



# INTEGRATING USER PSYCHOLOGY IN ROAD TRANSPORT SAFETY:

## A MODEL FOR LOW AND MIDDLE-INCOME COUNTRIES, BASED ON SRI LANKA

### Are we safe?

Every person qualifies as a road user including you and me. This makes it a paramount interest to make our roads safe. It is unfortunate to accept that Low-Income and Middle-Income Countries (LMICs), which include Sri Lanka, account for 90% of road collisions that occur globally. These collisions account for 17.63 million serious injuries and deaths while costing LMIC economies 1.7 trillion USD amounting to 6.5% of aggregate annual GDP [1] which is significant enough to rethink the focus we have given towards improving road safety. One important piece of this multi-faceted problem is understanding the factors that contribute to road safety incidents. Though there are many models on road transport safety, only a few addresses the impact of user psychology and the contextual environment in LMICs on road safety. This article highlights the outcomes of a study that was conducted to develop a theoretical model integrating user psychology into road safety in LMICs using Sri Lanka as a case study.

### Design of the study

This study used a qualitative approach employing a two-stage approach with the intention of capturing a systemic but in-depth view of road safety. Sri Lanka was used as a case study for this research based on the convenience and the researchers' experience in the domain that assist in interpreting and synthesising the qualitative data meaningfully [2]. Stage-I used focused group discussions, and Stage II involved an expert panel consisting of academia and industry. The themes of stage I were aimed at understanding the factors that lead to road transport incidents. Stage III

involved synthesising these issues and formulating potential solutions. Both stages were informed by an extensive literature review conducted to understand the latest developments in the area of road safety models. The key areas covered include road safety models in general and in LMICs and road user behaviour. The full literature review and the details of the study design are available in Kandanaarachchi et al. [3]. The data gathered in Stage-I were analysed using thematic analysis. The excerpts that had a close meaning and interpretation were investigated to find common themes that are emerging through these excerpts. These were validated with the constructs identified in the literature while examining the overlaps and deviations.

### The proposed model

Findings indicated that the contextual environment and sociological aspects prevailing in the LMICs are important factors that need to be considered when formulating a conceptual framework aimed at achieving safer roads. These include physical (level of existing physical infrastructure), user (mood and attitudes of road users), social (societal conditions which shape the behaviour of persons as a society) and procedural (processes and procedures related to road safety) contexts.

The above factors and their interrelationships have both direct and indirect impacts on the constructs of the model illustrated in Figure 1. The model consists of two triangulations; thus, called a double triangulation model. The first triangle consists of three main dimensions which are Infrastructure, Skills and Knowledge, and Behaviour.

i) Infrastructure - Infrastructure is two-fold. Road infrastructure and the infrastructure related to vehicles. Road infrastructure should be designed, constructed, and maintained considering user safety as an aspect of paramount importance.

ii) Skills and Knowledge – This includes both driver and other road user skills and knowledge.

iii) Behaviour - This explains driver behaviour (whilst driving and parking) and the behaviour of road stakeholders such as pedestrians and the general public.

The second triangle comprises how the behaviour is impacted. The three key dimensions are the mindset, the circumstances, and the legal system of a particular country.

i) Mindset - This can be explained as to how the mind of a driver/pedestrian works in a particular context.

ii) Circumstances - This refers to the facts or conditions connected to a situation, event or action that are unavoidable, or avoidable only with reasonable efforts.

iii) Legal system – This represents the framework of rules, regulations and institutions that governs the behaviour of individuals in a particular jurisdiction.

We postulated a cyclical pattern of iterations between the dimension of the first triangle which is impacted heavily by the behaviour which is again triangulated through the mindset, circumstances and legal system. This model has integrated the key constructs that affect the psychological state of the users which are seldom found in road safety models while necessitating the emphasis that needs to be placed on the contextual environment in LMICs.

The study suggests implementation should originate from regulatory authorities by making road safety a priority and by allocating adequate resources. This should be complemented by developing suitable policies, procedures and control mechanisms. These policies and procedures should cover the programs aimed at developing skills, knowledge and mindset followed by adequate testing mechanisms to evaluate the development in later areas. The control mechanisms mainly include the enforcement of laws and appropriate penalties. It is important to continuously update the entire process of implementation with the changing circumstances to ensure the effectiveness of the mechanism. Further research could be conducted on ways and methodologies that can validate the constructs of this model. Additionally, a detailed implementation mechanism

could be proposed defining the stakeholder responsibilities and resource requirements to proceed with the implementation.

