators and fostering cutting-edge innovations at the crossroads of collaboration, creativity, and enthusiasm. We enthusiastically welcome junior and young inventors from schools and universities, as well as local and foreign academicians and industry professionals, to showcase their innovative products and engage in knowledge sharing. All submissions have been rigorously evaluated by expert juries comprising professionals from both industry and academia.

On behalf of the conference organisers, I would like to extend our sincere thanks for your participation, and we hope you enjoy the event. A special note of appreciation goes out to all the committee members of i-SPIKE 2023; your dedication and hard work are greatly appreciated.

Dr. Junaida Ismail

Chair

3rd International Exhibition & Symposium Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023)

XL2S PAN BORNEO VS RAJANG RIVER BOARDGAME 2.0 (EMPOWERING FITNESS AND FUN: A BOARD GAME FOR INCLUSIVE PHYSICAL ACTIVITY AMONG PEOPLE WITH DISABILITIES)

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ABSTRACT

Regular physical activity are important in keeping people physically and mentally healthy. However, lack of fun, poor access to facilities and unsafe environments are the reasons for most people to skip physical activity (Anderson, Carter & Smith, 2021). According to Johnson, Thompson, & Davis, (2022), fun is considered one of the main reasons people involved in physical activity. Thus, XL2S Pan Borneo VS Rajang River Boardgame 1.0 was created as a tools for sedentary people from different ages to start exercise in a fun and interesting way. However, 1.0 version was not suitable to be play by people with disabilities. Therefore, XL2S Pan Borneo Vs Rajang River Boardgame 2.0 will be introduced to empowerfitness and fun among disabled people. This innovative boardgame is designed to address the issue of limited motivation for physical activity among individuals with disabilities due to their medical conditions and challenges. By combining the joy of play with simple exercises in a group setting, the product aims to enhance the health and well-being of this demographic. Drawing inspiration from "snake and ladder" and "monopoly" games, the objective of the game is to be the first player to reach the end by moving across the board while perform a variety of exercises from square one to the final square. The exercise selection are following the ACSM's exercise prescription guidelines comprises basic movements using elastic bands and free weight exercise guidance provided in the game set, ensuring accessibility and effectiveness for disabled players. Symbolic elements from Sarawak landmark like Pan Borneo and Rajang River add to the experience, representing setbacks and progress, respectively. To access exercise instructions, players can scan QR codes on the manual making it convenient and inclusive for all. By gamifying exercise and social interaction, the game promotes inclusivity and allows players with disabilities to participate alongside friends and support groups (Lee, Martinez, & Robinson, 2023). Regular game play encourages low- impact physical movements, improving strength, flexibility and also coordination. Research on well-being to measure the effectiveness of this product on people with disabilities is still under the proposal process. The boardgame combats sedentary lifestyles associated with prolonged bed rest, commonly faced by individuals with disabilities. With its focus on fun and camaraderie, it encourages players to actively pursue physical activity.

Keywords: Boardgame, Disabilities, Physical Activity, Inclusivity, Exercise Gamification

INTRODUCTION

This innovative board game aims to address the critical issue of limited motivation for physical activity among individuals with disabilities, caused by their medical conditions and challenges. The product aims to empower the fitness and well-being of people with disabilities by combining the joy of play with basic exercises in a group setting. By creating an engaging and enjoyable experience, this boardgame encourages players to participate actively, thereby improving their overall health and uplifting their positive emotions. Symbolic elements designed on the game board as a theme focusing on Sarawak landmark like Pan Borneo, Rajang River and some lesser-known attractions in Sarawak, encouraging players to explore and visit these hidden gems in reality. Apart from promoting fitness, this product also help to promote local attractions.

PROBLEM STATEMENT

Physical activity is essential for maintaining health and well-being, but traditional exercise routines can be challenging for individuals with disabilities. Many fitness programs and games are not designed to accommodate diverse physical abilities, leading to limited opportunities for inclusive physical activities. Therefore, XL2S vs Rajang River Boardgame 2.0 will be innovated and upgraded from the 1.0 version focus to empower fitness and fun among people with disabilities by combining the joy of play with simple exercises in a group setting.

