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International Teaching Aid
Competition 2023

Reconnoitering Innovative Ideas in Postnormal Times

iTAC

2023

iTAC 2023
INTERNATIONAL TEACHING AID COMPETITION
E-PROCEEDINGS

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PREFACE

iTAC or International Teaching Aid Competition 2023 was a venue for academicians, researchers, industries, junior and young inventors to showcase their innovative ideas not only in the teaching and learning sphere but also in other numerous disciplines of study. This competition was organised by the Special Interest Group, Public Interest Centre of Excellence (SIG PICE) UiTM Kedah Branch, Malaysia. Its main aim was to promote the production of innovative ideas among academicians, students and also the public at large.

In accordance with the theme "Reconnoitering Innovative Ideas in Post-normal Times", the development of novel ideas from the perspectives of interdisciplinary innovations is more compelling today, especially in the post-covid 19 times. Post-pandemic initiatives are the most relevant in the current world to adapt to new ways of doing things and all these surely require networking and collaboration. Rising to the occasion, iTAC 2023 has managed to attract more than 267 participations for all categories. The staggering number of submissions has proven the relevance of this competition to the academic world and beyond in urging the culture of innovating ideas.

iTAC 2023 committee would like to thank all creative participants for showcasing their innovative ideas with us. As expected in any competition, there will be those who win and those who lose. Congratulations to all the award recipients (Diamond, Gold, Silver and Bronze) for their winning entries. Those who did not make the cut this year can always improve and join us again later.

It is hoped that iTAC 2023 has been a worthy platform for all participating innovators who have shown ingenious efforts in their products and ideas. This compilation of extended abstracts published as iTAC 2023 E-Proceedings contains insights into what current researchers, both experienced and novice, find important and relevant in the post-normal times.

Best regards,

iTAC 2023 Committee
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ABSTRACT

The innovation that we intended to introduce is called Dollar Dash. We have improvised the Snake and Ladder game by adding mathematics and financial elements that could be very interesting for all ages. Such improvement, inspired by the game-based teaching and learning methodology, is specifically designed to cater to the learning aspects of the players, particularly the students. Students frequently struggle with calculation subjects and easily lose interest when it comes to complicated equations with unclear methods and formulas. The boredom and negative feelings will discourage students from studying as it does not fit their desired learning method. Hence, the objective of improvising the board game is to assist students to grasp the learning content of the related mathematical and financing subject through interactive games. In short, the players can learn while playing the said game. In essence, the game creates a mix between teaching and enjoyment, keeping players interested the entire time. Dollar Dash calls for strategic judgment, analytical thinking, and problem-solving abilities. This engaging game offers a comprehensive overview of financial knowledge. We have targeted three main communities that could benefit from our game in which; primary students can strengthen their basic calculations, university students can enhance their financial knowledge and educators can also use the board game as their teaching aids to make the learning content more enjoyable. With Intellectual Property (IPO) application underway, we foresee a potential commercial

collaboration with industry players. Future plans include converting this physical board game into a digitalized online game to cater to tech-savvy students.

Keywords: game-based teaching and learning, finance, interactive, knowledge, learning

BACKGROUND

Dollar Dash is the name of the innovation that we aim to introduce. We improved the Snake and Ladder game by including mathematical and financial features that could be appealing to people of all ages. Instead of summing up numbers after rolling the dice, we include another dice with equations of subtraction, addition, multiplication, and division. Additional features include game cards incorporating finance-related questions and a bankruptcy box. Inspired by the game-based teaching and learning methodology, such improvement is specifically designed to cater to the learning aspects of the players, particularly the students. We have taken into consideration including functional features that might help students to strengthen their knowledge in the most enjoyable approach without much complication.

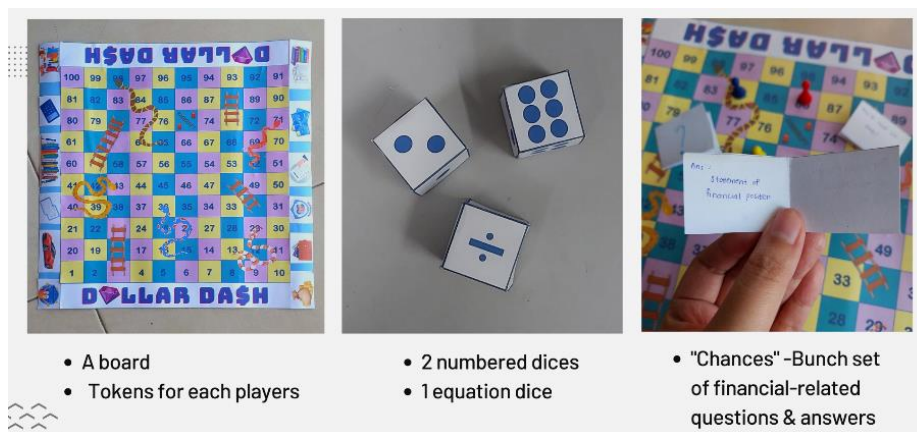


Figure 1. Features of the Board Game

We have included some questions from the Personal Financial Planning (FIN533) syllabus to relate to the innovation made in the game. This way, students can easily recap what they have learned in the classroom with their peers in a more relaxing method rather than stressfully cramming everything in the hope just to score in their exams.

