Thesis Title	Development of a Performance Test For Electric Equipment Installation
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Abstract

This study aimed to derive evaluative criteria from a performance test developed to recruit suitable manpower for industry. The industry needed personnel of sufficient capacities to work in the area of electrical wiring and installation. Processes of the study involved : selection of proper knowledge and skill areas, job and task analysing, formulating work-sample, and developing evaluative observation criteria. Special care was taken in all processes of selection of material and construction of research tool to ensure that the performance test developed covered the knowledge and skill area learned in school and used in industries.

Practical content used in developing the test were skills collected from job-sheets used in technical colleges, and information given by some industrial personnel involved. Main Distribution Board(MDB) installation, wiring through conduits, underground wiring and electrical earthing systems were among typical content collected from the survey. The selected content was analysed to extract the necessary component for the performance test development.

Observation sheets were constructed as evaluation tools for this study. They consisted of various evaluative items. Thirty items concerned processes of work, twenty concerned quality of work, and six concerned speed. Ranges of scores given in the test were determined from difficulty, easiness and complexity of the work.

The population of the study consisted of electrical diploma level students from Prathumthani Technical College. Eight of them were used to pilot the test. Sixteen of them were

used in the research experiment to derive evaluative criteria in terms of passing and failing scores.

The following results were found from the study :

1. The performance test possessed rather high content validity. It contained all required evaluative items. The task analysis extracting skills and knowledge was properly performed with appropriate results. The choice of skills representing installing work was properly selected. Scores given for each skill were properly designed. All experts totally approved all components mentioned(IOC) with the congruence index ranging from 0.75-1.00.

2. The test exhibited acceptable cut-off scores for all performance. Cut-off scores were found as follows : working process 37 from 60 or 61.87 %, working quality 30 from 64 or 46.87 %, and working speed 8 from 12 or 66.67 %. The coefficiency of score validity(ϕ_{VC}) was 1.00.

3. The statistical analysis of score from all test items showed a high congeneric coefficient reliability(β_k) of 0.93 which was equivalent to 0.70 according to Nunally theory.

4. Reliability of two evaluators were also comparatively evaluated. Kappa coefficiency of three evaluated abilities were found as 0.88, 1.00, and 1.00 respectively. According to Nunally criteria, the evaluator reliabilities were found as high as 0.70.

Keywords : Electrical wiring and installation / Worksample / Content Validity / Cut-off scores / Reliability