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## DOES THE THEME OF A ROAD SAFETY COMMUNICATION CAMPAIGN AFFECT ITS SUCCESS?

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Road safety communication campaigns are considered as an efficient strategy to approach the wide audience and influence road users towards a safe behavior, with main aim to lead to the reduction of the number and the severity of road accidents. When designing the implementation of a campaign, it is important to plan at the same time its evaluation, so that to enable the assessment of its effectiveness. For the achievement of high reliability and the development of “clear” conclusions, the campaign evaluation should be carefully organized, following a feasible scientific design.

Towards this direction, three road safety campaigns, two local campaigns addressing drink driving and seat belt usage, and one national campaign addressing driving fatigue, were implemented and evaluated. Presenting the design components of the three campaigns and the evaluation results, this paper aims at revealing the similarities and differences of the effectiveness of road safety communication campaigns on driving behavior.

**Keywords:** road safety communication campaigns, fatigue, drink-driving, seat belt usage, measurement variables, experimental design

### Introduction

Transportation is closely associated to the everyday activities occurring in a community, including work, education, social businesses, leisure, etc. Though, as travelling of people occurs on the transportation infrastructure with the use of the provided transportation modes, risks arise, owing to failures, damages, errors, accidents or any other incidents which could be considered intended or unintended events.

Road safety concerns the vehicle, the infrastructure, the user and the environment, and assures elimination of danger for road users and the surroundings, i.e. property and environment. The ultimate aim for communities should be the absence of any risks, accidents, fatalities and injuries during transportation. This is rather an optimistic scenario for the current situation of the European transport, since many safety issues still need to be addressed. Towards this direction, road safety has a significant role in the strategic plans of the European Commission (EC), i.e. the White Paper of 2001 [1], which adopted the ambitious target to reduce the number of persons killed on the roads by 50% by the year 2010. Among other measures, the White Paper [1] supported the realization of pan-European road safety campaigns, and in addition, the development of powerful and innovative tools for the evaluation of campaigns, in order to be able to improve the next ones.

Road safety campaigns, and, more specifically, road safety communication campaigns, are considered as an efficient strategy to approach the wide audience, aiming at the reduction of the number and severity of road crashes, by influencing road users' behaviour [2, 3]. Two main types of road safety communication campaigns are identified, thus, *public communication campaigns*, which inform the public about new or modified laws, improve knowledge, raise awareness of risk and influence behaviour, and *combined campaigns and integrated programs* that refer to communication campaigns implemented with other activities, i.e. education, enforcement, etc., and cooperation among several organizations for the improvement of road safety, respectively [3].

A large number of road safety campaigns has been implemented in recent years, but still a low proportion of them has been formally evaluated [4, 5, 6]. This lack of studies assessing the impact of road safety campaigns refutes the importance of evaluation and the need of documenting, assessing and disseminating the campaigns' results, which may contribute to more efficient design, implementation and evaluation of future campaigns [2].

In literature, several approaches or methods of evaluating road safety campaigns are indicated, with the majority of them being developed according to the timing of implementation, i.e. before the campaign starts, during the campaign implementation and after its completion, respectively [7, 8]. In Boulanger et al. [9], four main categories of evaluation, which apply in road safety communication campaigns, are defined, i.e. *formative evaluation*, *summative evaluation*, *economic evaluation* and *meta-analysis*. Formative evaluation is used for the assessment of the strengths and weaknesses of a campaign before it really starts [10], and an indicative type of this category is *process evaluation*, which investigates, for example, whether the resources have been allocated and the activities have been implemented as planned [9]. Summative evaluation, on the other hand, measures the effectiveness of an intervention on the target group, and estimates the degree of the impact of an implemented initiative [7] and the level of reaching the stated goals [11]. Cost-effectiveness analysis and cost-benefit analysis are the two most commonly used methods in economic evaluation [12]. Regarding meta-analysis, the specific type has been used for the assessment of the effects of road safety campaigns on accidents [13, 14, 15, 16].

