



Study „direction indicator“



Process

- ▶ We showed ten different types of short movies to 54 test persons.
- ▶ Situation: A car is driving on the motorway at daytime or nighttime, passing a construction area and with activated direction indicator (with and without wiping).
- ▶ The situation had to be rated (multiple choice).
- ▶ Short interruptions during the movies with different tasks (maths, pictures, etc.) to distract the test persons.



Example of movie (daytime)





Example of movie (nighttime)





Example of interruption

- ▶ Complete the following series of numbers:

3 5 8 13 21 _____

- ▶ Which element follows?



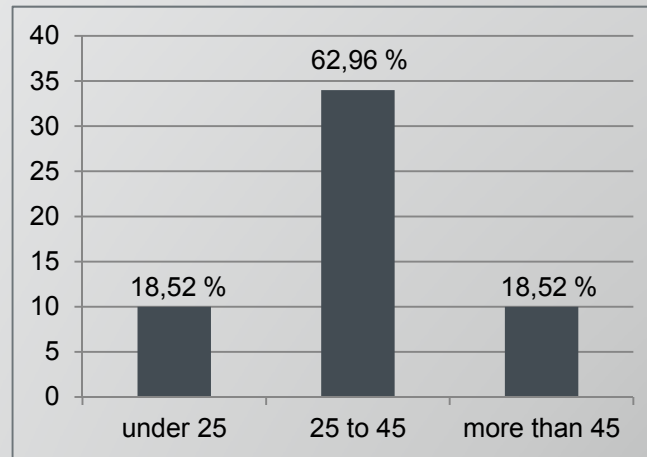


Composition of test persons

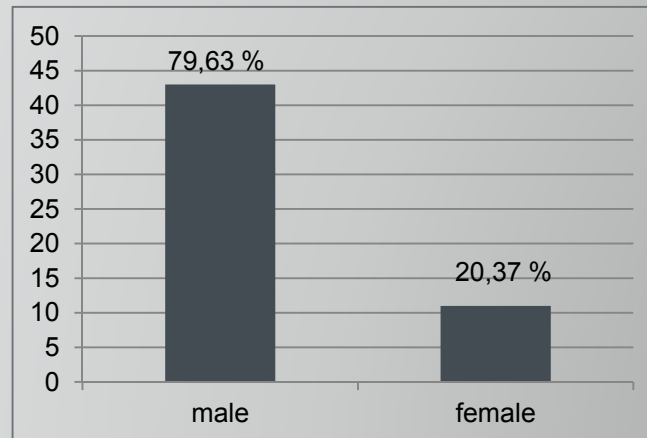
▶ Number of test persons:

54

▶ Age:



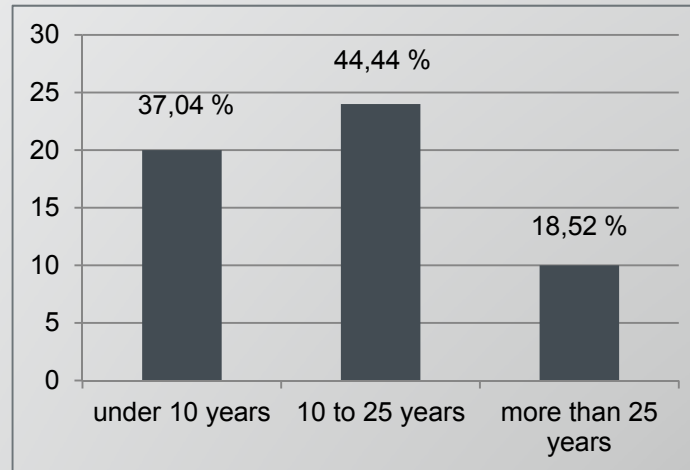
▶ Sex:



