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The Road Safety:A Special Sign for Unfamiliar Drivers

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Abstract—**Each year thousands of crashes occur all over the world involve unfamiliar drivers including tourists, visitors, migrants, foreign students, refugees, and other drivers from countryside. Investigations from several countries revealed that fatal or serious crashes involving unfamiliar drivers are probably not reported, so the causes were also not known, but steps toward collecting at least tourist road safety information is slowly changing. This paper compares the available data from twenty countries to examine the probability of fatal road crashes involving unfamiliar drivers. Evidence suggested that the risk for an unfamiliar driver is not the same as for the native drivers and the level of risk depends on the specific nature of the destination. It also identified that the presence of unfamiliar situations increased the risk level for all drivers; therefore it recommended introducing a special sign for unfamiliar drivers**

Keywords- Unfamiler drivers, Road safety, International drivers,Touristsdrivers

I. INTRODUCTION

Unfamiliar drivers are exposed to varying degrees of road safety related risk while driving in unfamiliar road environments (Page & Mayer 1996; FORS 1995; Wilks, Watson & Faulks 1999; Yannis, Golias & Papadimitriou 2007). Road crashes are the leading cause of injury or death for international tourists at tourist destinations (Burvill et al 1973; Wilks, Watson & Faulks 1999). Several studies indicate various forms of road safety risks for tourist drivers, and these are likely to be related to speeding, alcohol and drugs, non-use of seat belts, failure to give way or stop, inattention, disobeying traffic lights, distraction, confusion with road signs, fatigue, overturning of four-wheel-drive vehicles and disorientation of traffic flow (Wilks, Watson & Faulks 1999; Watson *et al* 2004). So far, the low levels of investigation into this matter are highly connected to unavailability of crash data and actual crash information about unfamiliar drivers. Despite this, road safety risk of tourist drivers has been a growing concern (Page & Myer 1996; Wong & Yeh 2009; Elvik 2008; Dobson *et al.*, 2001, and Yannis, Golias & Papadimitriou 2007). For example, in Australia, during the 1990s significant importance was given to road safety of visitors, specifically due to the Olympic Games in 2000 (FORS 1995), and similar importance was assigned in China for the Olympic in 2008, as well as in South Africa for the FIFA world cup in 2010.

In Asia and the Pacific region, the growing tourism industry finds new attractive destinations in this region, and tourism has become a driving force for the national economies. On the other hand, most of the developed countries have become attractive to many skilled workers, migrants and refugees. International driving licenses held by this migrant population are recognized in many countries, not preventing them from driving motor vehicles at their new destinations. However, driving does not always take place in ideal conditions, in which a well-rested, well-trained and well-behaving individual interacts with a simple, undemanding road environment (Horberry *et al* 2006). When a mix of drivers with their own driving habits and behaviours interact in a real road environment, the impact of distractions between them in a traffic stream become clearly visible and road safety risk tends to increase. Whilst the full extent is not yet known about the distractions to or from unfamiliar drivers due to lack of understanding of the particular roadway and traffic characteristics in unfamiliar road environments, there is convincing evidence that it is likely to create a significant road safety problem. Therefore, this paper investigates the possible future road safety actions that could help to reduce similar distractions.

II. ANALYSIS

Reliable data is a prerequisite for investigating road crashes in any country. Elvik (2008) reported that as yet, no country is satisfied with its road safety record, and a number of well-known road safety problems persist. So far, no country has essentially collected crash data involving unfamiliar drivers including tourists, refugees, migrants and others. In Australia, road statistics identify tourists from their diving license; however passengers, pedestrian or cyclists are not identified in these statistics (Watson *et al 2004*). In Thailand, press records from popular English language newspapers were examined for reports of fatal and non-fatal incidents involving tourists (Leggat & Leggat 2003). Several factors contribute to the unavailability of crash data for tourist drivers. These factors include the variation in the definition of a crash and other technical terms.

A. *UnfamiliarDrivers*

In this study, an unfamiliar driver is defined as a driver who ‘travel to and stay in places outside their usual environment for not more than six months and drives motor vehicles for leisure, study, business and other purposes within the place visited. Under this definition a variety of unfamiliar drivers could be included: tourists; visitors; newly arrived permanent migrants, working holiday makers, overseas students, skilled temporary residents; other temporary residents from overseas; and drivers from the countryside.

