

PENGEMBANGAN GAME EDUKASI SEJARAH ASAL MULA BULELENG UNTUK ANAK TUNANETRA BERBASIS AUDIO INTERAKTIF

Oleh:

I Ketut Budi Antara, NIM 2215051099
Program S1 Pendidikan Teknik Informatika
Jurusan Teknik Informatika
Fakultas Teknik dan Kejuruan
Universitas Pendidikan Ganesha
Email: budi.antara@student.undikhsa.ac.id

ABSTRAK

Penelitian ini bertujuan untuk mengembangkan game edukasi sejarah asal mula Buleleng berbasis audio interaktif yang dapat diakses oleh siswa tunanetra serta mendeskripsikan tingkat ketertarikan siswa setelah menggunakan game tersebut. Penelitian menggunakan pendekatan Research and Development (R&D) dengan model Game Development Life Cycle (GDLC) yang terdiri atas enam tahap, yaitu initiation, pre-production, production, testing, beta testing, dan release. Produk dikembangkan dengan mengintegrasikan narasi audio, spatial audio, audio cue, petunjuk navigasi berbasis suara, kuis berbasis audio, serta haptic feedback melalui controller agar informasi utama dalam permainan dapat diakses tanpa bergantung pada visual. Pengujian produk meliputi black-box testing, validasi ahli isi, validasi ahli media, dan beta testing. Beta testing melibatkan 14 siswa tunanetra dari jenjang SDLB, SMPLB, dan SMALB di SLB Negeri 1 Buleleng. Tingkat ketertarikan pengguna diukur menggunakan delapan butir angket yang diadaptasi dari subskala Interest/Enjoyment pada Intrinsic Motivation Inventory (IMI) dengan skala Likert empat tingkat. Hasil penelitian menunjukkan bahwa seluruh 24 fungsi yang diuji melalui black-box testing berjalan sesuai skenario. Validasi oleh dua ahli isi dan dua ahli media masing-masing menghasilkan koefisien Gregory sebesar 1,00 dengan kategori sangat valid. Hasil beta testing memperoleh skor total 368 dari skor maksimum 448, rata-rata keseluruhan 3,29, dan persentase pencapaian 82,14%, sehingga termasuk kategori ketertarikan sangat tinggi. Temuan ini menunjukkan bahwa game yang dikembangkan telah memenuhi aspek fungsionalitas dan kelayakan media serta memiliki daya tarik awal yang tinggi sebagai media tambahan untuk pengenalan sejarah lokal Buleleng bagi siswa tunanetra. Penelitian ini tidak menyimpulkan efektivitas game dalam meningkatkan hasil belajar sejarah karena tidak dilakukan pengukuran sebelum dan sesudah penggunaan game.

Kata kunci: game edukasi, audio interaktif, tunanetra, sejarah Buleleng, haptic feedback

**DEVELOPMENT OF AN INTERACTIVE AUDIO-BASED EDUCATIONAL
GAME ON THE HISTORY OF THE ORIGIN OF BULELENG FOR
STUDENTS WITH VISUAL IMPAIRMENTS**

By:

I Ketut Budi Antara, NIM 2215051099

Bachelor's Program in Informatics Engineering Education

Department of Informatics Engineering

Faculty of Engineering and Vocational Education

Universitas Pendidikan Ganesha

Email: budi.antara@student.undikhsa.ac.id

ABSTRACT

This study aimed to develop an interactive audio-based educational game on the history of the origin of Buleleng that is accessible to students with visual impairments and to describe their level of interest after using the game. The study employed a Research and Development (R&D) approach using the Game Development Life Cycle (GDLC) model, which consists of six stages: initiation, pre-production, production, testing, beta testing, and release. The product was developed by integrating audio narration, spatial audio, audio cues, voice-based navigation instructions, audio-based quizzes, and haptic feedback through a controller so that the game's primary information could be accessed without relying on visual elements. Product evaluation included black-box testing, content expert validation, media expert validation, and beta testing. The beta test involved 14 students with visual impairments from SDLB, SMPLB, and SMALB levels at SLB Negeri 1 Buleleng. User interest was measured using an eight-item questionnaire adapted from the Interest/Enjoyment subscale of the Intrinsic Motivation Inventory (IMI), employing a four-point Likert scale. The results showed that all 24 functions assessed through black-box testing operated according to the specified scenarios. Validation by two content experts and two media experts each produced a Gregory coefficient of 1.00, categorized as highly valid. The beta testing results yielded a total score of 368 out of a maximum score of 448, an overall mean score of 3.29, and an achievement percentage of 82.14%, placing user interest in the very high category. These findings indicate that the developed game met the required functionality and media feasibility criteria and demonstrated a high level of initial user interest as a supplementary medium for introducing the local history of Buleleng to students with visual impairments. This study does not conclude that the game is effective in improving history learning outcomes because no measurements were conducted before and after the use of the game.

Keywords: *educational game, interactive audio, visual impairment, Buleleng history, haptic feedback*