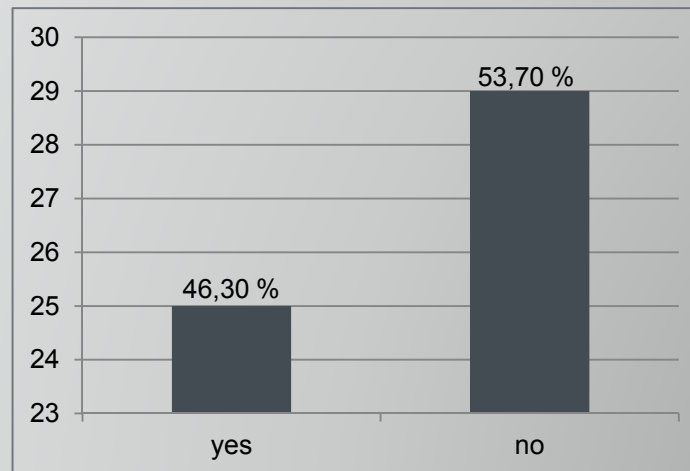


Composition of test persons

▶ Driving experience:



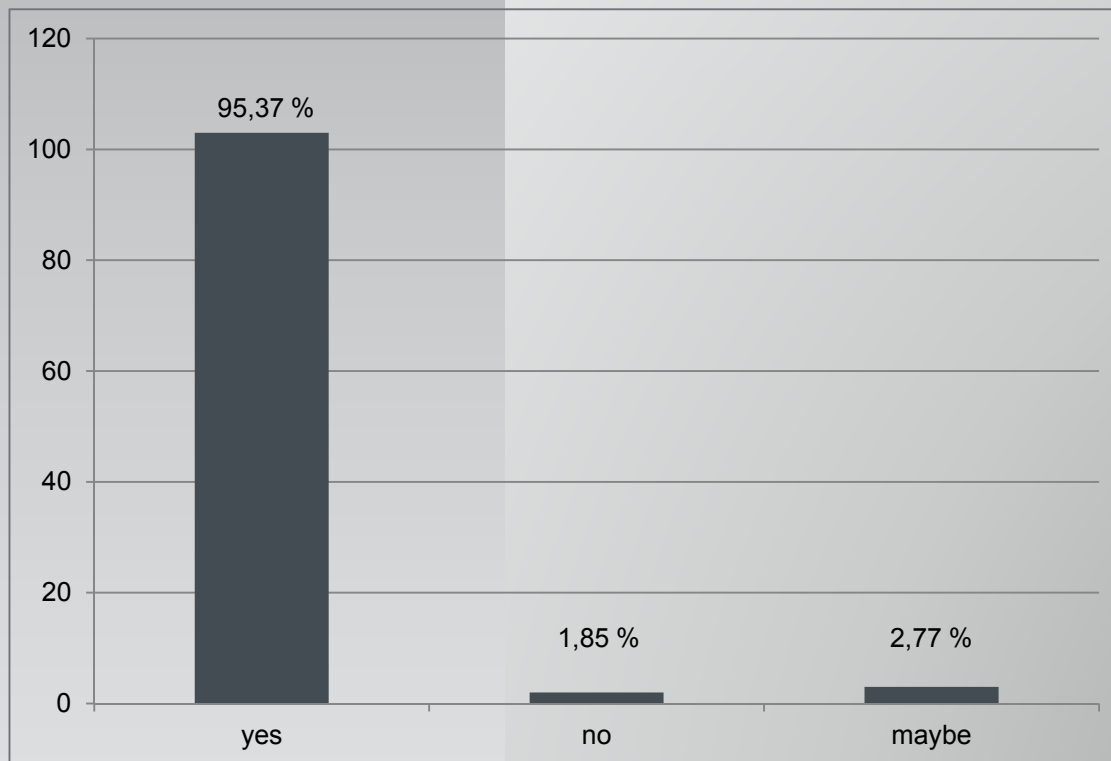
▶ Wearing glasses/
contact lenses:





Test results

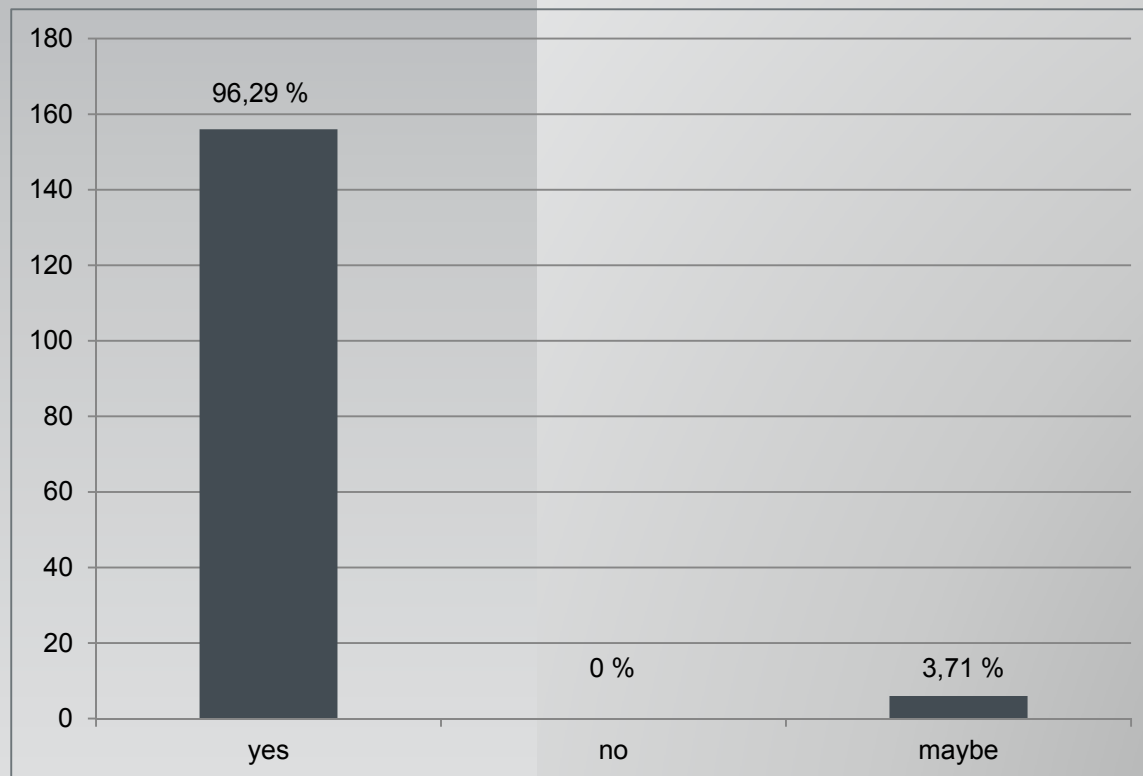
- ▶ You can see a driving situation at daytime. Is the situation clearly to understand? (motorway, passing a construction area at daytime, conventional direction indicator)