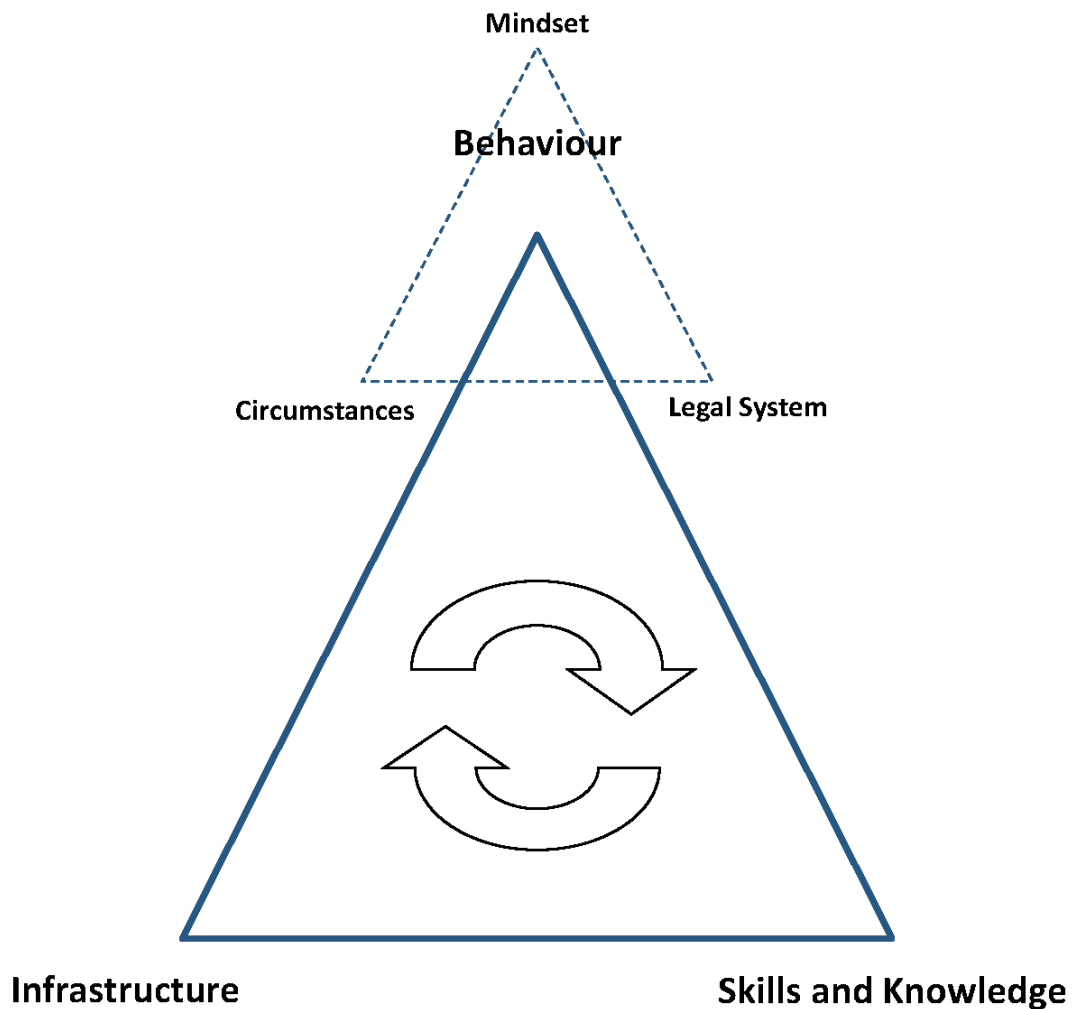


Figure 1. A conceptual model for LMICs integrating user psychology

**References**

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**Article by**

**Thiranjaya Kandanaarachchi<sup>1</sup>, Ranil Sugathadasa<sup>2</sup>**

<sup>1</sup>Institute of Transport and Logistics Studies, University of Sydney, Australia

<sup>2</sup>Department of Transport Management and Logistics Engineering, Faculty of Engineering, University of Moratuwa, Sri Lanka