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Review Article

A Skill Gap study of LMV Drivers in and around Hyderabad

Dr. K. Jagannayaki[1], Dr. Mantha Srinivas[2], K. Hareesh Kumar Reddy[3], Niranjan Prabhu[4]

[1].*Professor, CMR Institute of Technology, Hyderabad, India*
[2]*Professor, CMR Institute of Technology, Hyderabad, India*
[3]*Asst.Professor, CMR Institute of Technology, Hyderabad, India*
[4]*Operations Head, Gati Intellect Systems Ltd, Hyderabad, India*

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Abstract *- In the interest of passengers, drivers, local government, quality & standards of living of families of drivers, societal issues, literacy level problems, involvement CPW/NHAI in the identification of own traffic badges and society, it is the need of the hour to know and document problems faced by various sectors related to traffic awareness and its impact on the profession, banking, insurance, government, society and family members.*
It is the right choice to study a city like Hyderabad due to its travel demand with three dimensions: design, density, and diversity. Town Planning, GHMC, HMDA, RTA, Traffic engineers, Architects, and urban planners have been paying more attention to explore the correlation between education and experience of drivers of LMVs/Taxis in light of their attitude, behavior, role, and responsibility in addition to their knowledge of MV Act rules and regulations. In the recent past, the involvement of technology with reference to driver/passengers personalized information and also with regards to OEM-MIS models regarding technical maintenance of vehicles. In the olden days, we checked the wear and tear of various components and accessories of any vehicle manually. Today, the situation is not like that very high-end models came into the market through IT/ITES/AI development intervention. The study conducted within Hyderabad City, covering all four corners of the city, covered the ORR range of HMDA. The main focus is on studying the quality of living standards of drivers of LMVs/Taxis and their revenue generation capabilities, socio-economic back-ground, problems, issues, and challenges in their profession. Further, the study tries to dig out future education and training possibilities for needy people based on their attitudes and interests. The study started with an assumption that many of the LMV/Taxi drivers do not have the proper attitude, educational qualifications, experience to understand the MV Act, Traffic rules, regulations, and traffic awareness & responsibility for being a citizen of the country.

Keywords *- Drivers, RTA, MV Act rules & regulations, technical maintenance of vehicles, quality of living standards, socio-economic back-ground, traffic awareness*

I. INTRODUCTION

In the interest of passengers, drivers, local government, quality & standards of living of families of drivers, societal issues, literacy level problems, involvement CPW/NHAI in the identification of own traffic badges and society, it is the need of the hour to know and document problems faced by various sectors related to traffic awareness and its impact on the profession, banking, insurance, government, society and family members.

It is the right choice to study a city like Hyderabad due to its travel demand with three dimensions: design, density, and diversity. Town Planning, GHMC, HMDA, RTA, Traffic engineers, Architects, and urban planners have been paying more attention to explore the correlation between education and experience of drivers of LMVs/Taxis in light of their attitude, behavior, role, and responsibility in addition to their knowledge of MV Act rules and regulations. One of the important modes is taxis and plays a key role in the urban passenger transportation market. It provides convenient and comfortable service to the passengers; in recent past, technology involvement with reference to driver/passengers personalized information regarding OEM-MIS models regarding technical maintenance of vehicles. In the olden days, we checked the wear and tear of various components and accessories of any vehicle manually. Today, the situation is not like that very high-end models came into the market through IT/ITES/AI development intervention. Both owner/Driver and Manufacturer/Dealer/service organization get electronic SMS/mail alerts regarding vehicle and driver behavior maintenance. Very surprisingly, today, there was a system if the driver is tired the vehicle alerts and went off to the road and immediately stops the vehicle and technology behave, human slave, as rightly pointed out by Morris Garages. Bioinformatics is also into the automobile-field by way of VGT/VTVT technology. It is a constant feed of accelerator also found by feather touch of fingers on the pedal and inform or alert pilot in cock-pit immediately by buzz

warning. As SKODA Motors rightly pointed intelligent engines with cruise control and auto-pilot. Auto-pilot mechanism is still not in Indian markets; once that is introduced, we has to feed the machine about the concepts rather than individual in the cockpit. In the future, there may not be any requirement for a chauffeur for your vehicle. However, this is the story of the future after a couple of decades. But today, there is a lot of need to educate and train drivers in the interest of the nation, society, and their career.

A. Scope of the Study

The study conducted within Hyderabad City, covering all four corners of the city, covered the ORR range of HMDA. The main focus is studying the quality of living standards of drivers of LMVs and their revenue generation capabilities, socio-economic back-ground, problems, issues, and challenges faced in their profession. Further, the study tries to dig out possibilities of further education and training to the needy people based on the respondents' attitude and interest. However, this study compels, in general, the drivers of various categories, and in particular, the government departments, educational institutes, and societal partners, to build the career of drivers by way of providing a suitable platform to further educate and train towards building the career and excel in the profession.

B. Problem Statement

The study started with an assumption that many of the LMV/Taxi drivers do not have the proper attitude, educational qualifications, experience to understand the MV Act, Traffic rules, regulations, and traffic awareness & responsibility for being a citizen of the country. This study helps the government and private agencies set down some skill cum technology up- gradation programmes for betterment of driver’s families and provide further education and training to respondents' interest-specific segment. Skillset assessment, providing necessary training, TNA, attitude, and LMV drivers behavior in both organized and unorganized sectors. However, the sample size is less to the city's population, having 1.50 crores of them not less than one million vehicles fleet on the road. But there is a lot of scope to the government, RTA department, Law & Order Department, MHRD, Academic Partners, NGOs, and Society to chalk-out suitable programs. But the issue is, what should be the size of the institution, size of trainers, trainees, resources, revenue generation, time and cost constraints in addition to the interests policymakers and trainees towards new frontiers of the training system to provide certificates, diplomas, and even degrees after recognition of RPL criteria.

C. Objectives of the Study:

- To understand behavior, attitude, interests, responsibilities of LMV/Taxi Drivers
- To analyze the problems, challenges, issues of LMV/Taxi drivers in organized and unorganized sectors
- To observe technical issues related to their profession
- To forecast career prospects & growth
- To assess the driver's ambitions towards further education & training
- To predict the possibility of offering a certificate/diploma course by CE/DE
- To establish Skill Development /Facilitation /Study/Training/ Simulators at different locations of Hyderabad
- To identify the possibility of involvement of academic /government /RT/Law & Order/Unions/NGOs

D. Hypotheses

- There is no significant difference between literacy and traffic awareness
- There is no significant difference between experience and traffic awareness
- There is no significant difference between literacy and observing MV Act rules & regulations
- There is no significant difference between experience and observing MV Act rules & regulations
- There is no significant difference between literacy and attitude & the responsibility of drivers
- There is no significant difference between experience and attitude & the responsibility of drivers
- There is no significant difference between literacy and safety precautions of drivers
- There is no significant difference between the experience and safety precautions of drivers
- There is no significant difference between literacy and technical knowledge & maintenance of vehicles
- There is no significant difference between experience and technical knowledge & maintenance of vehicles

E. Research design, sampling, and data collection methods:

It is initially started to collect a sample of 600 from LMV/taxi drivers. Still, due to the severity of COVID-19 and the difficulty of personal contact and interviews, the numbers were reduced only to interview through a schedule canvassed to around 400 drivers due to state and central government restrictions and because of the convenience of respondents. The data collection is from the primary source point to point contact by maintaining necessary personal distance and with necessary PP kits by the people who collected data under the government's directives. It is planned to collect in four ways, i.e., questionnaire, schedule, personal interaction, and video with timestamps by our representative teams. It is decided to cover all four corners of Hyderabad Metro Limits. Data collection is based on convenient and purposive sampling in identifying the location and with reference to the respondents at random. The entire data is primary data with its general and specific limitations of both respondents and persons involved in collecting data.

II. LITERATURE SURVEY

At present, much literature is not collected from secondary sources. Many of us know the primary, secondary, socio-cultural, psychological, and behavioral issues of drivers in general and their issues and challenges in particular because of the risk involved in their profession. However, the study mainly focuses on attitude, behavior, responsibility, safety, maintenance, and technical knowledge concerning their educational background and experience. However, there were some studies found suitable in light of the present study across the globe.

Researchers usually use virtual customer origin-destination demand patterns to analyze the taxi service model, which can refer to Arnott (1996) R. Arnott, "Taxi travel should be subsidized," Journal of Urban Economics, vol. 40, no. 3, pp. 316–333; H. Yang and S. C. Wong, "A network model of urban taxi services," Transportation Research Part B: Methodological, vol. 32, no. 4, pp. 235–246, 1998; and K. I. Wong, S. C. Wong, and H. Yang, "Modeling urban taxi services in congested road networks with elastic demand," Transportation Research Part B: Methodological, vol. 35, no. 9, pp. 819–842, 2001.

D. Luo, Urban Mixed Traffic Network Equilibrium Analysis under the Influence of Taxi Services, Dissertation of Central South University, Changsha, China, 2009 For the taxi driver's characteristics (driving experience, road network familiarity, etc.) and randomness of the passenger's arriving, the driver's searching for the next passenger can be seen as a random variable. Luo (2009) had expressed taxi driver's searching for the next passenger as a double exponential (Gumbel) distribution.

L. Liu, C. Andris, and C. Ratti, "Uncovering cabdrivers' behavior patterns from their digital traces," Computers, Environment and Urban Systems, vol. 34, no. 6, pp. 541–548, 2010. Liu et al. (2010) described the taxi driver's operation patterns and the difference between top drivers and ordinary drivers' behavior in Shenzhen and discussed taxi drivers' behavior based on the taxi daily GPS traces data; they analyzed the drivers' spatial selection behavior, operation behavior, and route choice behavior. But in the research of Liu et al. (2010), they did not mention drivers' searching space behavior pattern. This paper attempts to bridge these gaps between theoretical research and practical development, based on Shenzhen's taxi GPS trajectories data to explore urban land use and taxi drivers' operation behavior. This paper focuses on the time series distribution dynamic characteristic of passengers' temporal variation in certain land-use types and taxi drivers' searching behavior connection between different activity spaces for different observation periods. This paper focused on the following topics (1) Exploring the taxi driver operation behavior by the measurements of activity space and the connection between different activity spaces for different time duration; (2) Mainly focusing on eight TAZs of Shenzhen and exploring the customer's real-time origin and destination demand on spatial-temporal distribution on weekdays and weekends; and (3) Taxi station optimization based on the passenger demand and expected customer waiting time distribution.

