

# Impact of Road Safety Education on Parents' Willingness to Pay on Safety Equipment via Family Communication Pattern

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**Abstract:** Children are the most vulnerable road users as their physical body is small with limited experiences on the road. Parents are responsible to make sure children are being protected and safe on the road. The objective of this study is to investigate road safety education as a contributing factor in parents' willingness to pay (WTP) on road safety equipment based on family communication patterns (FCP). WTP was measured in Ringgit Malaysia (RM) while four types of FCP are laissez-faire, protective, pluralistic and consensual. This is a descriptive quantitative intervention study and data was collected via a survey during the pre- and post-study. The sample comprised of 1,969 parents of primary school children from Year 1 to Year 6 who have been using the revised road safety education activity books during the pilot study. The result revealed that pluralistic and protective are two types of FCP with higher increment in WTP among parents on safety equipment to be used on their children during the post-study. Further analysis using paired sample t-test showed a significant difference was only found in pluralistic and protective FCP among Year 1 and pluralistic FCP among Year 5 students. The findings further explained that road safety education influenced the parents' willingness to pay on safety equipment for their children based on the type of FCP practiced in the family

**Keywords:** Willingness to pay, Safety equipment, Family communication pattern, Road safety education

## I. INTRODUCTION

Road traffic injuries are the second-leading cause of death worldwide among children aged 5–14 years old and young people aged 15–29 years old (WHO, 2004). Various strategies and initiatives have been taken to reduce road traffic fatalities with countries worldwide being committed to a decade of action in reducing these fatalities. The Malaysian government is also committed to reducing road traffic fatalities. The Malaysian Road Safety Plan 2006–2010 was developed to achieve this target with one of its strategies being road safety education for students.

Road Safety Education (RSE) programs are meant to inculcate road safety practices and values in students at an early stage. RSE is a life-long learning process and should begin as early as primary school level, hence, it is of utmost importance to integrate RSE into Malaysia's education system. RSE teaches road safety values and best practices throughout the entire school life of a child from primary school level until secondary school so that it can be internalized in their self and become part of habitual practices in their entire life. On the other hand,

RSE also produces spillover effects on parents pertaining to road safety knowledge. Thus, parents will become prudent road users by practicing good road safety behaviours. In this manner, parents also act as role models for their children. Parents play an important role in shaping the child's perception of the world through the way they communicate with their children. Family Communication Patterns (FCP) reflect how parents communicate with their children. Family communication pattern is described as the way parents train their children to process information derived in the form of mass media messages (Koerner & Fitzpatrick, 2006). McLeod et al. (1973) first developed two major dimensions of family communication patterns: social-oriented and concept-oriented.

Social-oriented families are authoritative and controlling families. Children in this type of families should defer to parental authority, maintain harmonious relationships and avoid any conflict with their parents or others. Socio-oriented families tend to emphasize the avoidance of controversy in the family and on obedience to parents. In this type of family, a child is taught to avoid controversial issues in order to prevent unhappiness among the family members. Conversely, concept-oriented communication emphasized individual ideas, beliefs and feelings. This type of family encourages children to express ideas openly and to challenge the views of others.

Koerner and Fitzpatrick (2006) further established the FCP Theory and introduced more solid dimensions, which are conversation orientation and conformity orientation. Conversation orientation refers to the extent of cultivating an atmosphere where family members involved in open communication about any topics (Koerner & Fitzpatrick, 2006). Meanwhile, conformity orientation is described as the degree to which family interaction focuses on a climate of homogeneity of attitudes, values and beliefs (Koerner & Fitzpatrick, 2006). Four types of communication pattern are rooted in the combination conversation and conformity orientation (Samek & Rueter, 2011).

There are four types of FCP, which are laissez-faire, protective, consensual and pluralistic. The laissez-faire families are concerned about neither conversation nor conformity. This communication pattern encourages neither the challenge of other's opinion nor harmonious relationships.

Meanwhile, protective communication shows little concern for conceptual matters. In protective families, children are discouraged from expressing different opinions and are encouraged to keep harmonious relationships. Otherwise, in pluralistic families, children are not only exposed to controversial issues, they are also encouraged to develop strong and different opinions without fear of punishment. On the other hand, consensual families stress both relational harmony and open communication between parents and children. Table 1 shows the Family Communication Model based on crossing two dimensions.

Table 1: Koerner & Fitzpatrick's (2006) Family Communication

Patterns Model

		Conversation Orientation	
		High	Low
Conformity Orientation	High	Consensual	Protective
	Low	Pluralistic	<i>Laissez - Faire</i>

Willingness to pay (WTP) is the maximum price that a person is willing to pay for a specific product or service (Storbieski, 2020). As many factors that influence consumers' willingness to pay, this study is trying to measure how does FCP influence parent's willingness to pay for road safety equipment. FCP plays an important role in promoting good road safety behaviors and attitudes among children from the parent. Open communication between parents and child in respect to road safety and risk-taking indicates parents' tendency to pay on road safety equipment as there is spill over knowledge of what children learn in school about RSE to their parents. This study measured the amount of money that an individual is willing to pay in order to buy safety equipment that can aid in the reduction of death or injury risk of their children.

