

Rancang Bangun dan Evaluasi Gesture Control pada Game Mobile Berbasis Platformer dan Roguelike = Design and Evaluation of Gesture Control in Mobile Games Based on Platformer and Roguelike Genres

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Abstrak

Desain kontrol layar sentuh masih menjadi tantangan utama dalam pengembangan game mobile. Penelitian ini bertujuan mengevaluasi efektivitas tiga skema kontrol, yaitu Virtual Gamepad, Tap and Swipe, dan Swipe Control, dalam dua genre permainan berbeda: platformer dan roguelike RPG. Dua game prototipe dikembangkan untuk menguji kontrol secara terisolasi, dan pengujian dilakukan secara daring terhadap enam partisipan (dengan lima data lengkap). Data dikumpulkan melalui pre- dan post-questionnaire, serta dokumentasi hasil permainan berupa tangkapan layar. Analisis dilakukan menggunakan Wilcoxon Signed-Rank Test dan ukuran efek berbasis rank-biserial correlation (r), serta didukung temuan kualitatif dari umpan balik pemain. Hasil menunjukkan bahwa skema Virtual Gamepad dan kontrol Joystick memberikan performa objektif dan persepsi subjektif yang lebih baik dibandingkan kontrol berbasis gestur. Efek ukuran terbesar ditemukan pada perbandingan waktu bertahan hidup di roguelike ($r = 1.00$), serta persepsi intuitivitas di platformer ($r = 0.80$). Namun, partisipan juga mencatat bahwa kontrol gestural memiliki potensi untuk gameplay cepat — asalkan didukung tutorial eksplisit, kalibrasi input, dan desain senjata yang seimbang. Kesimpulannya, skema kontrol konvensional lebih stabil dan mudah dipahami, namun skema gestural tetap menjanjikan jika diterapkan secara kontekstual dan ergonomis.

.....Touchscreen controls remain a major challenge in mobile game design, often criticized for imprecision, poor feedback, and steep learning curves. This study evaluates the effectiveness of three control schemes , being Virtual Gamepad, Tap and Swipe, and Swipe Control, across two distinct game genres: 2D platformer and roguelike RPG. Two prototype games were developed to isolate control variables, and remote testing was conducted with six participants (five complete data sets). Data were collected via pre- and post-questionnaires and gameplay screenshots. Quantitative analysis used the Wilcoxon Signed-Rank Test with effect size measured by rank-biserial correlation (r), while qualitative feedback was analyzed thematically. Results indicate that Virtual Gamepad and Joystick controls consistently outperformed gesture-based schemes in both player performance and user perception. The strongest effects were observed in roguelike survival time ($r = 1.00$) and platformer intuitiveness ratings ($r = 0.80$). Nonetheless, participants noted that gesture controls may offer advantages for fast-paced gameplay, provided they are supported by clear tutorials, responsive input calibration, and balanced mechanics. In conclusion, while conventional control schemes offer better stability and usability across genres, with proper design considerations, gesture-based schemes remain a viable and promising alternative.