Giraudo and Peruch (1988) had divided the taxi operation into two phases, "the transport phase" and "the approach phase," which also can be used to represent the taxi with passenger and without passenger operation, respectively. The taxi drivers searching passenger behavior happens in "the approach phase." When the driver has dropped off the prior passenger, then he/she drives around the area or region searching for the next passenger after a short time. M.-D. Giraudo and P. Peruch, "Spatio-temporal aspects of the mental representation of urban space," Journal of Environmental Psychology, vol. 8, no. 1, pp. 9–17, 1988.

R. Cervero and K. Kockelman, "Travel demand and the 3Ds: density, diversity, and design," Transportation Research Part D: Transport and Environment, vol. 2, no. 3, pp. 199–219, 1997. mit.edu. the built environment is thought to influence travel demand and three principal dimensions density, diversity, and design. This paper tests this proposition by examining how the '3Ds' affect residents' trip rates and mode choice in the San Francisco Bay Area. Using 1990 travel diary data and land-use records obtained from the US census, regional inventories, and field surveys, models are estimated that relate features of the built environment to variations in vehicle miles traveled per household and mode choice.

R. Arnott, "Taxi travel should be subsidized," *Journal of Urban Economics*, vol. 40, no. 3, pp. 316–333, 1996. In a first-best environment, taxi travel should be subsidized. The result derives from economies of density—doubling trips and taxis reduces waiting time. The subsidy should cover the shadow cost of taxis' idle time, evaluated at the optimum. The paper provides proof of the result for dispatch taxis and then discusses its implementation's practicality.

C. Kang, X. Ma, D. Tong, and Y. Liu, "Intra-urban human mobility patterns: an urban morphology perspective," Physica A: Statistical Mechanics and its Applications, vol. 391, no. 4, pp. 1702–1717, 2012. This paper provides a new perspective on human motion with an investiGATIon in determining how human mobility patterns inside cities are affected by two urban morphological characteristics: compactness and size. Mobile phone data have been collected in eight cities in Northeast China and used to extract individuals' movement trajectories. The massive mobile phone data provides wide coverage and a detailed depiction of individuals'.

Y. Zheng, Y. Liu, J. Yuan, and X. Xie, "Urban computing with taxicabs," in Proceedings of the 13th International Conference on Ubiquitous Computing

(UbiComp '11), pp. 89–98, ACM, Beijing, China, September 2011. Urban computing for city planning is one of the most significant applications in Ubiquitous computing. This paper detects flawed urban planning using taxi cabs' GPS trajectories traveling in urban areas. The detected results consist of (1) pairs of regions with salient traffic problems and (2) the linking structure and correlation. These results can evaluate the effectiveness of the carried out planning, such as a newly built road and subway lines in a city, and remind city planners.

K. I. Wong, S. C. Wong, and H. Yang, "Modeling urban taxi services in congested road networks with elastic demand," Transportation Research Part B: Methodological, vol. 35, no. 9, pp. 819–842, 2001. This paper extends Yang and Wong's urban taxi services (Yang, H., Wong, SC, 1998. Transportation Research B 32, 235–246). The extensions include incorporating congestion effects, customer demand elasticity, reformulation of the model, and developing a new solution algorithm. Instead of the previous characterization of pure taxi movements in a network by a nonlinear system, a two-level model formulation is proposed for taxi movements in congested road networks.

N. Sathaye, "The optimal design and cost implications of electric vehicle taxi systems," Transportation Research Part B: Methodological, vol. 67, pp. 264–283, 2014. In recent years, taxis in multiple cities and metropolitan areas worldwide have shifted to utilizing alternative fuel options. Such change has significant potential to reduce environmental externalities and can contribute to alleviating energy policy concerns. However, little work has been conducted to assess the tradeoffs between selecting various taxi fuels or designing alternative fuel taxi systems. These tradeoffs exist due to the differing costs associated with fleet replacement, infrastructure deployment, and operations**.**

A. Limitations of the study

As usual for any research study, here also there are many limitations to our study. Some of them are listed as Personal bias, Geographical issues, Time & cost constraints, Technique bias, Forced choice of drivers, Unable to gauge the behavior based on experience, issues, and challenges as they do not fit into scale, Socio-economic issues, and some legal issues regarding environment protection.

B. Future scope

At present study involved only LMV/Taxi drivers in and around Hyderabad only. Similar studies can be conducted in every city/ town /suburban/ villages /hamlets. Moreover, the study took all ages without special focus on their income levels, assets, number of dependents, technical issues regarding training, issuing licenses, renewals, permits and dexterity tests, and other specific problems they faced in the city and outskirts. There is a lot of scope for further dichotomy, attribute-based study, organization-based study, formal and informal studies, and so on. One can conduct in different provincial cities and conduct F-Tests, issues of mileage, and other problems the drivers/passengers face for their timely reach to office/destination, traffic, mileage, and any other related issues.

II. DATA COLLECTION & PRESENTATION ON SKILL GAP STUDY LIGHT MOTOR VEHICLE DRIVERS

The following is the category of various respondents with reference to the LMV survey of 180 individuals during September 2020 in different locations of Hyderabad Metro and its surrounds and all four corners covered by the research team such as Siddipet, Medchal, BHEL, Uppal, and Dilsukhnagar they covered within and around ORR of Hyderabad.

Table 1

Description	***No S***	***%***
AUTO	21	12%
DCM/TRUCK	51	28%
HEAVY	23	13%
MINI/MICRO	77	43%
OWNERS	8	4%
TOTAL	180	100%

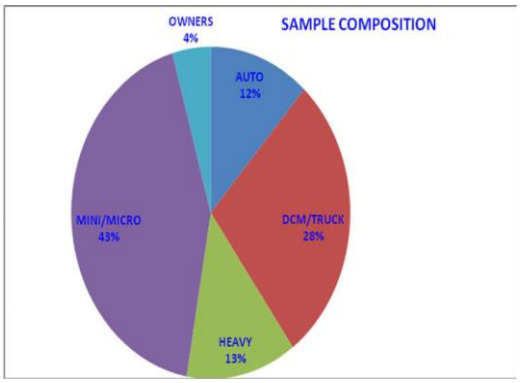


Fig. 1 Sample Composition

A. Scoring Pattern of Respondents:

The following is the pattern of successful responses by way of choice of correct answer out of available options given to them to understand their literacy levels, experience in occupation and technical knowledge related to their profession at present they are in and expectations of government especially regarding traffic rules, regulations and general/specific awareness after getting a driving license and continuing the profession as on the date of the survey. It is quite noticeable that only 22/180 respondents (12%) scored less than 10 points by correct responses, followed by 94/180 respondents(52%) who marked correct answers by 11-16 points, and the rest scored above 17 points up to 21 questions; which alarms to retrain people towards their profession for better performance. Around 64% of

respondents scored 15 points where their Job expects 100% performance, unlike other professions where there is a cushion in targets and performance. Poor or Underperformance leads to many accidents, poor maintenance of vehicles without proper understanding and causes damage to the organization, insurance companies, family members of victimized and including own family members that tax the economy to invest more by way quality of living standards. The overview gives a lot of scope to the government to identify the need for flexible multi-functional-training complexes in many cities/towns/villages to provide proper education & training to rescue the economy from sudden fall down financial/social strength of dependents of the deceased. This sector can't be addressed online/off-job training. The government should identify the necessary tailor-made skill/orientation/training programs suitably through RTA/NGO/Govt/Private Agencies and provide the scope of efficient professional, social and economical up-lift the weaker sections of the economy. They are the economy's backbone through logistics arrangements in any economy; hence the economy became handicapped if they are not up to the mark.

Table 2

Points Scored	10 Points	11-16 Points	17-21 Points
No	22	94	64
%	12.22	52.22	35.56

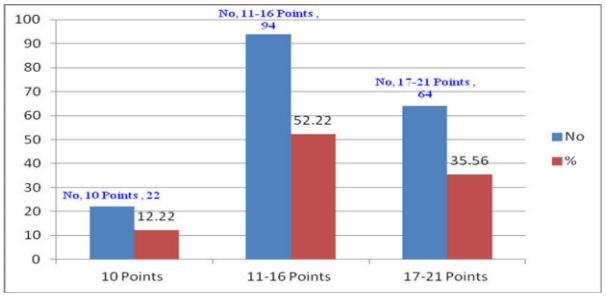


Fig. 2 Scoring Pattern of Respondents

B. Age-wise distribution:

A lion share of respondents are below the age of 50 years, i.e., 66% of count which gave researchers a better scope for improvement by training and upgrading of respondents even after 50 years of their age, and they can be in the profession for another decade by two times renewal of five years each as per Motor Vehicles Act. Hence the study is fruitful and provides light on need-based training programs at different locations of Hyderabad. This study provides a different angle under RPL. Many of the respondents are having general education. Now we can bring them into the ring under the NSQF-UGC scheme and provide vocational education, especially in the field of automobile engineering, and upgrade them in their own chosen career from unskilled to semi-skilled/skilled employees in any formal organization, sometimes even they can erode as front line managers in operations wing of any private sector organization.

Table 3.