II. METHODOLOGY

The research design used for this study was a quasi-experimental design, which comprised of the pre- and post-study. It is very useful when random sampling is impossible. This is because the pre- and post-study often assess the overall effectiveness of a treatment that has many components and follow-up research that may then determine which components are critical for achieving the treatment effect. Based on this design, if the study groups behave differently during post-survey, the researcher may conclude that it was the effect of the influential cause received by the study group. The study was carried out in 5 zones consisting of 6 districts in Malaysia.

The questionnaire for this study was divided into two sections, based on participants; parents and students. The parents answered questions on WTP section while students answered questions on FCP. The questionnaire was developed based on previous literature review and inputs from subject matter experts in road safety and children psychological development. The questionnaire aims to measure the spill over effect of RSE Modules from students to parents on their road safety values. There are three items consist of parent-child discussion on a

road safety topic. Parents' willingness to pay on road safety equipment was also measured in this study. For students, there are 4 questionnaires encompass the student-parent interaction time to assess the communication in four family types; laissez-faire, protective, pluralistic and consensual. Furthermore, 3 items of the students' initiation discussion on road safety topic with their parents were also included. The details of the survey and instruments used are listed in Table 3 below:

Table 3: Method and instrument used in this study

Method	Instrument	Participant
Survey	Questionnaire (WTP)	Parent
Survey	Questionnaire (FCP)	Student

Participant and Sampling

The selection of districts was chosen based on road accident statistics from the Royal Malaysian Police in 2015 (PDRM, 2016). The highest number of crash cases involving those aged six to twelve years old at respective districts were shortlisted before finalizing the locations. Six districts were identified as listed in Table 2.

Four schools in each district were randomly selected. The selection of schools is representative of national and vernacular schools in the selected districts. The pre- and post-study was conducted in the same school, among parents and students within 10 months of RSE module implementation. A total of 1,969 parents and 1,969 students of year 1 to year 6 were involved in this study.

Table 2: Selected districts for the study

Location	Zone	State	District
Peninsular Malaysia	Northern	Kedah	Kuala Muda
	Central	Selangor	Petaling Jaya
	East Coast	Kelantan	Kota Bharu
	Southern	Melaka	Alor Gajah
East Malaysia		Sabah	Kota Kinabalu
		Sarawak	Miri

Data Collection

The pre-study started before the end of school terms in 2016. It involved students from preschool to standard 5. The post-study started after 10 months of RSE module implementation in the selected school, which was from October to November 2017. The same students and parents were involved in this study with the only difference being the changes with their education level; standard 1 to standard 6. Open-ended questions were done through a face-to-face interview where the researchers prompt the question to gain input from students. As for the parents, they received the questionnaire through their children.

### Data Analyses

Data were analysed using SPSS software with descriptive and inferential statistics applied. Descriptive analyses were conducted to measure the frequency and percentage of parents' demographic data. Inferential statistics using paired t-test were done to measure the mean difference of WTP for pre- and post-study based on FCP.

### III. RESULTS

From the total of 1,969 participants, the majority of them were mothers, 60.9% (N=992) and 38.5% (N=627) were fathers. The rest of them were guardians (0.4%, N=7), uncle/aunt (0.1%, N=2) and siblings (0.1%, N=1). In terms of age, 53.1% (N=979) of the participants were between 31 – 40 years old and 34.5% (N=635) of them were between the ages of 41 – 50 years old. Only 6.5% (N=119) and above, respectively. In terms of race, the highest number of participants were Malay (66.7%, N=1291), followed by other races (21.7%, N=420), Indian (8.8%, N=170) and Chinese (2.8%, N=54). Table 4 displays the demographic analysis of the participants.

Table 4: The demographic profile of the respondents

Demographic	Frequency (N)	Percentage (%)
Parent		
Father	627	38.5
Mother	992	60.9
Guardian	7	0.4
Uncle/Aunt	2	0.1
Sibling	1	0.1
Age		
19 and below	1	0.1
20 – 30 years	119	6.5
31 – 40 years	979	53.1
41 – 50 years	635	34.5
51 and above	109	5.9
Race		
Malay	1291	66.7
Chinese	54	2.8
Indian	170	8.8
Others	420	21.7

The finding provides evidence that the mean of WTP increases from the pre- to post-study period. As for Year 1 students, the highest increment of WTP mean was recorded by pluralistic (208.19) FCP, which was 190.50 in the pre-study to 398.69 during the post-study. Similar to Year 1 students, the highest difference of mean for Year 3 (1675.98) and Year 5 (215.73) students was pluralistic FCP. The mean value of Year 3 during the pre-study was 972.88, which increased to 2648.85 during the post-study, whereas, Year 5 showed the pre-study to be 314.00, which also increased to 529.73.

