TRAFFIC LOCUS OF CONTROL, DRIVING SKILLS, AND ATTITUDES TOWARDS IN-VEHICLE TECHNOLOGIES (ISA & ACC)

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ABSTRACT

Drivers' acceptance of in-vehicle technologies is influenced by individual differences in user characteristics. Locus of control (LOC) can be assumed to be one of the most crucial psychological factors determining a drivers' acceptance to new in-vehicle technologies. Internals may, for instance, choose to rely on their own driving skills and abilities rather than on in-vehicle technologies and try to maintain their direct involvement with the driving task. It is also known that intention, which is influenced by attitudes, is the main predictor of behaviours (Fishbein & Ajzen, 1975). It was, therefore, hypothesized that drivers who got high scores on internal (self subscale of T-LOC) locus of control subscale and perceptual motor skills would have a negative attitude to using in-vehicle technologies (ISA and ACC). In the present study, 208 participants (36 female and 172 male) completed a form including the Driver Skill Inventory (DSI), Multidimensional Traffic Locus of Control Scale (T-LOC), Technical Devices Attitude Scale (TDAS), and items related to drivers' driving records and demographics. The results showed that high safety skills and external orientation seems to be important factors for having positive attitudes towards in-vehicle technologies. However, drivers with high self-reported perceptual motor skills might tend to resist in-vehicle technologies.

INTRODUCTION

Last two decades have witnessed rapid development of new driver support systems (for route planning, car following situations, speed control, etc). Intelligent Speed Adaptation (ISA) systems, for example, are capable of giving feedback to the driver or limit maximum speed by "knowing" the speed limit (Carsten & Tate, 2005). An Adaptive Cruise Control (ACC) system, on the other hand, controls a vehicle's speed at a driver-chosen level to maintain fixed time headway behind slower vehicles (Hoedemaeker & Brookhuis, 1998). In spite of the estimated positive impact of these systems on traffic safety (see Carsten & Tate, 2005), there are many open questions related to these systems. While making driving easier, these systems may have a negative impact on a driver's activity level and vigilance (see Michon, 1993; Noy, 1997). Besides, drivers are somewhat reluctant to use and accept these systems.

Previous studies have showed that the overall traffic conditions and the characteristics of the road infrastructure influence a drivers' decision to use the support systems (e.g., ACC in Fancher et al., 1998). In addition, drivers' acceptance of these systems depends on compliance with some formal driving rules, drivers' tolerance level, driving task, and the interaction with other drivers in traffic (e.g., Saad, 2002). Carsten and Fowkes (2000) found out that drivers tend to disengage ISA system and control their speed when speeding was the norm among other drivers in the surrounding traffic. In addition, individual differences in user characteristics such as personality seem to play a role in using and accepting these support systems.

Locus of control (LOC) is one of the most crucial psychological factors determining a driver's behavioural adaptation, in general, (Rudin-Brown & Noy, 2002) and drivers' acceptance of new in-vehicle technologies in particular. Rotter (1966) defined locus of control as a personality attribute reflecting the degree to which a person generally perceives events to be under their own control (internal locus of control) or under the control of powerful others or other outside forces (external locus of control).

Several researchers (Hoyt, 1973; Phares, 1976; Williams, 1972) supposed that an external locus of control is related to a lack of caution and failure to take precautionary steps to avoid the occurrence of unfavourable outcomes. Hence, these researchers hypothesized that external locus of control might be related to less responsible driving and accidents. However, research findings about locus of control and traffic safety have been mixed. Arthur, Barrett, & Alexander (1991) found a positive relationship between locus of control and accident involvement while Guastello & Guastello (1986) found no direct relation between Rotter's locus of control scale scores and accidents. Later, Montag and Comrey (1987) developed driving targeted scales for measuring Driving Internality (DI) and Driving Externality (DE). According to Montag and Comrey's (1987) results, DI and DE had a stronger relationship with safe driving than Rotter's I-E scale (1966) among new applicants for driving licences and drivers who had been involved in a fatal motor accident. Specifically, DE was positively associated with involvement in fatal accidents whereas DI was related to taking precautionary actions and cautious driving. However, Arthur & Doverspike (1992) later reported the opposite pattern of correlations and Iversen & Rundmo (2002) did not found any correlation between locus of control and risky driving. The question about the role of locus of control in risky driving remained still open.