The impact of road safety communication campaigns on driving behaviour has also been approached in several studies, i.e. in the “*Literature review on best practice with mass media*” [17], in which the significant impact of road safety campaigns on the improvement of road safety was observed, or in the “*A theoretical approach to assess road safety campaigns – Evidence from seven European countries*” [18], which presented the results of the evaluation of seven campaigns showing that the adoption of a well-structured model when selecting and assessing parameters, like attitudes, intentions, etc., works in the positive direction when predicting driving behaviour.

Taking into consideration the significant need for evaluating road safety campaigns [2, 9], three road safety campaigns, two local road safety communication campaigns addressing drink driving and seat belt usage, and one national campaign addressing driving fatigue have been designed, implemented and evaluated. Each of the campaigns differ in the road safety problem addressed, thus the theme of the campaign, the context, the target groups, the means and the scope, however they all follow a common theoretical model, i.e. the extended or modified version of the Theory of Planned Behaviour [19].

Presenting the design components of the three campaigns, as well as the evaluation results, the present paper aims at revealing the similarities and differences in the effectiveness of road safety communication campaigns on driving behaviour.

## Methodological Approach

### Theoretical background

Although there is strong evidence in the literature that the use of a theoretical background works effectively when designing and evaluating a road safety campaign [3, 6, 13, 18, 20], yet few road safety communication campaigns are designed, based on theoretical behavioural models [21]. Examples of studies on road safety campaigns that were approached through theoretical models is the “Foolspeed” anti-speeding campaign [22], which was based on the Theory of Planned Behaviour [19], and the study of Simsekoglu & Lajunen (2008) [23] who explained self-reported seat belt use among front seat passengers comparing the Theory of Planned Behaviour [19] and the Health Belief Model [24]. In addition, in the seven campaigns evaluated in the “A Theoretical approach to assess road safety campaigns” [18], a theoretical basis was used, i.e. the Theory of Planned Behaviour [19] and the Transtheoretical Model [25].

Following the above recommended by literature concept of using theoretical models, the problem behaviour, the definition of the objectives and the measurement variables [5] of the evaluation, in the three campaigns of the present study, were addressed through the Theory of Planned Behaviour (TPB), which argues that the personal decisions to perform a behaviour (intentions) are based on attitudes toward the behaviour, subjective norms, and perceived behavioural control, taking into consideration, social norms [19]. TPB was selected as the theoretical model for the specific analysis, since it associates road user behaviour with attitude and intention, addressing, in parallel, the impact of social norms when predicting behaviour. The principle of the specific model is that person’s behaviour is determined by his/her intention, which, in turn, is defined by person’s attitude, subjective norms and perceived behavioural control. At the same time, knowledge on these attributes may predict intention and therefore behaviour [19].

### Implementation of the campaigns

In the framework of the European research project CAST (Campaigns and Awareness raising Strategies in Traffic Safety) (<http://www.cast-eu.org/>), the Transportation Engineering Laboratory of the University of Thessaly, Greece, designed, implemented and evaluated three road safety communication campaigns, two local campaigns addressing drink driving and seat belt usage, and one national campaign addressing driving fatigue.

The *local campaigns* were launched on April 14<sup>th</sup> 2008 and lasted for four weeks. The scope of the campaigns was local; thus, the campus of the University of Thessaly was the test bed of the campaigns, and the target group composed of young students (between 18 and 30 years old), both drivers and passengers. The campaigns aimed at increasing the awareness proportion on the permissible alcohol level while driving or the obligation to wear seat belt both as a driver and passenger, increasing the awareness on the potential risks when drinking or not wearing seat belt when driving, investigating the measures that could influence road users to have a safer behaviour on the road, and decreasing the number of drivers that drink and drive or do not use their seat belts, respectively. The implementation of the campaigns included the distribution of 500 brochures and 50 posters, and the organizing of an open workshop, regarding the improvement of road safety (avoidance of drink and drive and seat belt usage), that took place during the same period.

