

ETERNAL QUEST: A 2D-GAME MOBILE PLATFORM ACTION-ADVENTURE

Kristen V. Modesto¹, Artaxerxes E. Garcia², Jules Nicole Y. Mallo³, Ralph Louise G. Seguera⁴, Christian Allen J. Delos Reyes⁵

¹University of Antique, Philippines

¹kvmodesto@antiquespride.edu.ph

²artaxerxes.garcia@antiquespride.edu.ph

³jnymallo@antiquespride.edu.ph

⁴rlgseguera@antiquespride.edu.ph

⁵robeliajoy.villaruz@antiquespride.edu.ph

Abstract— The rapid growth of mobile gaming has shaped how teenagers consume digital content, often favoring foreign-themed games over culturally grounded narratives. This shift has contributed to the declining awareness of Philippine folklore among youth aged 13–19. This study presents the design and development of *Eternal Quest*, a 2D platform-based action-adventure mobile game that integrates Philippine mythological creatures into interactive gameplay. The game features side-scrolling mechanics, enemy encounters, boss battles, resource-based sub-weapons, checkpoints, and life and health systems to provide an engaging experience. The system was developed using the Godot Engine and Aseprite. Usability was evaluated using the System Usability Scale (SUS) to assess functionality, ease of use, and overall user experience. Results indicated that the game was functional and engaging, with recommendations for improvement in interface clarity and player guidance. The findings suggest that mobile games can serve as effective platforms for cultural awareness and folklore preservation.

Keywords— 2D platformer game, gamification, Godot Engine, Collision Detection, Philippine Folklore

I. INTRODUCTION

The gaming industry had rapidly evolved into one of the most popular forms of entertainment, especially among teenagers aged 13 to 19 years old. With advancements in technology, modern games offered immersive experiences that encouraged strategic thinking, competition, and social interaction (Bain & Company, 2024). Popular genres like Multiplayer Online Battle Arenas (MOBA) and First-Person Shooters (FPS) continued to dominate the industry, with titles such as Mobile Legends and Counter-Strike 2 gaining widespread appeal (Newzoo, 2024). The engaging nature of gaming had solidified its place in daily life, making it a major influence in modern digital culture.

As technology continued to shape modern entertainment, many Filipinos had lost connection with their rich mythical heritage. Folklore creatures that once inspired fear and fascination were slowly being forgotten. Younger generations were more engaged with modern digital trends

and foreign influences, leaving Philippine mythological monsters overshadowed by mainstream entertainment. Video games at the time focused heavily on action, fantasy, and competition, rarely incorporating elements of Filipino folklore, which further diminished awareness of these legendary creatures. Without efforts to preserve these myths, the unique stories and cultural significance of these creatures might soon have disappeared from the collective memory of Filipinos.

To address these issues, the team proposed *Eternal Quest*, a platform-based action-adventure mobile game that brought Philippine mythological creatures to life in an action-packed adventure. Players explored different stages, facing monsters such as the Tiyanak, Aswang, Santelmo, Manananggal, Nuno sa Punso, Mangkukulam, and Amalanhig as enemies. Each level presented unique challenges, battles, and thrilling boss fights, allowing players to engage with Filipino mythology in an interactive way. With simple controls and exciting action, the game made learning about Filipino mythical creatures both fun and engaging.

II. RELATED LITERATURE

This chapter presented relevant literature, systems, and studies on platform-based mobile games, Filipino folklore integration in gaming, mythological creature representation in interactive media, and gameplay mechanics such as side-scrolling movement, combat, collision detection, and hit detection, emphasizing their significance in cultural preservation, player engagement, and immersive game design.

1) 2D Platformer Game Mechanics in the Philippines

2D platformer games had remained a popular genre due to their simple yet engaging mechanics, which included side-scrolling movement, jumping mechanics, and enemy encounters. Lanzi (2018) highlighted the importance of level design and difficulty balancing in platformer games, ensuring that players experienced both challenge and enjoyment throughout gameplay. Studies suggested that collision detection and hit detection were crucial in maintaining smooth

interactions between the player and in-game elements, allowing for precise movement and combat mechanics. In the Philippines, Concepcion et al. (2022) developed *TrashFun*, a 2D educational game that promoted environmental awareness through interactive gameplay, demonstrating how platformer mechanics could be used for both entertainment and learning.

