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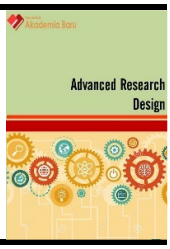

The Understanding of Traffic Signs & Symbols as Nonverbal Communication: A Comparative Study of Drivers of Swat & Dir Lower, Khyber Pakhtunkhwa, Pakistan

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ABSTRACT

The aim of the research was to find out the understanding of signs & symbols as nonverbal communication amongst the drivers of district Swat and Dir Lower, Khyber Pakhtunkhwa, Pakistan. As a quantitative method, the researcher used survey research technique to find out the opinion of the respondents. A closed ended questionnaire comprises 60 questions were distributed amongst 350 drivers of District Swat & Dir Lower though random sampling, the response rate was 93%. The data was analyzed through SPSS to ensure objectivity. The results of One-way-ANOVA explored that there is significant difference between the district Swat and Dir lower based drivers understating about informatory, mandatory and warning signs and symbols. Two-sample t-test was also applied to investigate the difference between District Dir lower and Swat based drivers, the results also revealed significant difference between the selected population. But the other side, there is no difference between district Dir Lower and Swat based drivers' knowledge regarding Mandatory and warning signs and symbols.

Keywords:
Non-verbal communication, signs & symbols, drivers, understanding, Khyber Pakhtunkhwa, Pakistan

1. Introduction

This research was conducted to measure the level of understanding of the drivers regarding roadside sign and symbols. This study also examined the nonverbal communication amongst the drivers as they are using the traffic signs and symbols daily. This study would help to find out the knowhow of the drivers regarding traffic sign and symbols as nonverbal communication.

Communication should be nonverbal or verbal. Gestures (use of movements), signs (symbols) and other meaningful body expressions come in nonverbal communication. Symbols play an important role for the safety of human being on roads.

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There are a number of safety ways which helps to reduce the road accidents, in which one of them are the formation of instruction and direction signs and symbols on the road side. Nonverbal communication plays an important role in human's life. It's impossible to live in the world without understanding nonverbal communication. Roads are a source of communication to reduce the gap between the society and people to connect with each other. It is constructed to possible the people movement from one place to another. Due to overpopulation, junctions on the roads and unavailability of traffic signs and symbols make it difficult to reach from one place to another on time and safely. The only way to overcome this issue, it is suggested to setup traffic signs and symbols on the road sides. It will help to decrease traffic jam and accidents [1].

This study would help to make the drivers active regarding sign and symbols to reduce traffic accidents. This study would also conduct to find that to which extent the drivers understand the roadside sings and symbols as a nonverbal communication.

1.1 Non-verbal Communication

Nonverbal communication is a type of communication in which we transmit messages by different processes rather than using words only. We shouldn't view verbal communication opposite of nonverbal communication. In fact, verbal and nonverbal communication is the part of same system working side by side equally. He said that according to hemispheric division of brain, the right side of the brain control the nonverbal communication, while the verbal communication is regulated by left side [2]. Non-verbal communication as "type of communication in which messages are send and received without using of words, either spoken nor written" [3].

It is the basic principle of non-verbal communication to transfer important and emotional messages to the others. Nonverbal communication is more powerful than verbal communication in terms of giving meaning of the conveyed messages. Some studies show that nonverbal communication transmits about 90% of the actual meaning and message, whereas, the rest of information is perceived through verbal communication [4].

1.2 Functions of Non-verbal Communication

Different functions of the nonverbal communication that it forbids the verbal messages. What is said or what is done are two contradictory things. Non-verbal signals can be used to give stress, to control the communication of people, strengthen the verbal messages, replace the spoken words and easily to understand a symbol of verbal messages. Your gestures can serve you well in the place of words like nodding up and down means yes and by forming T by your hands during the match indicates that time is over [5].

