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Context Model of Risk

1. Introduction

Since the time when psychologists began to endeavour to understand what risk actually was there have been developed many theories and concepts trying to elucidate its nature. Supposedly, it was the Wild's theory that made the greatest career¹. It was in a mechanistic, simple way that it solved the phenomenon of risk undertaking; all psycho-physiological processes present in a chain reaction on the road were considered to be present here as if beyond the driver's control. Similar, in a sense, was Klebel's theory, which, taking into account dynamic environmental parameters, tried to assert close relations of interdependence between objective and subjective risk². Undoubtedly enough, Fuller's concept offered an unconventional approach to the problem of risk undertaking, there could be found a shade of philosophical thinking concerning the perception of the situations in road traffic as threat avoidance³. On the other hand, all that could possibly lead to the so called risk boiled down to the driver's misjudgement of the situation, i.e. an entire cycle of processes on a mental level. No extreme psychologizing could be found here, as in this process of driving, risk evading, the parameters of speed and road itself played an important role. Botticher and Van Molen presented a completely different direction as well as the approach to the issue. These authors tried to view the problem of risk in a hierarhized and structural way, and the interpretation of risk undertaking as such by the drivers seems to be too mechanistic⁴. Making a simplified analysis of the above mentioned theories, it can be noticed that none of them explained the phenomenon of risk comprehensively. The psychologists involved with the issue of risk either excessively psychologized or ascribed too great an importance to the physical environment. And, although the recent SARTRE research aimed at a description to what degree social factors could influence risk undertaking on the road, the control of them was made extremely hard because of a very differentiated types of cars in various countries and dissimilar standards of road networks, etc⁵. So, in this aspect the comparative analysis is especially difficult, too.

2. Research undertaken

During my research for the last three years I observed quite interesting phenomenon, which would not be easy to interpret by referring to the existing theories. As a matter of fact, the same drivers seemed to present quite different levels of risk in different situations. In some circumstances they drove very carefully and paying attention in other, very dangerous ones, where the level of risk was so high that it would have been impossible to suspect them of misjudgement and underestimation of the endangerment. These observations inclined me to undertake experimental research which would allow for an interpretation of the phenomenon. In order, however, to keep certain variables exactly under control, I had to limit the experiment itself to few controlled items.

¹ Wild G.J.S. *The Theory of Risk Homeostasis, Implications for Safety and Health*, "Risk Analysis" vol.2,no.4, p.209-225 (1982)

² Klebel D. *Das Modell der subjektiven und objektiven Sicherheit*, "Schweizerische Zeitschrift für Psychologie und ihre Anwendungen", Bd.36, s.285-294 (1977)

³ Fuller R.: A conceptualisation od driving behaviour as threat avoidance, "Ergonomics" vol.27, p.1139-1155 (1984)

⁴ Molen H.H., Botticher A.M.T.: A hierarchical risk model for traffic participants, "Ergonomics", vol.31, no.4, p.537-555 (1988)

⁵ SARTRE: *Social attitudes to road traffic risk in Europe*, Raport on principal aspects, June (1993)

That was the reason why I did not take into consideration such features as age, driving experience, education or place of living while choosing the sample. The sole reaction of drivers to certain situations on the road bore the only relevance to the research. I assumed that the level of risk, i.e. undertaking especially endangering behaviour, would ensue from the social context. Altogether 80 drivers in a variety of road situations were examined. The measurement of the size of risk among the bus drivers of Cracow's Municipal Transport Enterprise was the experimental situation, and, driving without passengers was the control situation. Items scrutinised in both, experimental and control cases were those that would give evidence to risk undertaking. The reactions were as follows:

1. enforcing priority
2. abrupt braking
3. barring other drivers' way
4. driving across the crosswalk when there was green light for the pedestrians
5. careless driving across railway crossing
6. offences against speed limits