Özkan and Lajunen (2005) supposed that the conflicting results could arise from both theoretical and methodological shortcomings, especially one dimensionality of locus of control scale. They claimed that the original two-factor structure based on internality and externality is too simple for catching different attributions of causes behind traffic accidents. The limited intercorrelations between the internality and externality led to development of "second-generation" locus of control scales (e.g., the Multidimensional Health Locus of Control Scales, Levenson Locus of Control Scale) including measures of internal control, external control by powerful others and chance (Levenson, 1981; Wallston, Wallston, & DeVellis, 1978). Thus, Özkan and Lajunen (2005) developed a driving targeted multidimensional locus of control scale (T-LOC) which included scales "Self", "Vehicle and Environment", "Other Drivers", and "Fate". The results of their study showed that internals ("Self" scale) are more likely to be involved in accidents and to commit risky driving rather than externals ("Vehicle and Environment", "Other Drivers", and "Fate" scales).

Lajunen and Summala (1995) found that drivers scoring high in DI saw themselves as alert and careful drivers who try to predict possible risks in traffic. It can be assumed that internals may choose to rely on their own skills and abilities rather than on in-vehicle systems and try to maintain their direct involvement with the driving task. For example, "high speed" drivers, who need high driving skills, are less positive towards in-vehicle systems (e.g., ACC) compared to "low speed" drivers (Hoedemaeker & Brookhuis, 1998). It is possible, therefore, that the effectiveness of in-vehicle systems can range from 100% to 0% and below (even having a negative effect) depending on how internals and externals would react to the given opportunity to use a new in-vehicle ITS and other possible devices (Rudin-Brown & Parker, 2004).

Attitudes are crucial indicators of our possible reactions or intentions, which is the main predictor of behaviours (Fishbein & Ajzen, 1975). We could speculate that attitudes towards in-vehicle systems would clearly indicate drivers' tendency to accept and use these support systems. In the present study, it was hypothesized that drivers' personality (locus of control) and the level of driving skills influence drivers' attitudes. Specifically, those who got high scores on internal (self subscale of T-LOC) locus of control subscale and driving skills would have a negative attitude about using the in-vehicle technologies (ISA and ACC).

METHOD

Participants

The data were collected from 208 drivers (36 female and 172 male) in Ankara, Turkey. Drivers were approached by a group of university students who were trained in data collection and interview techniques and only those who agreed to fill out the questionnaire and had a driving license were included in the study. The participants were assured of anonymity and confidentiality. The participants filled out the Driver Skill Inventory (DSI, Lajunen & Summala, 1995), Multidimensional Traffic Locus of Control Scale (T-LOC, Özkan & Lajunen, 2005), attitude scale developed for this study (Technical Devices Attitude Scale, TDAS), and items related to drivers' driving records and demographic variables.

Participants had a mean age of 31.02 (SD = 8.89). The mean annual mileage was 27,019 km (SD = 105,316 km). Participants reported that they had been involved in 1.29 accidents (SD = 1.62) on average in lifetime period.

Measures

Driver Skill Inventory (DSI)

The DSI is a 20 item self-reported measure of perceptual-motor (10 items, e.g., controlling the vehicle) and safety skills (10 items, e.g., stay calm in irritating situations) (Lajunen & Summala, 1995). DSI was previously translated into English and had been shown to have good reliability and predictive validity in different Western countries (Lajunen et a., 1998). The DSI was translated into Turkish by authors in previous studies, which also found high reliability and validity coefficients for the DSI (e.g., Sümer et al., in press). In DSI, drivers assess the strength of their driving skills by using 5-point scales (0=very weak and 4=very strong). For the whole sample, alpha reliabilities for the perceptual motor skills and safety skills were 0.82 and 0.70, respectively.