Barlis et al. (2014) explored the adaptation of traditional Filipino games into mobile applications, developing *Jump Without Hesitation*, a 2D platformer inspired by *Luksong Tinik*, a well-known Filipino street game. Their study emphasized the importance of cultural integration in game mechanics, showing how traditional games could be modernized while preserving their original essence. Similarly, Ancona (2017) created *UPWARDS: A Tale from Above*, a challenging 2D platformer that gained international recognition for its intricate level design and mechanics. These studies highlighted the growing interest in platformer games within the Philippine gaming industry, showcasing their potential for both entertainment and cultural representation.

The success of 2D platformers in the Philippines demonstrated their versatility in delivering engaging gameplay while incorporating meaningful themes. Whether used for educational purposes, cultural preservation, or pure entertainment, platformer mechanics continued to be a valuable tool for game developers. As technology advanced, Filipino developers were expected to further innovate within the genre, creating immersive and culturally relevant gaming experiences.

2) Folklore Representation in Filipino Video Games

The integration of folklore in video games had been widely studied, emphasizing its role in cultural preservation and player engagement. Research by Cerda (2021) discussed how Filipino-made video games incorporated history, culture, and identity into their narratives, allowing players to interact with mythological creatures, legendary figures, and historical settings. Espiritu (2023) examined the challenges of integrating Filipino culture into video games, noting difficulties in accurate representation and historical adaptation. Similarly, the study by Garcia and Alonzo (2022) explored the impact of folklore-based storytelling in interactive media, highlighting how mythological themes enhanced player immersion and engagement. Cerda (2021) further emphasized that folklore-based games could serve as a medium for cultural education, helping players understand the significance of traditional stories in a modern context. Despite these challenges, Filipino developers continued to explore ways to embed folklore into interactive storytelling, ensuring that traditional narratives remained relevant in modern entertainment.

The growing interest in folklore-based games had led to academic discussions on their impact on cultural identity and representation. Studies suggested that Filipino video games could serve as a medium for cultural expression, allowing developers to showcase indigenous narratives and traditions. However, challenges such as limited resources, market competition, and the dominance of Western game

narratives continued to affect the development of folklore-driven games. Espiritu (2023) noted that Filipino developers faced difficulties in balancing historical accuracy with engaging gameplay, as folklore elements had to be adapted to fit interactive storytelling formats. Cerda (2021) and Cu (2021) discussed how Filipino-made games could preserve cultural heritage while adapting to modern gaming trends, ensuring that traditional stories remained relevant in contemporary entertainment. Despite these obstacles, Filipino game developers remained committed to preserving and promoting local mythology, ensuring that traditional stories were adapted into modern interactive formats.

3) Gamification and Cultural Awareness in the Philippines

Gamification had been recognized as an effective tool for enhancing engagement and promoting cultural awareness. Casia et al. (2024) studied the impact of gamification on student engagement, finding a positive correlation between gamified learning and improved academic performance. Duterte (2024) examined gamification in higher education, concluding that game-based elements such as points, badges, and leaderboards significantly enhanced motivation and learning outcomes. Antonio and Tamban (2024) explored gamification in mathematics education, noting its effectiveness in improving student performance and attitude toward learning.

Additionally, Tolentino, Roleda, and Prudente (2023) investigated the role of gamification in high school education, concluding that interactive learning environments significantly increased student participation and comprehension. Alsawaier (2018) emphasized that gamification enhanced motivation and engagement, particularly in digital learning settings. Betts, Fabienke, and Farber (2021) explored the use of game-based quests in education, demonstrating how gamification fostered disciplinary literacy and engagement. Research by Junard Duterte (2024) examined the impact of gamification on student learning outcomes in higher education, finding that integrating game-like features into online learning environments significantly improved academic performance and motivation.