B. *Comparision of General Road Safety Level between Countries*

Tourist data from the United Nation World Tourism Organization (UNWTO 2010) and road safety data from the World Health Organization (WHO 2009) were cross examined in this comparison. Twenty countries were identified based on the author's personal interest. The number of tourist arrivals, number of tourists arrival per 1 000 population and their relevant world ranks, together with fatalities per 100 000 people in each country are given in Table I. In 2005, world tourist records revealed that the number of tourist arrivals is the highest in France, and it has continuously remained as the world's top destination for a prolonged period (UNWTO 2010). Results show that the total number of tourists arrived in the same year in Maldives, France, Singapore and Palau was more than their own population.

On the other hand, annual number of road fatalities per population is a good indicator to show the risk level for a person living in a country or risk level expected for a person visiting to a country, and it is also a good indicator to compare road safety levels between countries.

TABLE I. TOURIST ARRIVAL AND LEVEL OF FATALITIES

Selected countries	Tourist[1] in 2005 (million)	World Arrival Rank	A/P in 2005	World Rank Based on A/P	Road Safety F/P (2009)
India	3.9	37	2	144	9.04
China	46.8	4	18	116	6.66
Sri Lanka	0.5	90	18	115	12.09
Indonesia	5.0	35	21	111	7.15
Japan	6.7	28	33	101	5.19
Viet Nam	3.5	43	42	95*	14.65
Thailand	11.6	17	113	73	19.55
South Africa	7.4	23	123	70	30.71
South Korea	6.0	31	125	69*	12.79
Germany	21.5	10	192	58	5.99
Malaysia	16.4	14	259	51	23.64
Australia	5.5	33	275	48*	7.79
Fiji	0.6	89	401	41	7.03
United Kingdom	30.0	6	422	40	5.43
Italy	36.5	5	587	27	9.63
UAE	3.2	45*	699	24	24.11
Maldives	0.4	95	1048	20	2.62
France	76.0	1	1109	18	7.49
Singapore	7.1	26	1476	15	4.82
Palau	0.1	127	3645	3	14.90

[1] – International arrival; * - Allocated; A/P – tourists arrival per 1 000 people
F/P – fatalities per 100 000 people
Source: www.nationmaster.com & UNWHO (2009)

The expected increased road safety risk for a tourist or migrant from one country to another could be given by the following formula: where F/P represents 'the annual number of fatalities per 100 000 people' and 'Origin' & 'Destination' is denoted by 'O' and 'D'.

$$Increased\ Risk = \left(\frac{F}{P}\right)_D - \left(\frac{F}{P}\right)_O$$

In general, for example, if a person has dual citizenship from Australia and India, then when he visits India his road safety hazards would automatically increase by 200%. However, this cross examination is for a familiar citizen with local knowledge of both countries, so it absolutely reflects a general condition. As shown in Table I, when considering increased road risk, a tourist travelling from Australia to India needs to take extra precautionary measures while in India. Similarly, South Africa could be considered a risky destination for a tourist from the Maldives.

Specifically, the actual comparison of road safety risk level for an unfamiliar driver needs to incorporate several factors such as length of stay, region, demographic background of the individual, experiences, and knowledge about local transport systems at the new road environment and similar other attributes. In addition, these attributes are not adequate to accommodate all other relevant issues, for example a trip by an unfamiliar driver with a specific purpose (e.g., coastal area trip) may end up with relatively different form of road risk level. Therefore, these facts suggest that risk for an unfamiliar driver in a new destination is not the same as for the native people, and the level of risk depends on the personal characteristics and specific nature of the destination.

C. *Pattern of People's Movements*

Globally, a proportion of the total population is always moving to new destinations for different purposes, among them leisure and economic are notable. The United Nations World Tourism Organization (2010) reported that over the last two decades, tourism has experienced continued growth and deepening diversification to become one of the fastest growing economic sectors in the world. From 1950 to 2005, international tourism arrivals expanded at an annual rate of 6.5%, growing from 25 million to 806 million travelers, and it will reach 1.5 billion in 2020 with a 4.1 per cent annual growth (UNWTO 2010). Further, it was reported that the top 15 destinations attracted 88 per cent of international tourists in 1950, but it was down to 75 per cent in 1970 and further decreased to 57 per cent in 2005. This downward trend reflects the creation of new destinations, many of them in developing countries with poor supporting road infrastructure.