Test results

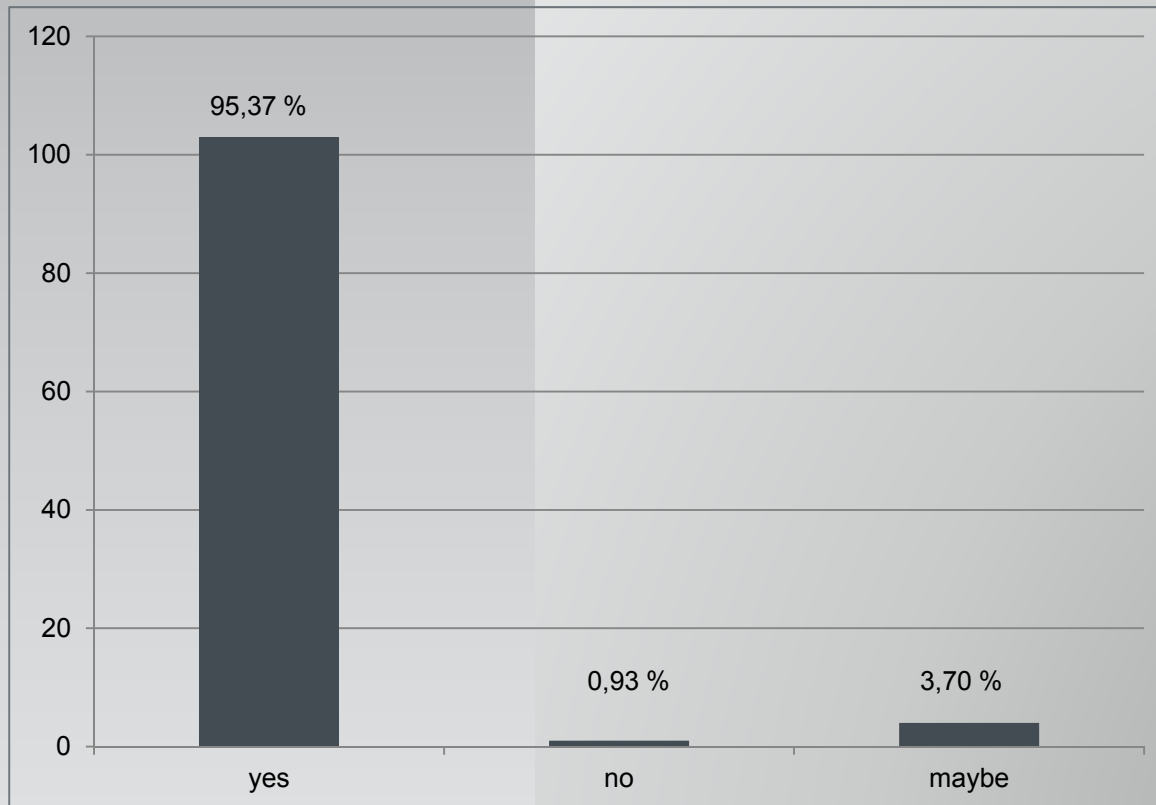
- ▶ You can see a driving situation at daytime. Is the situation clearly to understand? (motorway, passing a construction area at daytime, wiping direction indicator)





Test results

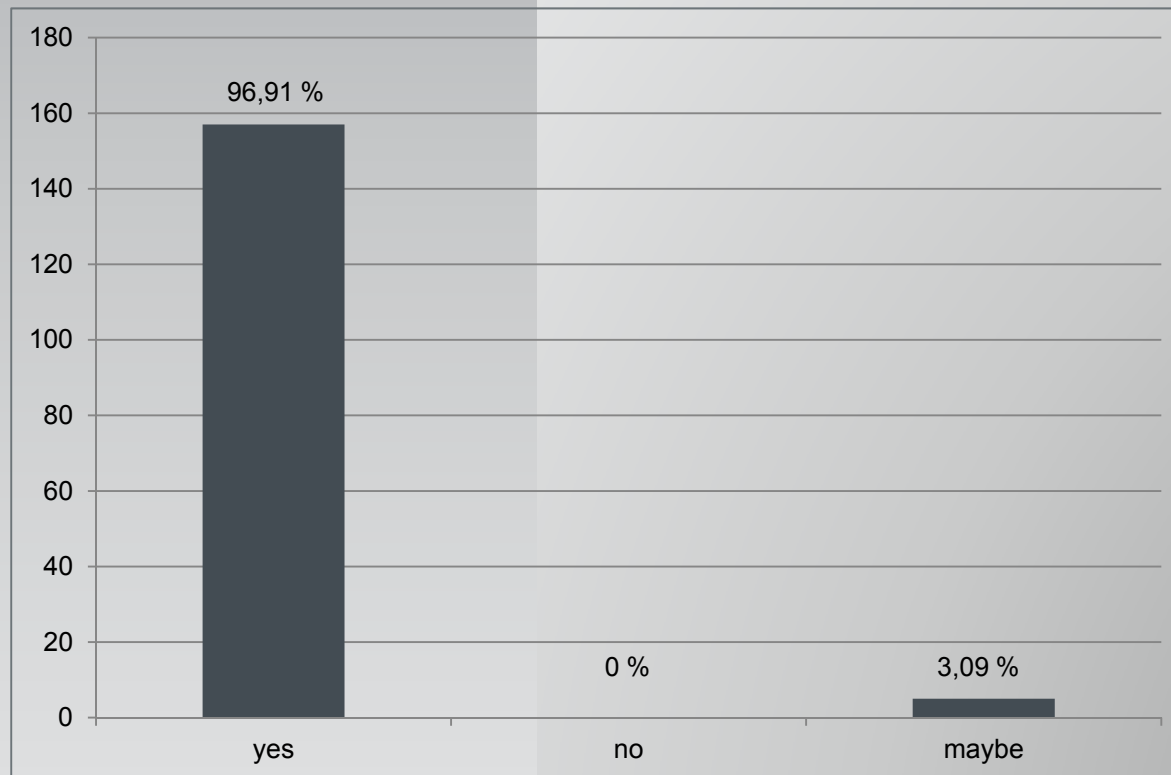
- ▶ You can see a driving situation at daytime. Is the situation clearly to understand? (motorway, passing a construction area at nighttime, conventional direction indicator)