### IV. DISCUSSION

The results of this study have revealed the spillover effects of road safety education on parents. In other words, road safety education has successfully influenced parents. Road safety education managed to produce an impact on willingness to pay on road safety equipment among parents whose children received education related to road safety at schools. Parents

have demonstrated an increment in willingness to pay on safety equipment during the post-study compared to the pre-study. This means the knowledge of road safety education received by students based on the revised road safety education modules has been shared with their parents during the post-study. This could be because a lot of enhancement has been made to the revised road safety education modules, making them more interesting for primary school students.

According to the comments by the teachers, the revised modules are more interactive, interesting and user-friendly. Thus, the students would like to share whatever they learned with their family members, especially parents. However, to what extent of the spillover effects from the students to their parents depends deeply on the family communication patterns practiced by the parents. According to Runcan, Constantineanu, Ielics, & Popa (2012), one of the factors that contribute to effective sharing between children and their parents is the communication patterns in the family.

Koerner and Fitzpatrick (2002) explained that family communication patterns are determined by two dimensions, which are conversation orientation and conformity orientation. Four types of family communication patterns, namely, pluralistic, consensual, protective and laissez-faire have been created by combining conversation and conformity orientation. The analysis of the study shown the type of family communication patterns that resulted from the significant differences in parents' willingness to pay for safety equipment before the implementation of the revised RSE modules and after the implementation is pluralistic.

Parents that practice pluralistic communication patterns with their children have demonstrated a significant increment in willingness to pay on safety equipment. Children in these families communicate and discuss road safety matters that they learned from the revised RSE module more liberally with their parents, while the parents listened with an open mind and accept their children's opinion. The sharing of what the children learned from road safety education has contributed to parents' willingness to spend more on road safety equipment. Samek and Rueter (2011) stated that parents that practice pluralistic put emphasis on the conversation between them with their children but not conforming to a single view.

The study revealed that children will share with parents if they are given the opportunity by their parents. Parents can attain a lot of information on their children's daily activities, both in school and at home via conversation with their children. This is supported by Runcan et al.,(2012), which stated that effective daily communication with the child helps the relationship interaction between the parent and child and the latter's harmonious as well as complex development.

The analysis of the study further explained that there was no significant increment in willingness to pay for safety equipment of parents who used laissez-faire, protective or consensual communication patterns during the interaction with their children. Children from a family of laissez-faire

family gain little attention from parents. Laissez-faire parents give no guidance, do not discipline and control their children. The parents allow the children to do what they wanted to do and make their own decision, where the children become easily influenced by others from their surrounding (Noh, Yusoff, & Hasim, 2013).

Thus, not much communication is needed between the parents and their children. Whereas, protective family demonstrated high in conformity but low in conversation orientation. Protective parents highlighted on conformity to achieve shared reality and emphasizing deferral to a dominating family member's view over a conversation (Samek & Rueter, 2011). Communication in a protective family is more on requiring the children to be obedience to parents and not so much on letting children express their thought. Consensual parents emphasize both conversation and conformity aspects. They encourage their children to communicate with them on different views and making the efforts to arrive at the same agreement with their children (Zarnaghash, Zarnaghash, & Zarnaghash, 2013).

Since parent's engagement with the children can influence the WTP, therefore, they should spend more time to communicate with their children and encourage the children to express their thought. It is recommended to further this research in finding the relationship between FCP and WTP so that we have clear proof that there is a link between the two variables. Similar studies can be conducted in secondary schools in order to discover various interesting finding based on different levels of education.

The findings of this study have to be seen in the light of some limitations that could be addressed in future research. First, the demographic section in the questionnaire did not include the salary and employment sector of the participants. The data was very crucial as an indicator of the social and economic status of the parents, which can directly influence their WTP. Second, the finding was exposed to biases since the questionnaire was completed at their home. Third, there were little research studies conducted on how FCP can affect their WTP. Thus, not enough reference can be made and the theoretical foundations that are relevant to the study were limited.

## V. CONCLUSION

The revised RSE modules have produced the spillover effects from students to their parents. This spillover effect has made parents willing to spend more on the road safety equipment during the post-study compared to the pre-study. However, the strength of the spillover effect is largely depending on the family's communication pattern practice by the parents. The family that upholds the pluralistic communication patterns has reported being able to result in the strongest spillover effect on parents because it allowed children to share their life with their parents post-study.

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