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## The effect of human's association with danger on changes of perceiving on safety

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## THE EFFECT OF HUMAN'S ASSOCIATION WITH DANGER ON CHANGES OF PERCEIVING ON SAFETY

### Abstract

A huge amount of road accidents cause not only material damages but also human loss; the other ones can be referred to as traumatic. Searching for the methods of preventing those accidents aims also at decreasing the level of threat when the traffic circulation is getting more intense on the cities' roads. The aim of the research was to estimate the perception of traffic safety and to answer the following questions:

1. How strong is fear of road accidents in the modern – technically based society?
2. How many of the respondents have been victims or survived road accident, and have seen in its consequences death or injury of an acquaintance, someone close?
3. How many of the respondents have been authors or witnesses to such tragic events? The last question to which we tried to obtain an answer was the question:
4. What is the effect of associating with danger on the changes of man's personality and actions for the guaranteeing of safety, life and health? This question was asked to rescuers and fire-brigade, police and medical rescue officials. The answers to the questions above and its analysis are the issue of the article.

### WPLYW OBCOWANIA CZŁOWIEKA Z ZAGROŻENIEM NA ZMIANY W POSTRZEGANIU WŁASNEGO BEZPIECZEŃSTWA

#### Streszczenie

Duża ilość wypadków drogowych powoduje nie tylko straty materialne, ale głównie osobowe i takie, które bardzo trudno jest wyliczyć – traumatyczne. Poszukiwanie sposobów zapobiegania wypadkom drogowym ma także na celu zmniejszenie poczucia zagrożenia ludzi w sytuacji, kiedy na drogach i ulicach miast wzrasta natężenie ruchu. Celem przeprowadzonych badań była ocena poczucia stanu bezpieczeństwa w ruchu drogowym oraz odpowiedź na pytania:

1. Jak silny we współczesnym – ztechnizowanym społeczeństwie jest lęk przed wypadkami drogowymi?
  2. Ilu z respondentów było ofiarą lub przeżyło wypadek drogowy i widziało w jego następstwie śmierć lub zranienie kogoś znajomego, bliskiego?
  3. Jak wiele z badanych osób było sprawcami lub świadkami takich tragicznych wydarzeń?
- Ostatnim pytaniem, na które podjęto próbę odpowiedzi, jest pytanie:
4. Jaki wpływ ma obcowanie z niebezpieczeństwem na zmiany osobowości i działalność człowieka dla zapewnienia bezpieczeństwa, życia i zdrowia?

To ostatnie pytanie skierowane zostało do ratowników i funkcjonariuszy straży pożarnej, policji oraz ratowników medycznych.

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## Introduction

Man's resourcefulness, just like its opposite, helplessness, is one of the most fascinating aspects of human existence. The world is going for more and more better civilization, technical and technological solutions but not paying attention to the fact that this action could have catastrophic consequences. With the help of the industrial evolution and more differing technological solutions we are consciously destroying our natural environment, which is indispensable for safe and healthy life. Through technical innovation and their use, human beings often expose themselves and others to danger. An example of such technical innovation is a vehicle and the necessary road infrastructure.

In this article I would like to draw particular attention to the issue connected with man's association with dangers that he himself has created as a result of evolution of technical civilization, and is no longer in a position to effectively resist them. The continuous industrial motorization industry revolution, besides the irrefutable benefits, is, however, conducive to emergence of a lot of negative phenomena and dangers not only on a unit scale but encompassing whole society. The most significant of them appear on the range of safe participation of man in road traffic. Dynamic development of motorization at turning point some dozen or so years ago has resulted in abrupt increase in the number of road accidents, injuries and deaths. The latest statistics are alarming and disturbing. Many people are killed or injured every day.

„Taking into account the rising incidents of road accidents, their victims, and personal, social and economic losses, it has become necessary and critical to take up and loudly voice the issue of road traffic safety” [6]. A lot of road accidents lead, not only, to material losses but also mainly to losses that are personal and those that are difficult to quantify – namely traumatic. Searching of means of preventing road accidents has also the other objective of reducing the people's feeling of threat in a situation when the concentration of cars on roads and streets is on the rise [1, 4].