The *national* fatigue campaign ran in two time periods, the first one starting on the 15<sup>th</sup> of December 2008 and ending on the 31<sup>st</sup> of January 2009, lasting for six weeks, and the second one, starting on the 6<sup>th</sup> of April 2009 and lasting for two weeks, thus, till the 20<sup>th</sup> of April 2009. Professional drivers were chosen as the primary target group of the specific campaign, and non-professional drivers, as the secondary target group, respectively. Among the objectives of the campaign were the increase in the percentage of drivers who are aware of the severity of the circumstances of driving tired, the increase of the number of drivers who believe that taking a short break is the most effective solution when tired and a relative decrease in the number of drivers who believe that other countermeasures (i.e. drinking a coffee or opening the window) are also effective solutions when driving tired, etc. The implementation of the campaign included the production of a television and radio spot, insertions in national newspapers, the distribution of leaflets, the display of posters and an on-line campaign, hosted by the website of the Transportation Engineering Laboratory of the University of Thessaly.

## Data Collection and Analysis

### Evaluation design

For the achievement of high reliability, the design of the evaluation of a campaign should be based on a scientific design, i.e. non-experimental, quasi-experimental, experimental or single-case experimental, while the development of “clear” conclusions requires that the campaign is evaluated with at least two measurements, one of which should occur before the campaign implementation [9]. The scope of the campaigns determined the evaluation design, thus, the evaluation of the local campaigns was based on experimental and quasi-experimental designs, since it was feasible to use both intervention and control groups, something that was “prohibitive” in the national campaign due to its implementation over a wider audience. For this reason, in the case of the national campaign, non-experimental design was used.

For the data collection, face-to-face questionnaire surveys were conducted, before and after the implementation of the campaigns. The surveys for the local campaigns were conducted for the “before” phase in March 2008 and lasted for two weeks, and for the “after” phase in June 2008 and lasted, also, for two weeks. Regarding the national campaign, the first survey took place in November 2008 and lasted for two weeks, and the second one in June 2009 and lasted, also, for two weeks, in order to collect data before and after the campaign implementation, respectively. Assuming a confidence interval of 0.1 and a confidence level of 95%, the minimum sample for the local campaigns was defined to 400, based on a population of 1587 persons, and was separated to 200 for the before measurements and 200 for the after measurements. The interviewees were 193 drivers and 207 passengers in the drink driving campaign, and 209 drivers and 191 passengers in the seat belt campaign. The 77.8% of the drivers and the 37.7% of passengers were male. The average age of the sample was 21.65 years old, and more specifically, in the driver group the average age and standard deviation (SD) of the sample was 22.69 (SD 2.33) and 22.38 (SD 2.05) years for the control and intervention groups, respectively. Passenger age average was 22.19 (SD 2.21) and 20.95 (SD 1.84) years old for the control and intervention groups, respectively. In the case of the national campaign, the sample was separated into two groups, thus, non-professional drivers and professional drivers. The characteristics of the sample are as follows: the sample of the before phase consisted of 1000 non-professional drivers with age  $38.74 \pm 12.36$  years (mean  $\pm$  SD) and 1000 professional drivers with age  $41.27 \pm 9.52$  years (mean  $\pm$  SD), and the after measurements included 799 non-professional drivers with age  $39.4 \pm 11.9$  years (mean  $\pm$  SD) and 700 professional drivers with age  $41.5 \pm 10.04$  (mean  $\pm$  SD).

