



Human Error Identification and Mental Workload Index Setting During a Computer Power Source Change Task: A Case Study

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Abstract. This research shows the case study of a cognitive analysis of computer repair technicians' tasks. According to face to face interviews, the task of diagnose the failure and testing the power supply present difficulties and human error is frequent. In this manner, it is necessary to analyze the task related with this computer malfunctioning that generates high mental workload and, therefore, holds the greatest risk. Thus, the SHERPA human error identification and the NASA-TLX mental workload designation methodologies are presented along with a Hierarchical Task Analysis HTA as a first stage to the study. The results from SHERPA show one critical, occasional error; the results from NASA-TLX show mental demands as having highest score. Actions for human error prevention are also recommended.

Keywords: Computer · Hierarchical Task Analysis (HTA)
Human Error Identification (HEI)
Systematic Human Error Reduction and Prediction (SHERPA)
Mental workload designation · NASA Task Load Index (NASA-TLX)

1 Introduction

Making a mistake while performing a task is an entirely normal and frequent occurrence during human activity; however, it is possible to decrease the likelihood of mistakes. There are now different techniques to study error-occurrence possibilities as well as to either decrease their likelihood or look for an alternative solution to them.

In order to conduct a study as such, it is necessary to identify all the sub-operations that may occur during a task. One way this can be done is by conducting a hierarchical