

The long and winding road that leads to “traffic calming” in Japan.

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Including ABSTRACT (392 words), BODY (3150 words) , 17 REFERENCES, and 7 FIGURES.

ABSTRACT

An accumulated area of open spaces in 2004 where children were able to run freely with their bare feet in Japan decreased by 99%, compared with that in 1953. Children used to play in a variety of places such as vacant lots, shrine grounds, the road just in front of their home, and natural green fields, etc. A skyrocketing rise in the number of cars since 1960 has caused most of such ambiguous-function spaces to be turned into parking lots. Scarcity of free space for playing and the threat of injuries sustained by cars have deprived children of opportunities to play out-doors in almost every cities.

We conducted a questionnaire survey in 2003 to clarify the perceived problems of children, parents, and teachers toward the current car-dominated environment. Of 1,421 respondents, 961 were adults and 460 were children. While more than 90 % of adults don't feel safe when walking on the road, unexpectedly only 65% of children perceive danger when walking. Speeding cars, no pavement, or obstacles on pavements, and through-traffic on narrow residential roads are the major issues for adults, and for children; speeding and the offensive odor of car exhaust ranked highest, followed by danger at the road corner/intersection and dangerous bikes sharing the same pavements. Many parents and teachers are concerned about the negative effects of the current car-dominated environment on their children's development. Inactivity and the resultant physical deterioration, increased stress, and reduced ability to communicate with each other are the major concerns, and all these seem to result from lack of both opportunities to play out-doors and interaction with children of various ages. What kind of play space do children want? They want streets with no cars(59%), playgrounds with plenty of equipment(57%), a small river where they can catch fish(50%), and unpaved free space(44%).

Many children, parents and teachers are not satisfied with the current traffic environment. Though many adults acknowledge that their children are affected by such obnoxious circumstances, current traffic conditions have long been taken for granted, and citizens are not given an alternative.

Our grass-root movement was launched in 1995 to campaign for giving priority not to cars but to people. We will present the current traffic conditions surrounding children in Japan by using our survey and show some practices of child-friendly communities, which are in fact few and far between in Japan.

1. Current traffic environment for Japanese children

1.1 A Historical Overview

Injury is the leading cause of death for children and young adults aged 1 to 19 in Japan. For children of these ages, the number of deaths from traffic injury in 2002 was 1,130, accounting for 44% of all deaths caused by injury (Minister's Secretariat 2002). Moreover, the number of children in this age group injured on the road has averaged over 90,000 per year (Cabinet Office 2004). Compared with other developed countries, Japanese children are more likely to be injured as pedestrians. For those children aged less than 15 who died from road traffic injuries, 43% were killed as pedestrians, 27% as car occupants, and 22% as cyclists (Minister's Secretariat 2002).

Japan experienced a marvelous improvement in reducing traffic injury during the 1970's. In the late 1950's and the 1960's, number of deaths from traffic injuries increased concomitant with the increasing number of motor vehicles and economic growth, both at astonishing speeds. Casualties from traffic accidents reached its peak in 1970 when more than 16,000 people were killed on the roads (Fig.1) (Cabinet Office 2004). The Japanese government thus began to take measures against this "Traffic War" with the Traffic Safety Policies Law (1970). Prevention efforts were paid not only to traffic safety education, but also to improvement in road traffic environment. Investment in 1981 to various aspects of infrastructure, such as traffic signals, pavement, and pedestrian crossings had risen 4 to 5 times, compared with 1971. During that decade, "The rate of increase in infrastructure investment had been double the rate of increase in number of motor vehicles," (Traffic Safety Policy Office 1987). Despite a continuing increase in the number of motor vehicles, engineering efforts exerted significant improvement in the road traffic environment. However, the number of traffic fatalities began to increase again in 1979. Total vehicle kilometers traveled have doubled in the past two decades (Cabinet Office 2004). Currently, the previously adopted countermeasures are no longer able to bear the burden of enormously increased traffic volume.

In contradistinction to the rising trend of traffic fatality for people of all ages, the trend for children aged less than 15 has exhibited a steady decrease. Figure 2 demonstrates the change in population, as well as the number of deaths and injuries from road traffic accidents for children aged less than 15 (ITARDA 2005). Declining trends of traffic fatalities among children are common in almost all high-income countries. However, the reason for this decline has not yet been adequately explained. UK epidemiologists have suggested that this may be the result of reduced exposure of children rather than an actual improvement in road safety (DiGuseppi et al. 1997). In other words, they claim that the decline can be explained by a decrease in walking and outdoor activity. This may also hold true for Japanese children. I will address this issue again below.

