



Fit to Drive

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Fitted personality - beyond the traits

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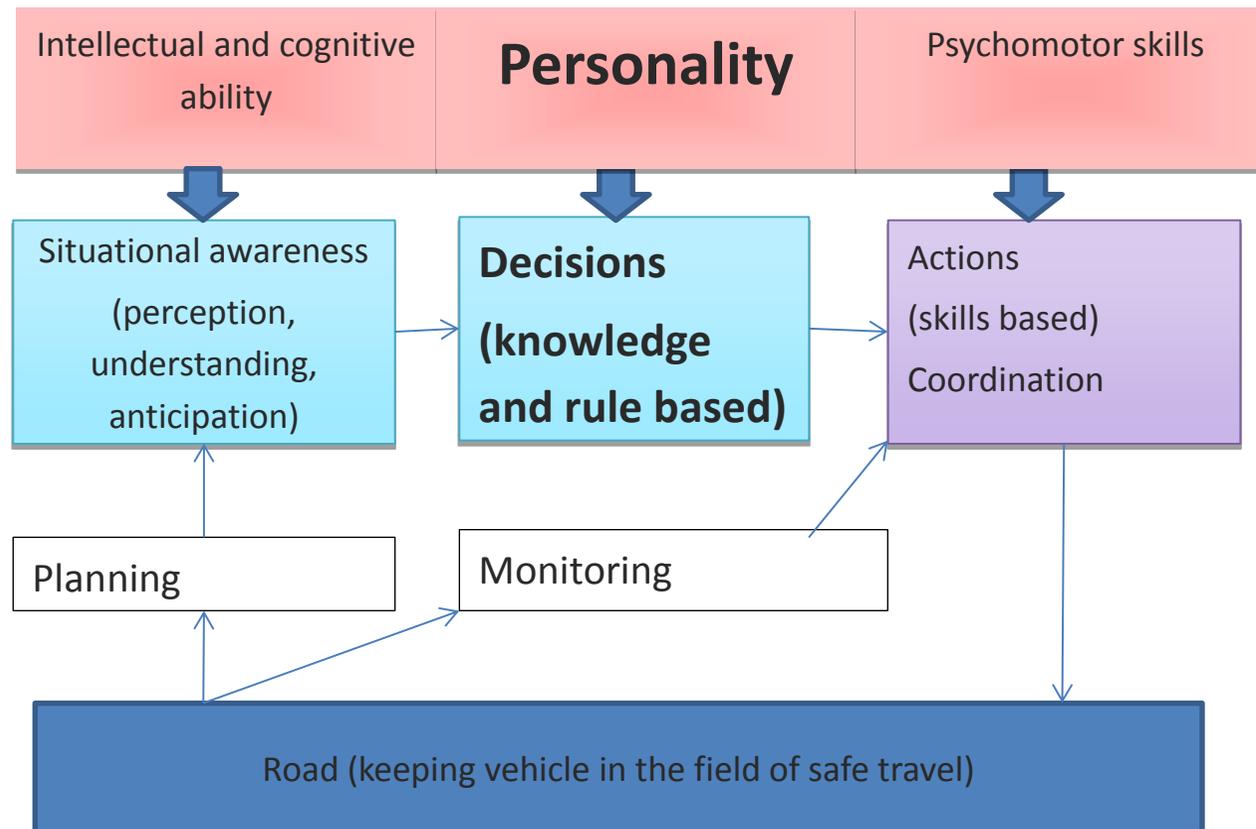


Personality

- **Personality is a moderator between stimuli and behaviour.** We are asking for personality when we are trying to establish why people in similar situations are acting different.
- On the road, some drivers in similar situations are taking risky manoeuvres, some other not. It is the reason to describe personality, find factors allowing to predict probability of fatal errors and- in extreme situations- recommend to refuse driving licence to some individuals.
- Whenever human factors in accident include decision making, the personality is important part of explanation.



Personality in driving





Regulations

- In *Directive 2006/126/EC of the European Parliament and of the Council of 20 December 2006 on driving licences in Annex III* we can find a recommendation:
- *(13.1.) Driving licences shall not be issued to, or renewed for, applicants or drivers who suffer from severe behavioural problems due to ageing; or personality defects leading to seriously impaired judgment, behaviour or adaptability.*
- In Polish regulations (implementing the Directive) psychological examination, parallel to medical, includes investigation of emotional stability, maladjustment and stress coping (intellectual and cognitive performance, and psychomotor ability is also tested).



Predicting the risk.

- So- what we shall look for when we want to predict driver's behaviour? Academic psychology is looking for common aspects of personality. From this point of view we are defining "types", allowing to group people into similar categories, or "dimensions", letting to line up them according to important criteria. In clinical perspective we are describing personality of an individual, and the dimensions of classifications are not very important: the goal is to meet a person with habits, defence mechanisms, established schemas, describe important experiences and its influence on today's reactions.
- In traffic psychology our goal is **estimating the probability of aberrant drivers behaviour** on road. The final decisions concern an individual, so the "clinical" approach seems to be more effective. Some "scientific" data, however, are important when we are looking for tools for personality description and for prognosis of the behaviour.