## Causes of road accidents

Unavoidable risk of accidents is inherently connected with road traffic. If appropriate safety measures for the users of vehicles are introduced, then the number of victims will drop and the effects of road incidents will be less severe. It should, however, be remembered that more improved safety measures could provoke in some drivers a tendency for risky ride, which, in turns, increase the probability of accidents. The system of man – technology– environment has to be analyzed in order to evaluate man's safety in the environment of life and work [2, 7]. In order to analyze the phenomena concerning safety of motor vehicles and road traffic, this system may be narrowed to the form: road traffic participant (P) – vehicle (V) – environment (E). The idea „road traffic participant” refers to all users of roads hence includes car users, motorcyclists (riders and passengers), bicyclists and pedestrians. Therefore, the skills and psycho-physical state of drivers (P) constitute one of the many factors, beside car construction (V) and infrastructure (E), determining road traffic safety. Taking into account the

fact that close to 95% of road incidents have the root on causes dependent on man, there is no doubt that it is man, as operator of vehicles and participant of road traffic, that is the most important element of safety system. The most frequent mistakes, resulting in accidents, made by drivers are listed in Table 1.

Table 1

Mistakes of drivers	Percentage [%]
Failure to adjust speed to road conditions	46,5
Failure to give right of way	20,6
Wrong driving through pedestrian crossings	10,3
Wrong overtaking	6,8
Failure to keep safe distance between vehicles	5,0
Others	10,8

*Causes of accidents – data from 2006 according to Crime Prevention Office of the Prevention and Traffic Bureau, Police Headquarters prepared by the employees of Department of Prevention in Road Traffic*

Man and his behavior are the main determining factors in danger to road traffic safety. A vehicle, as a technical innovation, in the hand of man, becomes a dangerous tool!

A driver is responsible for choosing or accepting conditions that increase or minimize the probability of collision. Considering the features and characteristic describing the behavior of drivers is essential for research into the road safety. It should be remembered that individual characters of drivers are unique and depend on many factors (skills, age, state of health etc.) [5, 8]. Increase in dangers from the side of the driver could be caused by: erroneous evaluation or playing down the road situation, making incorrect steering moves or delay in making them, violating applicable road traffic laws (consciously or unconsciously), lack of skills or failure to adapt vehicle techniques to real psycho-physical abilities (tiredness, nervousness). Man is the most unreliable link in the road safety chain [3]. In addition – as results from market researches of individual car constructors - potential buyers of new cars do not desire – in the least - for them to be equipped with electronic safety measures, for example, blocking of accelerator pedal, that go into operation when the conditions on the road require that the speed of the car be lowered. Man longs to rein over machine. Very often one does not think of the consequences that could result from excessive speed. Unfortunately, nature that has equipped us with mechanism fear of heights (*acrophobia*) – has forgotten about the fear of speeds. Obligatorily, statutory legal restrictions should replace this imperfection.

## Research objectives and problems

The objective of the tests carried out was to access the feeling of state of safety in road traffic as well as provide answer to the questions:

1. How strong is fear of road accidents in the modern – technically based society?
2. How many of the respondents have been victims or survived road accident, and have seen in its consequences death or injury of an acquaintance, someone close?
3. How many of the respondents have been authors or witnesses to such tragic events?

The last question to which we tried to obtain an answer was the question:

4. What is the effect of associating with danger on the changes of man's personality and actions for the guaranteeing of safety, life and health?

The last question was directed to rescuers and officers of fire brigade, police and medical rescue workers.

## Course of tests and characteristic of researched environment

The research was carried out on two social and professional groups. The first were extramural students of Faculty of Mechanical Engineering, University of Zielona Góra. 108 students were selected for the research. They were students of varying ages, both bachelor's and master's engineering courses, performing different jobs, having different secondary school education background.

The second group of respondents comprised of officers of Government Fire Brigade District Headquarters, police officers from Police Station and Ambulance Service workers in one of the district towns to the west of Poland. For this group of respondents, due to the frequent association with different road accidents and catastrophes, the questionnaire was expanded to include two additional questions, on the effect of association with danger on changes of personality and one's action for guaranteeing safety, life and health. The respondent officers were at different ages and ranks.

## Sense of personal safety in road traffic

Polers are aware of the fact that moving in road, both as a pedestrians, passengers and drivers is loaded with some level of risk.

