Children aged 6 to 12 transport in Greater Jakarta

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Abstract
In Indonesia, it is compulsory for children aged 7 to 12 years to attend primary school. However, some parents with 6 years old children enroll them in private primary school. Therefore, school transport becomes one of the most important parts of children mobility including in Greater Jakarta. Other activity on weekdays might include attending foreign languages courses, joining sports clubs, attending musical courses, etc. To support their mobility, parents prepare various options including private motorized vehicles, public transport, and pick-up/ drop-off services. This paper is intended to discuss the children readiness level to be transported by these three options. All answers were provided by the parents both for readiness of their children to be transported and their children personal qualities in terms of their self-reliance, liveliness & physical skill, emotion, decision making skill, and closeness with the parents. These five children personal qualities were then correlated with their readiness to be transported in three different ways. Pearson Correlation was conducted at 0.05 significant level between three children personal qualities and their readiness (both before and during the travel) to be transported. In general, emotion was the only children personal quality that was not related to readiness to be transported.

Keywords : *children, aged 6 to 12, transport, Greater Jakarta.*

I. INTRODUCTION

Waygood et al. [1] stated that transport can affect children physical, psychological, social, cognitive and economic well-being. The increase in mean distance from residence to educational the beginning of 21st century has been followed by considerable growth in the percentage of students going to school by motorized vehicles and leaving their habit to walk or cycle. This mode shift became a public concern due to decreased physical activity, increasing private-car dependence and the childhood obesity crisis. Easton S & Ferrari (2015) found that, these might affect the health of future generations [2]. The present study investigates the association between school travel mode and psychological well-being (PWB) of children. Data were collected from 152 primary school Austria. Stark et al [3] found that that active school travel is positively related to children's PWB and that travel-related attitudes towards modes are significantly associated with well-being. Waygood [4] observe the relationship between transport mode and to the occurrence of incidental social interaction during the trips of children aged 10–11 in Canada (177), Japan (178), and Sweden (144). The findings show that the results are internationally similar and that most incidental social interactions result in verbal communication in all three countries.

Transport allows children to conduct activities that facilitate physical activity such as active play, sports, or recreation [5]. In vehicle air quality can relate to exhaust, but also by another passenger's behaviour. Smoking in vehicles can expose children to significant second-hand smoke even if the window of the smoker is half-open [6]. According to Waygood and Susilo [7] if parents afraid of crime or traffic levels, or feel that they have low-quality neighbourhood they may not let their child walk. In Belgium, De Meester et al [8] found that 10-12 years old boys reported more active transport if parents perceived more land use mix diversity, shorter distances to school, good land use mix access, higher housing density, and less pleasing neighborhood view.

Waygood et al [9] stated that negative relationships were found for increased frequency of almost all mode uses (walking, bus, and car) on travel satisfaction (directly) and life satisfaction (indirectly), which may suggest that children do not like frequent travel. Gan et al [10] observed school readiness differences in a sample of rural and urban preschool children (N = 82) from Zunyi, China The results showed that rural children scored lower on emotional and social skills, basic knowledge, and drawing and language score subtests than did urban students, but higher on sports skills, and understanding of both time and space.

According to Scheiner [11], urban locations are more suitable for the independent mobility of teenagers but less suitable for younger kids. Within cities, an escort is less common in inner areas with mixed land-use and a satisfactory public transport system. Meanwhile, He [12] found that in Los Angeles parental job, especially the mother's, is a very important factor affecting the likelihood of a joint journey to school.

According to Singh and Vasudevan [13] in Kanpur city, India, the unavailability of a public transit system

and the absence of good-quality school transport fleets resulted in the dependence of school children on other motorized modes, such as family vehicles and paratransit. Moreover, the lack of infrastructure support negatively influenced the use of active modes of transport.

Based on their research in Belgium, Boussauw et al [14] stated that it is important to keep sufficient supply in terms of school capacity, in order to support efficient home-school travel. It is important as well to maintain the education quality at a similar level across municipalities, in order to encourage parents to choose nearby schools due to a uniform quality of education.

To ensure that children travel to school efficiently, they may need to take a multi-modal transport from home. Therefore, a system providing real-time information on departures, routes and traffic conditions before and during the travel is required [15].