1.3 Types of Nonverbal Communication

Different types of nonverbal communication including kinesics, chronemics, proxemics, paralanguage, silence, clothing, territoriality, haptics and olfactics are the types of nonverbal communication. Kinesics is the study of body language which communicates messages nonverbally. Gestures, postures, eye contact and facial expression come in this category. Chronemics can be defined as how time makes the communication affected. Proxemics is the study of distance and space which helps to influence communication. Paralanguage is to study the volume, rate, quality and pitch of the voice which go with verbal communication. Silence communicates a number of messages like confusion, happiness, sadness etc. clothing help to reflect our cultures. Haptics is the study of touch.

Touch can communicate a message to other people. Haptics can be used to get attention or response etc. Olfactics is that type of nonverbal communication which communicates a message through smell [6].

Conceptualization

a. Drivers Understanding

In this study the driver understating means the level of knowledge and awareness regarding roadside sings and symbols. In this study the researcher investigated the mental level and understanding of the drivers of Mingora, District Swat and Timergara, District Dir Lower of Khyber Pakhtunkhwa.

b. Non-verbal Communication

In this research, nonverbal communication means those signs and symbols which are displayed on roadsides for the purpose to give direction to the drivers. Particularly, the signs are placed in front of hospitals, schools, and junctions etc to communicate a particular message to the audience.

Operationalization

a. Understanding

In this research Understanding means the level of awareness and knowledge towards the roadside symbols in Mingora and Dir Lower. The researcher analyzed the level of drivers' knowledge through a survey research and a questionnaire developed to find out the results.

b. Public Transporters

Public transporters refer to those drivers who transport general public from one place to another. It may be taxi, bus, haice, rickshaw etc. in this research the public transporters mean the drivers of Mingora and Timergara terminals.

c. Signs and symbols

Signs and symbol give information about the road conditions as well as about danger. It is an illustration, indication or gestures which are displayed on roadsides with words or designs which convey an idea, warning or information to road consumers.

In this research the signs and symbols are roadside planted symbols for the directions, instructions and guidance of the Mingora and Timergara transporters.

d. Usage

To which extent the drivers are using these sings and symbols. In this research the usage means that how, where and when the transporters of Mingora and Timergara are using the roadside planted signs.

1.4 Objectives of the study

The objectives of the current study are as follow

1. To know the level of understating of the sings and symbols of the drivers.
2. To know the use of the drivers regarding traffic symbols the in the areas.
3. To know the implantation effects of nonverbal communication amongst drivers.
4. To know about the signs planted on road side in the areas.
5. To what extent do road users follow the traffic signs and symbols?
6. To know the drawbacks of the non-users' drivers of traffic symbols on society.

7. To find out the understanding about informative, warning and mandatory sings.

1.5 Hypotheses

H1: There is a significant difference between district Swat and Dir Lower based drivers understanding about roadside signs and symbols.
H2: District Dir Lower drivers have more understanding about informative signs than District Swat drivers.
H3: District Swat based drivers have better understanding regarding mandatory signs than District Dir Lower.

2. Literature Review

Health and safety are the two main issues and it required very much importance in the developing countries. Road safety is the major issue in Pakistan also and it is going worse day-by-day. A number of cities in Pakistan are facing this problem. Drivers, passengers and pedestrians are playing vital role in the road environment in Karachi, as most of the people of Pakistan is traveling in public transport. According to statistics, 30 to 45 percent of the population is using public transport as a source of transportation. Education, engineering and enforcement must be correlated with one another for efficient, effective and balanced system. Road users are not aware of the standard, basic and updated road safety which is creating problems for the road consumers. Its recommended that the parameter of road safety knowledge should be increased to overcome on this problem. For this the researcher designed a questionnaire to know about road safety of the riders and drivers in Karachi as well as to search out the view about the factors of road accidents. The results of the research revealed that there is no relation between the drivers and the road builders, which is the main factor of accidents in the country. The outcome of the study also unveiled the roadside signs only for the authorization, but it needed to make understandable for the road users [7].

The current urban advancement and transportation arrangement of the city of Karachi, Pakistan. Its effect for the setup of transportation and the administration strategies and developmental plans. In third world countries, quick urbanization development has brought an enormous pressure on the land utilization, transportation and infrastructure of the urban communities [8].