- Each player will choose a token and place it at box "1" to start.
- On your turn, roll the dice and you have to complete the equations.
- Players have to go all the way up until they reach to box "100" to win the game.

CHANCES

- Chances given to help players maintain their score.
- The questions will be based on what students have learnt in subject Personal Financial Planning (FIN533)

DICES

- Bigger number have to subtract, sum and multiply and divide the smaller number.
- For numbers with decimal in division equation, players have to round off the digits into a whole number.

LADDER

- If players land at the bottom of the ladder, they can climb up but players don't have to go down if they land at the top of the ladder.

SNAKE

- When players land on top of snake's head, they will be given a chance to pick a random financial-related question provided.
- Those who managed to answer it correctly get to stay on their position but those who give a wrong answer have to go down the snake.

BANKRUPTCY

- If players land at the bankruptcy box, they will lose all of their points and have to restart the game from "1" back.

Figure 2. Instructions and Rules of Dollar Dash

Dollar Dash is no way different from the main original Snake and Ladder game but with an interesting feature for students to learn, it will surely become more fun for them to grasp the learning content.

PROBLEM STATEMENT

Students frequently struggle with learning and studying calculation subjects resulting them to easily lose interest in this Personal Financial Planning (FIN533) subject when it comes to complicated equations with unclear methods and formulas. Due to distractions from the environment or methods that do not fit their desired learning method, students also struggle to understand the core and basic calculations. Hence, boredom and negative feelings will discourage students from learning and studying calculations.



Figure 3. Students Stressing Out to Complete Complicated Calculations

The image in the figure above shows students in a challenging setting struggling with financial calculation difficulty. Observation and quick interview have been done and it has proven that

students indeed feel stress when doing calculations because of their weak basic knowledge due to uninteresting learning practice that does not fit their desired learning method.

OBJECTIVES

We wanted to introduce a new innovative concept; Dollar Dash educational board game. The game concept is based on mathematical and financial elements. The goal of improvising the board game is to help students to understand the subject matter of the relevant mathematical and financial concepts through interactive games, as well as to provide a fun atmosphere for learning and interaction with their classmates or teachers. In essence, the game creates a mix between teaching and enjoyment, keeping players interested the entire time. The game's objective is also being developed in response to player desires, notably from students, for learning in a more enjoyable and engaging environment.

NOVELTY

Our innovative product has been accepted as one of the games to be used by students in the Resource Center, Perpustakaan Tun Abdul Razak (PTAR) UiTM Melaka Kampus Bandaraya. It shows that Dollar Dash is now recognized in the university and a lot of parties are interested and invested in our innovative board game due to its uniqueness for both students and educators. The librarian approved Dollar Dash's suitability for students and support the innovation as for them, the development of the board game was a good initiative in making learning more interesting to be use at the library. The board game gives students the confidence in answering the question and at the same time, gives them new information about the subject.

Dollar Dash promotes active engagement and problem-solving through interactive learning experiences. The educational component is seamlessly incorporated into the gameplay as players gain analytical thinking, strategic judgment, and mathematical skills. The combination of gameplay elements in Dollar Dash results in a distinctive methodology that offers a comprehensive overview of financial knowledge. It calls for strategic judgment and analytical thinking skills that motivate students in learning and shift their perception from the boredom judgment of impossible unsolved equations to a fun and enjoyable learning process. According to Ng (2020), the game's educational components offer players a fun and interactive approach to improve their knowledge skills while taking part in the game. Dollar Dash is an excellent choice for individuals seeking a board game that is both entertaining and educational.



Figure 4. Recognition Letter of Support from Resource Center, Perpustakaan Tun Abdul Razak (PTAR) UiTM Melaka Kampus Bandaraya.

COMMERCIALIZATION POTENTIALS

The commercial potential of Dollar Dash can be influenced by several factors, which is a unique selling point as the game can stand out in the market due to its distinct combination of gameplay mechanics and educational elements. We foresee a potential commercial collaboration and plan to transform Dollar Dash from a physical board game into a digitalized online game to enhance accessibility and convenience, allowing the game to reach a wider audience beyond geographical limitations and have a more significant impact. Also, by transitioning Dollar Dash into a digitalized online base, we can effectively access the vast global market of digital gamers.

