

Yiyin Noriyah Putri. 2024. *Pengembangan Web Based Learning Menggunakan User Centered Design pada Mata Pelajaran Pemrograman Dasar di SMK Negeri 2 Bangkalan*. Skripsi, Program Studi Pendidikan Informatika, Fakultas Ilmu Pendidikan, Universitas Trunojoyo Madura. Pembimbing: Etistika Yuni Wijaya, S.Pd., M.Pd.

ABSTRAK

Penelitian ini bertujuan mengembangkan media pembelajaran dalam bentuk *website* yang disebut dengan *web based learning* pemrograman Python berbasis *gamifikasi* dan *live coding* di SMK Negeri 2 Bangkalan. *Web based learning* yang dikembangkan menggunakan pendekatan *user centered design*. Metode yang digunakan adalah *Research and Development* (R&D) dengan model SDLC (*System Development Life Cycle*) dan UCD (*User Centered Design*). Tahapan UCD meliputi: *understand the context of use, specify user requirements, design solutions*, dan *evaluate against requirements*. Tahapan SDLC meliputi: *requirements definition, system and software design, implementation and unit testing, integration and system testing*, dan *operation and maintenance*. Data dikumpulkan melalui angket dan wawancara. Permasalahan dalam penelitian ini adalah bagaimana mengembangkan sebuah *web based learning* menggunakan *user centered design*, serta bagaimana mengukur kelayakan *web based learning* tersebut dari segi materi, media, dan sistem. Hasil penelitian menunjukkan: 1) Pengembangan *e-learning* pemrograman Python berbasis *gamifikasi* dan *live coding*; 2) Validasi ahli materi sebesar 94% (sangat layak); 3) Validasi ahli media sebesar 92,78% (sangat layak); 4) Validasi ahli sistem sebesar 1 (baik); 5) Pengujian *usability* terbagi menjadi tiga tahapan pengujian, yakni uji coba perorangan, uji coba kelompok kecil, dan uji coba kelompok besar; 6) Uji coba perorangan sebesar 89,26% (sangat layak); 7) Uji coba kelompok kecil sebesar 79,4% (layak); 8) Uji coba kelompok besar sebesar 84,2% (sangat layak); 9) Uji reliabilitas sebesar 90,37% (sangat layak); 10) Uji Performance Efficiency menunjukan hasil rata-rata waktu *load* sebesar 2,5 detik. Berdasarkan hasil pengujian, *web based learning* pemrograman Python dinyatakan valid dan layak digunakan sebagai sarana belajar siswa kapan saja dan di mana saja.

Kata kunci: *live coding, pemrograman dasar, Python, Sekolah Menengah Kejuruan (SMK), user centered design, web based learning*

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ABSTRACT

This research aims to develop an educational medium in the form of a website called web-based learning for Python programming based on gamification and live coding at SMK Negeri 2 Bangkalan. The developed web-based learning uses a user-centered design approach. The method used is Research and Development (R&D) with the SDLC (System Development Life Cycle) and UCD (User-Centered Design) models. The stages of UCD include understanding context of use, specifying user requirements, design solutions, and evaluating against requirements. The stages of SDLC include requirements definition, system and software design, implementation and unit testing, integration and system testing, and operation and maintenance. Data were collected through questionnaires and interviews. The research problems include how to develop web-based learning using user-centered design and how to assess its feasibility in terms of content, media, and system. The research results indicate: 1) Development of Python programming e-learning based on gamification and live coding; 2) Material expert validation of 94% (very feasible); 3) Media expert validation of 92.78% (very feasible); 4) System expert validation of 1 (good); 5) Usability testing was divided into three stages: individual testing, small group testing, and large group testing; 6) Individual testing at 89.26% (very feasible); 7) Small group testing at 79.4% (feasible); 8) Large group testing at 84.2% (very feasible); 9) Reliability testing at 90.37% (very feasible); 10) Performance efficiency testing showed average a load time of 2.6 seconds. Based on the test results, the Python programming web-based learning is declared valid and feasible to be used as a learning tool for students anytime and anywhere.

Keywords: *live coding, basic programming, Python, Vocational High School (SMK), user centered design, web based learning*