The drivers understanding regarding the roadside signs. For this purpose, the researcher used survey research technique and collected data by the use of questionnaire. It is explored that in developing cities and urban communities around the world, drivers are working in complex situation. The sign boards mold the mind of road users and distract driver's minds as well. The author disclosed that sign boards distracts the drivers in Lahore, the capital of Punjab, Pakistan due to the over population in the city. It was disclosed that the accidents and placement of signboards in cities are linked to each other as the placement of the signs is not in appropriate places [9].

The viability of utilizing the basic system of traffic sign and symbols in Pakistan, where a large number of people are belonging from lower class and cannot able to get quality education. As, the traffic system became standardized globally, it is necessary to ask questions about the traffic signs and symbols. The researcher did quantitative research and collected data from the illiterate drivers. The parts of the three ergonomic variables; standardization, familiarity and spatial compatibility as well as language and social knowledge have been measured. It was found that less than fifty percent drivers know about seven out of twenty road side signs. While, less than fifteen percent recognize three traffic signs out of seven. Seventy five percent of the drivers identify six traffic signs out of twenty. Statistical analysis has shown that traffic sings are effective in Pakistan [10].

The marital status, sex, nationality, age, monthly income and background education have strong relationship with drivers understanding about traffic signs and symbols. Sample were taken from five gulf countries in this research, whereas, 28 signs were examined. Data was collected from 9000 drivers from five countries and 53 percent of the drivers responded. The outcomes showed many issues with the level of understanding among the drivers about signs and symbols. About 55 percent of the drivers identified the regulatory signs correctly, while warning signs were identified by 56 percent of the drivers. Age, salary and education played an important role in the understanding of roadside symbols, while conjugal status demonstrated no critical impact. The level of understanding of female, young, lower wages and poor education were worse as compared to male, older, high income and well qualified. The drivers of USA and Europe were high level of understanding as compared to Arab and Asian drivers [11].

The survey was conducted to know about regulatory, informatory and warning signs and symbols in drivers' perspective. Questionnaire was distributed among 202 drivers form Dhaka city. 42 traffic signs and symbols were studied. Five informatory signs, seventeen warning signs and twenty regulatory signs were studied. Fifty percent of them responded correctly. More than eighty percent of the drivers know about two warning and regulatory sings. The motorists who properly known the warning signs were fifty two percent, informatory signs fifty five percent while regulatory signs forty nine percent. Study showed efforts are required to instruct the car users and understand traffic signs [12].

There is a strong link between accidents and advertisements, he further said, that location of the billboard and attractive advertisement can play an important role in the road accidents [13].

Most of the drivers fail to understand road side signs on time. Signs must me observable, effective and readable from a distance and must be understood easily. Specific shapes are used as traffic sings and symbols, but most of the drivers don't know about these signs [14].

3. Research Methodology

"The method used by the researchers for conducting their study's is called research method methodology. Research methodology is the technique to solve the problems analytically [15]. In this study, the technique of quantitative methodology was used as it is used for the understanding of opening, attitude and feelings of the respondents. while survey method was used for data collection. Drivers of District Swat and District Dir Lower were the population of this study, because these drivers daily cross the roadside traffic signs and symbols "A set of individuals having same qualities in which the researcher is interested" [16].

"A sub-set of elements which can be taken from a large group is called sample" [17]. Random sampling was used by the researcher for this study, as the drivers' availability in the terminals are not sure. Data was collected from 350 drivers of District Swat and District Dir Lower. While 175 in District Swat terminal and 175 in District Dir Lower were distributed. The response rate of District Swat 93%, whereas, District Dir lower response rate was 89%. After the data was cleaned for analysis to exclude double coding and inconsistency in the data, total 300 respondents were finalized to analyze the situation.