In addition to this global tourist movement, the gravity of the road safety problem due to unfamiliar drivers increases as the percentage of newly arrived permanent and temporary residents increases. According to the Australian Bureau of Statistics (AustGovt 2010a&b), during 2008-9 there were 224 919 permanent migrants and 668 302 visas were issued to temporary residents including working holiday makers, overseas students, skilled temporary residents and other temporary residence. Among them 75 per cent migrated from higher road safety hazard countries than Australia as detailed in Table II; 25 123 were from India, 23 692 were from China, 11 966 from South Africa, 9 173 from Philippines, 5 396 from Malaysia, 5 304 from Sri Lanka, 5 202 from South Korea, 4 433 from Iraq and 76 840 from other countries.

TABLE II. PERMANENT RESEDENTS TO AUSTRALIA IN 2008-09

Birthplace	Persons
United Kingdom	31 882
New Zealand	25 608
India	25 123
China	23 692
South Africa	11 966
Philippines	9 173
Malaysia	5 396
Sri Lanka	5 304
Korea	5 202
Iraq	4 433
Other	76 840
Total	224 919

TABLE III. VISAS ISSUED TO TEMPORARY RESIDENTS IN 2008-09

Category	Visas issued in 08-09
Working holiday makers	194 103
Overseas students	320 368
Skilled temporary residents	117 247
Other temporary residence	36 584
Total	668 302

Source: AustGovt 2010a & b

This pattern of massive movement signals a pressing road safety concern for experts, as a higher proportion of this migrant population is forced to drive to ensure economic survival at their new destination. The main concern is to amend their old driving patterns and attitude in the new road environment, because unfamiliar drivers bring their own driving experience to new local road environments. The road safety issues for local drivers are preexisting, however, the extent of road safety issues from unfamiliar drivers need careful treatment; otherwise it will increase vulnerability to both unfamiliar and local drivers.

III. DIMENSIONS OF ROAD SAFETY ISSUES FOR AND FROM UNFAMILER DRIVERS

Elvik (2008) reported that a particular road safety problem can be recognized from several dimensions as well as from a better understanding of the multidimensional nature of the problems. This study considers three broad dimensions, namely personal characteristics, transportation system characteristics, and driving frequency at destination to address the unfamiliar driver related relevant road safety issues, and a systematic structure is shown in Figure I. This figure gives an idea about induced road safety from unfamiliar driver inputs intermeshed with their individual characteristics and their need for travel.

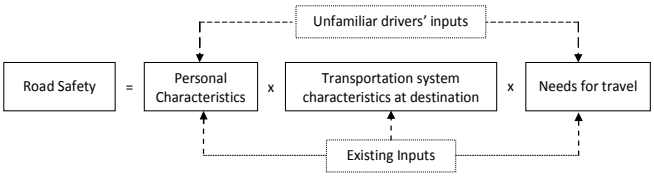

Figure 1. Road safety with unfamilier drivers

A. *Personal Characteristics*

It is evident that demographic characteristics of the individuals play an important role in road safety. In a broad sense, some of these characteristics of an unfamiliar driver include origin (nationality), age, sex, local language ability at destination (or English), education background, occupation, culture, health condition, driving ability and others (Wilks, Watson & Faulks 1999). Individual's travel planning ability is also dependent on these characteristics, the extent of knowledge, previous experience, available resources, motivation, and ability to use available options and information. These characteristics have strong relationships with the travel purpose (business trips, work, migration, and studies), number of days/nights planned to stay, type of accommodation, number of previous visits, use of rental vehicles, and the amount of money available to spend, and similar issues.

At present there are several options available for individuals or groups/teams when they visit or settle in a new environment. Travel advice and relevant information from government departments or non-governmental organizations, and support from relatives and friends at destinations are some of the safer options available for tourist and migrant population. As an example, the Association for Safe International Road Travel (ASIRT) annually produces and updates detailed road travel reports for over 150 countries, which enable travelers to make informed, safer travel choices (ASIRT 2010). ASIRT has a few safety checklists for tourists that provide a comprehensive list of road safety precautions for pedestrians, passengers, cyclists and drivers when traveling at destinations. In addition, there are some tourists themselves fortunate to organize support from their friends, relatives, and known parties at their intended destination. All these options help one to overcome fear of unfamiliar surroundings, which ultimately help them to develop the skills so they can relax and deal with new situations. As a result most of the road safety problems for tourists and newly arrived migrants can be overcome. However, utilizing all this available information is also dependent on the personal characteristics of the individuals, and knowing the information is available.