The most often answer given by the polled respondents when asked whether they felt fear of road accident in different road situations was that they felt quite safe. A relatively small number – 14% said they had full sense of safety. However, the fear of accident was felt – depending on the situation – by 24% of respondents and only in one incident (on moving along road-sides on unbuilt areas) – this percentage almost reached 37%. The respondents often expressed their anxiety using the following words: I don't feel quite safe; they rarely admit that they have a sense of danger.

Table 2 below shows that sense of safety on the streets and roads depend on they type of vehicles we are in, in the road traffic.

Table 2

Person moving by	Do you feel, generally, safe or do you experience fear of road accident during a ride (as a driver or passenger)?						
	<i>I feel safe</i>			<i>I don't feel safe</i>			Difficult to say
	Definitely	Quite safe	Total*	Definitely	Quite safe	Total*	
	In percent [%]						
- car	24,6	71,9	96,5	0	1,8	1,8	1,7
- bus	8,8	61,4	70,2	3,5	3,5	7,0	22,8
- bicycle	12,3	47,4	59,7	0	24,6	24,6	15,7
- tram	10,5	33,3	43,8	0	3,5	3,5	52,7
motorcycle and scooter	3,5	26,3	29,8	0	14	14	56,2

\* The percentage of the answers *definitely and quite* was added

*Assessment of sense of safety on roads of persons using means of transport*

Of the respondent road users, bicyclists (24,6%) followed by motorcyclists (14%) felt the highest level of road accident. Those using buses (7%) and tram (3,5%) had far less fear of road accident. Without doubt, car drivers (only 1,8% do not feel safe and have fear of accident) had the highest psychological comfort.

**Involvement of the respondents in road incidents**

For many Poles road accidents are a source of painful traumatic life experiences as well as fears that may leave permanent marks in the psychic.

Some three quarters (72%) of the respondents have witnessed road accident in their life. While more than half the respondents (57%) had witnessed accident in which someone was injured and 26% experienced road accident in which someone close or familiar was injured.

The fact that 16% of the respondents saw some road accident fatality is of particular dramatic significance. The respondents very rarely admitted to having caused accident, a mere 2% of the respondent students admitted.

Among the respondents, the ambulance, fire brigade works, police and other had had to deal with, within the framework of their professional carriers, the highest experience with road accidents in which there were victims including fatal cases. That is the reason we rank these professional groups to be highly exposed to traumatic experience.

## **Effect of associating with danger on the changes of man's personality and actions for the guaranteeing of safety, life and health**

The participation of uniformed services and medical rescue workers in rescue actions, where the rescuers brush with danger while rescuing other people, exposing their life or health to danger, is a source of personal emotional experiences that may lead to change of one's personality. Among the polled fire fighters, the police officers and ambulance rescue workers more than two thirds of them had participated in rescue operation in such incidence as: fire with rescue of life and health of people in danger or rescuing people injured in road accidents. Of the group of fire fighters, 92% of them said they had participated in rescue operations where there were injured and dead people. In addition, one quarter of ambulance rescuer workers (28,6%) and almost the same percent of police officers (27,8%) had had direct contact with victims of road accidents. More than one quarter of the respondents (26,4%) from the uniformed service group and medical rescue workers said they that participation in rescue operations, where there are injured and dead victims is a source of personal emotional experiences that affect one's conduct and behavior connected with guaranteeing safety and health for oneself and the next of kin and definitely affect one's conduct in private life.

### **Final generalization**

Every one of us, in one's lifetime, encounters situations that carry potential risk for our health and even life. Many of these situations are a result of sudden evolution of technological civilization, including the development and dissemination of motorization and road transport. Everyone live through experience connected with road accidents, including sense of danger and risk differently – individually. Many people also feel, in different situations, fear of road accident. Road users traveling by cars are anxious over their safety – among the anxieties, the cyclists and motorcyclists had the lowest sense of safety. People traveling by bus, tram and private cars felt much safer.

Traumatic experiences and fears are a source of emotional changes in many people. These changes affect the perception, assessment and thinking of own safety and safety of other people, especially of close relatives. They lead to lower inclination to take risks.

I am hopeful that my research work will prove useful for all those interested in issues resulting from man's struggles with difficulties of human existence, in the road traffic anthropo-technosphere. I am of the opinion that research results presented in this article can be used as basis for further research works whose results would facilitate deep analysis of the effect of association of road traffic participants with danger on the changes in perceiving one's safety.

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