In the meantime, the number of children injured by traffic accidents began to increase in 1990, a trend which has continued to this time (ITARDA 2005). This indicates that risk of injury has not decreased, but rather case-fatality rate has been falling. Although the reasons for reduced case-fatality rate have not yet been fully explained, it is feasible that an improvement in emergency medical care has played an important role (UNICEF 2001). Furthermore, progress in complete separation of pedestrians from motor traffic, and slower speeds resulting from speed limits and urban congestion in densely populated urban areas seem to have been more important contributing factors (Bass et al. 1998).

There seems to be no way to reduce child pedestrian injuries sustained by cars without a radical change in transport policy that would reduce the total volume of traffic by encouraging a shift from personal-use cars to public transport for long trips and walking/cycling for short trips.

1.2 Changing spaces for children to play

On average, Japanese children used to spend 4 - 5 hours playing each day. This time has fallen slightly over the decades, but recent data shows that children still average 4 hours playing each day. Nevertheless, the balance between outdoor and indoor activity has reversed. In 1955, children played outdoors for an average of 2.7 hours a day. In 1975 that figure had fallen to 1.4 hours (Senda 1998). Time spent watching television has replaced outdoor activities, and, in recent surveys, children spent less than one hour a day playing outdoors.

There may be many reasons why time spent playing outdoors has decreased so much. Senda and colleagues have studied such changes from the viewpoint of the four elements of child play: time for play, space to play, playmates, and forms of play (Senda 1998). Changes in the play space component have been the most dramatic.

Figure 3 shows the average play area available to a child in Yokohama, one of the largest cities in Japan (Senda 1998). It is plotted against the distance of that play site from the child's home for the years 1955 and 1975. Nearby play areas had disappeared most rapidly and natural play area has diminished to one-eightieth of what it once was. Here again, we can understand well from Fig.1 that replacement of streets for residents with streets for drivers had deprived children of accessible play spaces during the 1960's, as a result of the automobile domination of Japanese society.

According to a similar survey conducted in 1990, remaining nearby play spaces reduced to about half of that in 1975. In 1983, when children play space reached a minimum and become fragmented, the Nintendo video game system emerged. It seems quite natural that children deprived of their outdoor play space should become fascinated by these video games. Along with a continuing decline in the birth rate in Japan, the absolute number of children in any given neighborhood has been falling. Even in playgrounds or public play areas, the number of children has decreased (Senda 1998). In addition to play time and space, Japanese children have even been robbed of friends with whom to play.

Subsequent to 1990, almost all the vacant lots in cities where children used to play have disappeared. In concordance with the skyrocketing rise of land price in Japan, there is indeed no idle land in the city. Figure 4 shows how many parking lots have emerged in the center of Kyoto (Doi 1997). Furthermore, in recent years, even a very small vacant parcel of land can be used as a new style of toll parking lot controlled by unmanned parking meters. Now the total area of open spaces where children can run around with their bare feet has decreased by 99%, compared with that in 1953.

2. Streets for children

Reijo Ohya, a landscape architect in Osaka who surveyed children play spaces for the first time in Japan, mentioned at a conference in 1924 that, “Children generally play in the street. They do not play in parks.” He also said that landscape architects should consider child play when designing roads (Senda 1998). However, the streets ceased to provide a play space for children in the 1960's, when Japanese society came to be dominated by cars, and many children were hurt or killed on the roads.

The road directly in front of their house is particularly important to toddlers and young children because they cannot travel long distances to play (Sandels 1975). A Zurich study on play styles among five-year-old children revealed the importance of availability of streets for playing near their house (European Commission 2002). Children who are allowed to play in the street play much longer and exhibit a greater variety of play styles than those who are kept indoors, or only in the garden, and can go out when accompanied by an adult. Among many factors that might limit children playing in the street, the most significant factor is the perceived

danger posed by traffic. A Japanese study found that a street through which fewer than 30 cars pass per hour can be used by children to play, provided that car speed is limited to 15 kph or lower (Senda 1998).

