TECHNIUM
SOCIAL SCIENCES JOURNAL

Vol. 27, 2022

A new decade for social changes

www.techniumscience.com

ISSN 2668-7798

9 772668 779000

The efficacy of road safety education to prevent pedestrian fatalities in Limpopo Province (South Africa)

Mmakwena Modipa, Sean Kockott, Adewale Olutola

Tshwane University of Technology, 2 Aubrey Matlakala St, Soshanguve, Pretoria, 0001

modipamv@tut.ac.za, kockottsr@tut.ac.za, olutolaaa@tut.ac.za

Abstract. This paper explores road safety education to prevent pedestrian fatalities in Limpopo Province. Pedestrian safety remains one of the main challenges for road safety authorities as many road users are losing their lives on the road. The inability of both pedestrians and motorists to understand and interpret the rules of the road is a major problem in Limpopo Province. The study utilised quantitative approach. The sample consisted of 195 respondents. Comprises of 15 civil engineering companies, 23 civil society organisations, 52 community members, 51 teachers and 54 traffic police officials. The findings from the study revealed among many others, that 64.1% of respondents agreed that non-involvement of parents in road safety education contribute to pedestrian fatalities; 61% of the respondents agreed that ineffective scholar patrol contribute to pedestrian fatalities; 67.2% of the respondents agreed that lack of professional support in road safety contribute to pedestrian fatalities and 72% of the respondents agreed that limited resources in road safety contribute to pedestrian fatalities. Based on the findings, the author provided, possible recommendations such as; Department of Transport and Education should involve parents/guardians in road safety education; Department of Education should review scholar patrol to ensure that it assist positively in preventing pedestrian fatalities; Traffic authorities should partner with academics to provide road safety policies and strategies; Department of Transport should partner with private sector to provide resources for road safety education in Limpopo Province.

Keywords. Pedestrians, Motorists, Road Safety Education, Prevention, Limpopo Province, South Africa

Introduction

Pedestrian safety remains one of the main challenges for road safety authorities all over the world even in South Africa is prevalent where pedestrians are being injured and killed on the roads. The World Health Organisation (2018), stated that more than 90% of road traffic deaths occur in low and middle income countries and road traffic injury death rates are highest in the African region. Even within high-income countries, people from lower socioeconomic backgrounds are more likely to be involved in road traffic crashes (World Health Organisation, 2018). According to Smith (2014), South Africa is one of the world's most dangerous countries to drive in and is deemed by the WHO (2013), as having the world's sixth deadliest roads, with a death rate of 31,9% people per 100,000. Mohan (2002: 82), stated that, with little public

transport and infrastructure for pedestrians, it can be surmised that the primary contributing factor to pedestrian injury is increased exposure to traffic. Road traffic accidents are a major, but neglected global public health problem, requiring intensive efforts for effective and sustainable prevention and of all the systems that people must deal with daily, road transport is the most complex, the most dangerous, and much should be done to counteract this problem. Given that unsafe pedestrian behaviour often increases their collision risk, educational measures that aim to correct or modify these behaviours have been developed (Automobile Association, 2017). Proponents of training and education initiatives argue that pedestrians can reduce their exposure to risk by identifying age related functional declines, developing appropriate behaviour to compensate for these limitations and updating knowledge of road regulations. It is also considered important to educate both pedestrians and drivers to the rights and responsibilities of all road users. Schrieber and Vegega (2002), in their report, stated that road traffic crashes between child pedestrians and motor vehicles declined after classroom education, but the degree of pedestrian behavioural change was not large and by comparison, correct behaviours for certain road crossing skills had increased up to 40%–70% among children exposed to skills training interventions in the United Kingdom and to 30%–50% of lower elementary children exposed to such training in the United States. This article aimed to evaluate road safety education in preventing pedestrian fatalities and identify existing challenges in preventing this problem and recommend practical solutions in line with United Nations Decade of Action for Road Safety 2021-2030.

Road safety education

Road safety education plays an important role in shaping the attitudes and behaviour of road users and it will be relevant if it can start at an early age, where children can learn about road safety in order for them to conduct themselves in a responsible manner. Children can also influence their parents about road safety if they learn it at school. For example, if children are being taught about speeding and other contributory factors to road traffic accidents, they can simply say “no” to unlawful conduct or advise them to follow the rules of the road. Mandela said, “Education is the most powerful weapon which you can use to change the world”. It is important for all road users to learn about road safety to make our roads safer and more accommodating in terms of bringing ideas to the relevant authorities in terms of improving road safety in the country. Mandela also said that “no country can really develop unless its citizens are educated”.