Age--->	20-29	30-39	40-49	>50
No. of Respondents	47	57	31	45
%	12.22 %	52.22 %	35.56 %	35.56 %

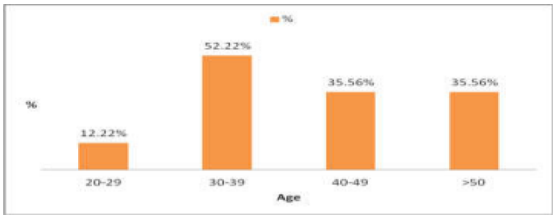


Fig. 3 No of Respondents AgeWise

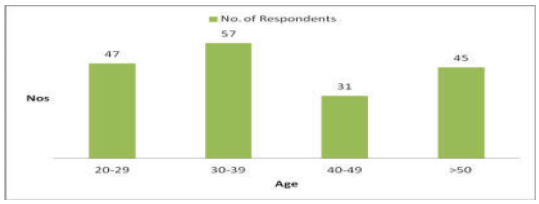


Fig. 4 % of Respondents Age Wise

C. Qualification Index:

The respondents' education pattern is really useful and serves the purpose of the survey, and provides ample scope to uplift them toward better professional advancement and career development. As many of them are up to higher secondary education, this point triggers RPL and reorient them under NSQF of UGC and Central Government Kaushal Schemes. It provides better scope for Certificate/Diploma/UG/PG courses. Especially in this field if they can have any diploma that helps them grow up in their present career and provide scope to turnout from blue-collar to white-collar i.e., middle level technical advisors in big logistic firms/enterprise. On one side, they can improve their educational qualification. On another side, they can build their career, as the central government is behind them to support in all respects and increase their quality of work-life and living standards.

Table 4

Qualifications	Illiterates	ELE/P/UP	SSC/HSC	UG/PG
No. of Respondents	27	35	109	9
%	15.00%	19.44%	60.56%	5.00 %

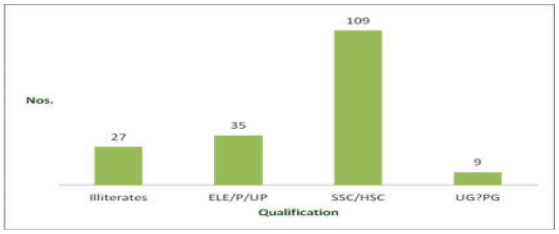


Fig. 5 No of Respondents Qualification Wise

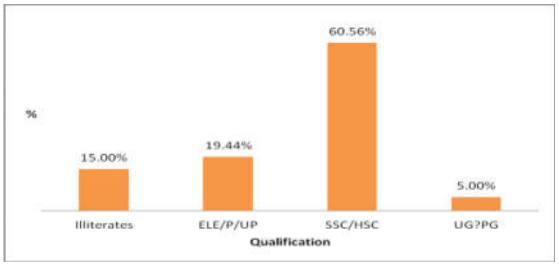


Fig. 6 % of Respondents Qualification Wise

D. Experience Index:

The diversity of experience gave another angle to the study. It helped us understand the tune and length of the training program, the number of programs, ad-hoc programs, and the benefit that respondents get after the program. Simply it provides a list & gist of revenue that can be generated for the benefit of their family members and job satisfaction levels in the rest of life by way of surplus life, income, and revenue generated by the beneficiaries. It gives scope to the government agencies for specific/ad-hoc full/part-time programs and their timings. Authorized government agencies can partner with academic institutions, industry, tradeunions,RTAagencies/franchises,sellers/dealers/principal manufacturers, and state and the central government in this program. The government may even extend the study by considering the trainer's competence by 'train-a-trainer' programs.

Table 5

Experience	<5 Years	10 to 19 Years	20 to 29 Years	30 to 39 Years	30 & Above Years
No. of Respondents	28	64	54	26	8
%	15.56 %	35.56%	30.00%	14.44%	4.44%

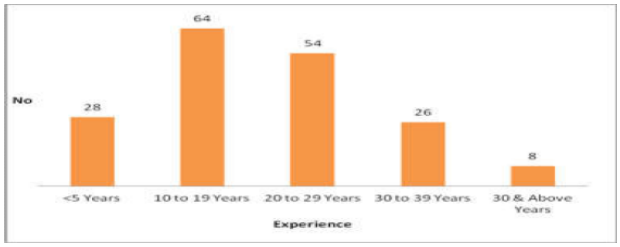


Fig .7

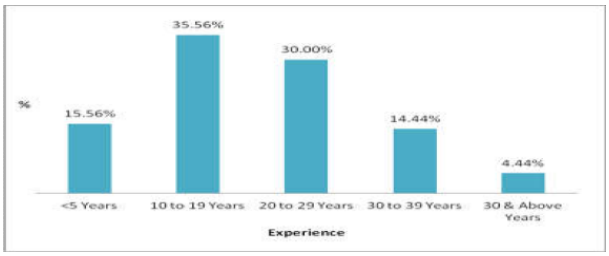
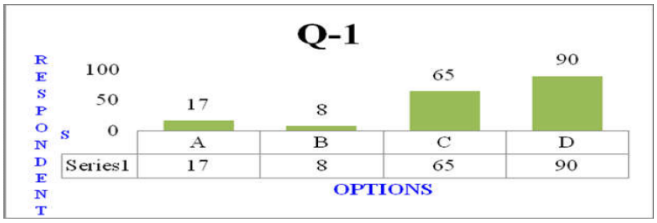


Fig. 8

ANALYSIS OF RESPONSES

1) By what percentage do the seatbelts reduce the risk of death for a person sitting in the front seat?
(a) 40 Percent (b) None of these (c) 60 percent (d)50 Percent

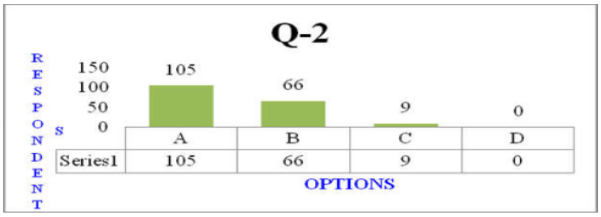


Interpretation of Q1: Exactly 50% of respondents opted for the correct answer for the enquired question of the 29%(26/90) have literacy below primary and have experienced below five years. The rest of the sample though literates and having a good amount of experience in the profession, couldn't answer the question properly. Hence, there is a lot of scope ab-initio to start with technical and general skill up-gradation programs to the respondents. It is found in the general observation that many of them are ready to learn about their profession but found a dearth of the right platform/arena to retrain/retreat them. This situation determines the need for training for all categories of respondents appropriately, and some ad-hoc programs can be chalked-out with the involvement of the local community, trade-unions, RTA, Police Department & State/Central Government.

A Chi-Square test was conducted at one degree of freedom at different levels of significance among respondents to test the impact of literacy and experience on the safety attitude. The reported critical values(as per statistical tables at different levels of significance, i.e., at 1% level 6.63, at 5% level it is 3.84, and finally at 10% level it is

2.70. These values are compared with calculated values, and finally, inferences are drawn in general for all questions. After thorough analysis, it is observed that there is no significant difference between and amongst respondents with reference to educational qualification; but there is a significant difference with regards to the experience of respondents. Hence, nobody can be brought experience all of sudden, but the government and partnering organizations can provide simulator training wherever possible through IT/AI tools and techniques in addition to Expert/Intelligent Decision Support Systems. Corresponding chi-test cross-table data annexed at the end of the report.

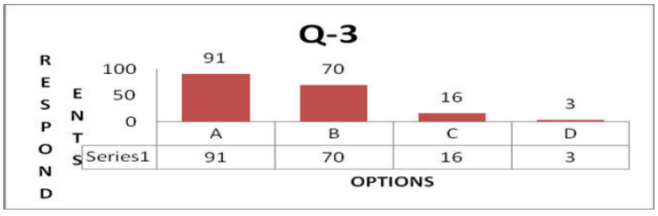
2) Hand Brake is used to control a skid
(a)True (b) False (c) Maybe both (d)None of the above



Interpretation of Q2: 63% (114/180) of respondents beat on this question and are unable to answer the purpose of the lever in the cockpit. Of the 73% (83/114) are having more than five years of experience in the profession. 60% (50/83) of respondents opt for the wrong answer and have a better education. Hence, this situation demands the need for some or other sort of technical training and orientation towards their profession, especially literates; which reveals the fact that the literacy and experience do not have any influence on profession towards technical- excellence.

A Chi-Square test was conducted at one degree of freedom at different levels of significance among respondents to test the impact of literacy and experience on the safety attitude. After thorough analysis, it is observed that there is no significant difference between and amongst respondents with reference to educational qualification; but there is a significant difference with regards to the experience of respondents. This means and includes some sort of technical training is to be adopted for all respondents and also suggested to all drivers irrespective of the study.

3)Helpers springs are usually used
(a)In heavy Vehicles in the suspension system to obtain a two-stage spring rate (b) In vehicles to improve the load capacity of suspension systems (c) To provide anti-rolling effect (d) To stiff the suspension

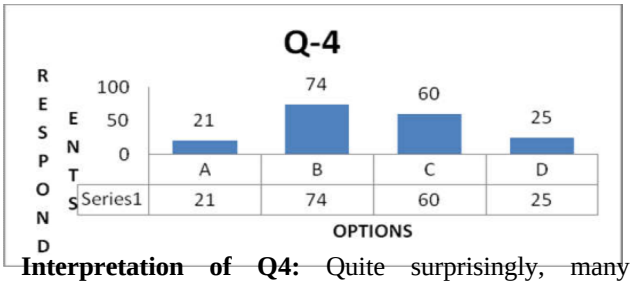


Interpretation of Q3: 50%(91/180) gave a correct answer; of them, illiterates are 37%(10/27). 76%(69/91) of them are having more than five years of experience and having a literacy level at higher education are 51%(35/69). This scenario provides scope for the adaption of training programs of different tenures to a different category of respondents. Some of the experienced respondents alternatively answered that it is even being used to load management. This would alarm us to provide necessary skill up-gradation programs.

A Chi-Square test was conducted at one degree of freedom at different levels of significance among respondents to test the impact of literacy and experience on the safety attitude. After thorough analysis, it is observed that there is no significant difference between and amongst respondents with reference to educational qualification at 1% level only, and there is a significant difference at 5% & 10% LOS indicates that there is a need for re-education and technical configuration awareness. Further, there is no significant difference at all levels with regard to the experience of respondents. There is a curiosity attribute found significant among illiterates and support the urge for retraining and reorientation.

4)How should you clean the sulphation on battery terminals?

