

## **Investigation on Factors of Children Mobility Commuting to Schools by Walking From The Parent's Perspective**

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**Abstract:** Walking is claimed as the best mode to school due to its benefits towards environment and health. Currently, there are many safety and environmental issues had become decisive factors that preventing the parents to allow their children from walking. Several investigations showed that walking as a mode choice continues to suffer from narrow and weak foundations. To address this issue, this article aims to identify factors affecting the parents' decision about walking to school, and to conceptualize the relationship between different factors that affecting on parents' decision (i) investigate the parent's decision on allowing their children mobility to school by walking. (ii) Determine what are the main factor that affecting parent's decision on allowing their children mobility to school by walking. (iii) investigate are the aware of the consequences of their decision, this research found that factors such as Distance Environment Infra, Traffic, Weather, and Gender' perception have great influence in parents' decision to allow their children walking to and from school. Thus, national programs must address the safety, traffic, and environmental issues such as traffic lights, pedestrian crossing improvements, and walking or bicycle paths to reduce parent's concern. The findings of this study can be used to better deal with parents' concern about their children to travel actively and safely to school.

**Keywords:** Commuting Mode Choice, Distance, Safety, Built Environment, Parent' Perception, Public Transportation.

## 1. Introduction

Walking is an easy activity that can contribute a great deal to our health. It is a great aerobic exercise and an important way to improve the metabolism of our body. According to the journal *Medicine and Science in Sports and Exercise*, cycling helps reduce the occurrence of chronic conditions. In fact, walking (at speeds greater than or equal to 8 km/h) uses more power than jogging at the same pace [1].

Walking, especially for our health, has a lot of advantages. Walking is the best way to minimize the problems related to their obesity epidemic with regard to children's health, as for instance, Walking decreases the body fat, raises lean muscle tissue, burns calories and improves metabolism. You can gain long-lasting weight control by walking. Combined with nutritious eating and a healthy lifestyle. Factors such as distance, safety, traffic, sidewalks, constructed environment, demography, and the perception of parents have made great progress in the decision of parents [2, 3]. The issue on this issue today was that many parents did not allow their kids to walk to go to school and come back from school. The perspective of parents needed to identify to know what the main factors are influencing their decision to let their kids walk and return from school.

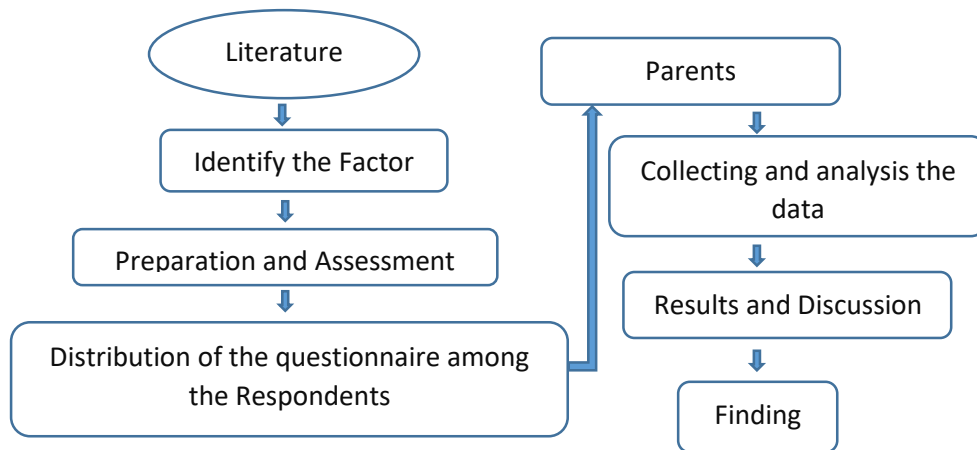
In this research the questions that to be answer is what are the main factor that mostly affect the parent's decision on letting their children mobility to school by walking.