Pre-Schools

The Department of Transport and the Department of Education have emphasised the need for a long-term road safety strategy that will include road safety education. The Ministry of Education announced, at the start of 2006, that primary-school pupils will also study road safety in 2006 as part of the school curriculum (Arrive Alive, 2018). Children and young people have a high involvement in road crashes, so they must learn to use the road safely. Receiving road safety education as part of their normal school curriculum is recognized as being one of the most effective ways of providing youngsters with road safety knowledge. Road safety education develops knowledge, skills, attitudes and even more important, values that enable pedestrians, cyclists, motor cyclists, drivers, and passengers to use the road safely (Arrive Alive, 2018). South Africa has pre-schools where children as young as 4–5 years are being taken to these schools to prepare them before they can go to primary schools. At this age it is when it is

important to train their teachers about road safety to make them more efficient in transferring the information to the children.

In order to educate children to be safer road users, it is important to fine-tune road safety education programmes to the development of children, to become more empowered in terms of road safety. To make road safety work it is important for the Road Traffic Management Corporation to ensure that teachers who are in pre-schools are more informed about road safety and work closely with them and ensure that resources are available for learners to do practical exercises. Teaching road safety to pre-schoolers helps them learn to be more aware and equips them with basic safety knowledge and practical life understanding of the rules of the road and as a result they could also help others to follow the rules of the road, Toddlers specially impact their parents as they will ask them questions, especially if they are doing things which are not in line with what they have learned at schools. Pre-school drawing of pictures is a key in terms of how children learn and singing about road safety will make them to implement it during their day-to-day living even with their parents. Starting to learn about traffic signs at an early age, they will know the meaning of red light (stop), yellow (caution) and green (go). Through innovative thinking, traffic lights can be used in singing and drawing of pictures which depict real-life situations, where could easily learn from those situations (seeing and doing things could develop children in a better way when it comes to road safety).

The younger the child, the more difficult the transfer of knowledge and skills to contexts that differ from the knowledge and skills that were first learned will be. Therefore, the younger the children, the more important it is that they have ample opportunity to interact with real objects and real environments (Dragutinovic and Twisk, 2006: 28). One of the first goals of education for young children (age 4 or 5), should be to enable young children to learn and understand what to pay attention to and what to look for when faced with traffic (Dragutinovic and Twisk, 2006: 28). Most pre-schools should have road safety education as it will go a long in the development of children, especially for road safety. Road safety training should continue to focus on the development and application of roadside skills, but young children should also be trained in the basic concepts of error-avoidant road user behaviour, so that they can perceive themselves as having a personal responsibility for maintaining safety (Dragutinovic and Twisk, 2006: 26).

The Department of Education/Transport or private businesses, should provide pre-school learners with tools to perform road safety and to save lives on the road, it is important to educate children as they will grow older with skills on how to conduct themselves on the road. Schools implementing road safety initiatives, whether short or long-term, should be recognised and commended for contributing to the health and wellbeing of young people in South Africa especially in Limpopo Province. Education plays an important role towards achieving a safe system and schools need to be involved. However, the level of that involvement will differ according to the demands and needs of each school. Schools are in an ideal position to deliver road safety education and to promote and maintain the health of children and young people (School Drug Education and Road Aware, 2009). Collective effort is needed to successfully ensure road safety to pre-school children in Limpopo Province, because teachers alone cannot win the battle of road traffic accidents, especially to young children, therefore the business community, as well as other stakeholders, need to form part of coming up with strategies to improve road safety in the province, especially to toddlers. Most pre-schools need resources for road safety, so that they can use them to better understand and interpret road signs, traffic lights and all other components of road safety.