However, as since the beginning of 2020, the world was suffered due to Covid-19 pandemic. Therefore, many children were required to study from home. The teacher may be situated at their respective homes or at school. The teaching may be conducted by web-meeting and/or e-learning. The evaluation of the competence of the students can be assessed through mobile assessment [16]

II. METHOD

The data collection was done using questionnaires distributed both online and non-online (direct interview). The respondents were parents having children between 6 and 12 years old. The questionnaire consists of three parts, i.e. general questions, children personality questions and children readiness to be transported questions. The responses of the last two parts were given in Likert scale from1 to 4, while 1 means not agree, 2 means slightly agree, 3 means agree and 4 means strongly agree. The general questions consist of name/ gender/ age/ education attainment/ job/ monthly expenses of the parent and age/ gender of the children.

The children personality questions consist of five constructs, i.e. self-reliance, liveliness & physical skill, emotion, decision making skill, and closeness with the parents. Table 1 lists the indicators of each personality constructs.

Table 2 shows indicators describing readiness of the children to either use public transport, private transport or student shuttle services (3 types of transport modes) both before and during the trip (2 situations) presented as six (3 types of transports modes x 2 situations) separated constructs.

There were 108 respondents, i.e. 56 parents whose children use public transport, 15 parents whose children use private transport and 37 parents whose children school shuttle service. They were asked to answer the interviewer questions based on the questionnaires. Every construct was represented by the mean value of all indicators within each construct. 5 constructs of children personality were then correlated with 6 constructs of children readiness to be transported using Pearson correlation analysis to assess factors in children personality that significantly affect readiness to be transported daily.

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Table 1: Indicators of children personality constructs

Self-reliance indicators
I can rely on my child on school preparation and homework from school.
My child conducts daily activities without assistance, e.g. dress up, take a bath, eat, etc.
My child never asks me to escort her/ him beyond the school gate.
Liveliness & physical skill indicators
My child is an active human being, e.g. keep moving, playing, etc.
My child has a high curiosity for something new, actual and involving technology.
My child likes to involve in physical activities outdoors with friends.
Emotion indicators
My child is short-tempered if ridiculed by friends.
My child feels clumsy when meeting new friends at school.
My child feels uneasy and becomes quiet.
When my child got good a good mark he/ she will express it proudly.
Decision making skill indicators
My child is able to decide what he/ she wants, e.g. food,

clothing, toys, etc.
My child is able to differentiate between good and bad circumstances.
In daily life, my child usually decides things calmly (withoutu rush).
Closeness with the parents indicators
In daily life, our child is outspoken to us but keep their courtesy.
Our child told us everything including something he/ she fears at.
Our child told us things that make he/ she happy, e.g. get a gift from a teacher/ a friend
When my child wants to do something or go to a place, he/ she will ask permission from one of us.
In daily life, my child obeys our rules that have been agreed by us.

Table 2: Indicator of children readiness to be transported by
3 types of modes before & during the trip

Before the trip using public transport readiness indicators:
My child counts transport cost money given to him/ her.
My child understands valid public transport cost.
My child understands the required public transport lines to reach the destination.
My child understands where to wait for the required public transport lines to reach the destination.
My child understands how to inform the public transport driver to stop.
During the trip using public transport readiness indicators
My child carefully checks the change he/ she should receive when not paying with exact fare.
My child prepares for possible pick-pocket during the trip.
My child prepares for possible sexual harassment acts during the trip.
My child behaves politely to the other public transport users.
If my child needs to shift modes, he/ she will prioritize safety.
Before the trip using private transport readiness indicators
My child checks the face of the driver who delivers/ pick him/ her up.
My child checks safety equipment before the trip, e.g. availability of car safety belt or motorcycle helmet.
My child trusts the ability of the driver to drive safely.
During the trip using private transport readiness indicators
My child will warn the driver if the driver runs the vehicle at high speed.
My child will warn the driver if the driver runt the vehicle in the opposite direction.
My child prepares for possible stealing act during the trip.
My child prepares for possible sexual harassment acts during the trip.
My child behaves politely to the driver
Before the trip using school shuttle readiness indicators
My child recognizes the school shuttle driver.
My child was aware of the school shuttle pick-up schedule.
My child checks safety equipment before the trip, e.g. availability of car safety belt
During the trip using school shuttle readiness indicators
My childs behaves politely to the other school shuttle service users.
My child prepares for possible stealing act during the trip.
My child prepares for possible sexual harassment acts during the trip.

