Speed perception and crossing behaviour in children

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Speed perception and crossing behaviour in children

Study documentation

Information and publications available at:

Compact accident research
Overview of the research results

Accident research in brief
Information for practitioners (German)

Research report
Scientific full version (German)
Street crossing as pedestrian
First and most important task for children in traffic.
Street crossing as pedestrian

Five action steps necessary for crossing a street.

1. Choose an appropriate crossing site
2. Approach the carriageway
3. Get an overview of the traffic
4. Choose safe gap between passing vehicles
5. Go across the street
Street crossing as pedestrian

Gap acceptance as indicator for speed perception.

1. Choose an appropriate crossing site
2. Approach the carriageway
3. Get an overview of the traffic
4. Choose safe gap between passing vehicles
5. Go across the street
Methods

Gap acceptance as research paradigm for measuring speed perception.
Measuring speed perception
Crossing decisions dependent on the distance of the approaching vehicle

<table>
<thead>
<tr>
<th>Crossing/Distance</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>large</td>
<td>Correct decision (although crossing is safe)</td>
<td>Cautious decision</td>
</tr>
<tr>
<td>medium</td>
<td>Risk decision (Crossing just possible)</td>
<td>Correct decision</td>
</tr>
<tr>
<td>small</td>
<td>Wrong decision (Collision)</td>
<td>Correct decision</td>
</tr>
</tbody>
</table>
Research Design
Summary

**Study parts**
1. Field experiment
2. Laboratory experiment
3. Examination of cognitive, personal, social, emotional skills

**Sample**
- \(N = 183\)
- Five age groups in comparison
  - 5-6 years
  - 7-8 years
  - 9-10 years
  - 11-12 years
  - 13-14 years

**Experimental Variations**
- Vehicles at small, medium or large distance
- Approaching from the right or left
- Speed of 30, 50 or 60 km/h, acceleration to 50 km/h
- Vehicle type: car or truck
Selected results
Field experiment 50km/h: Wrong decision

Improvement in wrong decisions with increasing age

Approaching direction
– From the left: Improvement with increasing age
– From the right: more wrong decisions than from the left even at 13-14 years old

Wrong decisions

*sign. (p<.05)
Selected results
Field experiment 50km/h: Risk decision

Improvement in risk decisions with increasing age

Approaching direction
– From the left: improvement with increasing age
– From the right: more risk decisions than from the left even at 13-14 years old

Risk decision

<table>
<thead>
<tr>
<th></th>
<th>13-14 years</th>
<th>7-8 years</th>
<th>5-6 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>left*</td>
<td>17.4%</td>
<td>30.4%</td>
<td>56.5%</td>
</tr>
<tr>
<td>right</td>
<td>34.6%</td>
<td>39.1%</td>
<td>65.2%</td>
</tr>
</tbody>
</table>

*sign. (p<.05)
Selected results
Field experiment 50km/h: Cautious decision

– Mainly cautious decisions

**Approaching direction**
– No statistical significant differences between age groups
Willingness to cross
- at 30 km/h more often decision for a crossing compared to higher speeds

Quality of decision-making
- At 30 km/h more often correct decisions (at large vehicle distance), but also more risk and wrong decisions (middle and small vehicle distance)

Decision to cross (step forward)

- *sign. (p<.05)
Summary

Still deficits at 13-14 years, especially if vehicles approach from the right

Considering of two traffic lanes cognitively more challenging

At 30 km/h more correct, but also risk and wrong decisions

The younger the children, the longer the reactions times

Hazard awareness and attentiveness improves with age, but no guarantee for safe crossing decisions
Speed limits of 30 km/h or less in urban residential and leisure areas

Provide safe pedestrian crossings aids also for older children

Regularly practice crossing in real road traffic with support from an accompanying person;

Crossing decisions should be made by children independently
Thank you for your attention.
Any questions?

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