Children can take full advantage of physical and psychosocial exercises that playing provides given a child-friendly environment. This environment requires pavement wide enough to allow children to play and the implementation of traffic calming measures. Furthermore, safer streets for children to move independently have another very important aspect. The remaining spaces for playing are fragmented, requiring either the presence of an adult for accompaniment or safe streets allowing children to move freely from one play area to another.

3. About us

The group, People Before Cars, belongs to a grass-roots movement and was founded in 1995 in order to give priority to pedestrians over cars to make our roads safer for pedestrians, to make our residential areas quieter and free from exhaust gas, to promote cycling and public transport, and to decrease car travel and increase free spaces or streets for playing and meeting. We have considered a traffic calming approach such as “woonerf” as the best solution to reconcile traffic with people.

We disputed a lot of detrimental effects of a car-dominated society from both ethical and pragmatic viewpoints. From the beginning, we have been focusing on this issue in the context of children’s safety. In a booklet entitled “Children and the Car-dominated Society” (Sugita and Imai 1998) issued in 1998, we emphasized that children do not have the ability to adapt well to the current traffic circumstances, and parents, teachers and other adults alike generally overestimate their children’s abilities. We depicted a 6-year-old boy as a salient example with illustration of his limited ability based on his developmental and psychological stage (Fig. 5). Educating people, especially children, to behave well in the road has not yet proven effective to reduce traffic injury (Roberts et al. 1994; Duperrex et al. 2002). Overemphasis on pedestrian skill training may do harm rather than good. In 2001, we sent our statement based on the Convention on the Rights of the Child to the UN, in which we claimed a children’s independent mobility should be designated as a fundamental right of children.

In 2003, we started a campaign to inform citizens of an alternative approach to the solution of a society dominated by cars. We consider the policy of “Vision Zero” in Sweden and the traffic calming approach, developed in the Netherlands and mainland Europe, as the keys to persuade people to become aware of the current traffic problems and its solutions. Residential streets are not for cars, but for children and neighbors. Reclaim the street!

4. Perceived problem toward current traffic environment

We conducted a questionnaire survey during 5 months from January through May of 2002 to clarify the perceptions of children, parents, and teachers toward the current car-dominated environment (Adachi and Fujimoto 2004). A total number of 1,421 respondents were obtained from 23 prefectures all over Japan. Of those, 460 were children and 961 were adults (340 teachers of kindergarten, child care center, or primary school, and 532 parents.) The questionnaire consisted of 16 items to be answered. We present the most important findings.

When asked whether they feel safe or not while walking on the road, 81% of adult respondents answered they do not feel safe (45% usually and 36% sometimes.) However, only 65% of school-aged children perceived danger while walking to or from school. More surprisingly, the older children became, the safer they feel (Fig. 6). Similar evidence was seen in another study, which showed that children older than 10 years have more fun walking to and from school than younger children (Koike et al. 2003). This suggests that children are likely to deceive themselves into thinking that they are able to cope with traffic to a greater extent than they actually can.

When asked whether or not they perceive risk when their children walk on the road, parents whose houses have play areas more distant from their house (>200m) are more likely to believe their children are at risk compared to those whose houses have play areas closer (<100m)(Fig. 7). We asked parents whether or not they have identified places for children to play, and, if they have, how far they are from their house. More than 30% of parents with children younger than 3-years of age did not identify any spaces to play outdoors in the vicinity of their house (<100m).

Speeding cars (59%), no pavement or obstacles on the pavements (55%), and through-traffic on narrow residential roads (50%) were the major issues for adults. For school-aged children, speeding (46%) and the offensive odor of car exhaust (52%) ranked highest. Other problems that children pointed out were the danger at the road corner/intersection (39% for 6-7 year-old; 48% for 8-9 year-old.), and dangerous bikes sharing the same pavement (11 and 38%, respectively).

Many parents and teachers are concerned about the negative effects of the current car-dominated environment on their children's development. Inactivity and the resultant physical deterioration (55% for parents; 67% for teachers) and increased psychological stress (50% for parents; 48% for teachers), loss of desire to be creative (35%; 38%), and reduced ability to communicate with each other (26%; 33%) were ranked highest. These concerns seem to result from lack of opportunities to both play outdoors and interact with children of various ages.

