

RANCANG BANGUN SISTEM PEMBELAJARAN SEKAPAI
(*SCAFFOLDING WITH AI*) BERBASIS *CHAT GENERATIVE PRE-TRAINED
TRANSFORMER (GPT)*



SKRIPSI

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pada Program Studi Pendidikan Sistem dan Teknologi Informasi

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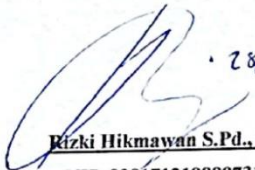
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LEMBAR PENGESAHAN

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ABSTRAK

Penelitian ini bertujuan untuk merancang dan mengembangkan sebuah sistem pembelajaran berbasis kecerdasan buatan yang diberi nama SEKAPAI (*Scaffolding with AI*). Sistem ini mengintegrasikan prinsip pedagogis scaffolding dengan kemampuan generatif ChatGPT untuk menciptakan pengalaman belajar yang lebih personal dan adaptif. Pendekatan yang digunakan dalam penelitian ini adalah *Research and Development* (R&D) dengan menggunakan model 4D (*Define, Design, Develop, Test*) yang secara sistematis mengevaluasi setiap tahap pengembangan. Prototipe yang dikembangkan berbasis web terdiri dari tiga modul utama, yaitu Solution Assessment (SA), Code Assessment (CA), dan *Free Interaction* (FI). Setiap modul dirancang untuk memberikan dukungan yang terstruktur dan kontekstual, dengan tujuan meminimalisasi ketergantungan pengguna terhadap AI serta mendukung pengembangan keterampilan berpikir komputasi secara lebih mendalam. Hasil pengujian fungsional menggunakan metode *black-box* menunjukkan bahwa seluruh modul berfungsi sesuai dengan yang diharapkan, memberikan umpan balik yang tepat waktu, dan mampu memenuhi tujuan pedagogis yang telah ditetapkan. Berdasarkan temuan ini, SEKAPAI dapat dianggap sebagai prototipe awal sistem pembelajaran berbasis AI yang didasarkan pada prinsip-prinsip pedagogis yang eksplisit dan adaptif, yang dapat dikembangkan lebih lanjut dalam berbagai konteks pendidikan di masa depan.

Kata Kunci: ChatGPT, *Scaffolding*, Kecerdasan Buatan, Sistem Pembelajaran, Teknologi Edukasi

DESIGN AND DEVELOPMENT OF THE SEKAPAI (SCAFFOLDING WITH AI) LEARNING SYSTEM BASED ON CHAT GENERATIVE PRE-TRAINED TRANSFORMER (GPT)

ABSTRACT

This study aims to design and develop an intelligent learning system named SEKAPAI (Scaffolding with AI), which integrates pedagogical scaffolding principles with the generative capabilities of ChatGPT to create a more personalized and adaptive learning experience. The research adopts a Research and Development (R&D) approach, utilizing the 4D model (Define, Design, Develop, Test), which systematically evaluates each stage of the development process. The web-based prototype consists of three main modules: Solution Assessment (SA), Code Assessment (CA), and Free Interaction (FI). Each module is designed to provide structured and contextual support while minimizing the users' reliance on AI, and to promote the development of computational thinking skills in a deeper manner. Functional testing using black-box methods revealed that all modules performed as expected, delivering timely feedback and successfully achieving the pedagogical goals set forth. Based on these findings, SEKAPAI can be considered an initial prototype of an AI-based learning system grounded in explicit pedagogical principles and adaptability, which can be further developed in various educational contexts in the future..

Keywords: ChatGPT, Scaffolding, Artificial Intelligence, Learning System, Educational Technology

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