Multidimensional Traffic Locus of Control Scale (T-LOC)

The T-LOC is a 16 self-reported measure of internal (self by five items) and external (vehicle and environment by three items; other drivers by six items; fate by two items) locus of control in traffic (Özkan & Lajunen, 2005). In the present study, a new item (e.g., Whether or not I get into car accident depends mostly on coincidence) was added to measure fate subscale of T-LOC. T-LOC was first developed in English by T. Lajunen and then translated into Turkish by two psychologists. The correctness of the English translation of the T-LOC was evaluated by using back translation. In the T-LOC, participants were given a list of possible causes of accidents (n=17). They were asked to indicate on a five-point scale (1=

not at all possible and 5= highly possible) how possible it is that those seventeen reasons had caused or would cause an accident when they think about their own driving style and conditions. For the whole sample, alpha reliabilities for the self, vehicle and environment, other drivers, and fate were 0.82, 0.57, 0.70, and 0.75, respectively.

Technical Devices Attitude Scale (TDAS)

A newly developed TDAS is a 14 self-reported measure of positive (nine items) and negative (five items) attitudes towards three types of ISA (advisory, voluntary, and mandatory) and ACC. Advisory type displays the speed limit and reminds the driver of changes in the speed limit. Voluntary type allows the driver to engage and/or disengage the control system. In mandatory type, the speed of vehicle is limited at the time. ACC controls a vehicle's speed at a driver-chosen level to maintain fixed time headway behind slower vehicles. The participants were asked to indicate on a five-point scale (1= strongly disagree and 5= strongly agree) how much they agree on those fourteen items per each type of ISA and ACC. For the advisory type, alpha reliabilities for the positive and negative scales were 0.88 and 0.79, respectively. For the voluntary type, alpha reliabilities for the positive and negative scales were 0.88 and 0.81, respectively. For the mandatory type, alpha reliabilities for the positive and negative scales were 0.91 and 0.83, respectively. For ACC, alpha reliabilities for the positive and negative scales were 0.90 and 0.81, respectively.

Demographic Variables

Participants were asked to indicate their age, sex, frequency of driving, number and types of accidents (active accidents, i.e. you hit another road user or an obstacle, and passive accidents, i.e. you were hit by another road user) and offences (parking, overtaking, speeding and other offences) in lifetime period, the number of years a full driving licence held, and annual mileage.

RESULTS

The comparison of ISA types and ACC on the basis of positive and negative attitudes

Paired samples t-tests revealed that ACC was the most favoured in-vehicle system. ACC obtained significantly higher score on positive scale than advisory type of ISA ($t(1,207)= 2.10$, $p < .05$), voluntary type of ISA ($t(1,207)= 3.80$, $p < .001$), and mandatory type of ISA ($t(1,207)= 7.02$, $p < .001$). Advisory type ISA scored significantly higher on positive scale than voluntary type ISA ($t(1,207)= 2.18$, $p < .05$), which in turn obtained significantly higher score on positive scale than mandatory type ISA ($t(1,207)= 3.05$, $p < .01$).

On the basis of negative attitudes, paired samples t-tests revealed that the mandatory type ISA was the least favoured in-vehicle device. The mandatory type ISA obtained significantly higher score on negative scale than the advisory type ISA ($t(1,207)= 8.23$, $p < .001$), voluntary type ISA ($t(1,207)= 8.01$, $p < .001$), and ACC ($t(1,207)= 8.70$, $p < .001$). However, there were no significant differences between advisory type and voluntary type and ACC on negative scale.