Both process and outcome evaluations were conducted for the three campaigns [9]. Focusing on the process evaluation, relative variables were addressed, like the types of the activities carried out, the number, frequency and duration of the messages distributed, etc., in order to measure the objective exposure, as well as the subjective exposure through the reach, recognition, recall and appreciation of the campaigns. For the outcome evaluation, respective variables addressed were knowledge, behavioral beliefs, behavioral intentions, behavior, etc. The structure of the questionnaires included the appropriate questions in order to measure the above variables, and other background/demographic questions (age, frequency of driving, etc.). The core part of the questionnaire was answered using a 7-point scale [26], ranging from 1 (Totally disagree/very unlikely/not at all/never) to 7 (Totally agree/very likely/a lot/always), depending on the topic addressed. The subjective exposure of the process evaluation was investigated through questions, such as “Did you remember to have seen or heard a drink driving/seat belt/fatigue campaign in the last couple of weeks?” for the variable reach or “Did you generally like the campaign?” for appreciation. In the outcome evaluation, examples of questions and statements for the variable knowledge were “Do you know that the most effective solution to fatigue is to stop and rest or take a 15 minute powernap?”, for the behavioral beliefs “How much in favor are you of drinking while having drunk?” or “To drink a coffee will reduce or avoid fatigue while driving”, for the behavioral intentions “I plan to drive after having drunk a drink in the next month” or I intend to stop and rest when tired in the next month” and for behavior “When I get tired while driving, I stop and rest”.

### Data analysis

The data analysis was based on both descriptive and inferential statistics [27]. In the first case, parameters like the sample size and population, age and gender, percentage of participants being involved in an accident, etc, were analysed, by estimating the frequency distribution per gender and age, as well as the mean values and standard deviations.

In the second case, when analysing the data with inferential statistics, Chi-square ( $X^2$ ) test for homogeneity was used to test differences in characteristics measured by categorical variables (i.e. “yes”, “no”), while Mann-Whitney two-sample U-testing was performed to assess differences between samples in characteristics measured on the 7-point scale [28].

### Cross-Campaign Impact Assessment

In this section, the evaluation results for each of the three campaigns are presented, assessing the degree of each circumstance addressed in the questionnaire, as regards the tested variables, i.e. knowledge, behavioural beliefs, etc. In addition, a cross-campaign analysis is conducted, so as to unveil similarities and differences in the above variables, as a result of the specific design and implementation aspects of the three campaigns, such as theme, scope, etc.

For the purposes of the present paper and the cohesion of the results that are presented, the following assumptions are taken into consideration:

- The variables that were common in the three campaigns are discussed, thus, knowledge, behavioural beliefs, behavioural intentions and behaviour.
- Regarding target groups, in the national campaign, the total sample (both professional and non-professional drivers) is used, while in the local campaigns, only the intervention group of drivers (and not passengers) is considered. The intervention group refers to the sample that was exposed to the materials of the campaign and stated in the “after” phase of the questionnaire survey that they had seen or heard about the campaign. For the drink-driving campaign, the number of these drivers was 35 before and 18 after the campaign and for the seat-belt campaign 39 before and 36 after the campaign implementation.

The proportion of positive responses, applied to knowledge, the median ratings of their perceived seriousness on the 7-point scale, applied to the ordinal variables during the two phases, before (B) and after (A), as well as the p-values that indicate the strength of the respective evidence and the direction of the relationship that is identified as statistically significant ( $r_{\text{phase}}$  stands for the median rating in that phase, and  $p_{\text{phase}}$  signifies the proportion of positive responses in that phase), are presented in tables 1, 2 and 3, for the drink-driving, the seat belt and the fatigue campaign, respectively. It has to be mentioned that in the case of the seat belt campaign, when testing knowledge, the percentage of the respondents who knew that the usage of seat belt is compulsory by drivers and passengers was 100% both before and after the campaign, and for this reason the specific categorical variable, thus, knowledge, is not presented in table 2.

