Design of the Human Assembly Strategy in a Self-Optimizing Assembly Cell : A Case Study of Indonesians

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Abstrak

This paper presents a continuing study of the human cognitive aspect application in the technical systems. The last
studies design a human-centered design based on the German culture. The result shows a significant difference of
human performance between Germans and Indonesians. Therefore, this study examines the human cognitive model
based on Indonesian culture to investigate whether the different cognitive model based on the culture aspect can
improve the human performance. The study was conducted on 60 people classified by age, young (16-34 years old) and
old (older than 34 years old). Participants render predictions on an assembly activity for two interim states of two
different types of products which are the Builderific brick and the Pulley Release based on four types of the assembly
strategy model (Reference, Combination, Human Behavior 1, and Human Behavior 2). The dependent variables are
prediction time, mental workload, and predictive accuracy. The results show that the models of human assembly
strategies and the products have significant influences on mental workload and predictive capability. The age variable
significantly influences mental workload, performance, and prediction capabilities.