Data was collected by the use of questionnaire in order to find out the level of understating of the drivers. "A written form of question which can be filled by the sample is called questionnaire" [18]. The questionnaire was developed under the consideration of objectives of hypotheses of the study. The questionnaire was comprising 60 close-ended questions excluding demographics of the respondents. The questionnaire was consisted of three parts including regulatory signs (2) informatory signs (17) and mandatory signs (32). In mandatory signs (9) warning signs were also

studied and classified in another group. Data analysis permits us to solve the problems. Statistical package for social sciences (SPSS) version: 21, was used by the researcher. The software was used to ensure objectivity in the findings of the research. Data was distributed in frequencies.

4. Results

The researchers explained the results through descriptive and inferential statistics to find out the results of the hypothesis.

Table 1
Age of the respondents

	Swat		Dir Lower	
Variables	**F**	**%**	**F**	**%**
18-25	24	16.0	11	7.3
26-33	69	46.0	64	42.7
34-40	48	32.0	73	48.7
Above	9	6.0	2	1.3
Total	150	100.0	150	100.0

Table 1 shows the age of the respondents that among the District Swat driver, 16% were 18 to 25 years old, 46% of them were 26 to 33 years old, 48% were aged 34 to 40, while 6% of the drivers age above 40 years. The tables also demonstrate the age group of the District Dir drivers that 7.3% were 18 to 25 years old, 42.7% were 26 to 33 years old, 48.75 were 34 to 40 years, whereas, 1.3% of them were above aged.

Table 2
Distribution of the respondents according to their qualification

Swat			Dir Lower		
Variables	**F**	**%**	**Variables**		
BA	3	2.0	BA	1	0.7
FA	2	1.3			
Illiterate	6	4.0	Illiterate	3	2.0
MA	1	0.7			
Matric	18	12.0	Matric	10	6.7
Middle	96	64.0	Middle	95	63.3
Primary	24	16.0	Primary	41	27.3
Total	150	100.0	Total	150	100.0

Table 2 demonstrates the qualification of the drivers of District Swat, in which 0.7% of the drivers were graduated, 2% were under graduated, 1.3% of the respondents were first arts degree, 15% of them were studied 10 grades, the ratio of drivers who were educated up to the middle were 64%, 16% of the District Swat drivers were studied up to the primary level and 4% of the drivers were uneducated. The table also shows the educational qualification of the respondents of Dir, the ratio of under graduate drivers were 0.7%, the respondents who have done matric were 6.7%, 63.3% of the drivers were educated up to middle level, primary level drivers were 27.3% and the ratio illiterate drivers of district Dir were only 2%.

Table 3
Marital Status of the respondents

	Swat		Dir Lower	
Variables	**F**	**%**	**F**	**%**
Married	125	83.3	144	96.0
Single	25	16.7	6	4.0
Total	150	100.0	150	100.0

Table 3 Illustrates the marital status of the District Swat and District Dir drivers that 83.3% of the District Swat drivers were married and 16.7% of them were unmarried. While 96% of the transporters were married and 4% of the drivers form District Dir were single.

Table 4
From how long the respondents have license

	Swat		Dir Lower	
Variables	**F**	**%**	**F**	**%**
1-5	70	46.7	72	48.0
6-10	50	33.3	66	44.0
11-15	13	8.7	4	2.7
Above	1	0.7	0	0.0
Don't have license	16	10.6	8	5.3
Total	150	100.0	150	100.0

Table 4 shows that since how the drivers have license, in District Swat, 46.7% of the drivers were license from 1 to 5 years, 33.3% of them were license from 6 to 10 years, 8.7 % of the drivers were license holders from 11 to 15 years, 0.7% of the respondents were taken license from more than 15 years and 10.6% of the drivers didn't got license. The table also shows the license of the District Dir drivers they got from the government of Pakistan. It shows that 48%, 44%, 2.7% of the drivers were taken license 1 to 5 years, 6 to 10 years and 11 to 15 years respectively. While, 5.3% of the driven didn't got driving license.