B. *Transportation System Characteristics*

Visitors rely mostly on transport facilities, not only to access the destination, but also to travel within it, therefore the level of safety for a visitor is directly related to availability and operational futures of the transport system at the destination (Horberry *et al* 2006; Yannis, Golias & Papadimitriou 2007. With similar concerns, currently transport safety system approaches in many developed countries are intended to use the best practices in a safe system approach to achieve the goal of safe road users travelling at safe speeds in safe vehicles on safe roads and road sides to achieve the set target at local and national levels. However, the road safety levels between two places never are the same. Unfamiliar drivers usually have no, or a limited, knowledge of their destinations where they have not previously visited and they tend to visualize the traffic condition in relation to their home country.

It is desirable that drivers experiencing a new environment do not encounter driving situation which create anxiety and stress beyond their comfort level. This comfort level varies between unfamiliar drivers, for example, when one from a wealthy country visiting a developing country he/she may see that at most of the places the road infrastructures at destination are poorly designed and/or poorly maintained. So, the visitors may express their discomfort on various road safety issues including: dangerous roads, public drivers, street culture and similar. For example, in developing countries, the local drivers tend to drive at excessive speeds and are likely to pass other vehicles, even on narrow mountain road conditions, and they do not observe lane markings.

Unfamiliar drivers bring their own driving ability to the new unfamiliar environment while driving unfamiliar vehicles, and for many of them developing a fear of going somewhere new, or even a place too far from familiar places can make driving more difficult.

C. *Need for Driving*

Allowing unfamiliar drivers to drive upon arrival in a destination, is an acceptable and a needed practice which should be encouraged to continue, especially in suburban or

rural area, where the public transport facilities may be limited. An earlier Australian study by Burill1 et al (1973) compared the road crashes caused by migrants to those by local citizens. In 1996, the Federal Office of Road Safety in Australia (FORS 1995) reported the expected safety related issues for international drivers driving in unfamiliar surroundings. All these studies tried to prove a relationship between road crashes and unfamiliar drivers driving in new destinations. A typical situation might be when a family migrates all the family members are not compelled to drive, but it is natural for the responsible members of the family to take a lead to try and get the prescribed license at the earliest possible time. In addition, responsible members in the family have a range of unfamiliar formalities to attend to, such as dealing with healthcare issues, banking, schooling matters for their children, job related and other matters involving settling in a new area such as finding accommodation, arranging the utilities, buying a vehicle etc. Besides, if a migrant has a job, then he will have to get used to the new working environment and attend to such formalities as well. Considering all these activities and formalities for a responsible member of the family at the beginning, one can understand that newly arrived migrants may not be in the position to pay full attention while driving in the new surrounding, which is also common for any unfamiliar drivers. When it comes to the travel mode choice (e.g., cars or motorcycle) for a travel, it is also influenced by a number of factors such as number of family or team members, available modes, possible links, travel time, length of travel, travel purposes within destination, climate condition, and previous experiences.

IV. Discussion

Native drivers are considered to be experienced drivers in their local road environments and they have the tendency to think all others are the same, and also it is fact that a respectable native driver expects similar skills from other drivers in the traffic stream. Stutts *et al* (2005) investigated the primacy sources of distraction for the drivers at the time of crashes and found that the distractions from outside of the vehicles ranked top in the list with 29.4 per cent. This study argues that poor driving performance by unfamiliar drivers may cause serious distractions to native drivers in the traffic stream (Author's personal experience). Often an unfamiliar driver's main focus diverts away from the driving task to locate their destination at the new place. This inattention to the driving task contributes to definite mistakes in driving tasks, which ultimately builds confusion and discomfort within familiar drivers or sometimes end up in a crash. Several horns soundings received and other distractions noted within three months by the author, as a new migrant to Australia, motivated him to conduct this study. Therefore, the author is of the opinion that a sign identifying unfamiliar drivers would help other drivers identify this type of new situation or risk in the traffic stream and adjust their actions accordingly.

