What are the central problems of children in traffic?

The explanation of children’s problems in traffic is partly based on lack of maturation. The children are small in stature, their vision is not fully developed and their hearing ability is not accurate. Pre-school and primary school aged kids have problems in focusing vision when changing from objects that are near to objects far away. (Barns mognad, Vägverket 2001). However, it has been proven that among 5 year olds you can find individuals that are able to master very accurate and valid observation in traffic (Lee et al. 1984). The view of a child as something that is not mature or “faulty”, especially in physical and physiological meaning is partly old-fashioned, even though we have to accept some limitations in their maturation.

The current approach on children’s traffic safety is much broader. Skills, motivational aspects as well as traffic environment are taken into account. This means that we are dealing with a problem that has many perspectives and is very complicated.

In a nutshell:
Children as pedestrians or bicyclists:
- Up to 6 years
  - Not ready to manage in traffic independently
- 7-9 years
  - Can manage traffic situations moderately according to field studies.
  - Variation of performance between children, and also variation of performance of a child from a situation to another is a major problem.
  - Mistakes are frequent and performance is unstable
- 10-12 years
  - Performance is getting closer to adult performance and variation is decreasing
  - The youngest ones, also in this age-group, have the biggest problems.
  - Can be considered to manage independently in traffic
  - However, the problem is still the variation of performance from situation to another as well as variation between children.
  - General problems with attention are connected with problems in traffic. (Dunbar et al. 2001, Briem ja Bengtsson 2000)
**Boys and girls**

The overall result in studies of health behaviour is that boys are at greater risk than girls. For example, the typical speed when bicycling increases steadily from the age of 8 to age of 12. For girls, the speed increases from age of 8 to age of 10, but decreases at age of 12. When reaching the age of 10, children typically master the bicycle technically on a satisfactory level. However, problems still exist with stopping in time as well as observing the need for stopping (Briem et al. 2004).

When health behaviour was studied several differences were found between genders. Girls take better care of their teeth, eat healthier food, are less interested in sports and watching TV, sleep longer nights and are involved less often in dangerous playing than boys (Mohiyeddini ja Kohlman 2002). However, boys have more knowledge on risks in traffic than girls. This did not, however, change the fact that boys had more often risky activities in traffic than girls (West et al. 1993).

**Special challenges for children as pedestrians**

Children can usually select a sufficient margin to cross the road, but the problem is slow starting and poor preparation for starting. This means that one’s own movements and the movements of the object the child has to beware are not adjusted well together (Plumert et al. 2004).

According to a Finnish study, children behave quite differently in a group compared to being alone. In a group, children sometimes tend to think they have agreed on the division of the tasks: one looking left, one looking right. However, no real agreement is made and this is one reason why failures occur. One of the findings is that children tend to employ a strategy: “get away from the danger zone as soon as possible”. This naturally has an effect on the speed when entering the road as well as on the quality of decisions made (Pirkko Rämä).

One very important factor in any skilled performance is the focus of attention. How to detect the essential signals, and ignore those that are of no importance? In context of traffic, this ability is improving remarkably from age of six to the age of ten. The kids are more able to make decisions on more appropriate places and time for crossing the road and the effect of distracting factors decreases (Tabibi ja Pfeiffer 2003).
Zeedyk et al. (2002) found that children aged between 5 and 6 tend to look randomly to left and right when crossing the road. Most of them also did not stop in order to make proper observations. A further finding was a large variation between children. The variation in performance seems to be the most frequent reason for failures, when studying children’s behaviour in traffic.

One of the problems for kids between 5 and 7 is that they do not understand the dangers that are caused by non-moving hindering objects. Nine-year-old children started to understand these issues and 11-year-olds already grasped the concept rather well (Ampofo-Boateng and Thomson 1991). However, there is some evidence that also the youngest drivers having a driver license (18+) do not appreciate enough the risks of e.g. limited vision in crossings.

**Children together with adults**

An overall observation is that adults behave rather safely as pedestrians in traffic. However, they do not usually make use of the situations in order to instruct or advise their children. What was interesting was that parents hold their daughters by hand more often than their sons (Zeedyk and Kelly 2003).