The growing body of research suggested that gamification could serve as a powerful tool for improving learning outcomes and cultural awareness. Studies indicated that integrating game-like elements into educational frameworks encouraged active participation, enhanced retention, and fostered a dynamic learning environment. Research by Antonio and Tamban (2024) on gamification in mathematics education found that students exposed to gamified learning showed increased problem-solving skills and engagement compared to traditional teaching methods. Future research should explore the long-term effects of gamification and its applicability across diverse educational contexts, particularly in cultural education and folklore preservation.

4) Dan the Man

Dan the Man was a 2D platformer and beat-'em-up game where players tackled various levels across themed worlds. Players journeyed through environments like a grassy village, the sewers, and predominantly a kingdom. The game featured a world map that allowed access to levels and bonus stages. In standard levels, players engaged in both platforming and combat challenges, with specific zones dedicated to intense fight sequences where groups of enemies had to be defeated to progress. Levels also contained hidden secrets that rewarded players for their discovery. Shops were interspersed throughout, offering items for purchase with coins, the in-game currency, to aid players. The final level in each world culminated in a boss fight. Bonus levels focused on combat within an arena, challenging players to defeat waves of enemies and advance to subsequent rounds.



Fig. 1 Dan the Man

5) Super Mario Bros.

Super Mario Bros. was a platform game in which the player controlled the titular protagonist Mario, who was tasked with exploring the Mushroom Kingdom to defeat Bowser and rescue Princess Toadstool. His brother, Luigi, was controlled by the second player in multiplayer mode and assumed the same plot role and functionality as Mario. The game took place through a side-scrolling perspective where the player moved to the right to reach the flagpole at the end of each level.

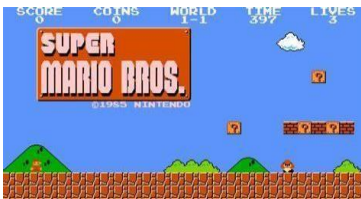


Fig. 2 Super Mario Bros.

6) Castlevania

The game followed Simon Belmont, a fearless vampire hunter, on his quest to defeat Dracula and rid the land of his dark influence. Players traversed eerie castles, haunted corridors, and treacherous dungeons, battling supernatural creatures with an arsenal of weapons like whips, daggers, and holy water. Like the original, the game emphasized strategic

combat, exploration, and collecting items to enhance abilities. As players progressed, they unlocked new sub-weapons, such as throwing axes and time-freezing clocks, each offering new opportunities for navigating the gothic landscapes.



Fig. 3 Castlevania

III. METHODOLOGY

This chapter presented the methodology employed in the development of Eternal Quest. It included the system development model, requirement analysis and documentation, design of software, systems, products, and processes, as well as the development and testing phases. The implementation plan was detailed to ensure effective deployment, with each section systematically explained to provide a comprehensive overview of the project's approach.

A. Research Design

The development of Eternal Quest, a side-scrolling platform action-adventure game rooted in Philippine mythology, adopts the iterative development model to

effectively manage the creation of its layered and complex gameplay systems. This approach is ideal for addressing the game's core components, including player and enemy mechanics, combat logic, animation systems, level design, and audio integration. Instead of attempting to build the entire game in a single pass, development is broken down into smaller, manageable cycles that focus on specific features. For example, early iterations concentrate on establishing the player's core movement, basic whip attacks, and blocking mechanics, each with placeholder animations and simplified logic. Once these are functional and tested, subsequent iterations expand the gameplay by introducing sub-weapon switching, stamina-based blocking, combo systems, and context-sensitive reactions from enemies.

Enemy design also follows this iterative pattern, with each mythological creature featuring unique behaviors, hitboxes, and weaknesses. These enemies are gradually introduced to allow time for careful tuning of AI behavior, animation syncing, and balanced integration with combat mechanics. Animation logic is continuously refined as well,

with visual effects like wind-up attacks, blocking frames, and stamina depletion cues implemented in sync with player feedback to maintain a fluid and responsive gameplay experience.