What kind of play space would children like to have? They want streets with no cars (59%), playgrounds with plenty of equipment (57%), a small river where they can catch fish (50%), and unpaved free space (44%). We asked school-aged children, “How would you like to play if there were streets with no cars allowing you to play freely?” Answers were: (1) ball games (n=215), (2) running-around (n=136), (3) toys brought from home (n=78), (4) playing with equipment (n=70), and (5) imaginative play (n=31).

When asked, “Are you aware of the fact that many people are killed or injured, and ambient air is polluted by many cars?” fifty-one percent of school-aged children answered “Yes, I know well”. Followed by 26% of “I do not know well”, 6% of “No. not at all” and 15% of “Not interested in such an issue.”

5. Some practices Toward Child Friendly Streets in Japan

5.1 “Kurashi-no-Michi Zone (Residential Street Zone)”

The Road Bureau in The Ministry of Land Infrastructure and Transport (Japan) launched the pilot project in 2001 to promote “Kurashi-no-Michi”: which means “Streets for Living” (Road Bureau 2001). Obviously, this stems from the principle for shared-use of streets and public spaces pioneered in the Netherlands in the early 1970's known as “woonerf.” Similar schemes were developed in the 1970' and 1980's and well established in many other countries. Home Zone in the United Kingdom is principally the same scheme, which has grown rapidly in the past decade. “Kurashi-no-Michi Zone ” project is to rebuild conventional streets in a designated zone into resident-friendly streets with speed reducing features, such as hump, narrowing, chicane, and raised crosswalk. Presently 48 areas are under construction or already established (as of June 2005).

In the early 1970's the concept of woonerf was first introduced in Japan, where it attracted many people, particularly specialists on city planning and road construction. Nevertheless, almost nothing relevant to woonerf had been realized in Japan until 1981, when “Community Streets” were introduced in the national traffic safety programs. Thereafter, plenty of “community streets” were built in large cities in Japan. However, the fact remained that they were generally restricted to only one street in a block rather than area-wide, and the street was not dedicated for residents, but for entertainment or commercial purposes. Worse yet, there were some community streets where the number of cars parking illegally on the street had risen (Doi 1997).

The original purpose of community streets are not realized in this way, and most citizens have not been aware of their principal purpose.

We were unable to build even a hump in the street unless it was in the designated area before 1995 when the Ordinance of the Road Structure was amended in order to implement resident-friendly streets to a wider extent. Japanese government began to steer its traffic safety policy from community “streets” to community “zones”, later leading to “Kurashi-no Michi Zone”.

“Kurashi-no-Michi Zone” has occupied no more than 0.1% of the residential roads in Japan despite it being one of the chief measures of the Fundamental Traffic Safety Programs (Cabinet Office 2004). Its construction cost is much more expensive than that of the corresponding conventional road. An officer in charge of residential roads in the Road Bureau said to me, “This Kurashi-no-Michi Zone scheme is merely a showcase. We do not have any definite goal regarding this project at this point in time”. Therefore, in this rate, it seems dubious that such streets will be able to expand enough to change people’s attitudes toward the current car-dominated society in the not-too-distant future.

5.2 Takiro Housing Complex

Takiro is one rare example of an area where child-friendly streets truly exist in Japan. Takiro Housing Complex, built in 1994 in Tajimi-city in Gifu prefecture, is rich in greenery and has many “Pocket Parks”. Pocket Parks are small places, which connect two roadways, yet into which cars are prohibited to enter, thus provide very safe places for playing and meeting. Pedestrians are given priority there and people can obtain rapid access, whereas streets for cars are deliberately forced to detour. You can find a traffic sign everywhere which says “Yield to the pedestrian!”. And you can always see many children playing in the roads and the pocket parks on a sunny day.

6. Conclusion

Japanese children are being raised in a harsh environment dominated by cars replete with detrimental effects. Approximately 99% of play areas have been lost during the past three decades. We as adults lament the scarcity of children’s play areas, yet children see themselves as well-adapted to the current traffic environment. Taking into consideration that children are future citizens, if they believe that the present traffic situation is the norm, the future may be worse. The present traffic environment will determine children’s future attitude toward the use of cars and cycling. To ensure that children can develop healthily, we have to secure streets in which children may play freely and safely. For this purpose, “Reclaim the streets for the child.”