**Table 1:** Proportion of positive responses, median rating and summary of the before-after comparison – Drink driving campaign

Categorical Variables	Proportion of positive responses		p-value	Test parameters relation
	B	A	B vs A	
<b>Knowledge:</b>				
About the upper permissible limit of alcohol while driving	57.14%	44.44%	0.380 *	$p_B = p_A$
That the permissible limit is equivalent to a glass of alcohol	71.43%	83.33%	0.340 *	$p_B = p_A$
<b>Ordinal Variables</b>				
<b>Median rating</b>				
<b>Behavioural beliefs:</b>				
Do you agree with the upper limit of alcohol at 0.25 mgr/l?	4.49	4.83	0.578 *	$r_B = r_A$
What is the likeliness of driving after having one drink?	3.80	4.89	0.111 *	$r_B = r_A$
Even if I have drunk, I can still drive safely	4.29	4.28	0.990 *	$r_B = r_A$
To drink and drive will increase the likelihood of being involved in an accident	5.63	6.39	0.157 *	$r_B = r_A$
To drink and drive will increase the likelihood of being fined	6.03	6.39	0.395 *	$r_B = r_A$
<b>Behavioural intentions:</b>				
I plan to drive after having drunk one drink in the next month	2.89	3.28	0.542 *	$r_B = r_A$
<b>Behavior:</b>				
Frequency of drinking and driving in an urban area	3.34	3.89	0.419 *	$r_B = r_A$
Frequency of drinking and driving in motorway	5.43	5.56	0.834 *	$r_B = r_A$
Frequency of drinking and driving in familiar route	3.14	3.78	0.349 *	$r_B = r_A$
Frequency of drinking and driving in unknown route	5.00	5.00	1.000 *	$r_B = r_A$
Frequency of drinking and driving in near route	2.94	3.44	0.448 *	$r_B = r_A$
Frequency of drinking and driving in long route	4.9	5.1	0.777 *	$r_B = r_A$

Note: B: before; A: after ; *p*: proportion of positive responses; *r*: median rating; \* not statistically significant (p-value>0.1)

**Table 2:** Median rating and summary of the before-after comparison – Seat belt campaign

Ordinal Variables	Average rating		p-value	Test parameters relation
	B	A	B vs A	
<b>Behavioural beliefs:</b>				
Do you agree with the seat belt use by the driver?	6.64	6.89	0.210*	$r_B = r_A$
Do you agree with the seat belt use by the front passenger?	6.62	6.83	0.286*	$r_B = r_A$
Do you agree with the seat belt use by the back passenger?	4.51	5.63	0.060	$r_B < r_A$
How much do you believe the following statement is valid: Without my seatbelt I feel unsafe, as if something is missing	5.41	5.42	0.990*	$r_B = r_A$
How much do you believe the following statement is valid: Fastening seatbelts is really only useful when travelling a long distance	5.46	5.53	0.891*	$r_B = r_A$
How much do you believe the following statement is valid: If a speeding accident occurs, seatbelts won't make a difference	5.64	5.67	0.952*	$r_B = r_A$
How much do you believe the following statement is valid: I sometimes use my seatbelt when asked by a relative or friend	4.72	5.00	0.500*	$r_B = r_A$
How much do you believe the following statement is valid: If you drive carefully, you don't really need seatbelts	6.28	6.38	0.745*	$r_B = r_A$
<b>Behavioural intentions:</b>				
How often do you intend to wear your seat belt in the following month?	5.97	6.47	0.139*	$r_B = r_A$
<b>Behaviour:</b>				
Frequency of wearing seat belt in an urban area	5.59	6.25	0.139*	$r_B = r_A$
Frequency of wearing seat belt in motorway	6.97	6.86	0.125*	$r_B = r_A$
Frequency of wearing seat belt in familiar route	5.51	6.39	0.055	$r_B < r_A$
Frequency of wearing seat belt in unknown route	6.10	6.50	0.283*	$r_B = r_A$
Frequency of wearing seat belt in near route	4.97	6.08	0.025	$r_B < r_A$
Frequency of wearing seat belt in long route	6.74	6.69	0.819*	$r_B = r_A$

Note: B: before; A: after; *p*: proportion of positive responses; *r*: rating median; \* not statistically significant (p – value > 0.1)

**Table 3.** Proportion of positive responses, average rating and summary of the comparisons between the phases of the campaign – Fatigue campaign