The game's level design is developed through a similar process. Early-stage layouts are gray-boxed to test

platforming flow, enemy placement, and environmental interactions. Later cycles improve on these by adding polished visuals, parallax backgrounds, traps, hidden sections, and environmental storytelling, ensuring each stage complements the game's pacing and mechanics. A checkpoint system is integrated within each level to support progression and difficulty balance. When players reach a checkpoint, they can respawn from that position upon defeat, minimizing frustration while maintaining the game's challenge and momentum.

Audio assets, including background music, sound effects, and voice clips (if used), are also developed iteratively. Temporary sounds are initially used to test gameplay feedback loops such as hit confirmations, sub-weapon activations, or enemy alerts before being replaced by final, polished audio that enhances immersion and clarity. Through this iterative model, the team is able to test, adjust, and refine each part of the game in isolation and within the whole system. This method improves responsiveness to feedback, reduces bugs, and accommodates evolving ideas without derailing development. Ultimately, it allows Eternal Quest to grow from a simple prototype into a rich, culturally immersive, and polished action-platformer experience.

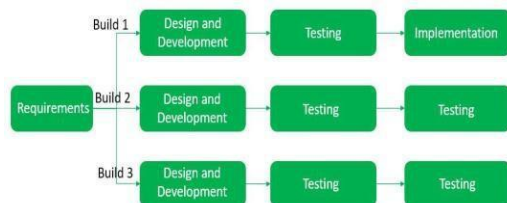


Fig. 4 Iterative Development Model

B. System Architecture

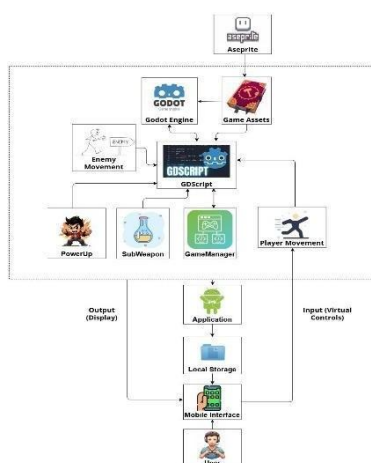


Fig. 5 System Architecture

The system architecture followed a structured and modular flow that supported the development and operation of

the mobile game. It started with the User, who provided input through virtual touchscreen controls. These inputs were handled by the Input System, which sent commands to the Godot Engine, the main platform that ran and managed all game components. Inside the engine, the GameManager oversaw the overall game flow, including loading stages, tracking scores, managing checkpoints, and handling player health, life, and progress.

Visual assets such as characters, items, and environments were created separately using tools like Aseprite and were organized under the Game Assets module. These assets were then imported into the Godot Engine and displayed to the user through the Mobile Interface, which showed all animations, effects, and UI elements.

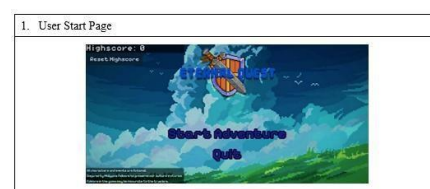
Game behaviors and mechanics were controlled through scripts written in GDScript, the coding language used by Godot. These scripts managed systems like the game manager, player movement, enemy actions, health recovery functions, and sub-weapon functions. Each system ran as a module within the engine, allowing for better organization and easier updates.

To ensure that progress and settings were saved, the architecture used Local Storage, which stored data directly on the user's device. The Application Module managed how the game ran on the mobile platform, making sure everything functioned properly during gameplay.

All parts of the system worked together to provide a smooth and responsive gaming experience. User inputs triggered actions, scripts handled game logic, assets provided visuals, and data was saved locally, all within the Godot Engine's environment.