INNOVATION DESCRIPTION

This boardgame specifically designed for people with disabilities. The game combines elements of fun and physical activity, allowing players to engage in a stimulating and enjoyable fitness experience. Players move around the board, encountering variety of exercise options that cater to their individual capabilities. To enhance the overall experience, specific square on the boardgame feature symbolic elements such as Rajang River, representing a downward movement, and Pan Borneo, symbolizing upward progression. Players encounter these elements as they navigate through the game. Sliding down a Rajang River signifies setbacks or obstacles, while ascending a Pan Borneo represents progress and advancement. Additionally, some mystery square (Chance ?) on the boardgame present various instructions, such as moving forward or backward, adding an element of surprise and excitement to the game. All of the exercises are recorded as videos that can be accessed by scanning the QR code on the manual provided in the set. This allows players to easily access detailed instructions and demonstrations for each exercise. Whether they prefer a digital or printed format, the resources are readily available, ensuring that participants can follow the exercises correctly and safely throughout the game. All of the details for the game play are presented on the manual.

Table 1. List of specific items included in a XL2S Pan Borneo VS Rajang River Boardgame Set

Items	Size & Measurement	Quantity
Packaging Box	26.7cm (W) x 40cm (L) x 5cm (H)	1
Boardgame (Tarpaulin Material)	6ft x 6 ft	1
Inflatable Air Number Dice	30cm x 30cm	1
Playing Marker (Round Shape)	18cm (Diameter)	5
Chance Cards	5cm (H) x 9cm (W)	20
Manual Guideline Game play	14.8cm (H) x 10.5cm (W)	1

NOVELTY

Inclusivity:

XL2S Pan Borneo Vs Rajang River Boardgame 2.0 is inclusive by design, providing tailored exercise setting that accommodate various disabilities. This inclusivity fosters a sense of community and belonging among players, promoting social interaction and support.

Motivation and Engagement:

By incorporating game elements, such as rewards and progression, it keeps players motivated and engaged throughout the exercise session. This increases adherence to regular physical activity routines.

Customizability:

The game's modular design allows caregivers and players to customize the difficulty and types of exercises to match individual preferences and fitness levels.

Physical and Cognitive Stimulation:

This boardgame not only promotes physical activity but also offers cognitive stimulation through strategy and decision-making during the game.

AWARDS AND RECOGNITION

The first version of this boardgame was awarded with Gold Award during the International Innovation Invention Creation Exhibition (IIICE 2019). This product received a positive feedback, especially from students in schools. Teachers always request for the expansion of this product because it has many health and fitness benefits for students. However, fitness is for all, including people with disabilities, and we should not neglect their needs. Therefore, XL2S Pan Borneo VS Rajang River Boardgame 1.0 will be modified to version 2.0 which focus on the people with disabilities.



Figure 1: Gold Award for Boardgame version 1.0

COMMERCIALIZATION

The commercialization strategy includes partnerships with disability organizations, online sales platforms, and specialized retailers. Apart from that, this product also can targeted academic institution such universities and school that have students with disability. It is affordable, fun-to-use product that can be seamlessly integrated into various programs and modules tailored to this special population. Additionally, collaborations with healthcare providers will also help promote the XL2S Pan Borneo Vs Rajang River Boardgame 2.0.

CONCLUSION

In conclusion, the boardgame innovation designed for individuals with disabilities offers a promising and impactful solution to promote physical and cognitive well-being in a fun and inclusive manner. By providing an engaging platform for exercise and social interaction, this product has the potential to enhance the lives of individuals with disabilities, fostering a sense of empowerment and enjoyment in their leisure activities. With its adaptability and affordability, the board game opens new avenues for promoting fitness and inclusivity, making a positive difference in the lives of those it serves.

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