We must further study effective practices implemented abroad and develop an alternative model that is feasible in Japan. The road to “traffic calming” is truly a long and winding one in Japan.

Note; the Safekids Netwok Japan: a voluntary group comprised of health professionals, such as pediatricians, obstetricians and nurses, as well as people in charge of child care or education such as teachers of child care nurseries or kindergartens, was founded in 1997 to promote the use of child restraint devices (CRD) in automobiles. In 2000, a law requiring the use of CRD was enacted on a national level in Japan.

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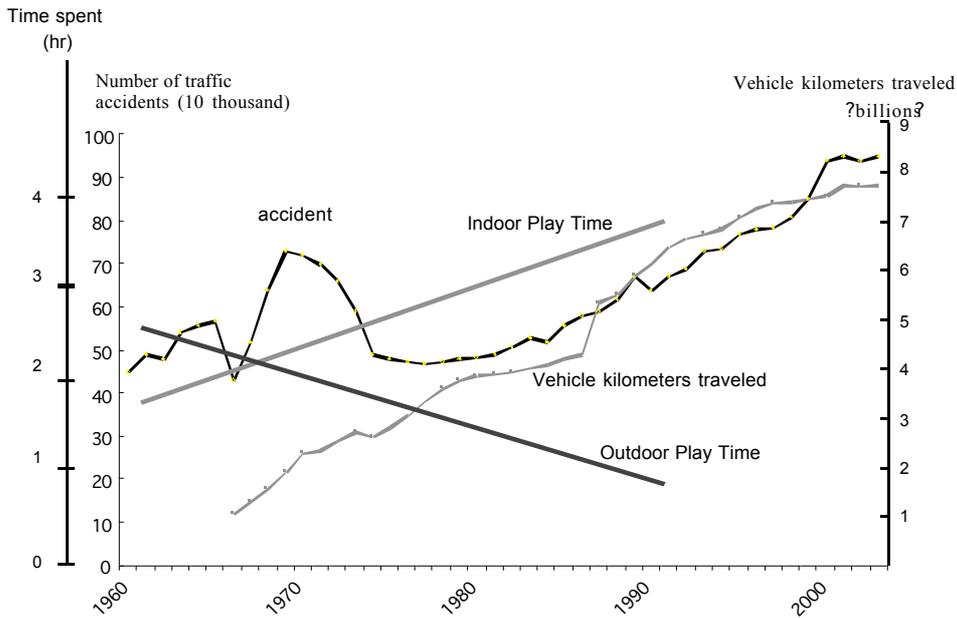


Figure 1 The change in the number of traffic accidents, vehicle km-traveled and children’s time spent playing per day.

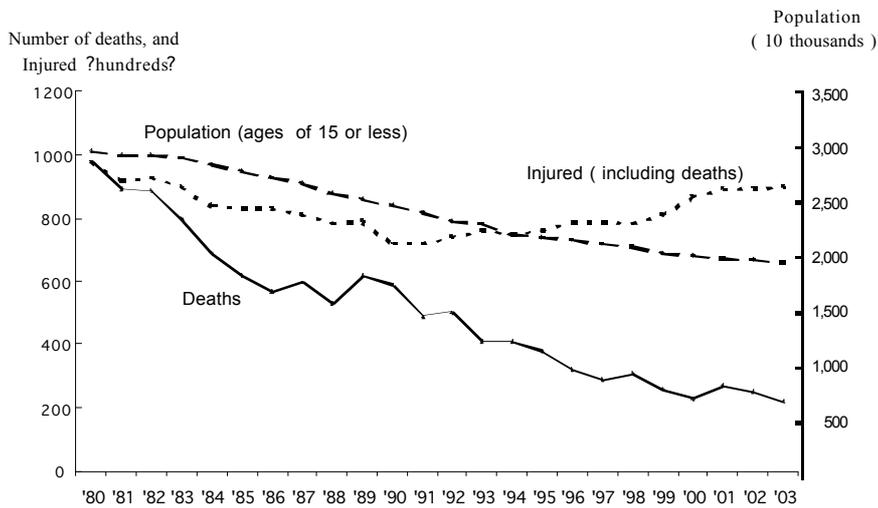


Figure 2 The change in population, the number of deaths, and injuries from road traffic accidents for children aged 15 or less (ITARDA 2005).

