

is completely in Arabic, drivers who understand English language only performed poorly with 49% correct response rate.

Regarding the impact of educational level of participants, the data did not show any significant impact. This is expected since all the participants are from Qatar University; therefore, we do not have variations in the educational level. All participants either are enrolled in or have Bachelor or Graduate degree. To be able to investigate the impact of educational level, data need to be collected outside the university.

Table 5: Mean, Standard Deviation, and P-value of Nationality responses in terms of each traffic sign

Traffic Sign	Qatari & GCC		Arab		European/American		Asian		P-value
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	
Sign 1	0.856	0.352	0.795	0.406	0.889	0.319	0.836	0.373	0.502
Sign 2	0.847	0.361	0.818	0.388	0.806	0.401	0.800	0.404	0.807
Sign 3	0.876	0.330	0.818	0.388	0.889	0.319	0.909	0.290	0.395
Sign 4	0.817	0.388	0.852	0.357	0.972	0.167	0.764	0.429	0.058
Sign 5	0.703	0.458	0.500	0.503	0.861	0.351	0.818	0.389	< 0.0001
Sign 6	0.723	0.449	0.602	0.492	0.528	0.506	0.509	0.505	0.006
Sign 7	0.946	0.227	0.920	0.272	1.000	0.000	0.891	0.315	0.169

Table 6: Mean, Standard Deviation, and P-value of Age responses in terms of each traffic sign

Traffic Sign	18-22		23-30		31-45		46-65		P-value
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	
Sign 1	0.885	0.320	0.833	0.374	0.797	0.404	0.854	0.358	0.304
Sign 2	0.868	0.340	0.824	0.383	0.810	0.395	0.756	0.435	0.306
Sign 3	0.868	0.340	0.870	0.337	0.886	0.320	0.854	0.358	0.963
Sign 4	0.868	0.340	0.722	0.450	0.911	0.286	0.854	0.358	0.002
Sign 5	0.690	0.464	0.648	0.480	0.696	0.463	0.878	0.331	0.054
Sign 6	0.684	0.466	0.593	0.494	0.633	0.485	0.683	0.471	0.435
Sign 7	0.908	0.290	0.972	0.165	0.962	0.192	0.927	0.264	0.127

4. Conclusion

This study mainly investigated the comprehensibility of a selected sample of traffic signs by drivers in the State of Qatar. The study shows that the average comprehensibility of all traffic signs is 80.9%. Moreover, the correlation between different human characteristics and the comprehensibility of traffic signs was studied. In this study, we could not identify different performance between static and variable message signs. In average 20% of the drivers fail to respond correctly to at least one of signs. This ratio is quite high and alarming especially with such simple, basic, and common traffic signs. Furthermore, it is important to remember that more than 70% of the drivers are fresh drivers with less than 5 years driving experience with good

educational level and thus it was expected to have higher comprehensibility of traffic signs compared to drivers with lower educational levels and longer driving experience.

The comparison between male and female drivers showed that male drivers have higher comprehensibility in most traffic signs than female drivers. However, on the other hand, the data also shows that female drivers reported lower average crash record in the past three years compared to male drivers. This is reasonable if we know that only 12.7% of all active driving license holder in Qatar are female (Traffic Department, Ministry of Interior, 2016). This also is combined with the fact that female drive significantly less than male drivers (lower mileage) which means that their risk exposure is lower. On the other hand, the study shows that language capability of drivers significantly affect the comprehensibility of variable message signs with language text.

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