Correlations between personality traits and risk of errors

- There are some data connecting personality traits with probability of accidents. In classic work Lajunen (2001) reported that number of fatalities per 100 000 citizens is higher in countries where people are more extravertive and more neurotic.
- In our studies results were different (Tarnowski 2007)- we found that combination of higher need of stimulation and emotional instability is temperamental predictor of human error. In elderly drivers (Biernacki, Tarnowski 2011) Neuroticism increased the probability of cognitive errors. The role of neuroticism in safe driving is one of most inspiring questions.



Neuroticism and risk

- We hypothesized, that the homeostatic importance of some personality traits is changing, depending on situation, age or gender.
- Sometimes, anxiety serves as an internal punishing system, giving negative reinforcement even before the action takes place. Neurotic (people with higher emotional reactivity) would have smaller predispositions to act in risky way.
- Sometimes, however, high level of anxiety may cause cognitive errors or panic (impulsive) reactions in complex situations. Problem occurs when extraversion (and need for stimulation) meets high emotional reactivity, because one is seeking for adventures and next cannot cope with the situation.
- **Although some statistically significant effects have been found- we are rather critical about the usability of the results- observed effects are far too small to predict the risk in individual cases.**



Risky attitudes and behaviour disorganisation

- Human factors in accident means that the situation on the road occurred too difficult for one's capabilities. It happens when one's excepting the rules and accepts too much risk, provoking troubles (In Reason's terminology - violations) or when individual's capabilities are insufficient to copy with typical conditions (lapses).
- The first situation may be explained as a risky attitude, the second- as behavioural disorganisation



Risky attitudes

- There are some systematic data connecting risky attitudes with dangerous violations and probability of accident (Ulleberg & Rundmo 2002, Blows & colleagues 2005). Authors rather agree that personality traits are the first cause, but attitudes are important mediator (Ulleberg Rundmo 2003).
- This conclusion is optimistic- attitudes are easier to modification, for example through safety campaigns (Rundmo, Iversen 2004). We have found that one of most predictive factor of risky behaviour is haste.
- We proposed a *time management training* dedicated for traffic offenders, and in effect a reduction of violations (also inattentions and errors, but not inexperience) has been observed (Tarnowski 2012). Risk taking may be direct effect of temperamental impulsiveness, but also chaotic life style- explained on personality level by conscientiousness.



Risky attitudes- the diagnose

- Traffic psychologist when investigating the driver should identify risky attitudes, and next clarify its origin. Every attitude is ingrained in personality traits structure, but also in experience and situation (eg. time management skills and everyday haste).
- Diagnosis should be a realistic vision of possibility and readiness to change.
- Among other factors, higher neuroticism may be helpful in risk avoidance conditioning.
- Polish regulations allows to refuse driving licence to a person maladjusted, or with poor understanding and acceptance of formal and informal traffic rules.



Cognitive failures and behavioural disorganisation

- The second situation happens when a driver is rather careful, but he cannot manage a little more complex situation.
- Cognitive failures in everyday life are reported as an important factor predicting probability of accident (Allahyari & colleagues 2008).
- Cognitive failures are also correlated with current psychiatric symptoms (Broadbent 1982), but there is no clear evidence that depression itself increases risk of accidents (Bramnes & colleagues, 2008).
- In our studies of elderly drivers (Biernacki, Tarnowski 2011) we found that cognitive failures are function of age and neuroticism interaction: after 60 risk of an error, especially in complex situations is correlated with neuroticism, and this effect is not significant for younger drivers.



Cognitive failures and behavioural disorganisation- the diagnose

- When a driver is a person with emotional problems, especially elderly, psychologist should carefully investigate his cognitive skills. It shall be stressed, that lack of emotional stability is not a problem itself, but only when it is followed by attention and executive function disturbances. The problem is to arrange laboratory task, simulating stressful and complex road situation. Increasing complexity and time pressure is not a big problem, but more difficult is the interpretation: distinguishing between emotionally induced errors and lack of cognitive skills.
- In Polish regulations, psychologist can refuse positive recommendation to a person with emotional instability, when the risk of behaviour disorganization is high.



Personality measurement: questionnaires, standardised interviews, observation.

- Last, but important issue is problem of personality measurement. Psychologists are ambivalent towards questionnaires, and there is many reasons to be critical about methods based on self-description (Łuczak, Tarnowski 2014).
- Popular questionnaire methods delivers fast and complete view on personality structure, but use no correction for untruthfulness. In consequence they are almost useless when a subject is highly motivated to present himself as a well-functioning person.
- We recommended to all test manuals, used in traffic psychology to include interview and observation guidelines to allow verification of the conclusions crucial for traffic safety.



Conclusions

- We shall agree there is no simple personality risk factor allowing to predict risk of traffic accident.
- Always when decision making is one of accident causes, personality is an important issue.
- Accident happens when the task is too difficult to be handled by driver. On the next level of explanation we have risk-taking or cognitive failures.
- This two factors are not constant individual properties, but always they have the background- the personality structure, important experiences or habits.
- This background makes the attitude modification easy or very difficult, so personality is very important part of human fitness to drive.



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