“A city friendly to children is a city friendly to all”

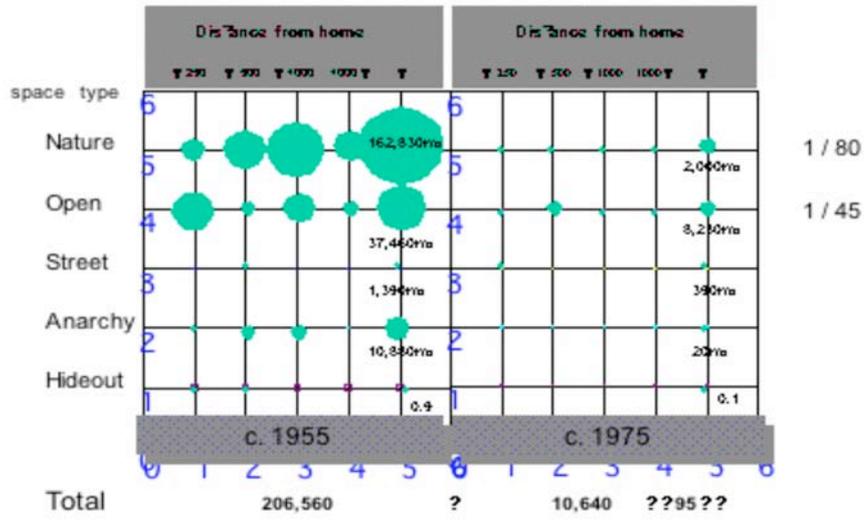


Figure 3 Changing play areas in Yokohama, JAPAN (Senda 1998).

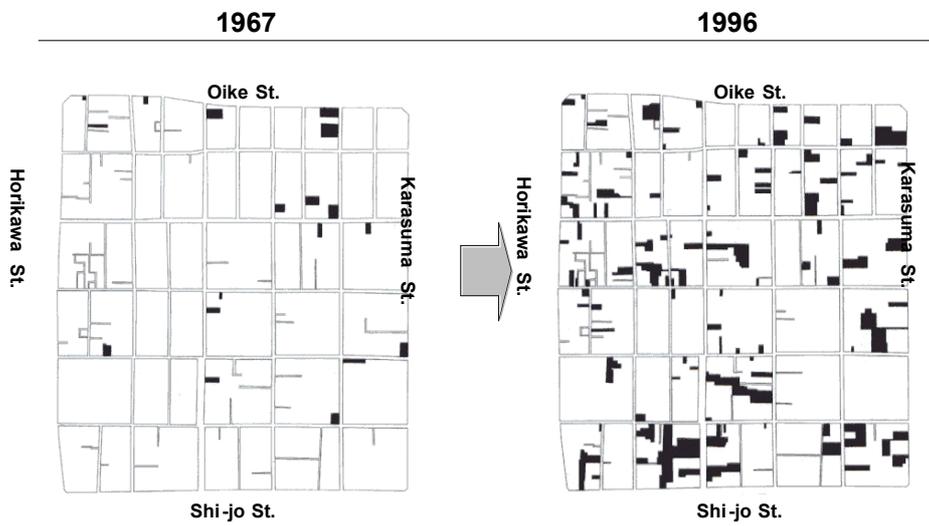


Figure 4 Growing number of the parking lots in the center of Kyoto (Doi 1997).

“A city friendly to children is a city friendly to all”

