Integration of Battle Royale Games With Tabletop Games to Help Decision Making Skills

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Abstract— Effective decision-making skills are essential both in everyday life and in gaming contexts, where choices have major consequences. Board games, known for their strategic nature, provide an ideal platform to hone these skills. This research aims to understand decision-making skills using board games, using Rapid Application Development (RAD) methodology to collect data, implement updates, and improve the gaming experience. This project uses Unity to create applications that augment the gameplay. The result of this effort is a distinctive board game that differs from conventional table games, offering its players a new and exciting experience.

Keywords— decision making, tabletop games, battle royale

I. INTRODUCTION

Decision-making is selecting the most appropriate option from a set of available options to achieve a goal or solve a problem. In the game, players must have decision-making abilities to achieve predetermined goals. Bunker and Thorpe (1986) stated that the game's uniqueness is the decision-making process that precedes the implementation aspect of performance in the game [1]. Based on this, decision-making learners are sensitive to their need to practice the skills or ways of playing necessary to improve game performance [2]. These skills are not only crucial in the personal and professional fields but also play an essential role in the gaming field..

Games, a medium that is often underestimated in its cognitive demands, contain complex decision-making challenges within its structure. Board games, renowned for their strategic depth, serve as an exciting arena for honing decision-making skills. Gobet F., Voogt A., and Retschitzki, J., define that a Board Game is a game with a fixed set of rules that limit the number of pieces on the board, the number of positions for these pieces, and the number of possible moves [3] In chess or monopoly board games, players must analyze, strategize, and make choices that greatly influence the trajectory of the game. However, this intellectual stimulation comes at the expense of accessibility and time commitment, thus deterring many enthusiasts.

One of the problems in learning decision-making skills is the lack of appropriate media. There are few ways to practice decision making. In response to these challenges, this report introduces a new board game development concept. Combining the popular Battle Royale genre with Turn-Based Role-Playing Game (TBRPG) elements. This merger aims to simplify rules and increase engagement. Turn-Based Role-Playing Game (TBRPG) is a type of Role Playing Game (RPG), Role-Playing Game (RPG) is a game where the player will act as a character [4]. Although RPGs are usually very complex

games, with several different gameplay sections, players usually spend the majority of gameplay time in combat and preparation for battle is often the second most time-consuming part of the gameplay. Therefore, the combat system can be seen as an important part – if not the core gameplay – of the roleplaying genre [5]. In TBRPG, players control characters with different abilities based on their class. Combat occurs in turns, with players taking actions one after the other. [6] According to F. S. Sulaeman and D. P. Aji, strategic players in turn-based games are restricted to taking actions only during their turn. Typically, players are limited in the number of actions they can perform, such as being allowed only two (2) actions per turn. Turn-based strategies provide players the freedom to think without time constraints. [7]. The TBRPG component encourages players to use creativity to achieve victory. This unique combination challenges players to devise survival strategies, providing a narrative-rich gaming experience that sparks the imagination and enhances the sensation of Battle Royale encounters. Battle Royale is a game that combines elements of survival and exploration with the winning condition that only one player survives. "Battle Royale" originated from the Japanese film "Battle Royale" released in 2000. This film introduced the concept and setting, later influencing the game "Battle Ground." The game adopted elements from the film, popularizing the term "battle royale" in the gaming community [8].

II. METHOD

A. Rapid Aplication Development

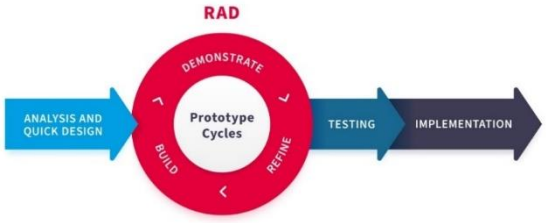

Figure 1 Illustration of Rapid Application Development (RAD) [9].

RAD is often used when model building speed is more important than perfect feature completeness. This can also be helpful in situations where the software being developed is expected to undergo frequent changes or updates.

The main goals of RAD are: high quality systems, rapid development and delivery, and low costs. These goals can be summarized in one sentence: the commercial need to deliver functional business applications in shorter timescales and with less investment.[10].

B. Creating Game Applications

The initial application was developed using Unity, a game engine and integrated development environment (IDE) commonly called Unity3D. Unity is a comprehensive toolkit for creating interactive media, primarily video games. As described by CEO David Helgason, Unity encompasses a range of tools essential for game creation, handling graphics, audio, physics, interactions, and networking [11].