(a)With cold water (b)With warm water (c) With Distilled water (d) With tap water

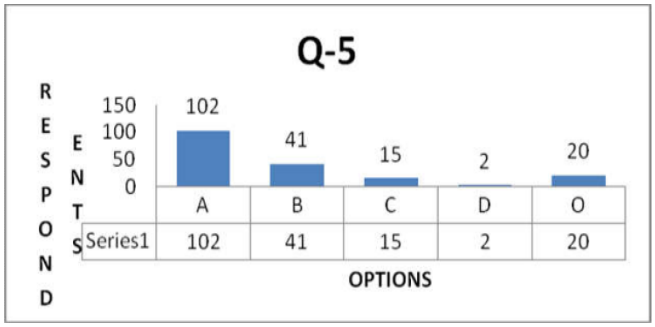


Interpretation of Q4: Quite surprisingly, many respondents don't know how to clean/maintain the battery-terminals and stated that nowadays, they are getting maintenance-free batteries. One should appreciate at least they know that part of the vehicle. 59%(106/180) of respondents did not give correct answers of the respondents having experience more than five years in the profession are 69%(73/106). Out of them, respondents having a good literacy level are 60%(44/73).

A Chi-Square test was conducted at one degree of freedom at different levels of significance among respondents to test the impact of literacy and experience on the maintenance of electrical items in the vehicles and their attitude & responsibility. After a thorough observation, it is found that there is no significant difference between and amongst respondents with reference to educational qualification and experience.

5)The backward tilt of the centerline of the ball joints from the vertical is called

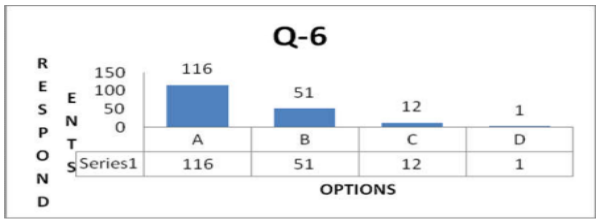
(a)Positive caster (b) Negative Caster (c) Positive Camber (d) Negative Camber



Interpretation of Q5: Though the majority of the respondents are answered correctly, they do not have technical knowledge of several terms used in the response sheet. Only at the time of wheel alignment and balancing they come across these terms, but they go by the advice of the technical advisor whether to replace damper/suspension/ partial replacement/repair of LH/RH joints/shafts/cross-joints separately. Even today, they are using local/vernacular language to change components/ consumables/accessories, etc. This shows the importance of technical education and training with reference to their profession.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the impact of literacy and experience on the technical knowledge and maintenance of their vehicles. It is understood that there is no significant difference between and amongst respondents with reference to educational qualification and but experience matters, especially technical knowledge though respondents have primary education.

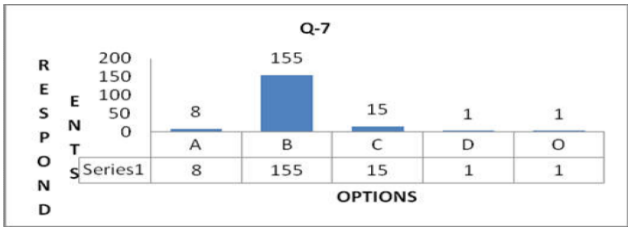
6)The trip meter can be reset
(a)True (b) False (c) Maybe both (d) None of the above



Interpretation of Q6:

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the DIS(Driver Information System) impact of literacy and experience on the basic knowledge and reporting on their vehicle's performance of both vehicle and driver technically. It is understood that there is no significant difference between and amongst respondents with regards to reporting mechanism by education and experience. In view of the about information, it is suggested to provide necessary re-orientation programs on the interpretation of technical values and corresponding remedial actions of drivers in the cockpit.

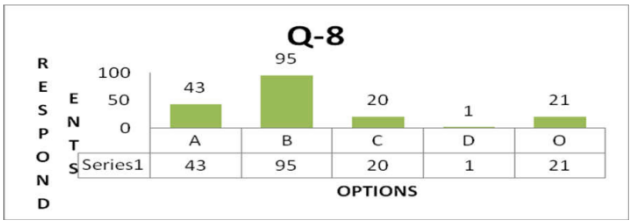
7)What does the temperature gauge indicate?
(a)Outside Temperature (b) Engine Temperature (c) Oil Temperature (d) None of the above



Interpretation of Q7: Out of 56%(14/25), wrong answers gave by the respondents having SSC to Degree level literacy and of which 93%(13/14) are having more than 5 years experience surprisingly. This situation provides the scope for technical training to respondents. Many technical failures of vehicles are only because of improper maintenance of vehicle lead and underutilization of resources by the way failure of warranty and guarantee from manufactured components.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the TDIS(Technical Driver Information System) impact of literacy and experience on the basic knowledge and to report on their vehicle performance of both vehicle and driver technically. It is understood that there is no significant difference between and amongst respondents with regards to reporting mechanism by education and experience. Somehow or other all respondents know about temperature gauge and its effect on both engine performance and their side effects.

8) What is called SFC with respect to controls
(a)Specific fuel consumption (b) Semi forward control (c) Super forward cabin (d) all of the above

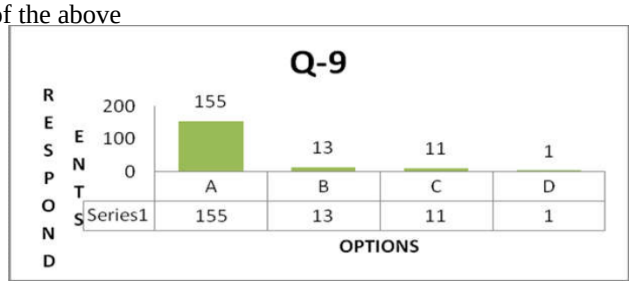


Interpretation of Q8: 48%(85/180) of the having poor understanding about control of the vehicle showing a negative impact on fleet control, without knowing anything they are running vehicles alarms for technical training to drivers of all categories. Surprisingly 17.64%(15/85) only count illiterates, and the balance is literates. 60%(51/85) are having SSC and above the literacy level. Surprisingly there were 12%(21/180) blank responses of which literates count was 81%(17/21) balance are illiterates. The given situation

alarms us to provide necessary training to them, whether offline or online, by establishing some multi-functional complexes in every town/city/suburban area with the help of the government. It is noticeable that 10 out of 17 respondents who gave blank answers are SSC, which reveals the seriousness of the situation and the severity of action to be taken up by the concerned departments responsible.

A Chi-Square test was executed at one degree of freedom at different levels of significance between and amongst respondents to understand the engine-related TDIS(Technical Driver Information System) impact of literacy and experience on the basic knowledge of reporting on their vehicle's performance technically. It is understood that there is no significant difference between and amongst respondents with regards to reporting mechanism by education and experience. Many of the respondents exhibited the knowledge, but raw statistics show the significant difference, which means and includes that some more investigations are necessary for this direction.

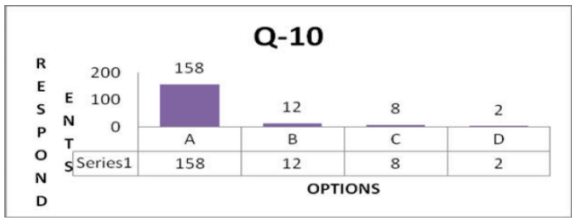
9) What is the purpose of the Rear view mirror?
(a)For viewing the traffic from the behind (b) For checking the passengers (c) A hazard as it causes distraction, d) None of the above



Interpretation of Q9: 21/25 was surprisingly literates don't know the purpose of the rearview mirror, and out of 21, 19 are above SSC level. This situation provides a lot of scope for training and educating the respondents with reference to their occupation and make them perfect. There are some cunning drivers who answered that it is to observe passengers probably they are in the riding of cab/auto at a prior level before taking up this Job. However, it is another question that makes an attempt to understand the attitude of the driver and provide relevant education.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the GIS(General Information System) impact of literacy and experience on the basic knowledge and terrific attitude shown that there is no significant difference between and amongst respondents with regards to the general knowledge on education and experience.

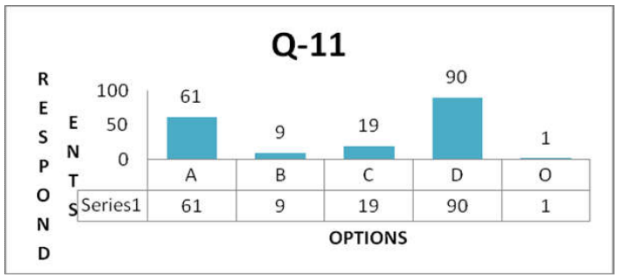
10)What is the safety device for the passengers & Drivers in the car?
(a)Seat belts (b) Door handle (c) Instrumental Panel (d) None of the above



Interpretation of Q10: 82%(18/22) of literates don't know the safety equipment in the vehicle itself, and no surprise, it repeats with another part of the survey. Hence, there is significant scope to provide education and training regarding traffic rules, safety devices, and rules either of Job or on Job. Many respondents felt that they start learning many things after they got a driving license and on entry into the profession. Issuance of the driving license itself is in question in India. They expressed if somebody can demonstrate the handling of the vehicle in exigencies and emergencies, that is quite helpful to them.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the safety equipment or components in the vehicle to rescue persons inside the vehicle. Assessment of the impact of literacy and experience on the basic safety knowledge and alert attitude cum awareness; it is found that there is no significant difference between and amongst respondents with regards to the educational qualification and experience.

11)You wish to park facing downhill. Which of the following should you do?
(a)Turn the steering wheel towards the kerb and put the hand brake on firmly (b) Park close to the bumper of another car (c) Park with two wheels on the kerb (d) Turn the steering wheel away from the kerb.