III. RESULTS AND DISCUSSIONS

Tables 3 through 8 summarized the results. Overall, it can be seen from Tables 3 through 8 that emotion was the only children personality that was not significantly correlated with all of the six different situations of readiness to be transported. The result implies that the readiness to be transported by public transport, private transport and school shuttle both before and during the trips were not affected by the emotion of the children.

Apart from emotion, in Table 4 the other construct which was not significantly correlated with during the trip using public transport readiness was liveliness and physical skill. This might be due to the nature of using private transport which does not really need liveliness and physical scale. The private transports were exclusively prepared for certain children and therefore mobility was limited.

In Tables 7 and 8 only decision making skill and closeness with the parents were significantly correlated with readiness to be transported by school shuttle both before and during. School shuttle is a pick-up and delivery of students from home to school vice versa and the system is designed specifically for the need of a certain school. Therefore, to some extent, this is even more convenient compared to private transport because there is a guarantee from the school regarding the safety and punctuality of the service..

Table 3: Correlation between children personality vs before the trip using public transport readiness

Children personality constructs	Correlation Coefficient (R)	Significant Level	Significant at α=0.05 (Yes/ No?)
Self-reliance	0.265	0.024	Yes
Liveliness & physical skill	0.405	0.001	Yes
Emotion	0.149	0.136	No
Decision-making skill	0.489	<0.001	Yes
Closeness with the parents	0.566	<0.001	Yes

Table 4: Correlation between children personality vs during the trip using public transport readiness

Children personality constructs	Correlation Coefficient (R)	Significant Level	Significant at α=0.05 (Yes/ No?)
Self-reliance	0.327	0.007	Yes
Liveliness & physical skill	0.210	0.060	No
Emotion	0.054	0.345	No
Decision-making skill	0.543	<0.001	Yes
Closeness with the parents	0.371	0.002	Yes

Table 5: Correlation between children personality vs before the trip using private transport readiness

Children personality constructs	Correlation Coefficient (R)	Significant Level	Significant at α=0.05 (Yes/ No?)
Self-reliance	0.599	0.009	Yes
Liveliness & physical skill	0.654	0.004	Yes
Emotion	0.136	0.314	No
Decision-making skill	0.689	0.002	Yes
Closeness with the parents	0.811	<0.001	Yes

Table 6: Correlation between children personality vs during the trip using private transport readiness

Children personality constructs	Correlation Coefficient (R)	Significant Level	Significant at α=0.05 (Yes/ No?)
Self-reliance	0.716	0.001	Yes
Liveliness & physical skill	0.533	0.020	Yes
Emotion	-0.075	0.395	No
Decision-making skill	0.768	<0.001	Yes
Closeness with the parents	0.785	<0.001	Yes

Table 7: Correlation between children personality vs before the trip using school shuttle readiness

Children personality Constructs	Correlation Coefficient (R)	Significant Level	Significant at α=0.05 (Yes/ No?)
Self-reliance	0.272	0.052	No
Liveliness & physical skill	-0.022	0.449	No
Emotion	-0.031	0.429	No
Decision-making skill	0.494	0.001	Yes
Closeness with the parents	0.492	0.001	Yes

Table 8: Correlation between children personality v during the trip using school shuttle readiness

Children personality constructs	Correlation Coefficient (R)	Significant Level	Significant at α=0.05 (Yes/ No?)
Self-reliance	0.012	0.473	No
Liveliness & physical skill	-0.049	0.386	No
Emotion	0.107	0.264	No
Decision-making skill	0.419	0.005	Yes
Closeness with the parents	0.472	0.002	Yes

IV. CONCLUSIONS AND RECOMMENDATIONS

In general, except for emotion, children personalities were significantly correlated with readiness to be transported by three different mode types both before and during the trip. Off-course in detail, there were some differences due to the nature of each transport service. These differences should be considered to improve each type of daily children transport services in order to elevate children welfare.

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