APPLICATION OF ERGONOMICS IN THE REDESIGNING OF TRICYCLE SIDECAR IN CAVITE STATE UNIVERSITY (CvSU) MAIN CAMPUS

THESIS

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ABSTRACT

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The study was primarily conducted toredesign the tricycle sidecar commonly used in Cavite State University Main Campus through the application of ergonomics and anthropometry. It also aimed to determine the individual attributes of the participants, identify the anthropometric discomforts that were experienced by the passengers in riding the tricycle sidecar and compare the dimensions of the present with the proposed tricycle sidecar designs to show the deficiency of the required dimensions of the present design that might be the cause of the discomforts associated in using the tricycle sidecar. The mismatch between the dimensions of the tricycle sidecar and its passengers causes discomforts.

The study required data such as the anthropometric dimensions of the passengers, the common discomforts they experienced in riding a tricycle sidecar and the dimensions of the tricycle sidecar. The data gathering for the anthropometric dimensions of the passengers and identification of discomforts was conducted in the form of survey from the passengers of tricycle sidecar from Cavite State University Main Campus, while the dimensions of the tricycle sidecar were obtained through measuring sidecars from the mentioned university.

Industrial Engineering tools such as principles of ergonomics, anthropometry as well as statistics were applied in gathering and analyzing the data. The use of percentiles was helpful in determining the appropriate dimensions of the proposed sidecar design.

The results of the study clearly showed the mismatch in dimensions between the tricycle sidecar and its passengers. The measured dimensions of the sidecars were insufficient or smaller than the corresponding dimensions of the passengers making it unfit for use. The results also showed that most passengers experience discomforts on the different parts of their bodies while riding in it.

With the required measurements from the participants, the researchers were able to propose an ergonomically designed tricycle sidecar that would possibly help in reducing and eliminating the discomforts that are being experienced by the passengers in using the common tricycle sidecar in Cavite State University Main Campus.

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APPLICATION OF ERGONOMICS IN THE REDESIGNINGOF TRICYCLE SIDECAR IN CAVITE STATE UNIVERSITY (CvSU) MAIN CAMPUS (AY 2013-2014)

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INTRODUCTION

Tricycles are used primarily for commercial transportation, either of passengers in pedicabs and freights and deliveries. It is considered as one of the major means of transportation in various countries in south-east Asia especially in the Philippines due to its flexibility in transportation. Still, a very small number of individuals can afford such a vehicle just for their private use. Most motorcycles in the Philippines are being used for serving as a kind of taxi by attaching a sidecar alongside it that commonly carries a maximum number of three persons. The fact that this country's most inhabited areas can not be reached by larger vehicles made the use of tricycles more convenient and practical for most of the people thus, making it a daily necessity for many. The tricycle's small and compact size are its most advantageous attributes which makes it fit for travelling narrow streets and roads but it also poses problems that are often encountered but not recognized by its passengers.