Primary Schools

Road safety education plays an important role in addressing pedestrian fatalities in the world. Even in South Africa the Department of Education and Transport came on board to address this problem at grassroots level. It is of paramount importance for the basic education department to strengthen their curriculum in terms of addressing key important issues about road safety. Primary schools are where the message of road safety could be key in preventing pedestrian fatalities. Most of the schools in the Province lack resources in carrying out road safety messages. The schools need all stakeholders to come together and raise funds for schools to have tools to address road safety at school zones, because many of the children are being killed on the road to and from schools. It is our responsibility, with the help of traffic police officials, to do our part and ensure that children are safe whenever they are on the road. Road safety education is a measure which is used to address road traffic accidents and it should be implemented in all schools as well as including the resources to learn and practice about it, because in primary schools one of the best methods of teaching is through presentations, using drawings, singing and other innovative methods, such as road safety competitions where schools compete for first prize. For example, schools should identify problems in relation to road traffic accidents in their area and come-up with a solution which will address the problem. If all schools in the province could be able to enter these kinds of competitions at primary level, road traffic accidents could be defeated, because the more people are informed about road safety, the less the number of traffic accidents would be.

The comprehensive review by Thomson (1994), demonstrated that learning is a bottoms-up process that starts with actions and moves towards concepts. Learning, especially in the early years, generally proceeds from behavioural knowledge (by seeing and doing things), to representational (or symbolic), knowledge. This trend should also be mirrored in education where training should progress from action to concept. This appropriate sequencing is the key to success of practical training methods. In the beginning these methods train children's actions within situations in which that behaviour must be used, or to situations close enough. Once those actions are learned, they become the basis for more general concepts, such as traffic movements and interaction between different categories of road users (Thomson, 1994). Therefore, it is important for teachers to attend training courses on road safety to carry out learning outcomes and assessment criteria on road safety with excellence. It is also important for parents to be involved in educating their children about road safety, because, even if children possess adequate skills, this does not guarantee they will behave safely as their behaviour is inconsistent and more and more support is needed to ensure that they are safe whenever they are on the road.

Reasons for scholar patrol (Arrive Alive, 2018)

- Each year, children travel to and from school almost 200 times.
- Dangerous traffic congestion occurs around schools with so many parents dropping their children off in the morning and picking them up after school.
- Traffic Authorities, schoolteachers and principals recognize that this congestion creates the most dangerous location on a child's journey to and from school.
- Scholar Patrol performs an especially important and responsible public service by controlling traffic and by safeguarding scholar pedestrians. Student patrollers guide fellow students and prevent them from entering traffic when it is unsafe.

Scholar patrol is one of the mechanisms primary schools use to counteract the problem of pedestrian fatalities in the province where school children are trained to control traffic in the morning and after school with the help of the teachers.

Source: Arrive Alive (2018)

Scholar Patrol is an essential part of road safety education and essential to enhancing the safety of our scholars at their schools. Not only does it regulate traffic, improve speed calming, and facilitate safe crossing of the road, but it also instils in the minds of our young pedestrians an awareness of the importance of road safety (Arrive Alive, 2018). They also set a good example and encourage all students to observe the rules of safety. They have to report for duty on time with the proper equipment and attire on. They have to report all infractions of the rules to their superiors. They have to aid other patrol members when necessary. Know and enforce all safety walking and crossing rules. Lastly, they have to attend regular meetings where they would discuss problem areas of traffic and street crossings.

Secondary Schools

As young people begin to mature and become more independent, they are exposed to increasing risks. Teenagers are an important group of road users as pedestrians, cyclists, motorcyclists, and newly qualified drivers. Many are unaware that road incidents are the biggest cause of accidental deaths and serious injuries amongst young people. There is a need for all those involved with young people to help teach clear road safety messages to equip them to understand and manage the risks they encounter as road users (North Yorkshire Road Safety Council, 2015: 9). Teachers could also help in terms of teaching teenagers in life and orientation and physical science subjects, which covers the importance of road safety, such as speeding. Young people are extremely vulnerable as road users, especially when they are learning to drive. Secondary schools can play an important role in improving road safety actions taken by their students. Secondary teachers are using curriculum resources provided by the Department of Education to unpack young people's mental models about road safety. They are using road safety as an authentic real-life context to help students deepen and apply their curriculum learning in all subjects. This way of learning encourages students to become active citizens with positive, socially connected road user identities (New Zealand Transport Agency, S.a: 1).