C. Creating Game Boards

Designing game board layouts involves using software tools such as CorelDraw, a vector graphics editor developed by Corel, a software company based in Ottawa, Canada. Initially designed for Windows operating systems from 2000 onwards, CorelDRAW also had versions developed for Linux and Mac OS, although these were discontinued due to low sales [12]. Additionally, CorelDraw is utilized for map creation due to its precision in shaping. On the other hand, card designs are crafted using Tabletop Creator software, a specialized tool for board game development. Like Adobe for image editing and Unity for video games, Tabletop Creator facilitates the rapid and efficient design, customization, and exportation of games. It provides various features for crafting game components, tailoring them, and exporting projects in various formats suitable for physical or online play [14]. Tabletop Creator is available on Steam, a

digital game distribution platform established by Valve Corporation. Steam is renowned as one of the largest platforms for PC games, offering a vast selection of over 10,963 games and boasting an impressive user base of over 27.9 billion active users as of 2022 [15][16]. Within the Steam platform, two key components contribute to its functionality: the Steam Store and Steam Community, offering digital rights management (DRM), multiplayer gaming, and social networking services [17].

III. RESULT AND DISCUSSION

The following flowchart outlines the gameplay, starting from the beginning of the game and covering Encounter, Treasure, and Battle.

A. Game Preparation Flowchart

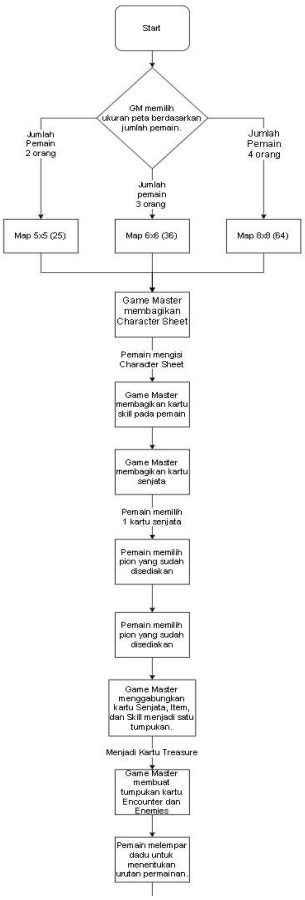

Figure 2 Flowchart of game flow.

In Figure 2 the flowchart depicts the game preparation process, where the Game Master arranges the game board, distributes cards, and provides gameplay instructions.

B. Flowchart of the Encounter and Treasure plot

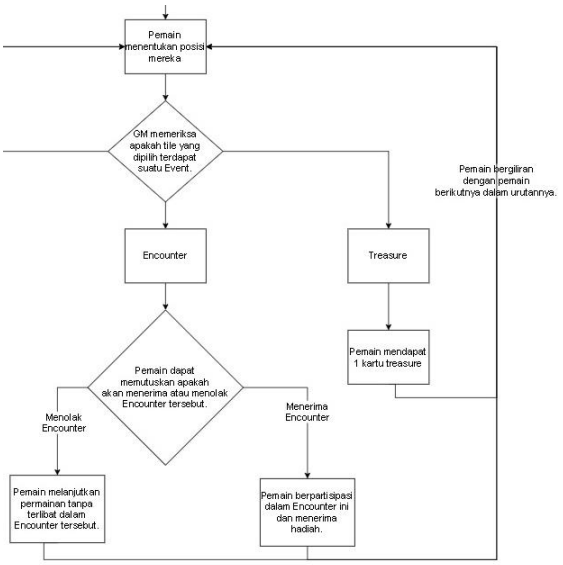

Figure 3 flowchart of the Encounter and Treasure plot

In Figure 3 the flowchart depicts the flow of Encounter and Treasure. When players get an Encounter, they have the option to accept or reject it. In Treasure, players draw one card from the top and then exchange turns with the other players.

C. Flowchart of Battle flow

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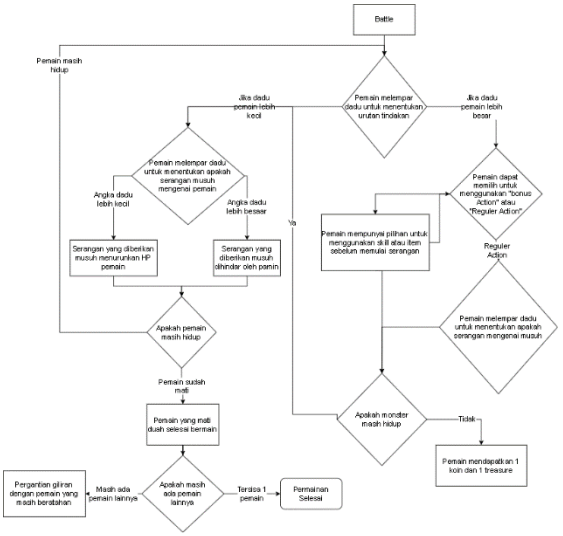

Figure 4 flowchart of the Battle flow.