Table 5
Distribution of the respondents according to their monthly income

Swat			Dir Lower		
Variables	**F**	**%**	**Variables**	**F**	**%**
Less than 10000	26	17.3	Less than 12000	26	17.3
10001 – 12000	44	29.3	12001 - 15000	72	48.0
12001 – 13000	7	4.7	15001 - 16000	16	10.7
13001 – 15000	49	32.7	16001 - 17000	20	13.3
Above	24	16.0	Above	16	10.7
Total	150	100.0	Total	150	100.0

Table 5 shows the monthly income of the drivers of District Swat and District Dir. The drivers of District Swat who earned less than 10000 rupees per month were 17.3%, 29.3% of the respondents earn more than 10000 and up to 12000. 4.7% of the sample were earning between 12001 and 13000, the drivers of District Swat whose monthly salary is between 13001 and 15000 were 32.7. Whereas, 16% of them earned more than 15000 rupees per month. The table shows that 17.3% of the drivers of District Dir were earning less than 12000 rupees per month. 48% of them earned from 12001 to 15000, the respondents whose monthly salary were between 15001 to 16000 were 10.7%. 13.3% of the drivers eared more than 16000 to 17000. 10.7% of the sample had a monthly salary of more than 17000 rupees.

Table 6
Distribution of the respondents according to their driving experience

Swat			Dir Lower		
Variables	**F**	**%**	**Variables**	**F**	**%**
Less than 5	34	22.7	Less than 8	38	25.3
6 – 9	27	18.0	9 – 10	31	20.7
10 – 13	43	28.7	11 – 12	36	24.0
14 – 15	26	17.3	13 – 15	22	14.7
Above	20	13.3	Above	23	15.3
Total	150	100.0	Total	150	100.0

Table 6 shows the experience of the drivers. The drivers who have less than 5 years' experience in their field were 22.7%. 18% of the respondents were 6 to 9 years' experience. The drivers whose experience were between 10 to 13 years were28.7%. The drivers who had experience of 14 to 15 years were17.3% and 13.3% had an experience of more than 15 years. The table also shows the driving experience of the respondents of Dir. 25.3% of the drivers were less experienced than 8 years. The drivers who had is in between 9 to 10 years were 20.7%, 24% of the sample of Dir were driving experience of 11 to 12 years. 14.7% of the drivers were an experience of 13 to 15 years. While, 15.3% of them were more than 15 years of driving experience.

Table 7
Analysis of Variance for the difference among Informatory, mandatory and warning signs and symbols of district Swat Drivers

S. O. V	DF	SS	MS	F-Value	P-Value
Factor	2	180805	90402.5	12504.78	0.000
Error	447	3232	7.2		
Total	449	184037			

Table 7 shows that there is significant difference at the *P =0.000<0.05* level in the understanding of drivers regarding informatory, mandatory and warning signs in district swat. The statically analysis inferred that all the drivers have less understanding regarding the road side signs and symbols.

Table 8
Analysis of Variance for the difference among Informatory, mandatory and warning signs and symbols of district Dir Lower

S. O. V	DF	SS	MS	F-Value	P-Value
Factor	2	178782	89390.8	10259.80	0.000
Error	446	3886	8.7		
Total	448	182668			

Table 8 demonstrates that there is significant difference at the *P =0.000<0.05* level in the understanding about informatory, mandatory and warning signs in district dir. The statically analysis explored that all the drivers have less knowledge regarding the road side signs and symbols.

Table 9
Analysis of Variance for the difference among Informatory, mandatory and warning signs and symbols of district Dir Lower and Swat

S. O. V	DF	SS	MS	F-Value	P-Value
Factor	5	359674	71934.8	9025.41	0.000
Error	893	7117	8.0		
Total	898	366791			

Table 9 illustrates the One-Way-ANOVA results that there is significant difference at the *P =0.000<0.05* level in the understanding about informatory, mandatory and warning signs in district Swat and Dir. The Comparison explored that most of the drivers of Swat and Dir Lower have less information about road side signs and symbols.