Categorical Variables	Proportion of positive responses		p-value	Test parameters relation
	B	A	B vs A	
<b>Knowledge for:</b>				
Fatigue causes	95.9%	98.8%	<0.001	$p_A > p_B$
Fatigue effects	95.2%	97.7%	<0.001	$p_A > p_B$
Most effective countermeasure	88.1%	95.3%	<0.001	$p_A > p_B$
Fatigue & involvement in accidents	98.3%	99.8%	<0.001	$p_A > p_B$
<b>Ordinal Variables</b>				
	Median rating			
	B	A		
<b>Behavioural beliefs: “A good solution to fatigue is to...”</b>				
Drink a coffee	4.26	3.94	<0.001	$r_B > r_A$
Talk to passengers	4.54	4.57	0.65*	$r_B = r_A$
Open the window for fresh air	5.71	5.47	<0.001	$r_B > r_A$
Listen to music	4.43	4.32	0.108*	$r_B = r_A$
Stop and rest for 15 minutes	6.49	6.76	<0.001	$r_B < r_A$
Plan your trip	6.24	6.45	<0.001	$r_B < r_A$
<b>Behavioural intentions: “When tired in the next month, I intend to...”</b>				
Stop and rest for 15 minutes	5.94	6.35	<0.001	$r_B < r_A$
Plan my trip	5.61	5.92	<0.001	$r_B < r_A$
Follow other countermeasures	4.97	4.03	<0.001	$r_B > r_A$
Drive anyway	3.50	2.90	<0.001	$r_B > r_A$
<b>Behavior: “When I get tired...”</b>				
I stop and rest for 15 minutes	5.59	6.11	<0.001	$r_B < r_A$
I drink a coffee	4.68	4.73	0.432*	$r_B = r_A$
I listen to music	4.81	5.02	0.001	$r_B > r_A$
I talk to passengers	4.65	4.93	<0.001	$r_B < r_A$
I open the window	5.93	5.85	0.017	$r_B < r_A$
I do not drive at all	5.26	5.70	<0.001	$r_B < r_A$

Note: B: before; A: after ; *p*: proportion of positive responses; *r*: rating median; \* not statistically significant (p-value>0.1)

The results for each variable tested are discussed in the following paragraphs.

**Knowledge**

In the case of the drink-driving campaign, an increase of the proportion of the respondents who were aware that the upper permissible limit of alcohol is equivalent to a glass of alcohol was indicated after the campaign implementation (83.33%) compared to the “before” phase (71.43%), but this increase was not statistically significant.

On the other hand, the results of the seat belt campaign when testing knowledge did not show any differences, since both before and after the specific campaign, the percentage of the respondents who knew that the usage of seat belt by drivers and passengers is compulsory, was 100%.

In the case of the national campaign, results showed an increase of the proportion of the respondents who were aware of the causes of fatigue, before (95.9%) and after (98.8%) the campaign. Similar results were indicated, when testing the proportion of the respondents who were aware of the effects of fatigue while driving, and the relative rates, were 95.2% in the before phase, and 97.7% in the after phase. Also, the percentage of the respondents who were aware of the most effective countermeasure for fatigue while driving, thus, “to stop and rest”, was increased after the campaign (95.3%) compared to the before phase (88.1%), addressing the positive impact of the specific campaign, which urged drivers to stop and rest when fatigued. The last variable regarding knowledge, thus, that fatigue raises the likelihood of being involved in an accident, was also increased, and the relative proportions for the before and after phase, were 98.3% and 99.8% , respectively. Lastly, statistically significant differences were observed between the before and after the campaign implementation in the proportion of drivers that were aware of the causes and effects of fatigue, of the most effective countermeasure (“to stop and rest”) and that when driving fatigued they may get involved in a crash.

### **Behavioural beliefs**

The assessment of changes in behavioral beliefs in the drink driving campaign was tested through five variables, in which, although the median rating of the responses was increased due to the campaign implementation, this increase was not statistically significant.