Multiple correlation coefficients

Age correlated with the positive attitudes towards advisory type of ISA ($r = .16$, $p < .05$), voluntary type of ISA ($r = .17$, $p < .05$), mandatory type of ISA ($r = .17$, $p < .05$), and ACC ($r = .15$, $p < .05$) although the correlations were rather weak. Sex and annual mileage were not significantly related to any of those scales. Age correlated with the negative attitudes towards voluntary ($r = .16$, $p < .05$) and mandatory ($r = .16$, $p < .05$) type of ISA.

Self (internals) subscale of T-LOC correlated with the positive attitudes towards advisory ($r = .19$, $p < .01$) and voluntary ($r = .19$, $p < .001$) type of ISA. Others and environment and vehicle subscales of T-LOC correlated with the positive attitudes towards all ISA types and ACC (except mandatory for others). Fate subscale of T-LOC correlated with the positive attitudes towards advisory ($r = .20$, $p < .01$) and mandatory ($r = .27$, $p < .001$) type of ISA. Only environment and vehicle subscale of T-LOC correlated with the negative attitudes towards both advisory type of ISA ($r = -.19$, $p < .01$).

Perceptual motor skills correlated with the positive attitudes towards advisory ($r = .17$, $p < .05$) type of ISA and ACC ($r = .14$, $p < .05$). Safety skills correlated with the positive attitudes towards advisory type of ISA ($r = .25$, $p < .001$), voluntary type of ISA ($r = .16$, $p < .05$), and mandatory type of ISA ($r = .21$, $p < .01$) but not with ACC. Only safety skills correlated with the negative attitudes towards advisory type of ISA ($r = -.25$, $p < .001$), voluntary type of ISA ($r = -.28$, $p < .001$), and mandatory type of ISA ($r = -.29$, $p < .001$) but not with ACC.

Hierarchical regression analysis

Separate hierarchical regression analyses were performed on each of the attitude scales. In each of these regressions, age and annual mileage were entered in the first step to control for their effect, and driving skills and T-LOC subscales were entered in the second and their interaction were entered in the third step. Following the procedure outlined by Aiken and West (1991), moderator and independent variables were first centered and then the interaction term was created before the analyses. It should be noted, however, that only one subscale of T-LOC and DSI subscales and their interaction were entered in each time because of the small sample size. Significant interactions were plotted by generating simple regression equations of a given outcome (dependent) variable at low (i.e., 1 standard deviation below the mean), moderate (mean), and high (i.e., 1 standard deviation above the mean) levels of driving and safety skills (cf. Aiken & West, 1991).

For advisory type of ISA, age ($\beta = .17$, $p < .05$) was associated with the positive attitudes. After controlling the effects of the two demographic variables, the results of the regression analyses in the second step showed that internal orientation (self) ($\beta = .19$, $p < .01$) and safety skills ($\beta = .24$, $p < .001$), and external orientation, others ($\beta = .18$, $p < .01$), environment and vehicle ($\beta = .34$, $p < .001$), and fate ($\beta = .24$, $p < .001$) significantly predicted the positive attitudes. Similarly, for voluntary type of ISA, age ($\beta = .20$, p $p < .01$) was associated with the positive attitudes. After controlling the effects of the two demographic variables, the results of the regression analyses in the second step showed that internal orientation (self) ($\beta = .20$, $p < .01$) and safety skills ($\beta = .15$ $p < .05$), and external orientation, others ($\beta = .16$, $p < .05$), environment and vehicle ($\beta = .26$, $p < .001$), and fate ($\beta = .15$, $p < .05$) significantly predicted the positive attitudes. For mandatory type of ISA, age ($\beta = .19$, $p < .01$) was associated with the positive attitudes. After controlling the effects of the two demographic variables, the results of the regression analyses in the second step indicated that safety skills ($\beta = .18$, $p < .05$) and external orientation, environment and vehicle ($\beta = .18$, $p < .01$) and fate ($\beta = .32$, $p < .001$) significantly predicted the positive attitudes. However, the interactions were not significant in the third steps. For ACC, age ($\beta =$

