PENGEMBANGAN GAME EDUKASI KEARIFAN LOKAL SUBAK BERBASIS MOBILE

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ABSTRAK

Subak adalah sebuah sistem irigasi tradisional di Bali yang mengatur tata pengairan yang berlandaskan pada filsafat *Tri Hita Karana* (THK). *Subak* merupakan warisan budaya dunia UNESCO yang saat ini terancam keberadaannya oleh alih fungsi lahan dan minimnya regenerasi petani. Data menunjukkan terjadi penurunan drastis kunjungan pelajar ke Museum Subak, di mana 73% responden menilai metode sosialisasi Museum Subak cenderung membosankan, dan 88% responden menyetujui adanya pengembangan media edukasi berbasis game. Penelitian ini bertujuan mengembangkan *game* edukasi "*Subak Adventure*" berbasis Android untuk meningkatkan pemahaman generasi muda terhadap *Subak*. Penelitian ini menggunakan metode *Research and Development* (R&D) dengan model *Game Development Life Cycle* (GDLC). *Game Subak Adventure* memadukan genre petualangan, aksi, dan kuis dalam lima *stage* misi, mencakup pembersihan lingkungan, pengendalian hama, hingga simulasi irigasi (*tembuku*). Hasil penelitian menunjukan bahwa *game Subak Adventure* yang dikembangkan sangat valid dengan rata-rata koefisien validasi ahli isi dan ahli media sevesar 1,00. Pengujian efektivitas menggunakan perhitungan *N-Gain* memperoleh skor 0,59 dengan kategori "Efektif". Uji respon pengguna menggunakan *User Experience Questionnaire* (UEQ) menunjukkan nilai *above average* kategori *perspicuity*, nilai *good* pada kategori *attractiveness*, serta nilai *excellent* pada kategori *efficiency*, *dependability*, *stimulation* dan *novelty.* Dengan demikian, *game Subak Adventure* yang dikembangkan dinilai layak dan efektif sebagai media pelestarian budaya yang imersif bagi generasi muda.

Kata Kunci: *Subak*, Museum Subak, *GDLC*, *Game* Edukasi, *Unity 3D*.

DEVELOPMENT OF MOBILE-BASED SUBAK LOCAL WISDOM EDUCATIONAL GAME

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ABSTRACT

Subak is a traditional irrigation system in Bali that regulates water management based on the philosophy of Tri Hita Karana (THK). As a UNESCO World Cultural Heritage, Subak is currently threatened by land-use conversion and the lack of farmer regeneration. Data indicate a significant decline in student visits to the Subak Museum, with 73% of respondents perceiving the museum's socialization methods as uninteresting and 88% agreeing on the need for the development of game-based educational media. This study aims to develop an Android-based educational game titled Subak Adventure to enhance young generations' understanding of the Subak system. The research employed a Research and Development (R&D) method using the Game Development Life Cycle (GDLC) model. Subak Adventure integrates adventure, action, and quiz genres across five mission-based stages, including environmental cleanup, pest control, and irrigation simulation (tembuku). The results show that the developed game achieved a very high level of validity, with an average validation coefficient of 1.00 from content and media experts. Effectiveness testing using the N-Gain calculation obtained a score of 0.59, categorized as "Effective." User response evaluation using the User Experience Questionnaire (UEQ) demonstrated above-average scores in perspicuity, good ratings in attractiveness, and excellent ratings in efficiency, dependability, stimulation, and novelty. Therefore, Subak Adventure is considered feasible and effective as an immersive cultural preservation medium for younger generations.

Keywords: Subak, Subak Museum, GDLC, Educational Game, Unity 3D.