**General factors found to be essential in children’s risk of traffic accidents.**

Based on analysis of accidents Christoffel et al. (1986) compressed the risk-factors for children in traffic into four categories. The first category included factors related to developmental factors, especially age, but also developmental deviances. The second category dealt with family and community, e.g. what was the control and educational role of the parents. They found that also children’s traffic education played a role. The third group of factors was related to psychological and behavioural characteristics such as hyperactivity and depression. The fourth group of essential factors was traffic environment. Traffic environment plays an essential role in children’s safety. Environment and mobility needs set the framework for the tasks that children are exposed to.
Challenges for children’s traffic safety

A general observation of traffic systems is that possibly the weakest link, the child, is responsible for safety in traffic situations that they find themselves in, as a pedestrian or a bicyclist. For example, it is typical that the child makes the decision whether to cross the road or not, while car-drivers tend to not react unless necessary (Malek et al. 1990). A question should be raised: Who is the one that should be responsible for children’s safety in traffic? This is something that is strongly challenged by Zero-vision strategy in Sweden. We could generally ask the question: Who is responsible for traffic safety of a seven-year-old boy with ADHD when he is crossing the road?

An example of analysis of accidents
Kirki et al. (2001) analysed children’s accidents on school trips on a bus in England. The results are somewhat surprising. 43% of the accidents happened while stepping out of the bus, 28% while standing in the bus, 18% while being seated and 11% while stepping on the bus. The results show the importance of planning school transportation very carefully. Essential questions are: Where the transportation starts and where it ends, but also the transportation as a whole should be considered, all phases included.

What are the possibilities of children’s traffic education?

Children should not be underestimated, but there are certain limits that restrict the effects of traffic education. Zeedyck et al. (2001) found that it is possible to improve 4-5-year-old children’s knowledge on traffic. However, the knowledge was not transferred to actual behaviour. Another study (Demetre et al. 1993) showed that when 5-year-old children were taught about crossing a road, the only effect on behaviour was a faster start. No other changes were found. These results imply that simply giving information does not necessarily make children’s behaviour any safer.

Some studies have warned about unrealistic expectations on children’s traffic education. The results have been generally minor and also negative effects on attitudes, behaviour and injuries have been found. Training may cause overconfidence on both parents’ and children’s own perception of traffic skills, and therefore children may be exposed to more dangerous traffic situations. (Road Traffic Injury Prevention, WHO 2006).
There are some educational guidelines and ideas that may improve children’s traffic behaviour. West et al. (1993) found that it is possible to educate parents to be better advisors for their children and to teach them more adequately and effectively.

It should be put as a general goal of all organizations in the field that parents should be encouraged to make use of their everyday activities to mediate profitable traffic attitudes and skills to their children. A general misunderstanding seems to be that children’s traffic education needs some specific professional skills. This may lead to the situation where an expert comes e.g. to a school once a year, and this is considered to be sufficient. However, the persons working with children daily have more opportunities to work with the kids also in this respect. No special skills are needed, common sense of an adult is enough, but there is a need to discover the possibilities for traffic education. Also simple materials and guidelines for exercises are needed to support the efforts.

Overall interpretation of studies concerning children’s traffic education is that learning by modelling and idenfication is effective. This emphasizes parents’ and other persons’ role when moving around with children. Most effective method in education is children’s active participation, making them to do things by themselves, practicing in real traffic situations and also simulation of real traffic situations. Of course, practicing in real traffic should be done under surveillance. Practical exercises in real surroundings combined with analysis of own behaviour seem to be beneficial.

One of the central findings in studies on children’s traffic safety is that improving the traffic environment is the measure that has the greatest potential. Also the principles are well known: improvement of zebra-crossings/intersections, improving visibility, separate paths for bicyclists and pedestrians and effective management of speed. Also when the environment is too dangerous, the kids should be taken into a bus or another safe vehicle. However, children’s traffic education should not be forgotten, it simply has to be taken care of.

References:
Barns Mognad (2001), Vägverket, Sweden


