

ABSTRAK

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PENGEMBANGAN APLIKASI INTERAKTIF AR UNTUK PEMBELAJARAN KARAKTER ANGKA MANDARIN PADA ANAK

(xvi + 111 halaman; 64 gambar; 21 tabel; 3 lampiran)

Di era globalisasi, pembelajaran Bahasa Mandarin menjadi semakin penting. Namun, kompleksitas karakter dan fonetik Mandarin menghadirkan tantangan tersendiri dalam proses pembelajarannya, khususnya bagi anak-anak. Penelitian ini bertujuan untuk mengembangkan aplikasi interaktif berbasis *Augmented Reality* (AR) guna mendukung pembelajaran karakter angka Mandarin pada anak-anak usia dini (3–6 tahun).

Aplikasi ini dirancang menggunakan pendekatan *Design Thinking* dengan model *Double Diamond*, yang meliputi tahapan *discover*, *define*, *develop*, dan *deliver*. Pengembangan dilakukan dengan menggunakan Unity dan AR Foundation, serta diimplementasikan pada perangkat Android yang mendukung ARCore. Fitur utama dalam aplikasi ini mencakup visualisasi angka Mandarin, audio pelafalan, latihan *tracing* karakter, serta interaksi AR berupa tampilan karakter dan objek 3D. Pengujian fungsional dilakukan dengan metode *black-box testing*, sedangkan evaluasi pengguna dilakukan melalui kuesioner skala Likert dan pertanyaan terbuka kepada pendidik, orang tua, dan pendamping yang memiliki pengalaman dengan anak-anak.

Hasil pengujian menunjukkan bahwa aplikasi ini berfungsi dengan baik secara teknis dan mendapatkan respons positif terhadap antarmuka, fitur pembelajaran, serta pengalaman interaktif berbasis AR. Dengan demikian, terbukti bahwa penelitian ini berhasil mengembangkan media pembelajaran yang dapat mendukung pembelajaran Bahasa Mandarin pada anak usia dini melalui teknologi AR.

Kata Kunci: *Augmented Reality*, Bahasa Mandarin, Pembelajaran Anak, ARCore.

Referensi: 35 (2012-2025).

ABSTRACT

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DEVELOPMENT OF AN INTERACTIVE AR APPLICATION FOR LEARNING MANDARIN NUMBER CHARACTERS IN CHILDREN

(xvi + 111 pages; 64 figures; 21 tables; 3 appendices)

In the era of globalization, learning Mandarin has become increasingly important. However, the complexity of Mandarin characters and phonetics presents specific challenges in the learning process, particularly for young children. This study aims to develop an interactive application based on Augmented Reality (AR) to support the learning of Mandarin number characters for early childhood learners aged 3–6 years.

The application was designed using the Design Thinking approach with the Double Diamond model, which includes the stages of discover, define, develop, and deliver. The development process utilized Unity and AR Foundation, and the application was implemented on Android devices that support ARCore. The core features of the application include Mandarin number visualization, pronunciation audio, character tracing exercises, and AR interactions displaying 3D characters and objects. Functional testing was conducted using the black-box testing method, while user evaluation was carried out through Likert scale questionnaires and open-ended questions given to educators, parents, and caregivers with experience in assisting children.

Results indicate the application functions well technically and received positive responses from users regarding the interface, learning features, and interactive AR experience. Thus, it is proven that this study successfully developed an educational medium that supports early childhood Mandarin learning through AR technology.

Keywords: *Augmented Reality, Mandarin Language, Early Childhood Learning, ARCore.*

References: 35 (2012-2025).