

ABSTRAK

Fauzi Nur Dwi Prayoga. 2026. Rancang Bangun *Game Helio Rebellion* untuk Mengenalkan Konsep Heliosentris dengan Metode *Game Development Life Cycle* (GDLC). Skripsi. Program Studi Teknik Informatika, Fakultas Teknik, Universitas PGRI Madiun. Pembimbing (I) Yoga Prisma Yuda, S.Kom., M.Kom. (II) Puguh Jayadi, S.Kom., M.Kom.

Perkembangan teknologi digital membuka peluang pemanfaatan game sebagai media interaktif untuk memperkenalkan konsep ilmu pengetahuan. Penelitian ini bertujuan merancang, membangun, dan menguji game *Helio Rebellion* sebagai media pengenalan konsep heliosentris bagi komunitas game indie. Metode pengembangan yang digunakan adalah *Game Development Life Cycle* (GDLC) yang meliputi initiation, pre-production, production, alpha testing, beta testing, dan release. Game dikembangkan untuk platform Windows dengan genre story adventure 2D bergaya pixel art menggunakan Godot Engine, GDScript, dan Aseprite. Fitur utama meliputi narasi sejarah sains, eksplorasi, dialog interaktif, quest, inventory, percabangan cerita, serta puzzle penyusunan planet. Pengujian dilakukan menggunakan Black Box Testing dan User Acceptance Testing (UAT). Hasil Black Box Testing pada 11 skenario menunjukkan seluruh fungsi berjalan sesuai rancangan dengan tingkat keberhasilan 100%. UAT terhadap 14 responden dan 10 pernyataan menghasilkan skor 541 dari 700 atau 77,29%, dengan rata-rata 3,86 dari skala 5. Hasil tersebut menunjukkan bahwa *Helio Rebellion* dapat diterima pengguna dan layak digunakan sebagai media interaktif untuk mengenalkan konsep heliosentris melalui perpaduan unsur hiburan, sejarah sains, dan astronomi dasar.

Kata Kunci: Game Edukasi, Heliosentris, *Game Development Life Cycle*, Godot Engine, *Story Adventure*, *User Acceptance Testing*.

ABSTRACT

Fauzi Nur Dwi Prayoga. 2026. Design and Development of the Helio Rebellion Game to Introduce the Heliocentric Concept Using the Game Development Life Cycle (GDLC) Method. Undergraduate Thesis. Informatics Engineering Study Program, Faculty of Engineering, Universitas PGRI Madiun. Advisors: (I) Yoga Prisma Yuda, S.Kom., M.Kom. and (II) Puguh Jayadi, S.Kom., M.Kom.

The rapid advancement of digital technology has created opportunities to utilize games as interactive media for introducing scientific concepts. This study aims to design, develop, and evaluate Helio Rebellion, an educational game designed to introduce the heliocentric concept to the indie gaming community. The game was developed using the Game Development Life Cycle (GDLC), which consists of the initiation, pre-production, production, alpha testing, beta testing, and release phases. It was built as a 2D story adventure game for the Windows platform with pixel art graphics using Godot Engine, GDScript, and Aseprite. The game features a scientific history narrative, exploration, interactive dialogues, quests, an inventory system, branching storylines, and a planet arrangement puzzle to support learning the heliocentric model. Evaluation was conducted through Black Box Testing and User Acceptance Testing (UAT). Black Box Testing across 11 functional scenarios achieved a 100% success rate, indicating that all features operated as intended. UAT involving 14 respondents and 10 assessment statements produced a score of 541 out of 700 (77.29%), with an average rating of 3.86 out of 5. These results indicate that Helio Rebellion is well accepted by users and is suitable as an interactive medium for introducing the heliocentric concept by integrating entertainment, the history of science, and fundamental astronomy.

Keywords: Educational Game, Heliocentric Concept, Game Development Life Cycle, Godot Engine, Story Adventure, User Acceptance Testing.