In Figure 4 the Battle flow chart depicts the sequence of actions during the Battle.

When players engage in a Battle event, players and monsters will roll dice to determine the order of attack. Players have the option to use skills first to secure victory. After defeating the monster, the player receives 1 coin and 1 treasure card. If a player loses and there are still 2 or more players, then the losing player is replaced. However, if only 1 player remains then that player is declared the winner.

A. Result

I. Application Creation

In the application being developed, the crucial system is the Random Number Generator (RNG) system. The system is designed to provide random results based on the data provided.

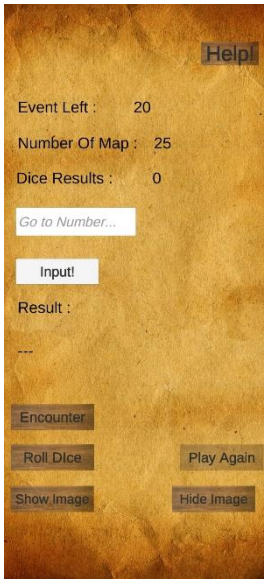

Figure 5 Game View

In Figure 5 there are several buttons to input numbers to check whether there is an event in those numbers.

II. Creating table monsters

Monster Name	Hp	Damage	STR Roll	DEX Roll	CON Roll	INT Roll
Bandit	6	4	0	1	1	0
Bats	7	4	-3	2	0	-4
Orc	13	7	3	1	3	-2
Skeleton	7	4	0	2	2	-2
Slime	4	3	-3	1	-1	-4
Wolf	6	5	1	2	1	-4
Zombie	10	4	-1	-2	3	-4

Figure 6 monster table

In table 6, there are monster statistics, including the monster's name, amount of HP, number of attacks that can be generated, and additional dice rolls required when the monster takes an action.

III. Table of Weapons in the Game

Weapon	Damage	Weapon Type	Damage Type	Stat Use	Weight	Extra
Club	3	Blunt	Physical	STR	2	-
Crossbow	6	Pierce	Physical	Dex	5	Heavy
Dagger	3	Pierce	Physical	STR/DEX	1	Light
Hand Axe	4	Slash	Physical	STR	2	Light
Katana	5	Slash	Physical	Dex	3	-
Long Bow	6	Pierce	Physical	Dex	2	-
Long Sword	6	Slash	Physical	STR	3	Heavy
Mace	6	Blunt	Physical	STR	10	Heavy
Short Bow	4	Pierce	Physical	Dex	2	-
Short Sword	4	Slash	Physical	STR/DEX	2	Light

Figure 7 monster table

In table 7, there are weapon statistics, including the name of the weapon, the number of attacks it can produce, its type, relevant statistics used when holding the weapon, its weight, and special information related to the weapon.

IV. Creating Board Game

Making a game board begins with a rough sketch, the next step is making a game board. This manufacturing process was carried out using CorelDraw because of the accuracy of the size.

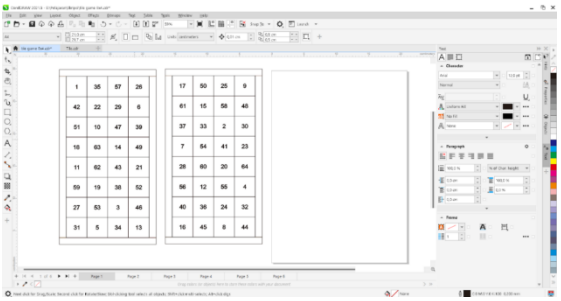

Figure 8 Initial design of the game board

In Figure 8, it is a predetermined board shape. These two images will be printed and assembled into a complete game board.

V. Creating Card Games

After collecting card references from various games and sketching a rough design, the next step is to create the card using Tabletop Creator.

Figure 9 Weapon card design

Figure 9 is a weapon card. On this card, there are details such as the name of the weapon, the number of attacks that can be produced, the type of attack produced, and the weight of the weapon. Additionally, certain weapons come with additional information, specifically labeled "Light" or "Heavy". These cards can be identified by their gray color.