C. Output and User-Interface Design

Input



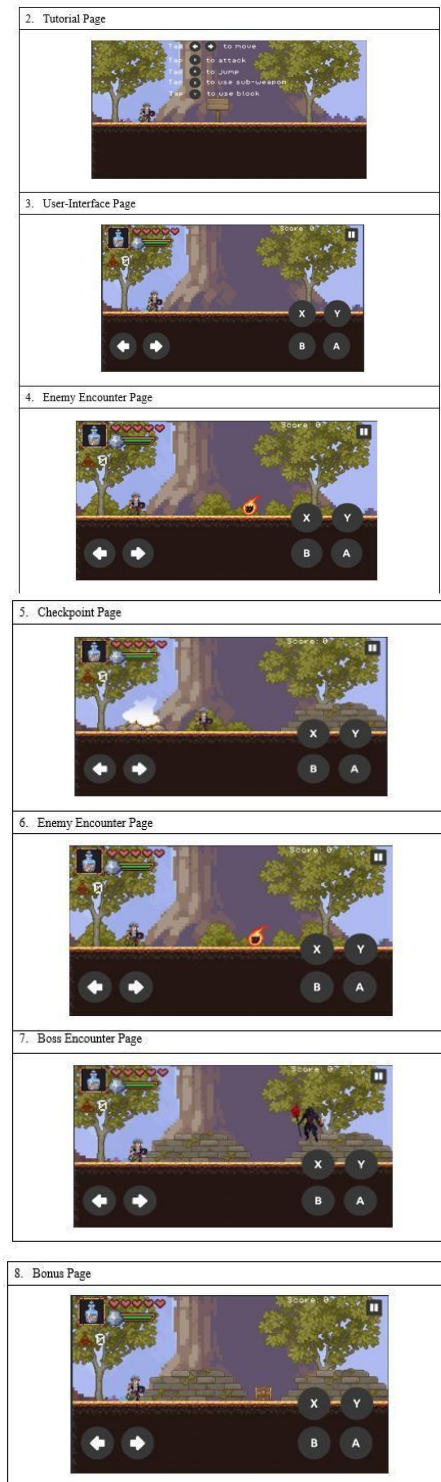


Fig. 6 Input

This represents to the sequence of game pages and gameplay states that the player interacts with throughout the game, including the Start Page, Tutorial Page, User-Interface Page, Enemy Encounter Pages, Checkpoint Page, Boss Encounter Page, and Bonus Page, which together define the flow of player actions and interactions during gameplay.

Report

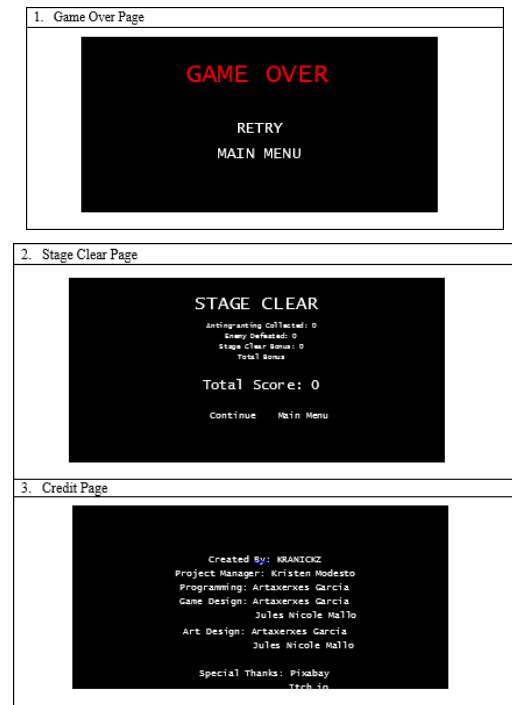


Fig.7 Report

This represents the set of output pages that provide the player with game results and summary information. These pages include the Game Over Page, which indicates failure conditions and restart options, the Stage Clear Page, which presents performance statistics and scores after successful completion, and the Credit Page, which acknowledges contributors involved in the game's development.

D. Software Specification

Component	Technology/Tools	Functionality
Character Design and Animation	Aseprite	Created characters and produced frame by frame animations for character movements.
Frontend	Godot Engine	Provided the user interface for players, including menus and touch controls.
Backend	Godot GDScript	Managed game logic, player input, and enemy logic.
Gameplay Systems	Local Game Engine Logic	Handled combat and game functions.
Environment Design	Prebuilt In-Game Maps and Assets	Created immersive environments inspired by Philippine folklore and integrated them into the game engine.