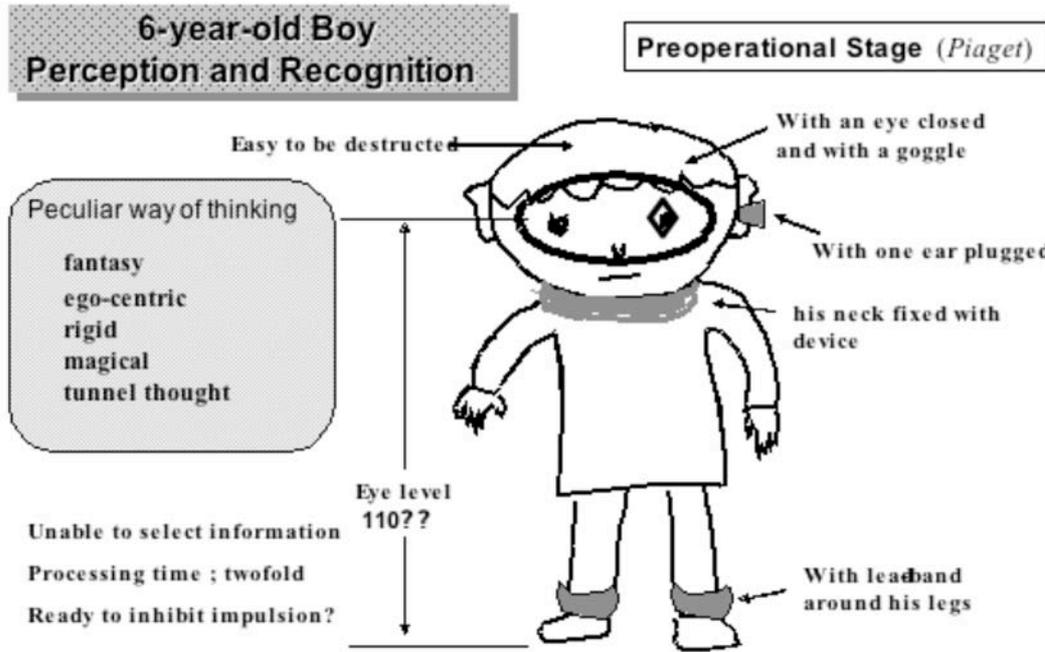


Figure 5 A schema showing child’s limited abilities to cope with traffic (Sugita and Imai 1998).

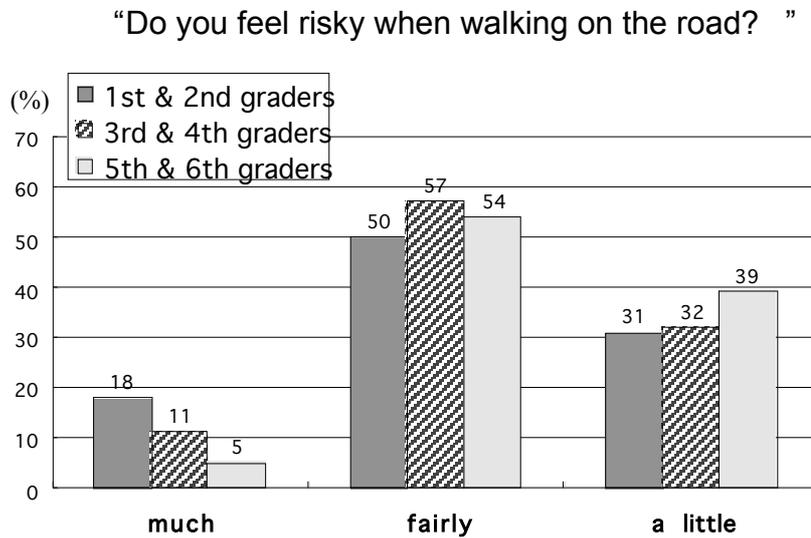


Figure 6 The older the primary school children become, the less they feel risky when walking on the road (Adachi and Fujimoto 2004).

“How much risk do you feel when your child walks on the road?”

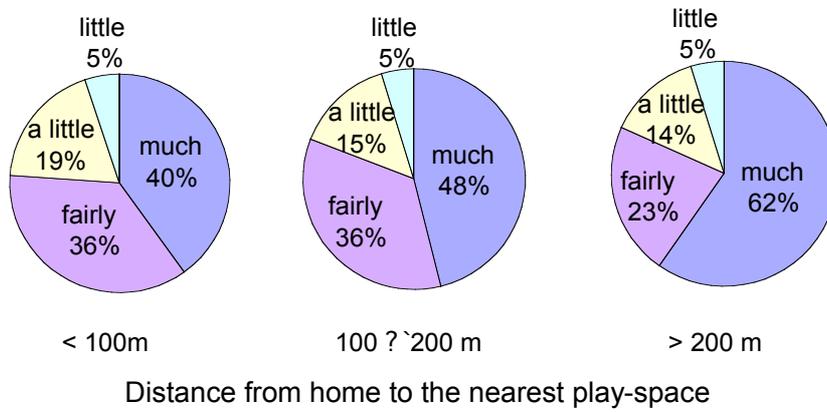


Figure 7 Risk perceived by parents based on the distance from their homes to the nearest play-area (Adachi and Fujimoto 2004).