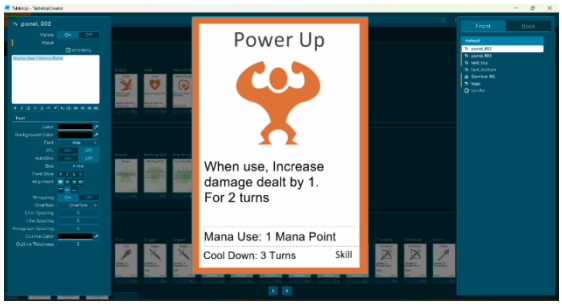

Figure 10 Skill card design

Figure 10 is a skill card. This card provides information including the skill name, skill description, duration, amount of mana needed to activate, and cooldown period before the skill can be activated again. These cards are easily recognized by their orange color.

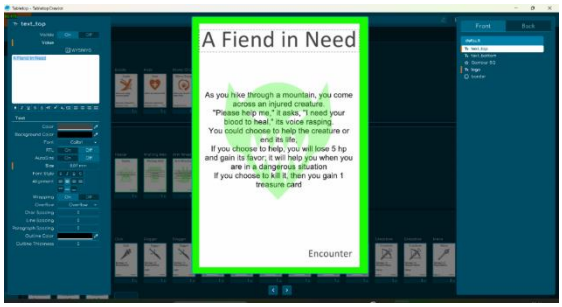

Figure 11 Encounter card design

Figure 11 is an encounter card. On this card, there are details such as the name of the encounter and a description of the encounter. These cards can be identified by their green color.

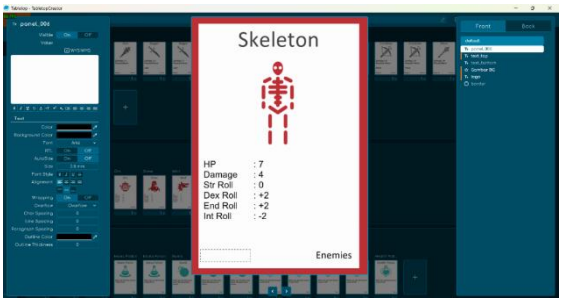

Figure 12 Monster card design

Figure 12 is a monster card. On this card, there are details such as the name of the monster, the number of Health points (HP), the number of attacks the monster produces, the monster's stats when carrying out actions. These cards can be identified by their red color.

Figure 13 Item card design

Figure 13 is an item card. On this card, there are details such as the item name and item description. These cards can be recognized by their blue color.

B. Discussion

I. Discussion of Survey Results

After the game has been created, conduct a survey of people who are interested in playing tabletop games.

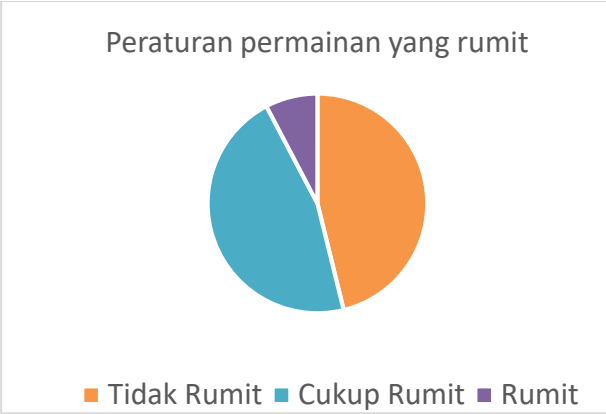

Figure 14 Diagram of players' answers to questions about the complexity of game rules

Figure 14 is a diagram of the answers to the questionnaire. The sixth question asked whether the game the players were playing was a complicated game, 46% of respondents said it was not complicated and 46% was quite complicated, the remaining 8% were complicated.

. Figure 15 Diagram of players' answers to game questions whether they are challenging enough or not

Figure 15 is a diagram of the questionnaire answers. The tenth question asked whether the game was quite challenging or boring, 92% of respondents said it was challenging and 8% said it was normal.