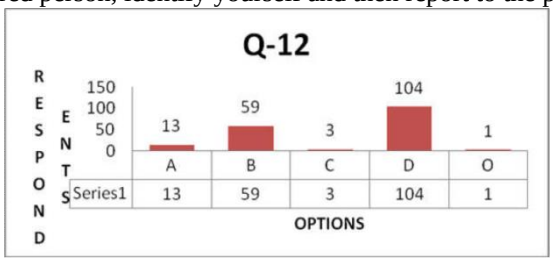


Interpretation of Q11: 50%(90/180) of respondents don't know about the technicalities of driving skill, and around 30%(33/90) are literates. Here, there is an opportunity to provide proper training to identified respondents based on the educational level and background. Corporate drivers little bit know about technical terms because of the training from the end of the organization. Where in other cases, they

never bother to know the technicalities involved in the profession.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the safety equipment or components in the vehicle to rescue persons inside the vehicle in general to assess the impact of literacy and experience on the basic safety knowledge and alert attitude and awareness; it is found that there is no significant difference between and amongst respondents with regards to the educational qualification at 1% LOS only, but it is significant at 5% & 10% levels of LOS educational qualification matters. With reference to the respondent's experience for the same question that there is no significant difference at all levels of LOS. Hence, there is a scope for providing technical training to all the respondents irrespective of education & experience.

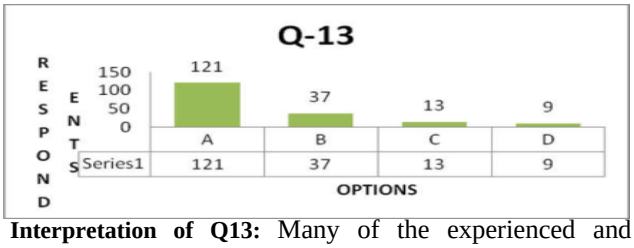
12)If your vehicle hits a pedestrian, you should:
(a)Identify yourself and leave (b) Help the person and call an ambulance (c) Avoid been seen by the public (d) Help the injured person, identify yourself and then report to the police



Interpretation of Q12: 57.77%(104/180) respondents gave the correct option, but some of the respondents raised calling ambulance rather than finding police is better in a critical situation. Once upon a time, it is not allowed. Now medico-legal cases are also allowed without the interference of police to save the life of the injured is still justifiable, and one should appreciate their attitude to save people at critical times. 17 respondents couldn't give any correct answer, and it is noticeable that they are having more than 10 years of experience and educated.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the traffic rules awareness and its impact on literacy and experience on the basic knowledge of their prevailing MV Act and general rules. It is understood that there is a significant difference between and amongst respondents with regard to their educational qualifications. The experience of the drivers didn't fetch any right answer; hence the null hypothesis was rejected and indicated us to provide some programs to understand the responsibilities of drivers, especially when accidents took place.

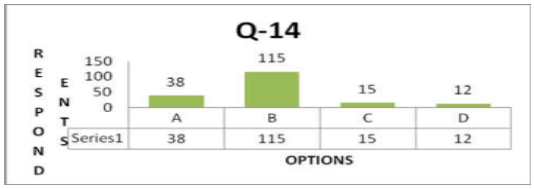
13)When should you switch on your hazard warning lights? When you cannot avoid causing an obstruction (b) When you are driving slowly due to bad weather (c) When you are towing a broken down vehicle (d) When your vehicle is parked on double yellow lines.



Interpretation of Q13: Many of the experienced and literate drivers answered it could be even for bad weather condition, towing, and sudden stop of the vehicles due to technical failures on double yellow lines; many of the respondents tried to defend themselves with other answers showing their curiosity about learning new things and questioning facts pose scope for further education and training for them. 47.45%(28/59) are having 10 years of experience and good education, which indicates that there is no impact on education and experience on the attitude of the driver

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the general attitude, behavior and responsibility and impact of education and experience reveals that at 1% & 5% levels of significance as calculated value is lower than table value with regards to educational qualification Ho Accepted, but at 10% level of significance, the same is rejected. With reference to experience is concerned that there is no significant difference in experience between and amongst respondents. This means one should educate drivers irrespective of education and experience on the right platform.

14)You are traveling at the legal speed limit. A vehicle comes up quickly behind, flashing its headlights. You should (a)Accelerate to make a gap behind you (b) Depress the brakes sharply to show your brake lights (c)Move to the right to prevent the vehicle from overtaking (d) Allow the vehicle to overtake.



Interpretation of Q14: Many respondents answered correctly but raised a doubt that as per their experience, nobody follows traffic rules and overtake without blowing the horn and flashing headlights even night time also. We thought we know the rule many of us desperate ly

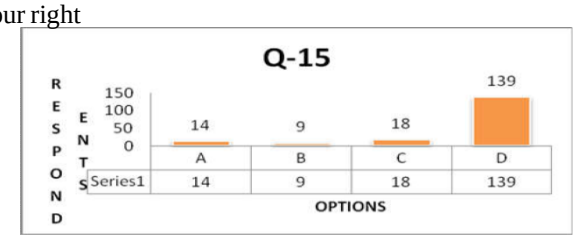
accelerate the vehicle to maintain a gap and later give way to them to overtake. As per their experience, young drivers don't give way to overtake.

61.50%(40/65) of respondents having very good literacy, but their experience is less than 5 years they couldn't understand the value of life because of accidents. This particular question shows the need for training of young drivers.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the general attitude, behavior and responsibility and impact of education and experience reveals that at all levels of significance, the calculated value is lower than table value with regards to educational qualification Ho rejected at all level of significance. With reference to experience is concerned that there is no significant difference between and amongst respondents. This point provides scope for educating the respondents further.

15)You want to turn right from the main road into a side road. Just before turning, you should

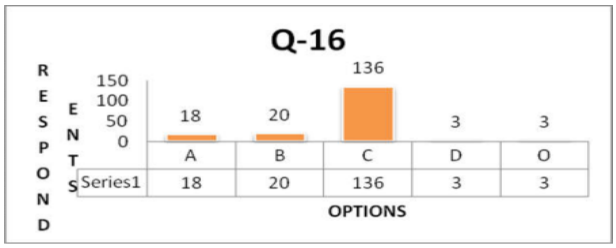
(a)Select First Gear (b) Cancel your right turn signal (c) Stop and set the hand brake (d) Check for traffic overtaking on your right



Interpretation of Q15: Many respondents at first instance couldn't understand the question later answered correctly. However, 22.77%(41/180) of respondents couldn't answer the question properly though they have better literacy and experience again warn literacy and experience does not impact the behavior of drivers. 63.41%(26/41) are having more than 10 years of experience, and out of them, 69.23%(18/26) are having higher education but not understood the importance of traffic awareness and behavior A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the general attitude, behavior, and responsibility, and impact of education and experience reveals that at all levels of significance that the educational qualification has no impact and not associated. But when it comes to experience, it matters. Suppose the experience of the driver has increased the behavior and attitude of drivers subjected to some change in answering questions rightly. However, we can't increase experience, but we can educate people in this profession by simulator experience.

16) You wish to overtake a long, Slow-moving vehicle on a busy road where traffic is moving in both directions. You should

(a)Follow it closely and keep moving out to see the road ahead (b) Flash your headlights to warn traffic coming from the opposite direction to stop (c) Keep well behind until you see the road ahead is clear and then overtake (d) None of the above

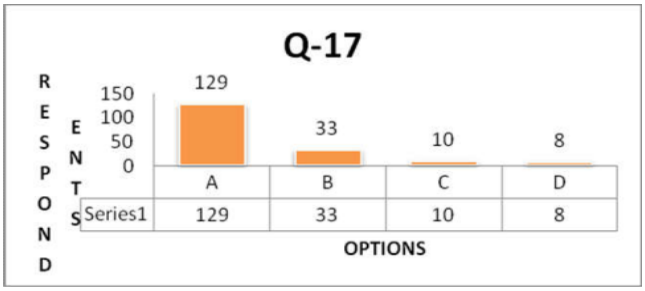


Interpretation of Q16: Good response to this question by lion part of the respondents. However, there were around 24.44%(44/180) of respondents who wrongly answered the question, defend all are correct in their perspective, and we use all simultaneously. 27.27% (12/44) are well educated & experienced who answered the question differently alarm the researchers to provide some sort of reorientation may be required. Here also age, experience & education does not affect the traffic behavior of drivers, and sometimes it is quite surprising that there is no empathy in drivers and they are willing to ride as they like rather understanding the fact that the probability of driving-skill of us arrest accidents to the extent of only 50%.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the general attitude, behavior, self-responsibility, impact of education, and experience reveals that at all levels of significance that there is no significant impact of educational qualification and experience when it comes to the self-responsibility regarding traffic rules, general awareness and safety, that all the respondents exhibit the similar experience.

17) Following documents are required along with the Driver during duty

(a)RC, Insurance, Permit, DL & Pollution (b) RC, Pollution, DL & Insurance (c) None of the above (d) Only DL

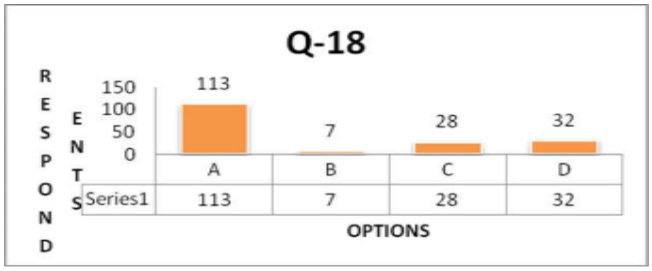


Interpretation of Q17: Good response for this question by lion segment of the respondents 71.66%(129/180) of respondents rightly answered the question, Around 18.33%(33/180)Some of the respondents chose the alternative answer that is also equally correct but raised doubt that nowadays we are all having smart mobiles and the department allowing online data through RTA wallet in city surrounds, and more to that Euro-IV vehicles are hybrid engines and non-pollutants. However, 51/180 respondents not correctly answered, which alarm us to educate them on what papers are to be carried while on duty.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the general MV Act and self-responsibility. It found that there is a significant difference between education & experience in understanding the traffic rules and prevailing systems of verification and documents to be carried while driving in vehicles. However, one should create awareness about documents that are physically supposed to be carried and digital awareness. These are not only limited documents, so many other related documents need to be carried in the case of LMV vehicle drivers.

18)The following signs represent?