### 1.1 Research Hypothesis

The study attempt to approach the parents to get what their thinking opinion about allowing their kids to walk from/to school, and it concentrate entirely on their perception. The main factors that may affect their decision may concern the safety of their children. Due to the selected area still lacking in facilities that can help reduce the parent problem, the traffic, sidewalk and built environment may also be one of the main variables. The researcher assumed that parents would not have a problem letting their kids walk if the facilities were adequate. The greater the safety of the children, the better the facilities, including traffic, sidewalk, and cozy built environment. The study collected the perspective of the parent to enable their children to walk from school and back by themselves. The main factor influencing the parent's decision can be identified from the data. The research provided information for development on what needs to be improved and will bring benefits to all local people.

## 2. Methods

An outline of research methods that used in the study are qualitative method. It provides information on the participants, that is, the criteria for inclusion in the study, who the participants and how sampling will take place. The researcher described the research design that chosen for the purpose of this study and the reasons for this choice. The tools that used for data collection also described and the procedures to carry out this study. The researcher also discusses the methods to analyze the data [2], an overview of this research methodology is shown in the Figure 1.



**Figure 1: Research methodology**

## 2.1 Research Design

The study design allows the investigator to pick subjects for the questionnaire and to decide the type of analysis to be used for data interpretation. The choice of research design depends on the intent of the research and the conditions under which the analysis is carried out.

In the effect of data analysis, the design includes the collection of data and theory, while the design includes the theory and hypothesis and the process of designing a research plan to test them. Research design is a description of the research study that shows what the researcher will discover for the final analysis of data from writing the hypothesis and its practical consequences. Research design is the arrangement of data collection and data analysis criteria to integrate research relevance; research design is a decision on what, why, where, when and how to answer an inquiry or investigation issue. The knowledge was obtained using the Method of Questionnaire and Scale Measurement [4].

## 2.2 Questionnaire

The questionnaire was distributed using online google form. The question was more on asking opinion about letting their children to walk from/to school and asking about the obstacles that make them not too confident on letting their children walking. The data were saved and analyse.

By applied this method, the researcher got more respondents to achieve the research objectives. The more data the researcher got, the more an accurate result. The target were the parents around the Batu Pahat. The data that have been recorded, it was analysed by which factor that the most selected and mentioned by the parents in the questionnaire, however the researcher observed and conclude the main factor that affecting the parent's decision is the most mentioned by the parents.

Specification and assumption performing of this research, the data were gained provide a guide for the future to help deal with the barriers that are the factors that affect the decision of the parent to allow their children to walk from/to school. school and back by themselves. The questionnaire will measure the awareness of walking by parents and identify, based on their perspective, the main factor influencing their decision.

## 2.3 Statistical analysis

This section profiles analytic methods employed to explain the mass of quantitative data that was collected over a period. Researcher attempted to provide in depth explanation of the analysis process to bring meaning, structure, and order to the data. The focus of data analysis is to yield congruence between the reality of the phenomena studied and the emergent themes. This study is situated to entrench the concept that the form of data capture, is ultimately in the form of text. Most data were converted into text, and the text was the primary model for the object of interpretation [5].

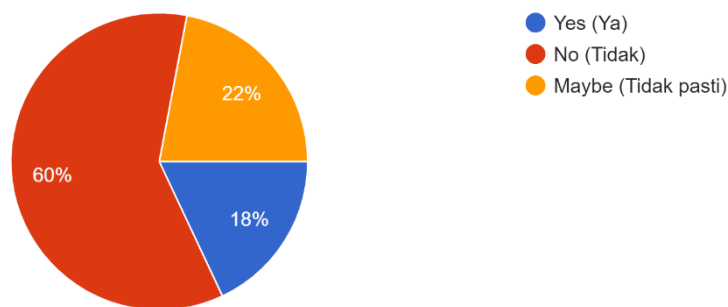
As indicated in a previous section, the data was collected through a (Questionnaire, informal field notes, researcher journals and document reviews). All the empirical data garnered through WrapPLS Version 7.0, data from Questionnaire were coded and analysed, WrapPLS from theory methods as espoused by Charmaz [6]. The goal was not to develop theory but to present a viable interpretation of the findings collected. The following sections describe the detail phases involved in the analyses of this data.