.16, p < .05) was associated with the positive attitudes. The results of the regression analyses in the second step indicated that external orientation (others) (β = .22, p < .01) significantly predicted the positive attitudes. The interaction between internal orientation (self) and safety skills (β = -.20, p < .01) and perceptual motor skills and safety skills (β = .22, p < .01) on the positive attitudes towards ACC was found. Among drivers with low levels of safety skills, as their internal orientation increases their mean score of positive attitudes towards ACC increased (see Figure 1).

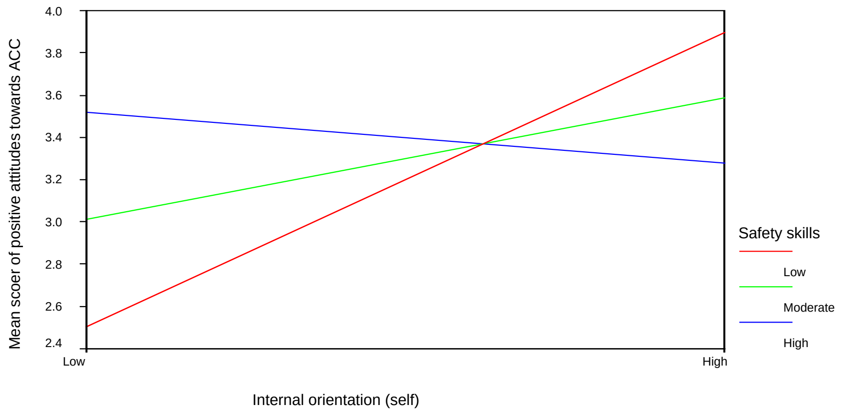

Figure 1. The interaction between internal orientation (self) and safety skills on the positive attitudes towards ACC

As presented in Figure 2, among drivers with high levels of safety skills, as their perceptual motor skills increases their mean score of positive attitudes towards ACC increased.

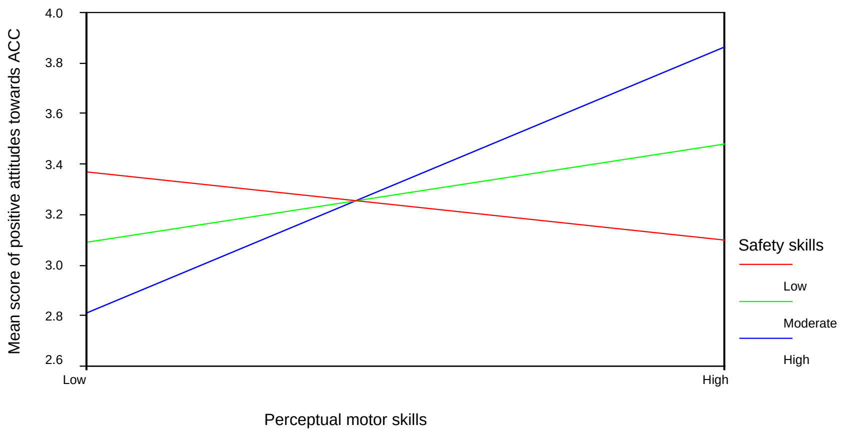

Figure 2. The interaction between perceptual motor and safety skills on the positive attitudes towards ACC

As presented in Figure 3, among drivers with high levels of external orientation (fate), as their perceptual motor skills increases their mean score of positive attitudes towards ACC increased.

