

TESTING ATTENTION IN TRAFFIC SITUATIONS

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INTRODUCTION

An important risk factor in traffic accidents is lack of attention responsible for more than 40% of traffic accidents. The aim of this study is to verify the correlation of the results of currently used attention tests used in psychological assessment of drivers and attention test based on scenes of traffic situations.

The driver has to attend to all the elements that can give a clue for safe driving: traffic signs, stop lights, pedestrians, cyclists, speeding bumps, etc. The results of a little research about correlation between common attention tests and attention in traffic situations will be presented here.

THE EXPERIMENT

Between 150 photographs of traffic situations 40 were selected, of these 20 were separated for presentation as photographs (15x10cm) and 20 for projection on a screen. These two sets had approximately the same number of traffic clues (80) to be detected by the subject. For each selected photo/slide was indicated a number of traffic clues (pedestrian crossways, brake light, etc.) important to the driver.

The total number of clues of each photo / slide was considered as 100% and the scores of the subjects were expressed as a percentage. Photos and slides were shown during more or less 3 seconds. After each presentation the subject wrote down the traffic clues he/she had seen. All subjects were good drivers with no accidents in the last two years. The whole final sample will include 100 good drivers and 100 drivers with accidents, or those who have lost all their points (20).

THE PROCEEDING

All subjects were submitted to a visual acuity test (Snellen) and only those with 20 / 20 were accepted for the experiment. First they were submitted to the Toulouse-Piéron selected attention Test (AC – atenção concentrada) and after that to the MPM vigilance test (AD- atenção difusa) in which they had to link with a straight line two identical figures scattered over the test paper. Then the 20 photos were shown and they had to write the clues they had detected and finally they saw the projection of the 20 slides and wrote down the clues.

THE RESULTS

For the sake of correlation all test scores were transformed in percentage: Toulouse-Piéron: 210 = 100, MPM 60 = 100. Even with a sample of only 18 male and 10 female subjects the correlation of the two presentation forms: photographs and slides was 0.80 for both groups. Probably because of the small number of subjects other correlations AC versus AD, AC versus Photos, AC versus Projections and AD versus Photos and AD versus projections showed high variety. The correlation between AC and the fotos/slides and AD versus foto/slides were unfortunately very low.

PEARSON CORRELATION (r)

	Men	Women
AC-AD	0,59	-0,004
AC-Proj	0,28	0,38
AC-Fotos	0,11	0,51
AD-Proj	0,51	-0,03
AD-Fotos	0,25	-0,05
Proj-Fotos	0,80	0,80

The highest correlation in women was reached between AC and photos 0,51 and in men between AD and projection 0,51.

WHAT WAS MEASURED

In addition, the two groups detected more clues on the projection screen than on the photos. Just as in the AC and AD tests, the foto/slide test reveals attention but also detection, discrimination and identification capacities and even more the application of the knowledge of traffic signs and rules, but with the positive side that it is that all which must be measured to be able to say that the driver sees what really he needs to see in traffic.

Most attention tests are abstract, based on the Toulouse-Piéron test, and don't measure only the attention that is being used but also de detection of the position of different lines, the differentiation between the position of one line and another and the identification of the figure under examination and the example it has to match.

AMPLITUDE OF ATTENTION

On the other side it must be emphasized that attention is not only linked to visual or other sensorial input. In many psychology manuals it is linked to this kind of perception, but you may also have attention to your thoughts, to your memory, to your reasoning, or to the decision you are taking and to your proper behavior and its feedback. In other words attention did not only play a role in information input, but also in information processing, in decision taking in response or autonomic behavior and in feedback.

FOTO TEST

During more than twenty years in French as well as in Holland phototest is used for driver examination. In this test, instead of asking the rules for the traffic behaviour, it presents a traffic situation in which you have to take a decision. Normally you see on the photo a white car which is yours and you have to say what action you are allowed to make. The only answer is "no " or "yes", and push a button on the right or on the left side. "Are you allowed to pass the car in front of you? "Do you have to give the right of way to the pedestrian who comes from the left?", "Do you have to enter in the road to your left side"?

Scores computer calculated. You must have 90% of right answers to pass. In every good bookstore are training books with 200, or more situations for training at home. The test presents only sixty situations. It's very clear that this is not only a test of knowledge of the traffic behavior code, it includes attention, differentiation, rapid reasoning, rapid decision, judging distances, and forecast of results of traffic behavior. May be that it is fore that they haven't in Holland psychological driver assessment. As I know results are good and Holland doesn't score high in fatal traffic accidents

PROFESSIONAL ACTION AS TEST

Thinking well about this it may not be so strange to test the driver in the traffic situations. There you can see what he is able to observe: many different things that could be dangerous, or that he has to see well because he has to react to different signs or to some complicated traffic situations.

Can't it be that some professionals can be better tested in the real current action of their job?

If we have to selection a good cook will we have to submit him to attention tests, to discrimination tests between different types of flours or seasonings? Couldn't it be better giving him the recipes and the material to make a good complete meal? He can show his knowledge about the ingredients, the time of cooking, the seasoning of the meat, the good taste of the vegetables and so on.

If you will select a good secretary do you have to submit her to a series of different tests? Wouldn't it be better giving her a variety of real tasks: answer a business letter, working with files, or making up a good table or graphic, and the principal things what you like that a good secretary must be able to do correctly and within some time limits?

GROEGER'S TEST STUDY

It looks good to remember here the conference of Basel about assessing the driver and the analysis made by Groeger of the different tests applied to drivers. The conclusion of his research about many tests, including attention, reaction time, intelligence, perceptive style and reasoning and even personality, was that in psychometric terms the discussed tests were only valid in conventional terms, that will say as not specific for driver assessment. The criterion validity, the concurrent validity, de face validity as well as the validity of content were all low or unpredictable. Even the reliability in terms of reapplicability was also quite poor. So we can ask ourselves if we are actually on the good way with our different tests, analyzing the various psychological functions but in an abstract way for driver assessment. Wouldn't it be possible to substitute our abstract tests by the presentation of many conflict situations in traffic presented by an individual virtual vision apparatus instead of the expensive traffic simulation apparatus of Soesterberg?

A SUGGESTION

By means of a virtual vision apparatus we can show to the candidate for a driver license various traffic situations beginning with the more simple and going up to the more complicated. It's clear that we probably have to abandon the classification of psychological functions and go to the reactions and the efficiency of the reactions and behaviors to different traffic and conflict situations. May be that by this way we can come to better results about functional psychological factors.

SOMETHING MUST BE WRONG

Considering the results of the test applications made nowadays in Brazil, only 1% is judged not to be able to drive a car for psychological reasons and can not receive the driver license. But at the other hand we have about 40.000 fatal traffic victims a year, fast all committed by drivers who had a driver license and who were considered able to drive by the psychological driver assessment. Something didn't fit well. Why do so many psychologically able drivers cause such a mass of terrible accidents? Something must be wrong.

BACKWARDS ANALYSING

Another methodological way will be to research the efficiency of the tests in foreseeing driver behavior is to go back from the driver who causes the accidents to the last psychological assessment he made. Will there be a difference in these test results compared with the tests results of drivers that never had an accident in the same time period? We are working on this project too.

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