In the past, road safety has carefully assessed inexperience and poor performing drivers; however it has not so far seriously considered unfamiliar drivers. This might have been postponed due to the difficulties to scale the potential impact due to unfamiliar drivers on road safety. All over the world, learner drivers have been requested to identify themselves in the traffic stream by displaying appropriate signs. Although most of the countries use 'L' in different colours to identify learning drivers, a variety of signs are in use: 'D', 'N' or any appropriate marks. In addition, most of the countries insist their probationary drivers use special signs such as the 'P' sign in Australia; 'A' sign in France in order to distinguish the probationary drivers in the traffic stream. In Japan, when a person's age is 70 or above then they should endeavour to display a sign (Koreisha Mark) on both the front and rear of the car, and when drivers turn 75 they are obliged to display the same sign (WCIAD 2010: Koreisha Mark 2007). Despite much criticism, the Japanese government is now considering redesigning this sign. Therefore, it is clear that both of these categories (special signs for younger and older drivers) are specially designed to warn other drivers that the marked driver is not very skilled, either due to inexperience or old age. Despite this development, there is no attention given to develop and design a special sign for unfamiliar drivers, who are as hazardous as the young and old categories. Most road safety experts would probably accept this initiative as it can help to reduce crashes as a result of identification of drivers' ability.

V. Conclusion

It is generally accepted that the road safety needs to be viewed from several angles. One is to ensure a safe environment where unfamiliar and native drivers mix. Analysis revealed that there is a massive migration between countries in the form of tourists, migrants and others who must drive at their new destination for their continued existence. Therefore, it is the responsibility of the local road authorities to ensure the safety of merging unfamiliar drivers into the existing traffic streams.

This study defined unfamiliar drivers as those who travel to and stay in places outside their usual environment for more than six months and drive motor vehicles to meet their needs. It includes tourists, visitors, migrants, students, temporary residents from overseas and drivers from the countryside. An international comparison of general road safety levels of tourists arrivals with fatality rates in each of twenty countries indentified the differences in road safety level for unfamiliar drivers and found that the risk for an unfamiliar driver at a new destination is not same as for the native drivers with similar exposure, but the level of risk depends on the specific nature of the destination. Therefore, in order to incorporate this unique factor, experts need to develop a uniform framework for appropriate crash data system between countries. When developing such a framework, in a broad sense it should have flexibility to accommodate personal characteristics of the unfamiliar drivers, transportation system characteristics at destination, and the travel need of unfamiliar drivers.

Globally there are many road safety initiatives that have been taken to reduce road crashes involving the vulnerable groups of drivers, including young and old drivers. Specially designed signs for young and elderly drivers (e.g., L-Plate, P-Plates, A-Plates and Koreisha Mark) are the best initiatives for improving road safety, which ensure them special treatment by other drivers in a traffic stream. Therefore, this study concludes that in addition to young and elderly drivers, unfamiliar drivers also need a similar special treatment by introducing a special sign. This special treatment need to cover the whole range of unfamiliar drivers, including tourists, foreign students, migrants and refugees who are not very familiar with the new road environment.

VI. Recommendation

This study strongly recommends using a special sign for unfamiliar drivers in unfamiliar surroundings to help reduce the

road crashes. The foreign licence holders or even drivers from unfamiliar areas can be encouraged to display this special sign plates in the front and back of their cars or motorbikes, which could initially be on a voluntary basis. This should also include all migrants having lived at their new destination for less than six months, tourists from abroad or even from countryside visitors. Initially, car rental companies and local councils should make this an option for the tourists or visitors or migrants under their jurisdiction. As a recent migrant to Australia, the author holds the view that displaying a similar sign while driving in an unfamiliar environment will help other drivers to take precautions around unfamiliar drivers within the traffic stream, as well as it helps to adjust their speed, accordingly. The follow-up action and processes may need detailed study, however, partnerships and assistance from tourist organizations, insurance corporations, and rental car companies are possible since they will receive benefits from its implementation. This study further argues that any initiative will draw criticism from stakeholders; therefore a form of questionnaire survey is useful to investigate the acceptance of this initiative of special sign for unfamiliar drivers from all parties.

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