Table 10
Two sample t-test is used to known differences between Dir and Swat in the factors informatory, Mandatory, warning, Time of license and age

Variables	DF	T-Value	P-Value
Informatory	298	4.91	0.000
Mandatory	298	0.86	0.389
Warning	298	0.19	0.847
Time of License	298	-1.37	0.171
Age	298	-1.90	0.059

Two-Sample t-test was use to find out the difference between District Dir Lower and Swat drivers understanding in the factor of informatory, Mandatory, warning, time of license and age. The table 10 shows that there is significant difference between District Dir Lower and Swat drivers understanding at the condition of t (298=4.91, p=0.000) about informatory roadside signs and symbols. while, there is no difference between district Dir Lower and Swat based drivers' knowledge regarding Mandatory at the condition of t (298) =0.86, p=.389), warning, t (298) =0.19, p=0.847, time of license, t (298) =-1.37, p=0.171 and age t (298) =-1.90, p=0.059 roadside sings and symbols.

5. Discussion

The results of the current study found on the base of One-way-ANOVA that there is significant difference of understanding of drivers regarding informatory, mandatory and warning signs in district swat. Whereas, the outcome of the applied test also explored significant difference of the understanding about informatory, mandatory and warning signs in district dir. The results of One-Way-ANOVA also exposed that there is significant difference in the knowledge concerning informatory, mandatory and warning signs in district Swat and Dir. Most of the divers and road users haven't enough knowledge regrading roadside signs and symbols. The study exposed that there is no relation between the drivers and the road builders, which is the main factor of accidents in the country. The results also showed the roadside signs only for the authorization, but it needed to make understandable for the road users [19]

Less than fifty percent drivers know about seven out of twenty road side signs. While, less than fifteen percent recognize three traffic signs out of seven. Seventy five percent of the drivers identify six traffic signs out of twenty. Statistical analysis has shown that traffic sings are effective in Pakistan [20].

Two-sample t-test was also conducted to find out the difference between District Dir lower and Swat based deriver, where the results also show significant difference between the selected population. But the other side, there is no difference between district Dir Lower and Swat based drivers' knowledge regarding Mandatory and warning signs and symbols.

The marital status, sex, nationality, age, monthly income and background education have strong relationship with drivers understanding about traffic signs and symbols. Sample were taken from five gulf countries in this research, whereas, 28 signs were examined. About 55 percent of the drivers identified the regulatory signs correctly, while warning signs were identified by 56 percent of the drivers. Age, salary and education played an important role in the understanding of roadside symbols, while conjugal status demonstrated no critical impact [21].

Most of the drivers fail to understand road side signs on time. Signs must me observable, effective and readable from a distance and must be understood easily. Specific shapes are used as traffic sings and symbols, but most of the drivers don't know about these signs [22].

6. Conclusion

The basic aim of this study was to find the understanding of drivers of District Swat and Dir Lower about traffic signs as non-verbal communication. In this research total 60 signs including 17 informatory, 32 mandatory, 9 warning and 2 regulatory signs and symbols were studied to find out the understanding of the drivers of the both areas. data was collected from 300 drivers of Swat and Dir Lower districts. Radom sampling was done for data collection, whereas, discriptive and inferential statistics was run through SPSS to find out the different between Swat and Dir Lower based drivers understating about informatory, mandatory and warning roadside signs and symbols.

On the base of inferential statistics, it is concluded that all the drivers have less understanding regarding the road side signs and symbols in Swat as well as it is also explored that most of the drivers of Dir Lower district have less knowledge regarding the road side signs and symbols. The Comparison explored that most of the drivers of Swat and Dir Lower have less information about road side signs and symbols.

6.1 Recommendations

- It is recommended that more knowledge is required for the drivers about the traffic signs and symbols.
- It is also suggested that government give license to those drivers who's understanding is good about the road signs.
- It is also recommended that the government take strict steps in the issuance of the license which will be helpful in the reduction of road accidents.
- It is also suggested that most of the roads of Swat and Dir have no traffic signs, if the signs are displayed on the roadsides it will be also fruitful in reducing road hazards.
- It is also recommended that if government organizes training classes for the drivers. It will help them to find quality drivers.

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