CONSTRUCTING A FRAMEWORK IN APPLYING PSYCHOMOTOR DOMAIN MODEL FOR ELECTRICAL INSTALLATION WORKSHOP COURSE

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DEDICATION

To my beloved husband, children and family

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ABSTRACT

Hands–on workshop course is an important component of electrical engineering and electrical engineering technology education in developing the students' psychomotor skills. It is therefore, very crucial for the engineering course to be properly designed with proper learning outcomes and with appropriate teaching and assessment strategies. The research presents a framework in implementing an Electrical Installation Workshop course by applying a psychomotor domain model for the diploma level course at Universiti Teknologi Malaysia. In this research, the learning outcomes applied in producing the framework was referred to the National Skills Standard as a benchmark. A qualitative method was employed in this research whereby, it included exploring and investigating the implementation of the course in Universiti Teknologi Malaysia as well as in other higher education providers (HEPs) in collecting the intended data. The data were collected through documents, interviews, and observations of the students' works. The data obtained were then analyzed by comparing it with the National Standard and with thirteen other HEPs data. Psychomotor domain models were also compared to the data found in this research especially to the implementation of this course at thirteen other HEPs. The findings showed that there were significant differences in the learning outcomes, teaching and assessment strategies in implementation of the Diploma Electrical Installation Workshop course conducted at Universiti Teknologi Malaysia compared to other HEPs. It was also found that the Romiszwoski psychomotor domain model with the five levels of mastering the skills is deemed suitable to be applied in the teaching of the Electrical Installation Workshop course in developing students' technical skills.

ABSTRAK

Kemahiran teknikal yang dijalankan di bengkel merupakan satu komponen penting dalam kursus Kejuruteraan Elektrik dan Kejuruteraan Teknologi Elektrik bagi membangunkan kemahiran psikomotor pelajar. Oleh itu, amat penting kursus bengkel kejuruteraan direka dengan hasil pembelajaran, strategi pengajaran dan penilaian yang bersesuaian. Kajian ini bertujuan untuk menghasilkan satu rangka kerja dalam melaksanakan Bengkel Pemasangan Elektrik dengan mengaplikasikan model domain psikomotor pada peringkat diploma di Universiti Teknologi Malaysia. Dalam kajian ini, hasil pembelajaran yang digunakan dalam menghasilkan rangka kursus telah dirujuk pada Piawaian Kemahiran Kebangsaan sebagai penanda aras. Satu kaedah kualitatif digunakan dalam kajian ini termasuk meneliti dan menyiasat pelaksanaan kursus di Universiti Teknologi Malaysia serta tiga belas institusi pengajian tinggi yang lain dalam mengumpul data yang dikehendaki. Data telah dikumpul melalui dokumen, temu bual dan juga pemerhatian hasil kerja pelajar di bengkel. Data yang diperoleh dianalisis dengan kaedah membandingkan data tersebut dengan Piawaian Kemahiran Kebangsaan dan dengan data di tiga belas institusi pengajian tinggi yang dirujuk. Model domain psikomotor juga dibuat perbandingan dengan data yang ditemui terutama pada perlaksanaan kursus di tiga belas institusi pengajian tinggi yang dirujuk. Dapatan kajian menunjukkan bahawa terdapat perbezaan yang signifikan dalam hasil pembelajaran, kaedah pengajaran dan penilaian dalam pelaksanaan kursus Bengkel Pemasangan Elektrik di Universiti Teknologi Malaysia berbanding dengan tiga belas institusi pengajian tinggi yang dirujuk. Didapati juga model domain psikomotor Romiszowski dengan lima aras menguasai kemahiran dapat diaplikasikan pada kursus Bengkel Pemasangan Elektrik dalam membangunkan kemahiran teknikal pelajar.