Test results

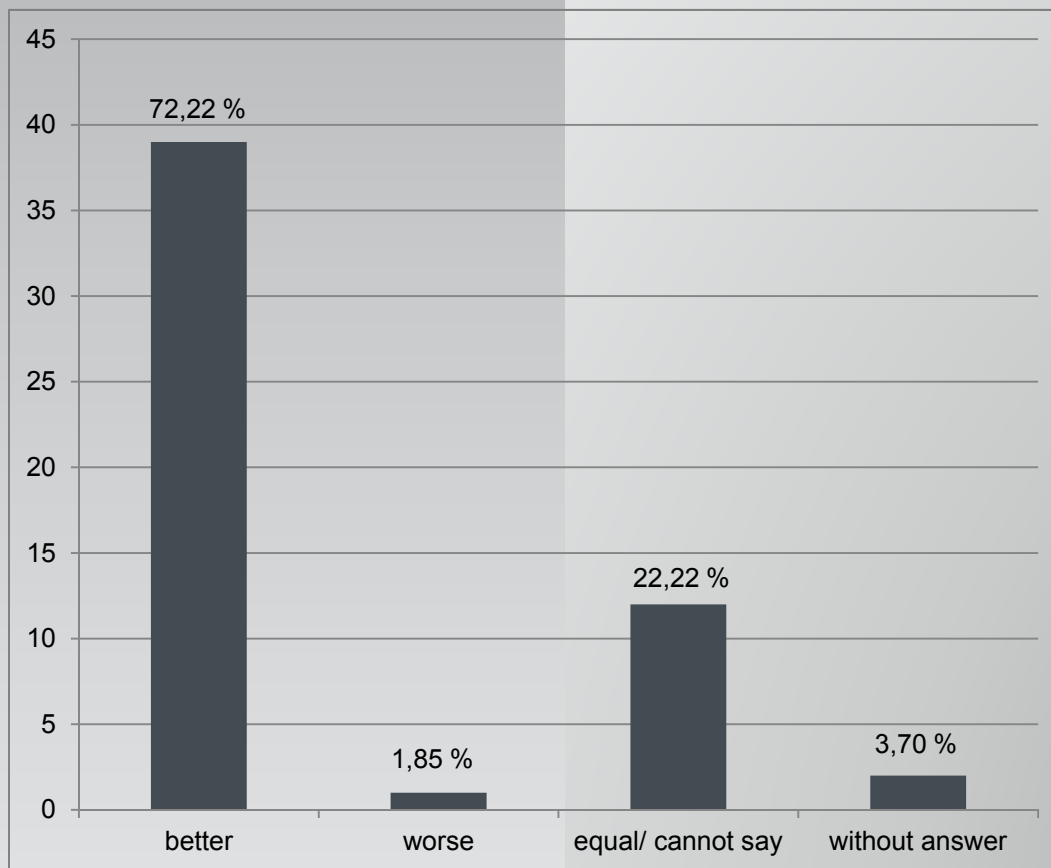
- ▶ You can see a driving situation at daytime. Is the situation clearly to understand? (motorway, passing a construction area at nighttime, wiping direction indicator)