Security	Built-in Methods	Encryption	Ensured secure data handling for local game saves and player progress.
----------	------------------	------------	--

Table 1. Software Specification

E. Hardware Specification

Hardware	Minimum Requirements	Purpose
Development (Laptop)	8 GB RAM, 2 GB VRAM, Hexa-Core 2.5 GHz processor, 64 GB storage, 1080p resolution	For coding, designing game assets (Aseprite), and integrating offline functionalities.
Testing (Laptop)	8 GB RAM, 2 GB VRAM, Hexa-Core 2.5 GHz processor, 64 GB storage, 1080p resolution	For debugging, testing gameplay mechanics, and optimizing performance
Testing (Mobile Devices)	Android 10+ smartphones, 4GB RAM	Ensured that Eternal Quest worked well when installed and provided players with a fun offline experience.

Table 2. Hardware Specification

IV. RESULT AND DISCUSSION

This section presents a comprehensive analysis of the findings obtained from the evaluation of the game Eternal Quest, focusing on how the collected data address the objectives of the study and reflect the overall quality and effectiveness of the system. The chapter explains the evaluation process used to assess the game's performance from both end user and expert perspectives, emphasizing the importance of usability and software quality in determining the success of an educational role-playing game. It discusses how feedback was systematically gathered, measured, and interpreted using recognized evaluation approaches to ensure that the results were reliable, objective, and meaningful.

Rather than merely presenting numerical outcomes, this chapter provides an in-depth discussion of what the findings imply in terms of user experience, system functionality, and software quality attributes. The analysis also considers the consistency and variation of responses to give a clearer understanding of how the game was perceived by different evaluators. Through this discussion, the chapter highlights key insights, strengths, and areas for improvement identified during the evaluation, demonstrating how the results support the achievement of the study's goals and contribute to a deeper understanding of the game's overall performance and effectiveness.

The Eternal Quest concept paper was approved on December 3, 2024, marking the start of an educational game

project aimed at promoting Philippine folklore among young players. The project focused on a 2D platform-based action-adventure mobile game where players encountered mythological creatures from Filipino legends, including the Tiyanak, Aswang, Santelmo, Manananggal, Nuno sa Punso, Mangkukulam, and Amalanhig, who served as enemies and bosses across various stages. The game blended entertainment and education, allowing players to learn interactively about Philippine mythical creatures while progressing through

engaging gameplay.

An iterative development approach was employed, incorporating continuous feedback from technical experts and end users to refine gameplay mechanics, visual design, and educational content. The game was developed using the Godot Engine for programming and mechanics, and Aseprite for character design and animation, ensuring smooth gameplay and visually appealing assets without relying on a database system.

The evaluation of Eternal Quest revealed both its strengths and opportunities for refinement. Two established frameworks were used: the System Usability Scale (SUS) for end-user feedback and McCall's Software Quality Model for expert evaluation. Thirty students participated as end users, providing ratings on usability, learnability, and overall satisfaction, while nine IT experts assessed technical qualities including correctness, reliability, efficiency, maintainability, and usability. The SUS evaluation produced an overall mean score of 96.50, placing the game in the "Excellent" usability category and reflecting a strong positive user experience. In contrast, the expert evaluation yielded a high overall mean rating of 4.41, highlighting the game's technical stability, functionality, and maintainability.

These results indicate that while Eternal Quest demonstrated high technical quality and delivered excellent usability, minor refinements in tutorials, interface guidance, and accessibility could further enhance the player experience. By addressing these areas, the game has the potential to maximize engagement and serve as an effective and enjoyable platform for learning about Filipino mythology, successfully combining cultural education with interactive gameplay.

V. CONCLUSIONS & FUTURE WORK

Conclusion

In conclusion, the Eternal Quest capstone project demonstrated the effective integration of education and entertainment through a role-playing game that highlighted Philippine folklore. The development process achieved its objective of creating a functional, interactive, and culturally inspired learning platform. Findings from McCall's Software Quality Model confirmed that the game was technically strong in areas such as correctness, efficiency, and maintainability, underscoring its reliability and readiness for future enhancement.