(a) Traffic Island Ahead (b)Hospital Ahead (c) Give Way (d)None of these

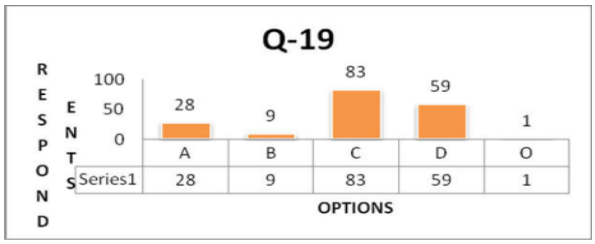


Interpretation of Q18: Out of all, 37.22 % of respondents do not understand the signboards used at various cross-sections road, and moreover they answered nobody could remember that many symbols and argued that the visibility level of symbol and size of the signboard is in question. And they said while going at 50KMPH speed, it is impossible to read signboard in English/Telugu/Vernacular Language. Hence, it is hereby suggested the respective authorities increase the size and display of the boards in the right places. Some of the experienced drivers pointed out that the signboard is exactly where the right/left compulsory turn is there it is impossible to follow, especially in Hyderabad. Even on ORR, also they pointed out some of these problems. Some drivers with better literacy levels advised instead of charging no parking challans, better stop, and ask the meaning of many symbols and create awareness. Many of the respondents who gave wrong answers are having more than 10 years of experience and better education levels. This reveals that education and experience together don't have any impact on traffic sense.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the general MV Act signs and driver's responsibility. It is found that there is no significant difference between and amongst respondents based on their education. But experience matters in understanding the traffic signs, symbols, and traffic rules. This point should be noted that there is a scope for retraining the respondents, especially with reference to acquiring knowledge of traffic signs, symbols, and rules across India; this is because now-a-day vehicles are under national permits than route permits. It is further noticed drivers who are in the ambition of going abroad must have sign-board knowledge primarily in addition to minimum educational qualification in many countries. Hence, a good number of programs to be scheduled in this direction.

19)When fuel is filled into a vehicle?

(a)None of these (b) Shall check air pressure (c) Shall not smoke (d) Shall not use any light of the vehicle

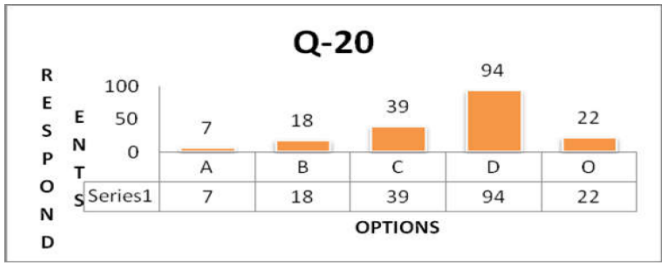


Interpretation of Q19: Only 46.11% of respondents gave the correct answer as per the questionnaire; this is quite a pathetic situation, but some parts good they know somehow about dos and don'ts fairly. In many of the petrol filling stations/pumps expressly exhibit at all conspicuous places both visuals and placards, many drivers do not understand the behavior that they should exhibit while filling fuel into their vehicles. Many of them answered both C and D, and in general, all the answers are correct, but in a particular context, it is D. 34.44%(62/180) of respondents having 10 years of experience with better literacy levels. This notice us literacy and experience together don't have any significant impact on the behavior of drivers. One respondent even not answered anything, give scope to us to provide proper training in this regard.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the driver's responsibility, especially at the time filling fuel into their vehicle. It is found that there is no significant difference between and amongst respondents based on their education and experience. It is

good to see that all the respondents are based on the test. But raw data reveals that there is a slight difference because of the fact that all answers are more or less correct, and there is no option for all of the above. The options put them in a dilemma about the correctness and perfectness of the driver.

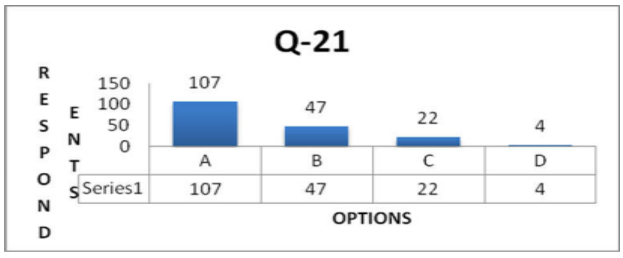
20)A person crosses 600 m long street in 5 minutes, what is his speed in Km/hr? (a)10 km/hr (b) 3.6 km/hr (c) 8.4 km/hr (d) 7.2 km/hr



Interpretation of Q20: It is the quite puzzling lion share of the respondents don't have basic mathematical knowledge of time, distance, and speed. It is again surprised the researchers that 88.37%(76/86) are having 5 years of experience and 75%(57/76) respondents having above upper primary education levels, questioning our existing education, research, and training system. Promoting students based on attendance alone gives rise to this type of problem. All of us know that at the SSC level, its people talk about probability, interpolation, extrapolation & LPP, etc. now, these people count 63 questions literary standards of the region itself.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the driver's numerical ability with reference to speeds and feeds of their own vehicle and other vehicles approximations. The test reveals that there is no significant difference among respondents regarding experience and education. But data reveal a lot of insights into the ability of drivers in approximations about opposite or vehicles in the same lane really matters when it comes to reality. Sometimes statistics mislead us on one side, and it is so puzzling many of them are well educated and experienced but still couldn't choose the right option in the questionnaire.

21)What is the maximum speed limit for the motorcycle?
a)50 km (b) 55 kmph (c) 40 kmph (d) None of these

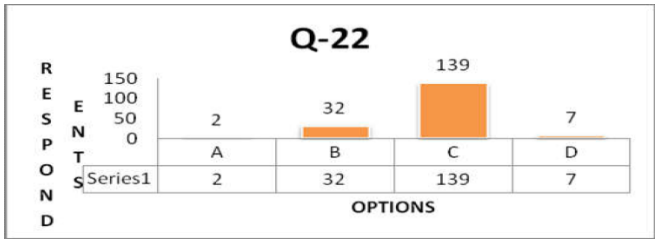


Interpretation of Q 21: It is quite noticeable that 40.65%(73/180) respondents don't know the speed limits of other vehicles in general, and people having more than five years of experience are 91.78%(67/73) members out of which 73.13%(49/67) having better educational levels that alarms to create more traffic awareness programs to all categories of respondents. Moreover, they understood maximum speed in a sense upper limit of the vehicle rather than mentioned in the MV Act.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the driver's ability with reference to speed limits of various vehicles, which reveals that there is a significant difference with regards to education and experience. This situation demands further training & education.

22)The best way of avoiding an accident is by

(a)Doing work in an accident way (b) Using safety equipment (c) Observing safety rules related to Job (d) Doing work in one's own way

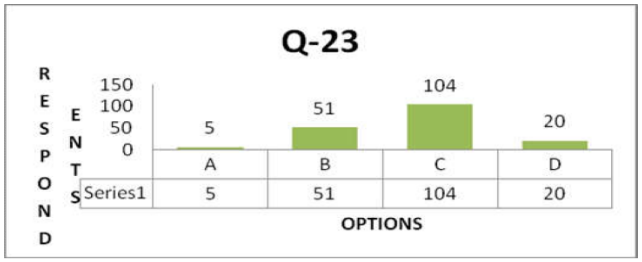


Interpretation of Q 22: 77.22%(139/180) of respondents positively observe traffic rules properly, which avoids frequent accidents, and some of them answered that Euro-IV vehicles have continuous low beam day-light also helped them to avoid an accident; one must hats-off their knowledge in profession. Around 92.68%(38/41) respondents having more than five years of experience gave the wrong answer very surprisingly. Out of 38 respondents, 89.47%(34/38) of them having high literacy levels. We can interpret that literacy has no impact on traffic awareness. Surprisingly 30 respondents who gave correct answers are from low literacy levels, which alarms that the government should put effort into training both categories of respondents.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the driver's responsibility, attitude, and understanding ability with reference to speeds and feeds of their own vehicle and other vehicles approximations. The test reveals that there is no significant difference among respondents regarding experience and education. It is a good indication that all the respondents, more or less, have an understanding of accidents and how to avoid them in a better manner.

23) An oily floor should be cleaned by

(a)Putting water (b) Clean with cotton waste (c) Putting Sawdust (d) Spraying CO2 or Sand



Interpretation of Q23: It is observed that even literates also unable to answer the question properly. Some illiterates orally said that fire-extinguisher might be used as they have seen in organized cab services. We should appreciate their curiosity to understand whether it is used for arrest fire or oily floor and moreover they asked very innocently how we get sawdust all of sudden where vehicle got break- down. They further answered. Generally, they use roadside sand/robosand dust as a primary activity to stop the skid of other vehicles. 89.47%(68/76) respondents are having more than 5 years of experience, and out of them, 77.84%(53/68) respondents having better education to understand minimal things.

A Chi-Square test executed at one degree of freedom at different levels of significance between and amongst respondents to understand the driver's responsibility, attitude, and understanding ability with reference to road safety attitude of their own/other vehicles. The test reveals that there is no significant difference among respondents regarding experience and education. It is a good indication that all the respondents, more or less, have an understanding of accidents and how to avoid them in a better manner. However, the statistics rang dangerous bells about many of the respondents don't have a basic minimum understanding of what they have to do; here, there is a need to run some programs to make them aware of certain maintenance things related to their vehicles when they repaired on-road or break-down maintenance procedures.