### 3. Results and Discussion

The results and discussion section presents data and analysis of the study. This section can be organized based on the stated objectives, the chronological timeline, different case groupings, different experimental configurations, or any logical order as deemed appropriate.

#### 3.1 Parent’s decision

Based on the pie chart, most of the parents were not agreed to allow their children walk from/to school. There is 60% of the respondents disagree to allow their children walk from/to school and only 18% agreed to allow their children walk from/to school and the others 22% responded as not sure.



**Figure 2: Percentage on respondent’s decisions**

#### 3.2 Main Factor that affecting parent’s decision

The Table 1 shows the respondents level on each factor. Based on Table 1, the highest value is recorded on distance, which is 134 totals for those who agree, and it means that the distance from their home to school is the most influential decision by parents. The gender of their children with 128 is followed by 106 for the weather condition and the environment was 65. The data that we gain from the survey are analyzed by using WarPLS version 7.0. The result from WarPLS are saved and recorded. From Table 2, a good indicator used in the survey is the value more than 0.7.

**Table 1: The respondents level on each factor**

Factors	Distance	Environment	Infra	Traffic	Weather	Gender
Agree (4&5)	134	65	30	39	106	128

**Table 2: Cross Loading (WarPLS 7.0)**

Indicator	Parents	Awareness
Distance	(0.691)	0.022
Environment	(0.780)	-0.133
Infrastructure	(0.240)	-0.179

Traffic	(0.423)	-0.259
Weather	(0.717)	0.141
Gender	(0.388)	0.363
Walking Benefits	0.652	(0.499)
Decision effect	0.246	(0.647)
Obesity Among Children	-0.081	(0.848)
Disease	-0.484	(0.859)

The value of quadrant AVE for every variable are bigger than the correlation between the variables laten, so it is meaning the validation discriminant are good based on Formell-Larcker approach. Based on the Table 4, it show that the correlation of P-values of each part that has in the model created in WarPLS to analyzed the data.

**Table 3: Corelation Among I.VS. with Sq.rts. of AVEs (WarPLS 7.0)**

	Parents	Factors	Awareness
Parents	(1.000)	0.621	-0.068
Factors	0.621	(0.576)	0.045
Awareness	-0.068	0.045	(0.729)

**Table 4: P-values for Corelations (WarPLS 7.0)**

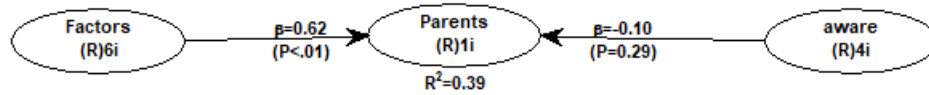
	Parents	Factors	Awareness
Parents	1.000	<0.001	0.663
Factors	<0.001	1.000	0.771
Awareness	0.663	0.771	1.000

Based on the Table 5, it shows the path coefficients was 0.625 it is the value of how the influence construct laten and it is doned by using Bootrapping procedure. P value from the tables are show us the significant of the factor to the parents that is 0.004 and it is lower than 0.005 that prove it is significant. R-squared is given to only endogenous latent variables reflecting the percentages of described variance and predictive validity associated with each of those latent variables, respectively. The size of the indicator effect is defined as the absolute values of the individual contributions of the corresponding indicators to the latent variable R-squared coefficients associated with each indicator. Indicator effects are small, medium or big that used in this. All indicator effect sizes are recommended to be equal to or greater than 0.02, and form the table results are graeter than 0.02.

**Table 5: Influences Significant(WarPLS 7.0)**

Influences	Path Coefficients	P-Value	R.Square	Effect Size
Factors →Parents	0.625	0.004	0.365	0.388

The model as shown in Figure 3 is to find whether the variables affect the decision of the parent and also the awareness of the parents on their decision . The output of the model in Figure 3 is all the to get the previous data that was tabulated in Table 1, 2, 3, 5, and 6. From the result the factors affect the parents decision more than thier awereness of their knowledge about walking benefit.