In addition, the System Usability Scale (SUS) evaluation indicated that certain aspects of the user experience, including clarity of instructions, consistency of

controls, and support for new players, would benefit from refinement. Collectively, these findings show that *Eternal Quest* established a solid foundation for educational gaming, with the capacity to engage learners while imparting valuable cultural knowledge. With continued improvements in usability and accessibility, the game has the potential to evolve into a more engaging, informative, and user-friendly educational tool.

Recommendations

Based on the findings and evaluation results gathered throughout the development and evaluation of *Eternal Quest*, the following recommendations were proposed to improve its overall performance, usability, and educational impact:

1. Add Power-Up Features:
Introduce new power-up items that provide temporary boosts or special abilities to the player.
2. Include Character Customization Options:
Allow players to personalize their character through customizable outfits, colors, or visual accessories.
3. Introduce More Folklore Elements:
Expand the game's cultural content by adding additional folklore creatures, stories, and mythological references.
4. Sound Effects for Greater Realism:
Improve and refine sound effects to create a more immersive and believable game environment.
5. Add an Achievement Progress System:
Implement an achievement or milestone tracker that rewards players for completing specific tasks, challenges, or exploration goals.

ACKNOWLEDGMENT

The researchers express their sincere gratitude to the University of Antique for the academic guidance, facilities, and institutional support provided throughout the conduct of this study. Special appreciation is extended to the project adviser and faculty members whose expertise and constructive feedback contributed significantly to the refinement and completion of the system.

The researchers also acknowledge the IT experts and student participants who took part in the evaluation and testing of *Eternal Quest*. Their insights were instrumental in improving the usability and overall quality of the application.

Finally, the researchers extend their heartfelt appreciation to their families and friends for their continuous encouragement and support throughout the development of this project.

REFERENCES

- [1] Antonio & Tamban (2024) – Examined gamification in mathematics and its effect on students' attitudes and performance.
- [2] Alsawaier, R. (2018) – Cited for research on gamification's motivational power, especially in digital environments.
- [3] Ancona, L. (2017) – Developed UPWARDS: A Tale from Above, a 2D platformer known for complex level design and mechanics.
- [4] Bain & Company. (2024). Global gaming report: The new era of digital entertainment. Bain & Company Publications.
- [5] Barlis, et al. (2014) – Studied the game Jump Without Hesitation, integrating traditional Filipino street games like Luksong Tinik into modern gameplay.
- [6] Betts, F., Fabienke, M., & Farber, A. (2021) – Studied educational quests and how gamification can increase engagement and literacy.
- [7] Casia, J. et al. (2024) – Explored gamification's effect on student engagement and learning outcomes.
- [8] Cerda, J. (2021) – Multiple references to this work on Filipino-made games that incorporate mythology, culture, and identity.
- [9] Concepcion, et al. (2022) – Discussed their work on TrashFun, a 2D educational game promoting environmental awareness using platformer mechanics.
- [10] Cu, D. (2021) – Mentioned in relation to adapting folklore to fit modern gaming contexts.
- [11] Duterte, J. (2024) – Studied the use of gamification in higher education and its impact on motivation and performance.
- [12] Espiritu, M. (2023) – Discussed challenges in integrating Filipino culture and folklore into games.
- [13] Garcia & Alonzo (2022) – Studied the immersive quality of folklore-based storytelling in Filipino interactive media.
- [14] Halfbrick Studios. (2016). Dan the Man. [Mobile game]. Halfbrick Studios.
- [15] Konami. (1986). Castlevania. [Video game]. Konami.
- [16] Lanzi, R. (2018) – Referenced in the context of platformer game design and mechanics, especially regarding level design and difficulty balance.
- [17] Newzoo. (2024) – Mentioned regarding the popularity of MOBA and FPS games like Mobile Legends and Counter-Strike 2.
- [18] Nintendo. (1985). Super Mario Bros. [Video game]. Nintendo.
- [19] Tolentino, C., Roleda, K., & Prudente, M. (2023) – Analyzed gamification in high school education and found it improves participation and comprehensio