The growing demand for educational tools and games that make learning more enjoyable and interactive presents significant commercial potential in the educational market. Dollar Dash effectively caters to this demand by providing a game-based learning experience that can be utilized in both formal and informal educational settings. The game's ability to enhance basic mathematical skills and promote financial literacy aligns well with the needs of educators, parents, and students who are actively seeking effective educational resources. By capitalizing on this demand, Dollar Dash has the potential to thrive commercially in the educational market.

Furthermore, Dollar Dash's commercial potential also extends to educational institutions and educators. By establishing partnerships with educational institutions, Dollar Dash can

strategically position itself as a preferred educational game to be included in schools or universities. The game can offer bulk purchase options or licensing agreements, making it more accessible and affordable for schools. This approach enables educational institutions to easily incorporate Dollar Dash into their classrooms, providing students with a hands-on and interactive learning experience and become a valuable resource within formal education.

BENEFIT TO COMMUNITY

We have targeted three main communities that could benefit from our game in which; primary students can strengthen their basic calculations by focusing on subtraction, addition, multiplication, and division. Our major concern is for university students hence why we decided to create a game that can enhance their financial knowledge while answering some Personal Financial Planning (FIN533) questions and includes a few financial elements that suit the educational level. Last but not least, educators can also use the board game as their teaching aids to make the learning content more enjoyable through an interactive learning experience.

FEEDBACK FROM COMMUNITY

Overall, we receive positive feedback from the community about Dollar Dash. We have approached some students in UiTM Melaka Kampus Bandaraya and introduced them to Dollar Dash. We request them to spare a few minutes to play the board games with their peers and received positive feedback. Students also seemed to be able to finish the board game. They stated that the game helped them to strengthen their memory about questions in Personal Financial Planning (FIN533), and it also bring them fun and joy competing in the board game.

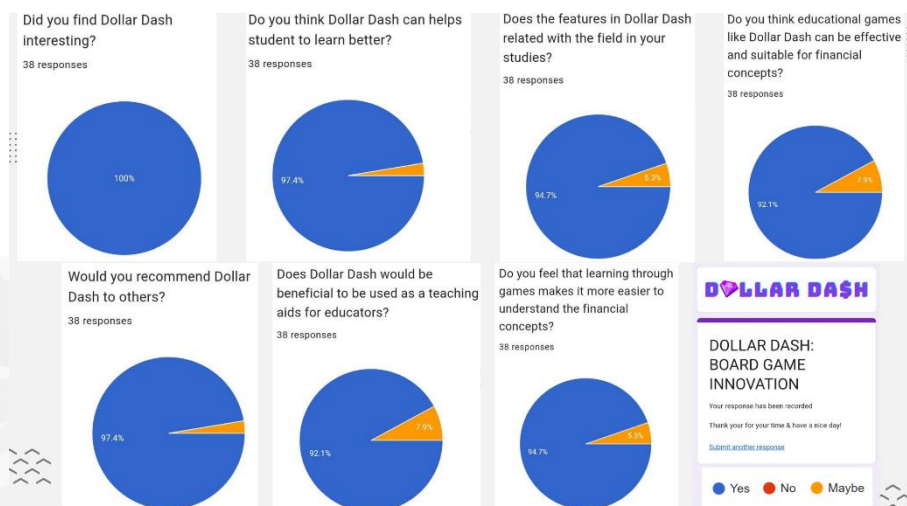


Figure 5. Survey on the Effectiveness of Dollar Dash

From the figure above, we have conducted a survey and it shows that everyone agreed that Dollar Dash as an interesting approach for game-based learning when we first introduced it to them. 94.7% of the respondent is in the opinion that learning through games makes it easier to understand financial concepts as the features related to the field in their studies. Next, 92.1% are in favor that Dollar Dash can be effective, suitable and beneficial to be used as a teaching aid by educators for financial concepts. Apart from that, 97.4% of the respondent think Dollar Dash can help students to learn better and would gladly recommend the board game to others.

CONCLUSION AND REFLECTION

The Snake and Ladder game has helped us in giving ideas in terms of innovation. It has led us into making our own board game, which is Dollar Dash. We have managed to finish the making of Dollar Dash in less than 3 months, which is an accomplishment for all of us. With positive reviews and feedback from others, we hope to develop more board games in terms of learning and education to assist more students who are struggling out there. To conclude, our Dollar Dash board game was a successful innovation that could help a lot of students.

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