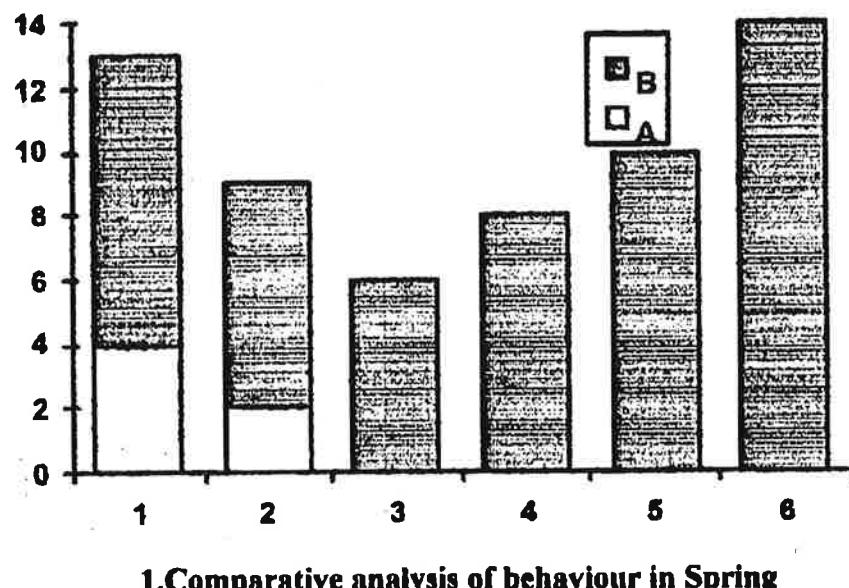
The extent of given reactions, preliminary considered to be dangerous in road traffic, compared for each driver in both - experimental and control - cases accounted for the level of risk. The research lasted eight months and took into consideration also weather conditions, time of the day and intensity of traffic.

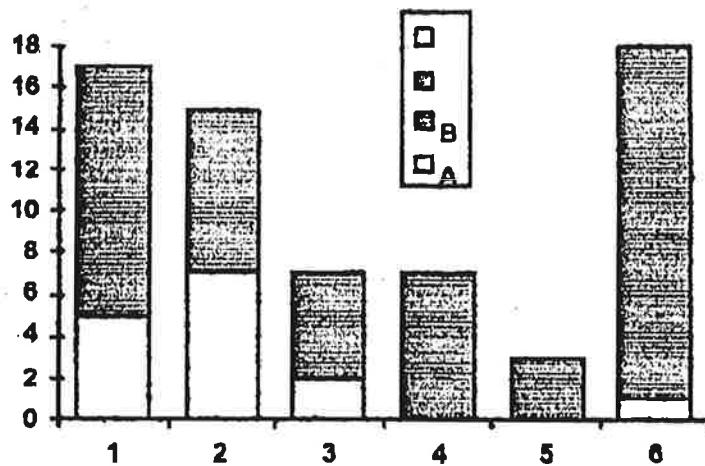
3. The course of the experiment

The procedures of the research were as further described. The experimentator was sitting on the driver's bus on a front seat and was closely watching the reactions chosen for the experiment and noted them on a special research sheet (A). Technically speaking, the second part of the experiment was more difficult, when after the shift the drivers came to the depot (B). They could have grown suspicious towards the passenger's (experimentator) staying in the car. Yet the differences in reactions were so significant that, even taking into account statistic error, they could be relied upon. Jointly, 80 drivers were examined.

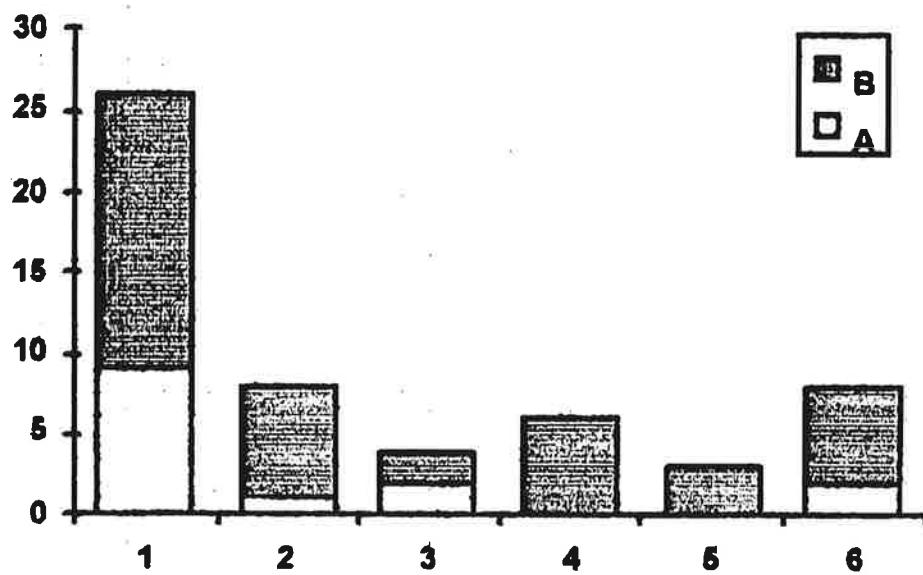
4. Results

The results arrived at during the experiment have been compiled into the following diagrams:

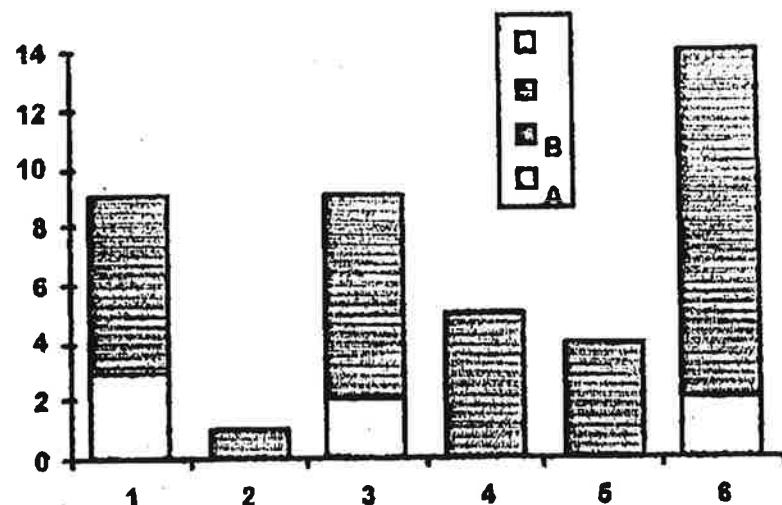




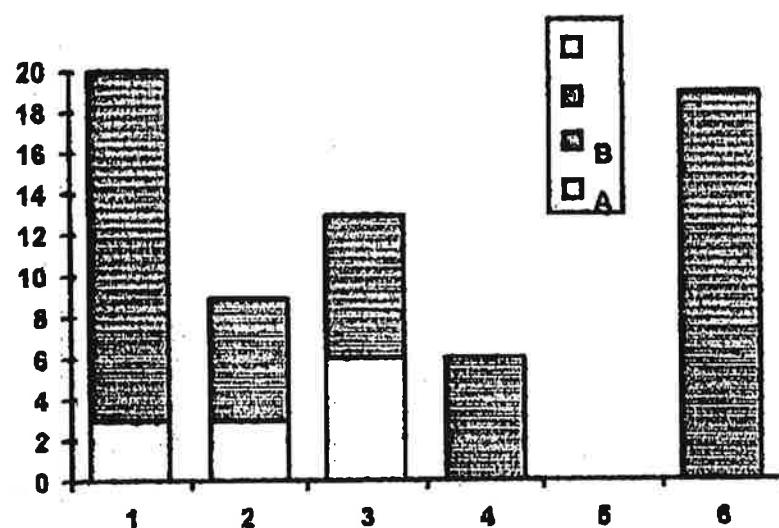
2. Comparative analysis of behaviour in Summer



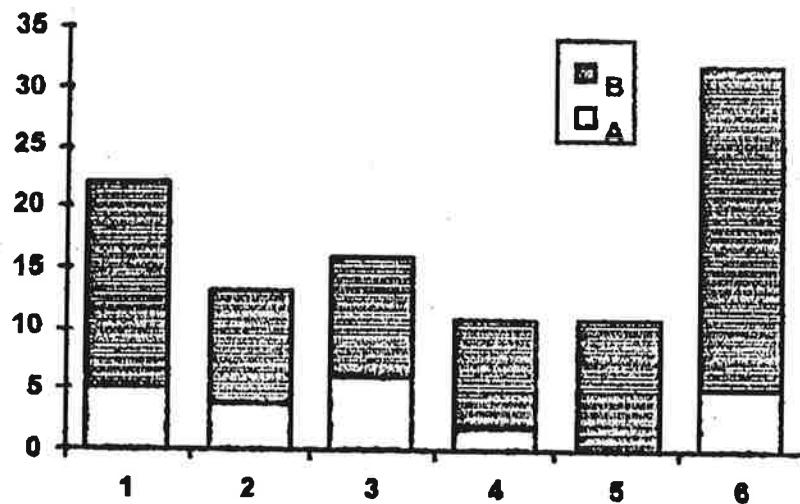
3. Comparative analysis of behaviour in Winter



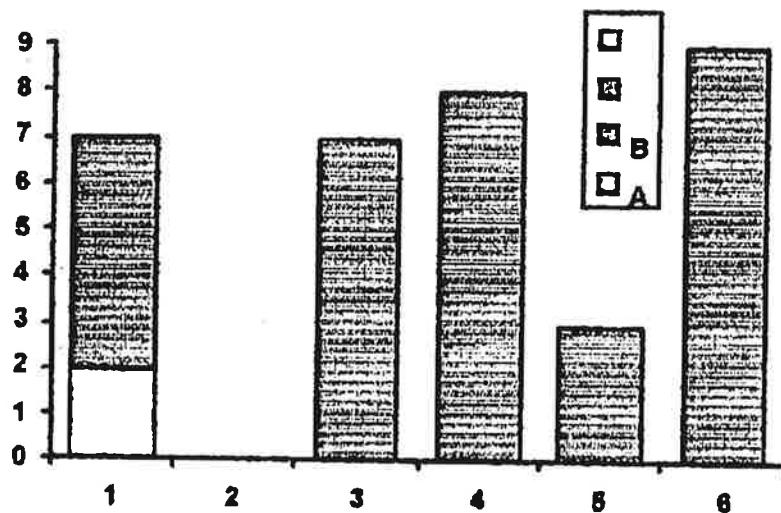
4. Comparative analysis of behaviour under unfavourable weather conditions



