

UNIVERSITI TEKNOLOGI MARA

**DETERMINATION OF SAFE ROUTE
TO SCHOOL FOR WALKING
CHILDREN**

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of the requirements for the degree of
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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any other degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Injuries or fatalities change lives, especially for children as they are vulnerable emotionally and physically. Every child who leaves for school is expected to return home in safe and sound condition. Hence, children's safety at school has been associated with various views, including road safety aspects. Travel route safety has become a major concern among parents, children, and school personnel. Heavy volume of traffic with poor road maintenance has been acknowledged as the contributing prospect that often makes road safety a remarked issue. This topic is more upsetting when the road safety aspects around the school vicinity are overlooked. As a result, parents and children reckon that it is not safe to walk, hence decreasing the number of school children who do so. In addition to that, evoking the number of parents and children who prefer motorized vehicle as a common mobility mode worsens the existing congested traffic condition. Although the Malaysian Department of Town and Regional Planning (DTCP) has laid out a guideline concerning school siting parameter, the road safety aspect pertaining to travel route distance taken was not thoroughly highlighted. Corresponding to the matter, this study evaluated the school siting parameter effects towards school children's road safety. This study had been limited to six primary and secondary schools in Johor Bahru, Malaysia. Theoretical and empirical techniques were emphasized in the research methodology. Questionnaire survey was distributed to 553 students in six selected schools and interview session with related authorities was done as part of preliminary work. Besides, Statistical Package of Social Science (SPSS) and Geographic Information System (GIS) were utilized in investigating mobility mode pattern, school coverage area, and route taken to school. The results from all schools showed similar pattern, whereby motorized vehicle (parents vehicle and school bus) had been discovered as the ideal mobility mode to school. On top of that, statistical analysis tabulated that distance and age were never a factor in mobility mode choice. Furthermore, network analysis was done in establishing the shortest route taken to school, where it showed that children used the main road as part of their travel route. In addition, alternative route to school was established, by avoiding or minimizing the use of main road, yet it indicated that children needed to take a longer distance to get a safer travel route. Hence, a new safe route to school map was established with additional discussion of proposed safety aspects, such as parking bay for school bus and parents' vehicle, zebra crossing, road patrol, and pedestrian walk. This study proved that additional road safety aspects should be included in the school siting parameter guideline to ensure that school children's road safety is thoroughly covered.

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CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

This chapter discusses the background of the study, the problem statement, the aim, the objectives, the study limitations, the study area, and the significance of the study. The chapter starts with an introduction of safety aspect for school children, and its relation to school siting parameter where later explain on the safe route to school.

1.2 BACKGROUND

Road safety is important as people travel everyday using various modes of transportation. In 2013, the World Health Organization (WHO) reported that approximately 1.24 million people die annually and about 50 million suffer from injuries of road accidents. This figure is reckoned as high; by looking at the fact that there are hundred other causes of deaths reported. Malaysia, listed in the upper middle income class, has taken this issue seriously (Self, Gregory, and Claros,2012). In January 2007, Malaysian Institute of Road Safety (MIROS) was established to monitor road crash statistics and to carry out studies to enhance road safety regulations. According to MIROS, in 2010 alone, a total of 363, 319 crashes with 6, 282 human deaths had been recorded. It was calculated that an average of 17 deaths from traffic accidents happen daily, or equivalent to one death per one and a half hour (Ahmad, Siti, Fauziana and Abdul,2012).

Besides, the percentages of fatalities and injuries due to road accidents among young people have also risen (Ahmad et al.,2012). Young people or youth are from 13-24 years old, and it is different for every region (Peden and Oyegbite, 2008). In Malaysia, the age of the school children ranges from 6 to 17 years old (MoE, 2014). Children travel every day to school using different modes of transportation. Even though road safety has been taught by teachers at school and parents at home, a child is easily vulnerable. A. Anund (2011) and A. Viklund (2011) are among the researchers who have studied the elements for safer journey to school. The common transportation modes used by children nowadays are school bus, parents' vehicle,