Figure 3. The interaction between perceptual motor skills and fate on the positive attitudes towards ACC

For advisory type of ISA, after controlling the effects of the two demographic variables, the results of the regression analyses in the second step indicated that safety skills ($\beta = -.26$, $p < .001$), external orientation (environment and vehicle) ($\beta = -.17$, $p < .05$) significantly predicted the negative attitudes. Similarly, for voluntary type of ISA, age ($\beta = -.16$, $p < .01$) was associated with the positive attitudes. After controlling the effects of the two demographic variables, the results of the regression analyses in the second step showed that safety skills ($\beta = -.26$, $p < .001$) significantly predicted the negative attitudes. For mandatory type of ISA, after controlling the effects of the two demographic variables, the results of the regression analyses in the second step showed that safety skills ($\beta = -.28$, $p < .001$) and perceptual motor skills ($\beta = .14$, $p < .05$) and external orientation (fate) ($\beta = -.17$, $p < .05$) significantly predicted the negative attitudes. No significant effects appeared for the negatives attitudes towards ACC. No significant interaction effect appeared in the third steps, either.

DISCUSSION

The present study showed that drivers were more in favour of ACC and the advisory type of ISA compared to the voluntary and mandatory types of ISA. In terms of the preference of ACC, it could be speculated that the overall Turkish traffic conditions (e.g., congestion and the "necessity" of close following in big cities) might positively influence drivers' attitudes towards ACC rather than individual driver characteristics. In general, it seems that drivers prefer to have "optional" form of in-vehicle technologies rather than "obligatory" ones even though Carsten and Tate (2005) showed that mandatory ones are potentially much more beneficial for drivers' safety in traffic. It seems that some public campaigns might be necessary for informing drivers by taking into account individual differences in user characteristics.

The results of the present study indicated that the older drivers have the least negative and the most positive attitudes towards in-vehicle systems. For the all types of ISA but not for ACC, the higher safety skills driver reported, the less negative and the more positive attitudes they had. It could be concluded that safety concerns are important for determining drivers' acceptance and usage of in-vehicle systems. It also indicate that drivers' acceptance might be influenced by giving information about the contribution of in-vehicle technologies in traffic safety. For mandatory type of ISA, the higher perceptual-skills drivers reported, the higher scores on negative attitudes they had. It indicates that overestimation of perceptual motor skills might give a feeling of control over driving and a sense of safety. Since drivers might be afraid of loosing their control over driving task after implementation of in vehicle-systems, drivers with high perceptual motor skills might tend to resist the in-vehicle technologies. In fact, in-vehicle technologies increase the level of control over the certain type of driving task, especially from externals' perspective. For the all types of ISA and ACC, the higher external (others, environment-vehicle, and fate) orientation score drivers had, the more positive attitudes they had in the present study.

In the present study, the interaction hypotheses between internal (self) locus of control and driving skills on negative attitudes were not supported. However, the interaction between safety and perceptual motor skills, safety skills and internal (self) orientation, and perceptual motor skills and external (fate) orientation on positive attitudes towards ACC was found. It was found that among drivers with low levels of safety skills, as their internal orientation increases their mean score of positive attitudes towards ACC increased. In addition, among drivers with high levels of safety skills, as their perceptual motor skills increases their mean score of positive attitudes towards ACC increased. Besides, among drivers with high levels of external orientation (fate), as their perceptual motor skills increases their mean score of positive attitudes towards ACC increased. It seems that the balance between the level of driving skills and internal and external orientation might be critical for drivers' acceptance of in-vehicle systems. Therefore, individual characteristics (e.g., locus of control and driving skills) and their interaction should be taken into account while promoting in-vehicle technologies.

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REFERENCES

Aiken, L.S., West, S.G., 1991. Multiple Regression: Testing and Interpreting interactions. Newbury Park, CA: Sage Publications.

Arthur, W., Jr., Barrett, G. V., & Alexander, R. A. (1991). Prediction of vehicular accident involvement: A meta-analysis. Human Performance, 4, 89-105.

Arthur, W., & Doverspike, D. (1992). Locus of control and Auditory Selective Attention as Predictors of Driving Accident Involvement: A Comparative Longitudinal Investigation. Journal of Safety Research, 23, 73-80.