5. Comparative analysis of behaviour under favourable weather conditions



6. Comparative analysis of behaviour during very heavy traffic



7. Comparative analysis of behaviour during light road traffic

The achieved results present a paradox; the selfsame drivers, even during one day, manifested two extreme driving models: very reckless and exceptionally safe, even self-protective. This regularity was almost a rule. Surely enough, there were situations where the reckless driving manner was particularly distinct as, f.e. in heavy road traffic, under favourable weather conditions, on the other hand, in other conditions, f.e. in winter these differences were rather small, yet some regularity still appeared. Hence, it can be stated that we deal with a general regularity that drivers while at work as professionals tend to present more safe driving manner, whereas in other situations their behaviour is characterised by a much higher degree of risk.

5. Conclusions

During the analysis of the facts mentioned above there rose several questions about the main reason of so diametrically opposed behaviour. Undoubtedly, the social context is the criterion responsible. It is significant that, in the presented research the more influential the social context was the lower the level of risk was undertaken, and vice versa (Fig 1). It seems to me that the impact of

social context was so powerful that the drivers adopted more safe driving manner. In situation when such manner was no longer necessary they tended to undertake much higher risk. There arises yet another question, in the light of the facts presented, whether the situation in road traffic can take place without social contact. Definitely not, although some physical separation of the driver from the environment, due to the car's construction, is behind the fact that the drivers limit the impact of social context to the interior of the vehicle. Of course, the influence of the social context inside a bus must be significant owing to the number of passengers, the question is what the situation would be like in a passenger car. I assume that a similar phenomenon can be found here as well. Results of some researches have proved that drivers prefer much more safe driving manner when there are other people in the car, particularly members of the family. Both positive and negative impact of the social context can be exerted on risk undertaking. This phenomenon is most explicitly observable among young drivers. The presence of other (also young) people in the car can fortify the tendency to speeding, enforcing priority, drunk-driving, in a specific way. In this case the social context only makes the dangerous behaviour - thus risk - stronger. It can be especially high among drivers who prefer hazard.

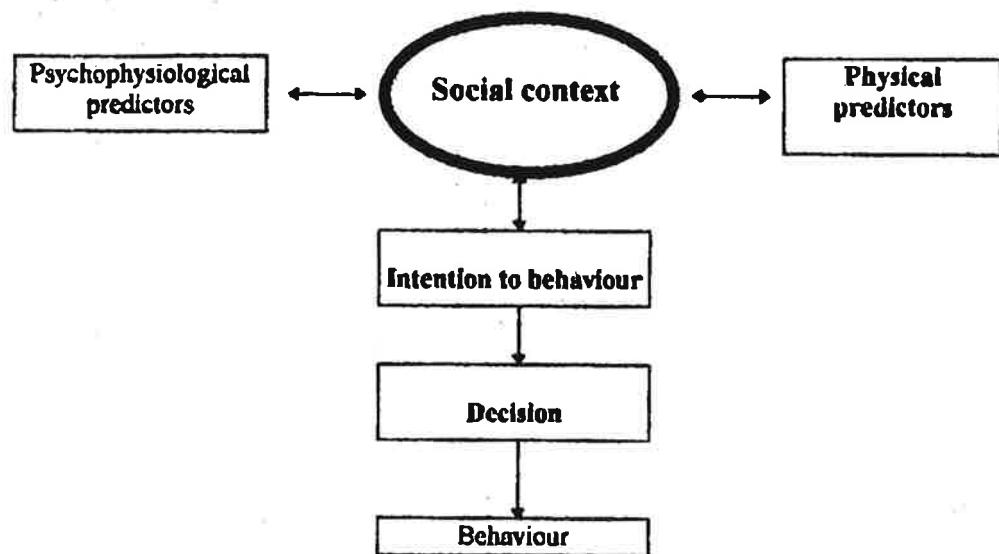


Fig. 1. Context model of risk

It is far from easy to evaluate, in the context of the research presented here, the extent to which the social context influences the level of risk undertaken in comparison with other variables, f.e. psychological ones: motivation, wrong decision making, stress etc. On the other hand, it would be extraordinarily difficult to state the power of these factors' impact. Needless to say, the social context ensues, to a great extent, from cultural influence. Undoubtedly, it would be very interesting to make an analysis of risk on roads taking into account the social context of various cultures.