III. RESEARCH FINDINGS/OBSERVATIONS

- Exactly 50% of respondents opted for the correct answer for the enquired question of the 29%(26/90) are having literacy below primary and having experience below five years. The rest of the sample though literates and having a good amount of experience in the profession, couldn't answer the question properly. Hence, there is a lot of scope ab-initio to start with some sort of technical and general skill up-gradation programs to the respondents. It is found in the general observation that many of them are ready to learn about their profession but found a dearth of the right platform/arena to retrain/retreat them. This situation determines the need for training for all categories of respondents appropriately, and some ad-hoc programs can be chalked-out with the involvement of the local community, trade-unions, RTA, Police Department & State/Central Government.
- 63%(114/180) of respondents beat on this question and are unable to answer the purpose of the lever in the cockpit. Of them, 73%(83/114) are having more than five years of experience in the profession. 60%(50/83) of respondents opt for the wrong answer and have a better education. Hence, this situation demands the need for some or other sort of technical training and orientation towards their profession, especially literates; which reveals the fact that the literacy and experience do not have any influence on profession towards technical-excellence.
- 50%(91/180) gave the correct answer; of them, illiterates are 37%(10/27). 76%(69/91) of them are having more than five years of experience and having a literacy level at higher education are 51%(35/69). This scenario provides scope for the adaption of training programs of different tenures to a different category of respondents. Some of the experienced respondents alternatively answered that it is even being used to load management. This would alarm us to provide necessary skill up-gradation programs.
- Quite surprisingly, many respondents don't know how to clean/maintain the battery-terminals and stated that nowadays, they are getting maintenance-free batteries. One should appreciate at least they know that part of the vehicle. 59%(106/180) of respondents did not give correct answers of the respondents having experience more than five years in the profession are 69%(73/106). Out of them, respondents having a good literacy level are 60 %(44/73).
- Though the majority of the respondents are answered correctly, they do not have technical knowledge of several terms used in the response sheet. Only at the time of wheel alignment and balancing they come across these terms, but they go by the advice of the technical advisor whether to replace damper/suspension/ partial replacement/repair of LH/RH joints/shafts/cross-joints separately. Even today, they are using local/vernacular language to change components/ consumables/accessories, etc. This shows the importance of technical education and training with reference to their profession.
- Very surprisingly, 81%(52/64) are literates of them, 71%(37/52) are having higher education and above qualifications. The bare minimum things also respondents don't know. It provides scope to bring them into the ring and provide necessary re-skilling.

Even literates are having good experience also not aware of instrument panel devices and Drive Information System, EMC, and their indications because reading and interpreting technical information is prima- facie in this profession.

- Out of 56%(14/25), wrong answers gave by the respondents having SSC to Degree level literacy and of which 93%(13/14) are having more than 5 years experience surprisingly. This situation provides the scope for technical training to respondents. Many technical failures of vehicles are only because improper maintenance of vehicles leads to unwanted wear and tear that taxes owners in a different manner and underutilization of resources by the way failure of warranty and guarantee from manufactured components.

- 48%(85/180) of the respondents having a poor understanding of the control of the vehicle showing a negative impact on fleet control. Without knowing anything, they are running vehicle alarms for technical training to drivers of all categories. Surprisingly 17.64 % (15/85) only count illiterates, and the balance is literates. 60%(51/85) are having SSC and above the literacy level. Surprisingly there were 12%(21/180) blank responses, of which the literates count was 81%(17/21) balance are illiterates. The given situation alarms us to provide necessary training to them, whether offline or online, by establishing some multi-functional complexes in every town/city/suburban area with the help of the government. It is noticeable that 10 out of 17 respondents who gave blank answers are SSC, which reveals the seriousness of the situation and the severity of action to be taken up by the concerned departments responsible.

- 21/25 was surprisingly literates don't know the purpose of the rearview mirror, and out of 21, 19 are above SSC level. This situation provides a lot of scope for training and educating the respondents with reference to their occupation and make them perfect. There are some cunning drivers who answered that it is to observe passengers probably they are in the riding of cab/auto at a prior level before taking up this Job. However, it is another question that makes an attempt to understand the attitude of the driver and provide relevant education.

- 82% (18/22) of literates don't know the safety equipment in the vehicle itself, and no surprise, it repeats with another part of the survey. Hence, there is significant scope to provide education and training regarding traffic rules, safety devices, and rules either of Job or on Job. Many respondents felt that they start learning many things after they got a driving license and on entry into the profession. Issuance of the driving license itself is in question in India. They expressed if somebody can demonstrate the handling of the vehicle in exigencies and emergencies, that is quite helpful to them.

- 50%(90/180) of respondents don't know about the technicalities of driving skill, and around 30%(33/90) are literates. Here, there is an opportunity to provide proper training to identified respondents based on the educational level and background. Corporate drivers little bit know about technical terms because of the training from the end of the organization. Where in other cases, they never bother to know the technicalities involved in the profession.

- 57.77% (104/180) respondents gave the correct option, but some of the respondents raised calling an ambulance rather than finding police is better in a critical situation. Once upon a time, it is not allowed; now, medico-legal cases are also allowed without the interference of police to save the life of the injured is still justifiable, and one should appreciate their attitude to save people at critical times. 17 respondents couldn't give any correct answer, and it is noticeable that they are having more than 10 years of experience and educated.

- Many of the experienced and literate drivers answered it could be even for bad weather condition, towing, and sudden stop of the vehicles due to technical failures on double yellow lines; many of the respondents tried to defend themselves with other answers showing their curiosity about learning new things and questioning facts pose scope for further education and training for them. 47.45%(28/59) are having 10 years of experience and good education, which indicates that there is no impact on education and experience on the attitude of the driver.

- Many respondents answered correctly but raised a doubt that as per their experience, nobody follows traffic rules and overtakes without blowing the horn and flashing headlights even night time also. We thought we know the rule many of us desperately accelerate the vehicle to maintain a gap and later give way to them to overtake. As per their experience, young drivers don't give way to overtake. 61.50%(40/65) of respondents having very good literacy, but their experience is less than 5 years they couldn't understand the value of life because of accidents. This particular question shows the need for training of young drivers.

- Many respondents, at first instance, couldn't understand the question later answered it correctly. However, 22.77%(41/180) of respondents couldn't answer the question properly though they have better literacy and experience again warn literacy and experience does not impact the behavior of drivers. 63.41%(26/41) are having more than 10 years of experience, and out of them, 69.23%(18/26) are having higher education but not

understood the importance of traffic awareness and behavior.

- Good response to this question by lion part of the respondents. However, there were around 24.44%(44/180) of respondents who wrongly answered the question, defend all are correct in their perspective, and we use all simultaneously. 27.27% (12/44) are well educated & experienced who answered the question differently alarm the researchers to provide some sort of reorientation may be required. Here also age, experience & education does not affect the traffic behavior of drivers, and sometimes it is quite surprising that there is no empathy in drivers and they are willing to ride as they like rather understanding the fact that the probability of driving-skill of us arrest accidents to the extent of only 50%.

- Good response for this question by lion segment of the respondents 71.66%(129/180) of respondents rightly answered the question, Around 18.33%(33/180)Some of the respondents chose the alternative answer that is also equally correct but raised doubt that nowadays we are all having smart mobiles and the department allowing online data through RTA wallet in city surrounds, and more to that Euro-IV vehicles are hybrid engines and nonpollutants. However, 51/180 respondents not correctly answered, which alarms us to educate them on what papers are to be carried while on duty.

- Out of all, 37.22 % of respondents do not understand the signboards used at various cross-sections road, and moreover, they answered nobody can remember that many symbols and argued that the visibility level of symbol and size of the signboard is in question. And they said while going at 50KMPH speed, it is impossible to read signboard in English/Telugu/Vernacular Language. Hence, it is hereby suggested the respective authorities increase the size and display of the boards in the right places. Some of the experienced drivers pointed out that the signboard is exactly where the right/left compulsory turn is there it is impossible to follow, especially in Hyderabad. Even on ORR, also they pointed out some of these problems. Some drivers with better literacy levels advised instead of charging no parking challans, better stop, and ask the meaning of many symbols and create awareness. Many of the respondents who gave wrong answers are having more than 10 years of experience and better education levels. This reveals that education and experience together don't have any impact on traffic sense.

- Only 46.11% of respondents gave the correct answer as per the questionnaire, this is quite a pathetic situation, but some part good they know somehow about dos and don'ts fairly. In many of the petrol filling stations/pumps expressly exhibit at all conspicuous places both visuals and placards, many drivers do not understand the behavior that they should exhibit while filling fuel into their vehicles. Many of them answered both C and D, and in general, all the answers are correct, but in a particular context, it is D. 34.44%(62/180) of respondents having 10 years of experience with better literacy levels. This notice us literacy and experience together don't have any significant impact on the behavior of drivers. One respondent even not answered anything, give scope to us to provide proper training in this regard.

- It is the quite puzzling lion share of the respondents don't have basic mathematical knowledge of time, distance, and speed. It is again surprised the researchers that 88.37 % (76/86) are having 5 years of experience, and 75%(57/76) respondents having above upper primary education levels, questioning our existing education, research, and training system. Promoting students based on attendance alone gives rise to this type of problem. All of us know that at the SSC level, its people talk about probability, interpolation, extrapolation & LPP, etc. now, these people count 63 questions literary standards of the region itself.

- It is quite noticeable that 40.65%(73/180) respondents don't know the speed limits of other vehicles in general, and people are having more than five years of experience are 91.78%(67/73) members out of which 73.13%(49/67) having better educational levels that alarms to create more traffic awareness programs to all categories of respondents. Moreover, they understood maximum speed in a sense upper limit of the vehicle rather than mentioned in the MV Act.

- 77.22%(139/180) of respondents positively observe traffic rules properly, which avoids frequent accidents, and some of them answered that Euro-IV vehicles have continuous low beam day-light also helped them to avoid an accident; one must hats-off their knowledge in profession. Around 92.68%(38/41) respondents having more than five years of experience gave the wrong answer very surprisingly. Out of 38 respondents, 89.47%(34/38) of them having high literacy levels. We can interpret that literacy has no impact on traffic awareness. Surprisingly 30 respondents who gave correct answers are from low literacy levels, which alarms that the government should put effort into training both categories of respondents.

- It is observed that even literates also unable to answer the question properly. Some illiterates orally said that fire-extinguisher might be used as they have seen in organized cab services. We should appreciate their curiosity to understand whether it is used for arrest fire or oily floor and moreover they asked very innocently how

we get sawdust all of sudden where vehicle got break-down. They further answered. Generally, they use roadside sand/robosand dust as a primary activity to stop the skid of other vehicles. 89.47%(68/76) respondents are having more than 5 years of experience, and out of them, 77.84%(53/68) respondents having better education to understand minimal things.

