



Project No.	Project Title	
2021-01-005	The effect of environmental factors on perceived risk of road crossing scenes	
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## Abstract

Children are more exposed to car accidents and are highly represented in fatal road crashes compare to adults. Probably since the skills needed for road crossing are developing up until late adolescence and due to their inferior ability to identifying hazardous situations. To cross a road safely, pedestrian scans the environment and accordingly decides whether the place is dangerous or safe for crossing. Children are less able to correctly understand the road scene according to the environment, to properly make this decision. Further, this ability is also related to personal characteristic like sensation seeking and attention control. This research project, is part of a longer-term master thesis work, aimed to examine the impact of environmental and personality factors on crossing decision of children. The motivation is, in the future to influence urban design to provide children with safer places to cross. The research project focuses on the age group of adolescents (14-17) relative to adults (20-29).

Due to Covid-19 social distancing requirements, an on-line experiment was designed and conducted. It consisted of two parts. First, three questionnaires were administered to learn about personal characteristics like sensation-seeking and impulsivity. In the second part, participants viewed 20 crossing scenes. Each scene represents an urban environment with different characteristics. Using a continuous (100 tick) scroll bar, they were asked to assess whether it is safe to cross the environment. Based on this evaluation we built a regression model. Explanatory variables were children's scores on the individual characteristics, and environmental factors related to the scene. Data was obtained from a total of 78 participants, 30 children aged 14-17 and 48 adults.

The results show that perceived risk is related to age, and adolescents had a different manner of evaluating the safety of a crossing location compared to adults. Presence of a crosswalk highly influences the perceived risk of adolescents. Also, while adults refer in their evaluation to road factors (like number of lanes or field of view), adolescents tended to ignore them. Moreover, adolescents with low score in the sensation seeking test tend to evaluate the crossing scene as less safe than those with higher scores. The main finding is that children aged (14-17) have a narrower perspective of crossing environments and their characteristics than adults. They focus mainly on specific elements and miss out other relevant factors that are significant when it comes to a road crossing decision. This may come in contradiction to the literature that often treats adolescents over the age of 15 as adults.

In the following stages of the work, we can plan continue experimentation to examine the influence of environment and personality variables on children in more age groups, by using different apparatus such as dynamic environment and integrate auditory distractions, thereby investigate the same level of impact on the perceived risk.

**Keywords:** road safety, pedestrians, children, crossing roads, urban environment, perceived risk, personality factors.