**Figure 3: Factors and awareness towards parents WarPLS 7.0**

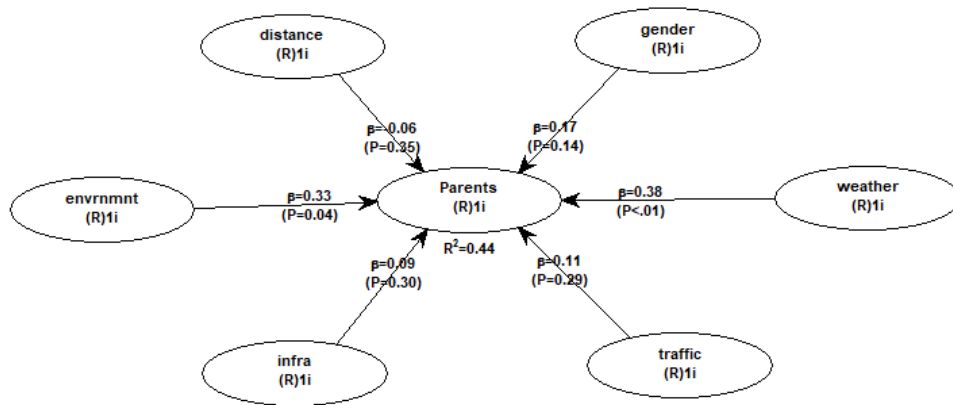
Indicator weights are given in a Table 6, much the same as indicator loads are given in the same way. Because of the way they are calculated through PLS dependent algorithms, all cross-weights are zero. Standard errors for weights in the column marked 'SE' for indicators associated with all latent variables are also given here [7].

**Table 6: Indicator weight**

Indicator	Parents	Awareness	SE
Distance	(0.347)	0.000	0.227
Environment	(0.393)	0.000	0.174
Infrastructure	(0.122)	0.000	0.233
Traffic	(0.214)	0.000	0.209
Weather	(0.360)	0.000	0.227
Gender	(0.195)	0.000	0.150
Walking Benefits	0.000	(0.235)	0.132
Decision effect	0.000	(0.305)	0.090
Obesity Among Children	0.000	(0.399)	0.071
Disease	0.000	(0.404)	0.076

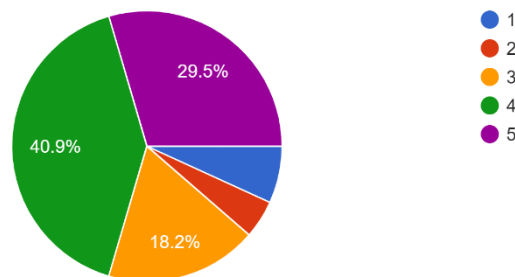
Figure 4 shows the model that has been analyzed inWarPLS 7.0 to find out the affect of the each factors towards parents decision. From the figure, there also provide the data P value for each factors.

**Figure 4 represent the awareness on their decisions.**



**Figure 4: Factors towards Parents decisions Model by WarPLS 7.0**

The pie diagram in Figure 5 shows the statistics of parents' openness to the effect of their decision to allow their children to walk through school. Most parents are aware of their decision that 29.5 percent are strongly conscious of the graph and 40.9 percent are conscious. The value of quadrant AVE for every variable are bigger than the correlation between the variables laten, so it is meaning the validation discriminant are good based on Formell-Larcker approach.



**Figure 5: Awereness of parents to the effect of their decisions**

**4. Conclusion**

Based on the previous research, the distance home from school shows the same higher factor mentioned [2, 8]. The findings recognized by the respondents are also the distance from the result of the survey, the highest agreeability. To conclude on the outcomes, we can conclude that distance is the main factors influencing parents' decision to allow their kids to move to school by walking, in addition, the awareness response shows that respondents are aware of their decision-making impact. From the points, we can say that parents may want their kids' mobility to school by walking because they are aware of the effect but walking for their kids for a long distance can make the kids too tired and affect their study performance as well. Education is very important in these cases, and it is the responsibility of parents to help their children to have a good learning environment. The state of the learning environment and the standard of infrastructure have a direct impact on student academic success, together with the degree to which they are sustained [9].

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