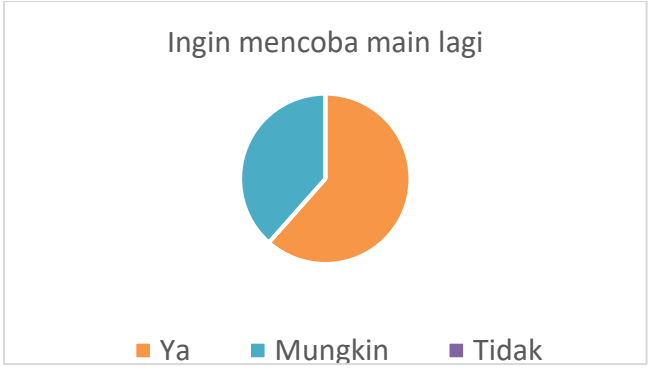

Figure 16 Diagram of players' answers to the question of wanting to play this game again

Figure 16 is a questionnaire answer diagram. Question eleven asked whether players wanted to play this game again, 62% of respondents said yes and 38% maybe.

IV. CONCLUSION

"Dice of the Unknown" helps players make better decisions by giving them challenges in the story, encouraging creative thinking. Built with Tabletop gaming and Unity in mind, it lets players navigate scenarios and make choices. Players love its unique mechanics, even with the mix of Battle Royale and Tabletop complexity, finding it fun and easy to understand.

REFERENCES

[1] A. Turner and T. J. Martinek, "Teaching for Understanding: A Model for Improving Decision Making During Game Play," Taylor & Francis, no. 1, pp. 44-63, 1995.

[2] T. Hopper and D. Kruisselbrink, "Teaching Games for Understanding: What does it look like and how does it influence student skill learning and game performance?," Journal of Teaching Physical Education, no. 1, 2001.

[3] F. Pratiwi and M. , "Pengembangan Media Pembelajaran Boardgame Untuk Meningkatkan Keterampilan Berbicara Dan Sikap Peduli

Lingkungan Pada Siswa Kelas IV Sekolah Dasar," pp. 12-14, 2019

[4] W. M. Inayah, "SOCIAL ADVENTURE GAMES BERBASIS ROLE PLAYING GAME (RPG) MAKER XP SEBAGAI SUMBER BELAJAR IPS SMP KELAS VII MATERI MANUSIA, TEMPAT, DAN LINGKUNGAN SOCIAL ADVENTURE GAMES BASED ON ROLE PLAYING GAME (RPG) MAKER XP AS A SOCIAL," SOCIAL STUDIES, vol. III, no. 3, 2018.

[5] C. D. Stenström and S. Björk, "Understanding Computer Role-Playing Games: A Genre Analysis Based on Gameplay Features in Combat Systems," Digitala Vetenskapliga Arkivet, no. 6, 2013.

[6] F. I. F. Abdillah, E. M. AdamsJonemaro and M. A. Akbar, "Implementasi Adaptive AIPada Game Turn-Based RPGDengan Menggunakan Metode Hierarchial Dynamic Scriptin," Jurnal Pengembangan Teknologi Informasi dan Ilmu Komput, vol. II, no. 2, pp. 703-714, 2018.

[7] F. S. Sulaeman and D. P. Aji, "Turn Based Strategy Games to Hone Your Knowledge of Indonesian Culture Based on Android," 1st Paris Van Java International Seminar on Health, Economics, Social Science and Humanities, pp. 47-50, 2020.

[8] J. k. Ahn, "A Study on Game Dynamics of Battle Royale Genre," Journal of Korea Game Society, pp. 27-38, 2017.

[9] "Rapid Application Development: Advantages and Disadvantages – NIX United." NIX United – Custom Software Development Company in US.

[10] P. B. Davies and H. Mackay, "Rapid application development (RAD): an empirical review," European Journal of Information Systems , vol. VIII, no. 3, pp. 211-223, 1999

[11] K. H. John , "A History of the Unity Game Engine," Worcester Polytechnic Institute, p. 484, 2014.

[12] M. D. S. Lubis, H. F. R. U. Sinaga and A. D. Batubara, "ANALISIS DESAIN GRAFIS MENGGUNAKAN TEKNOLOGI," Jurnal Teknik Informatika Kaputama (JTIK), vol. IV, no. 2, 2020.

[13] H. G. Sakti, "PENGARUH MEDIA DESAIN GRAFIS BERBASIS ADOBE PHOTOSHOP," Jurnal Realita, vol. II, no. 2, pp. 327-328, 2017.

[14] Tabletop creator: Tabletop games creation made easy, fast and fun (2023) Pixelatto.

[15] "Steam annual game releases 2022 | Statista." Statista.

[16] "How many people use Steam? — 2023 statistics | LEVVVEL." LEVVVEL.

[17] D. Lin, C. P. Bezemer, Y. Zou and A. . E. Hassan , "An empirical study of game reviews on the Steam platform," Empirical Software Engineering, p. 170–207, 2019.

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