Carsten, O. M. J., & Fowkes, M. (2000). External Vehicle Speed Control. Executive Summary of Project Results. University of Leeds, UK.

Carsten, O. M. J., & Tate, F. N. (2005). Intelligent speed adaptation: accident savings and cost–benefit analysis. Accident Analysis and Prevention, 37, 407–416.

Fancher, P., Ervin, R., Sayer, J., Hagan, M., Bogard, S., Bareket, Z., Mefford, M., & Haugen, J. (1998). Intelligent cruise control field operation test. Final Report. NHTSA Report No. DOT HS 808 849.

Fishbein M, Ajzen I. 1975. Belief, Attitude, Intention and Behaviour: An introduction to theory and research. Reading, MA: Addison-Wesley.

Guastello, S. J., & Guastello, D. D. (1986). The relation between locus of construct and involvement in traffic accidents. The Journal of Psychology, 120 (3), 293-297.

Hoedemaeker, M., & Brookhuis, K.A. (1998). Behavioural adaptation to driving with an adaptive cruise control (ACC). Transportation Research Part F, 1, 95-106.

Hoyt, M.F. (1973). Internal-external control and beliefs about automobile travel. Journal of Research in Personality, 7, 288-293.

Iversen, H., & Rundmo, T. (2002). Personality, risky driving and accident involvement among Norwegian drivers. Personality and Individual Differences, 33, 1251-1263.

Lajunen, T., Corry, A., Summala, H., Hartley, L., 1998. Cross-cultural differences in Drivers' self-assessments of their perceptual-motor and safety skills: Australians and Finns. *Personality and Individual Differences, 24,* 539-550.

Lajunen T, Summala H. 1995. Driving experience, personality, and skill and safety motive dimensions in drivers' self-assessments. Personality and Individual Differences, 3, 307-318.

Levenson, H. (1981). Differentiating among internality, powerful others, and chance. In H. M. Lefcourt (Ed.), Research with the locus of control construct (pp. 15-63). New York: Academic Press.

Michon, J. A. (1993). Generic Intelligent Driver Support, a comprehensive report on GIDS. Taylor & Francis, London.

Montag, I., & Comrey, A.L. (1987). Internality and Externality as Correlates of Involvement in Fatal Driving Accidents. Journal of Applied Psychology, 72, 339-343.

Noy, I. (1997). Ergonomics and Safety of Intelligent driver interfaces. Lawrence Erlbaum Associates, Publishers. Mahwah, New Jersey.

Özkan T, Lajunen T. 2005. Multidimensional Traffic Locus of Control Scale (T-LOC): factor structure and relationship to risky driving. Personality and Individual Differences, 38, 533-545.

Phares, E. J. (1976). Locus of control in personality. Morristown, NJ: General Learning Press.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 80 (I. Whole No. 609)

Rudin-Brown C. M, Noy Y.I. 2002. Investigation behavioural adaptation to lane departure warnings. Transportation Research Record, 1803, 30-37.

Rudin-Brown, C. M., & Parker, H. A. (2004). Behavioural adaptation to adaptive cruise control (ACC): implications for preventive strategies. Transportation Research Part F, 7, 59–76.

Saad, F. (2002). Ergonomics of the driver's interface with the road environment: the contributionof Psychological research (pp. 23-41). In R. Fuller & J. A. Santos (Eds), Human factors for highway engineers, Pergamon, Oxford.

Sümer, N., Özkan, T., Lajunen, T. (in press). Asymmetric Relationship Between Driving and Safety Skills: A Test on Turkish Drivers. Accident Analysis and Prevention.

Wallston, K.A., Wallston, B.S., & DeVellis, R. (1978). Development of the Multi-dimensional health Locus of Control (MHLC) Scales. Health Education Monographs, 6, 160-170.

Williams, A.F. (1972). Factors associated with seat belt use in families. Journal of Safety Research, 4, 133-138.