The eight variables addressing behavioral beliefs in the seat belt campaign showed, once again, an increase in the median rating of the responses in the after phase compared to the before phase, but, these differences were not statistically significant, except of the agreement of the respondents that the back passengers should also wear seat belts.

In the fatigue campaign, the positive impact of the campaign was observed, when testing behavioral beliefs, and, more specifically, the median rating follows “positive” direction of change, thus, the adoption of effective countermeasures for fatigue, such as trip planning (or the postponement of trip) and powernap, while, other countermeasures that are falsely used, such as coffee drinking, listening to music, etc., seem to be preferred less by drivers, after the campaign. Most of these changes were statistically significant.

### **Behavioural intentions**

When testing behavioral intentions, in both local campaigns, the estimation of the variable which was used, did not show any statistically significant difference in the responses of the subjects.

On the other hand, in the national campaign, statistically significant differences were observed in all four relative variables, and, in fact, an effective impact of the campaign was indicated by the increase in the rates regarding the effective fatigue countermeasures, and the simultaneous decrease in the ineffective countermeasures between the before and after phases.

### **Behaviour**

The last parameter tested was behavior, and results showed that, in the case of drink driving campaign, although an increase was observed in the proportion of respondents who stated that they do not drink and drive in several routes (urban area, motorway, familiar route, unknown route, near route, long route), statistically significant differences were not indicated.

Similarly, in the seat belt campaign, an increase was defined, after the campaign, in the respondents, who stated that they use their seat belt in the above mentioned routes, but statistically significant differences were indicated only in the cases of near route and familiar routes.

Finally, in the case of the fatigue campaign, although drivers preference for the proposed countermeasures (i.e. “to stop and rest”) increases, at the same time, their preference for the ineffective countermeasures (to drink coffee, listen to music, open the window, or talk to passengers) also increases, indicating that they comprehend the risk associated to driving under fatigue, but they are not convinced that the proposed countermeasure is more effective than the other.

### **Conclusions**

The present paper reports the findings of the cross-campaign analysis conducted in order to investigate the impact of three road safety communication campaigns on driving behavior and assess whether the campaign components, e.g. the theme, affect their success. The evaluation design of the campaigns formulated was based on the Theory of Planned Behavior [19], and respective variables were tested, such as knowledge, behavioral beliefs, behavioral intentions and behavior.

Results showed that the local campaigns had some, but not significant impact on drivers participating in the questionnaire surveys conducted before and after the implementation of the campaign. This outcome may be explained, for example, by the fact that, although statistics indicate a higher concentration of drunk driving in the local areas, drivers self-reported that do not consider themselves as part of the problematic group, before, as well as, after the drink-driving campaign. In the case of the seat belt campaign, the rates of the respondents in the majority of the questions were high in the positive direction, already before the campaign implementation. Also, in both local campaigns, it may be considered that, the resources limitations deprived some parallel actions or activities, such as brochure distribution and volunteers informing people at alcohol consumption locations, which would have probably worked more effectively for young road users. On the other hand, the national fatigue campaign had a significant impact on drivers, something that was observed in the majority of the variables tested. Parameters such as the wider dissemination through several means, the higher budget and the involvement of stakeholders, can

be considered as crucial for the success of the fatigue campaign, compared to the local ones. Also, the specific national campaign was the first road safety communication campaign addressing driving fatigue in Greece, and the interest was high, both from the side of road users, but also, from the side of public authorities, institutions, etc.

In the light of the findings of the present study, it can be concluded that road safety communication campaigns, when designed and implemented properly, can increase the awareness of drivers on critical issues, such as drink driving, seat belt usage and driving fatigue. In addition, both in the local campaigns and the national one, it was indicated that their implementation affected significantly behavioral beliefs and behavioral intentions, while, in the case of behavior, results showed that, although the differences in the responses of drivers before and after the implementation of the campaigns were not significant, though, they were in the positive direction in each safety issue addressed, i.e. not to drink and drive, to wear a seat belt and not to drive when fatigued.

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