Test results

- ▶ How do you like the wiper turn indicator (like you have seen in the movies) in comparison to the conventional one?





Test results

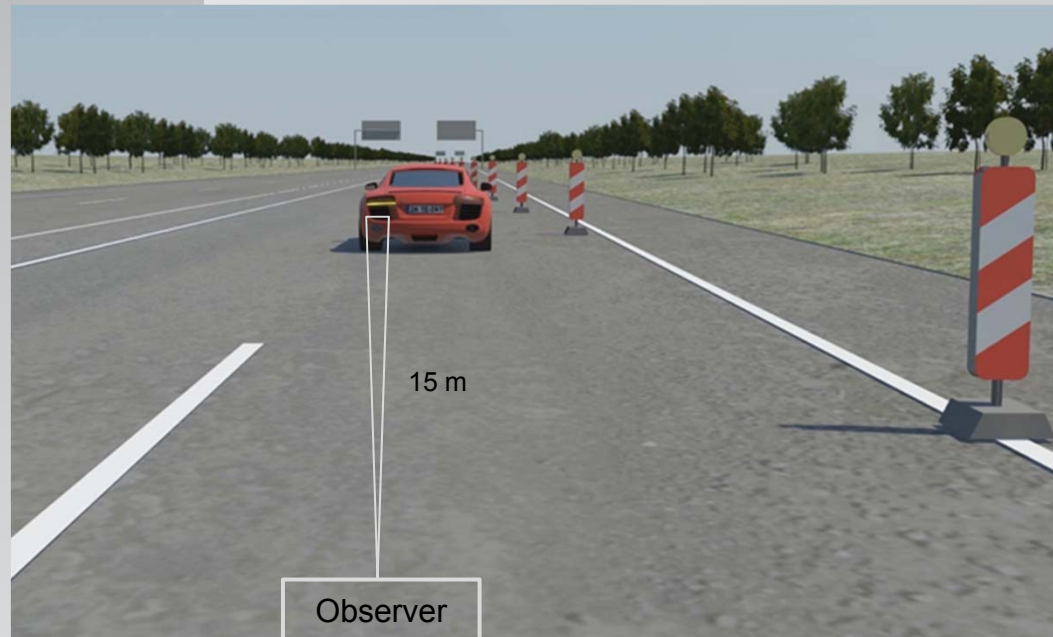
- ▶ Comments on the wiping direction indicator:
 - More dynamic direction indicator
 - More intuitional
 - Side of vehicle better to see
 - Easier to indicate the driving direction
 - Wiping is attracting more attention than static turn signal.
 - The wiping direction indicator shows clearly the driving direction; for the beginning it takes some time to get used to the new signal.
 - If the wiping is fast enough, it's completely clear to understand.
 - No danger to get confused with a line pole.
 - Easy to distinguish because of different frequencies and a different light distribution.



Supplementary analysis

Analysis of the visual angles from a turn indicator and a serie of line poles:

- ▶ The turn indicator appears under an angle of $1,14^\circ$ for a car **15 meters** ahead.



- ▶ The observer needs a distance of more than **125 meters** to see the row of line poles under the same visual angle.



Thank you.