IV. ABSTRACT OF CHI-SQUARE TESTS APPLIED TO LMV DRIVERS

Abstract of Attributes which are used for Chi-Square Test is Experience and Literacy with reference to safety, attitude, behavior, responsibility, understanding of rules & regulations, technicalities involved in maintenance and traffic awareness of the questionnaire and responses of interviewees:

If time permits following Q/Chi-Square Tests are employed for various questions:

Table 6.

No	Category	Questions Covered	Attributes	Hypotheses
1	Safety	1,2,3,5, 7,8,10,11,18,19 & 23	Impact of Literacy & Experience	H_0: There is no significant impact of literacy on safety practices of drivers of the vehicle under observation H_1: There is no significant impact on the experience of vehicle drives on different factors under observation
2	Maintenance	4,6 & 17	Impact of Literacy & Experience	H_0: There is no significant impact of literacy on maintenance practices of drivers of the vehicle under observation H_1: There is no significant impact of experience on vehicle maintenance by drivers
3	Attitude	1,9,12,13,14,15, 16,19,22 & 23	Impact of Literacy & Experience	H_0: There is no significant impact of literacy on the attitude of drivers under different situations H_0: There is no significant impact of experience on the attitude of drivers under different situations
4	DIS	20 & 21	Impact of Literacy & Experience	H_0: There is no significant impact of literacy on providing or using DIS H_0: There is no significant impact of experience on providing or using DIS

V. SUMMARY, CONCLUSION AND RECOMMENDATIONS

In general, there is no significant difference between and amongst various drivers from various locations, income, qualifications, and socio-economic background. Most of them are in the same direction with reference to attitude, behavior, responsibilities, awareness of MV Act rules & regulations, and traffic awareness. Many respondents with better educational qualifications opted for alternative answers due to the reason some of the other options gave in the questionnaire are very proximate to the correct answer. As their education demanded, alternative answers exhibit their curiosity towards hunting for a turnaround. This behavior helps us to provide further training and education and setup some ad-hoc/tailor-made/specific programs suitable to the respondents at different places in and around Hyderabad Metro Surrounds.

Respondents have shown good interest in answering the questions and allowed our team to take a video clip about their experiences. The study revealed that there is a huge need for setting-up up facilitation/study centers in and around Hyderabad to provide suitable education towards reorientation/re-skilling/retraining through various certificates, diplomas, and UG courses. Many respondents have shown interest if time is flexible to them; they are ready to undergo training, but their main dilemma is how this program helps them in their present career. The following are some of their queries with regards to their existing level to that of future ambient level; (1) Where are the opportunities to take swift & shift in their career; (2) What efforts are required from their end; (3) What is the tenure of their efforts towards the end-outcomes by way of shifting themselves towards by setting up own house with few own vehicles; and (4) shift from unorganized sector to organized sector.

Some of the respondents, though they are well educated, face the main-stream problem in communication and soft-skills, especially people, drove towards destinations such as airport, Hi-Tech city, Gachibowli, and Secunderabad Railway stations. The drivers are more or fewer localities know vernacular languages only with less GPS, IT, Digital Knowledge, which makes them, get afraid of to connect with people in the organized sector and put their vehicles in the franchise with UBER/OLA/PRYDO/MEERU/SkyCab so on. The main problem of drivers is communication/conversation/contact, which most of the time run in English alone between and amongst passengers

traveling in the cab. Due to this reason, drivers are unable to understand the intentions of passengers and approach them in a client-friendly manner. It makes them distant from justifying their profession and excels them in providing better services. In view of this, drivers stand departed from customers, owners, and franchising agencies, which created a big gap in the total transport chain of services.

Drivers' community is ready to upgrade themselves irrespective of experience and an educational qualification not only with English but also in many other languages because of their profession/situation demands. Many of the passengers are from North & South Indian towns/cities. In the case of Hindi/Marathi/Gujarathi, somehow they are able to manage because of the situational advantage that the Hyderabadi-Drivers have informal knowledge of speak and understand Hindi. Hence, our local drivers are able to deal with & address North and Westside passengers in a fair manner. But at the same time, they are unable to address people, especially from Tamil Nadu, Karnataka, and Kerala. This point makes them ambient to focus on the learning of some or at least one another South-Indian language. This really helps them in career development because of the reason that many of the franchising organizations are from Bangalore & Chennai, and passengers are from Karnataka & Kerala. More to this, many of them felt that they are lack of technical knowledge of the vehicle they drove and being in the dilemma that whether a particular component is really to be changed or can be repaired. There are many unorganized repairers ready to repair the vehicle instantly, but the problem is the reliability of components and owners. In the case of the unorganized sector, most of them go by local repairers as a cost-cutting measure; but which is not acceptable in the case of organized formal franchisers as they believe in reliability rather cost-cutting. Moreover, in the organized sector, it is a B2B concept, and that they are forced to service their vehicles in branded/authorized/principal-dealers outlets only. In this case, as queues are very long, they are unable to get serviced the vehicles in one or two days.

Many branded outlets are closed on Saturday and Sunday, and very few outlets offer express and round the clock service. However, Saturday and Sunday vehicle service stations are also sluggish in a moment of service. This situation may be right from the end of drivers, but the problem is from the end of franchise/hiring organization they are on off only for two days in a week, i.e., Saturday and Sunday. Hiring organizations are not ready to take the risk of reliability with local service providers though they serve on weekends. Any mishap, the loss from drivers-commitment of the hiring organizations is mind-blowing by way of financial commitments both to their employees and client organizations. The penalties they come across in millions of dollars for failures of their employee's commitments. In view of the above, it is advisable to start multi-branded outlets in connecting with franchise organization which works round the clock and also week-ends on one side and partner Driver STOP programs to mitigate the risk of non-commitments, unforeseen, unwanted, untoward and awkward situations either with the driver, employee, contractors, and client. This study is really useful but should not confine only to Hyderabad, but should extend similar studies in all towns/cities/metros with large volumes of respondents from drivers, employees, client-organizations, government, RTA, law & order departments, manufacturers, bankers, Insurers, local-multi branded-service stations, mechanics in unorganized sector and principal-dealers. In cities like Hyderabad, lakhs of drivers are looking for a right-break in their career. This is possible only when companies & government come forward with proper planning and commitment towards society.

Every question is provided with specific recommendations & suggestions wherever possible. Hence, this part of the study is meant for suggestions to the government, hiring companies, RTA, MHRD, academic institutions, NGOs, and societal representatives to chalk-out most appropriate time schedules for learning and reorientation to up-lift the quality of standards of living of drivers & their families at the earliest possible. This study does not focus on infrastructure requirements, accessibility, flexibility, mobility of trainers/trainees, and facilitation centers. One suggestion in this direction when drivers are on duty round the clock; what is the problem of providers to work on the same basis. As everybody of us knows very well, that Saturday and Sunday are weekly-off to many taxi drivers and then facilitators can focus on these two days. When it comes to LMV drivers, Sunday is the only- option for going to truck parking yards, sub-urban villages to create awareness about their career and modules of present programs, which benefits them to re-build their own career.

It is the responsibility of research-organizations to send the survey reports about costs/benefits to the government, insurance companies, bankers, hiring organizations, dealers, manufacturers, RTA, Law & Order, and DEA about monetary commitments of the government/hiring organizations/manufacturers/insurers/funding-agencies by way of compensation to passengers, drivers, and clients in addition to loss/damage of vehicles/passengers. The opportunity cost is not more than the pay off of any company on one side and on the other side government that declares an ex-gratia of not less than Rs. 1 lakhs to Rs.5.00 lakhs to each and every person injured in such cases, in addition to the insurance company, owners and hiring organization.

But still, we may not recover the life of the insured either partially or fully, i.e., catastrophic losses. Motor Unions are also working on it, but they couldn't come to any conclusion. Beyond all this, what are the terminal benefits at the end of their career such as retirement from occupation

technically is a question to government/society and whether government pay any old-age pension or leave them to their fate. All these issues, challenges, and responsibilities alert all the stakeholders to invest in training and education rather than paying compensation to drivers. Even insurance companies and manufacturers of the vehicles should also be made partners in the program. One better suggestion should be the insurance must be provided by the manufacturer only rather third party agencies/organizations. Then automatically cost of maintenance, reliability, and safety come into the picture and rescues the nation from huge costs/taxes.

This skill cum technology up-gradation program turnout some drivers as owners by the involvement of funding agencies and facilitation centers should work as a single-window system to provide bank loans once they got certified from these STUP centers.

Locational/Organizational specific studies give better results than macro-level studies like this. More socio-economic factors are to be included to get a better understanding of driver's issues and challenges. One of the most important factors is all the drivers, irrespective of their education and experience, must be technically trained towards repairs and maintenance of their vehicles, which will help them to drive vehicles in the most economic/fair/reasonable manner.

Around 66% of drivers expressed the study is very excellent, and they ever come across this type of study in the interest of drivers especially, and they said the government should conduct more number of specific surveys in this direction. Some of them expressed some sort of social/professional security measures such as job loss, no demand, no service, etc., which are offered to software employees and, for that matter, all categories of employees/business and entertainment houses.

Some of them questioned that an agriculturalist is rescued when there is a draught/no rain situation; why can't we be considered on similar grounds by the government is a thought-provoking question to be answered by the policymakers and hiring organization in addition to society.

Our Telangana State Honourable Chief-Minister Shri K. Chandra Sekhar Rao announced much flexibility to auto/cab drivers in the unorganized sector, and he recognized the need for rehabilitation to drivers. All of us know many autos/cabs/LCVs in Hyderabad are outdated and crossed their operational age. Still, our CM gave a better offer to owners of such vehicles to exchange with Taxis at most-subsidized rates of interest & the DIR Scheme in light of Euro-Norms. One should hats-off to the guts of CM to take such a bold decision, which was nowhere legally found implemented except in the state of Telangana.

By this, we conclude the study, which gave a rich experience to our team members to have bright insight into the driver's issues and challenges in addition to passengers and owners. There should be a separate study to be taken-up to understand the issues and challenges of owners, service providers, banking agencies, insurers, manufacturers, and passengers.

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