

**PENGEMBANGAN APLIKASI *MOBILE* INTERAKTIF UNTUK
PEMBELAJARAN PERAKITAN KABEL JARINGAN KOMPUTER DI
SMK PADA KEAHLIAN TJKT DENGAN PENDEKATAN *DESIGN-BASED
LEARNING***

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ABSTRAK

Proses pembelajaran perakitan kabel jaringan komputer di Sekolah Menengah Kejuruan (SMK) masih menghadapi berbagai permasalahan, seperti keterbatasan media pembelajaran interaktif, pembelajaran yang masih berpusat pada guru, serta kesulitan peserta didik dalam memahami standar pengkabelan T568A dan T568B. Penelitian ini bertujuan untuk mengembangkan aplikasi mobile interaktif sebagai media pembelajaran perakitan kabel jaringan komputer bagi peserta didik program keahlian Teknik Jaringan Komputer dan Telekomunikasi (TJKT) serta mengetahui respon pengguna terhadap aplikasi yang dikembangkan. Pengembangan aplikasi menggunakan model Multimedia Development Life Cycle (MDLC) yang terdiri atas enam tahapan, yaitu concept, design, material collecting, assembly, testing, dan distribution. Aplikasi yang dikembangkan mengintegrasikan pendekatan Design-Based Learning (DBL) melalui fitur permasalahan awal, materi pembelajaran, video tutorial, simulasi interaktif penyusunan kabel, kuis formatif. Pengujian aplikasi dilakukan melalui uji respon pengguna yang melibatkan 40 peserta didik. Hasil uji respon pengguna memperoleh skor total sebesar 2.760 dengan nilai rata-rata sebesar 69 dan termasuk dalam kategori “Sangat Positif”. Hasil tersebut menunjukkan bahwa aplikasi mobile interaktif yang dikembangkan memperoleh respon yang sangat positif dari pengguna dan layak digunakan sebagai media pembelajaran pendukung untuk membantu peserta didik mempelajari konsep dan prosedur perakitan kabel jaringan komputer secara lebih interaktif.

Kata Kunci— Aplikasi Mobile Interaktif; Perakitan Kabel Jaringan Komputer; *Design-Based Learning*; *Multimedia Development Life Cycle*; TJKT.

**DEVELOPMENT OF AN INTERACTIVE MOBILE APPLICATION FOR
COMPUTER NETWORK CABLE ASSEMBLY LEARNING IN
VOCATIONAL HIGH SCHOOLS FOR THE COMPUTER NETWORK AND
TELECOMMUNICATIONS ENGINEERING (TJKT) PROGRAM USING A
DESIGN-BASED LEARNING APPROACH**

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ABSTRACT

The learning process of computer network cable assembly in Vocational High Schools (SMK) still faces several challenges, including limited interactive learning media, teacher-centered learning, and students' difficulties in understanding the T568A and T568B cabling standards. This study aimed to develop an interactive mobile application as a learning medium for computer network cable assembly for students of the Computer Network and Telecommunications Engineering (TJKT) program and to determine users' responses to the developed application. The application was developed using the Multimedia Development Life Cycle (MDLC) model, which consists of six stages: concept, design, material collecting, assembly, testing, and distribution. The developed application integrates the Design-Based Learning (DBL) approach through features including an initial problem presentation, learning materials, tutorial videos, an interactive cable arrangement simulation, and formative quizzes. Application testing was conducted through a user response test involving 40 students. The results of the user response test obtained a total score of 2,760, with an average score of 69, which was categorized as "Very Positive." These results indicate that the developed interactive mobile application received a very positive response from users and is suitable for use as a supporting learning medium to help students learn the concepts and procedures of computer network cable assembly in a more interactive manner.

Keywords— *Interactive Mobile Application; Computer Network Cable Assembly; Design-Based Learning; Multimedia Development Life Cycle; TJKT.*