Road Safety is an issue that affects all road users. We all need to use roads whether we are children or adults. Most of us use the roads every day as pedestrians, cyclists, drivers or passengers in cars. It is therefore essential to ensure that we can travel around as safely as possible. Good practice in Road Safety Education is developmental, progressive and relates to the stages of development of the child. The most effective Road Safety Education is developed by partnerships between class teachers, parents, and Road Safety Officers, each supporting the other (North Yorkshire Road Safety council, 2015: 2). To effectively counteract pedestrian

fatalities, all major stakeholders need to play their roles, for example, teachers should do their part by teaching learners all the fundamental issues of road safety and parents should also do their part.

Young drivers are in most cases involved in road traffic accidents, as some of them are still learning to drive and the issue of alcohol also comes into effect, especially during weekends, when most of the accidents happen in the province. To counteract it, much should be done on building on their behaviour in terms of respecting the rules of the road. Firstly, learners should learn about road safety and how it affects them and their community. Through high school competitions on road safety, many of our learners could learn a lot from other schools in the country. It should be supported by all major stakeholders, so that all schools can participate in these kinds of competitions. One of the methods which they can use to transfer information to road users, is by using theatre and drama. For example, South African Broadcasting Corporation launched a drama called Ingozi (accident), to teach road users about the danger of not following the rules of the road. Drama and theatre are very effective when it comes to engaging young people in road safety messages. Theatre-in-Education is particularly suited to tackling social pressures and alternative behaviour. For that reason, plays should be regarded as a key element of the curriculum, as well as to spread the road safety message (Dragutinovic and Twisk, 2006: 28).

It is of paramount importance that all learners know the danger and consequences of not following the rules of the road. One of the disadvantages about breaking the law is that it can finish your career before it has even started, by getting a criminal record, which will make things difficult for you after completing your studies and looking for a job. Once they know about the consequences and advantages of being good road users, they will apply themselves in a respectable manner, because they have an advantage over those who did not go to school in terms of life skills. Transformation of knowledge and motor abilities into safe participation in traffic, can help learners to become good road users. This can only be learned at schools during driving classes in terms of how to apply themselves on the road. One of the disadvantages on the road, especially for teenagers, is a lack of concentration, which causes them to have road traffic accidents.

Texting while driving and walking is prevalent in teenagers and it contributes to a high accident rate among this group. They should learn to always concentrate while they are on the road and be vigilant while applying themselves to behave in line with the rules of the road. Behaviour or attitude of teenagers also contribute to road traffic accidents as the Road Traffic Management Corporation always emphasises that human behaviour is the main contributory factor to road traffic accidents. If teenagers could behave in a good manner, many lives could be saved on the road. They should be committed to work hard and be good leaders for the future by applying themselves in a respectable manner in schools and in their communities. They should also act as role models to the younger ones who are still in primary school and the community itself. Motivation to comply with rules, to avoid risks, to act safely and socially responsible and will benefit the whole country, and everyone will follow suit because most road users lack motivation to do better. With more information on road safety, much could be done to have positive results towards preventing pedestrian fatalities in the country, especially in Limpopo Province.

Methodology

Study population

McBurney (2001:248) referred to a study population as the sampling frame. A population is the totality of persons, events, organisations, case records, or other sampling units with which the research problem is concerned. Wegman, Aarts and Bax (2007:52) noted that the population is the study of objects and consists of individuals, groups, and organisations, humans, products, and events or the conditions to which they are exposed. Bless, Higson-Smith and Sithole (2013:164) noted that a study population is the set of elements that the research focuses on. In the case of quantitative research, the results obtained by testing the sample should be able to be generalised to the entire population.

According to Statistics South Africa (2016) noted that Limpopo Province's population had an increase in terms of the people living in the province, from 5,4 million people in 2011 to 5,8 million in 2016, making it the fifth largest province in the country in terms of population size. It trails behind Gauteng (13,4 million), KwaZulu-Natal (11,1 million), Eastern Cape (7 million), and Western Cape (6,3 million). The number of households in the province has also increased to 1,6 million in 2016, from 1,4 million in 2011. The district municipality with the largest share of households in the province is Vhembe (382 346), followed by Capricorn (378 272), Mopani (338 385), Greater Sekhukhune (290 489), and Waterberg (211 452). Only respondents who were above the age of 18 years formed part of the research study since most of them understand the issue of pedestrian fatalities.

In this research, the sample consisted of Community members, Municipal/ Traffic police officials, Civil society organisations (members), Road construction companies and Teachers were part of the population of this study since the research concerns them regarding road safety to all road users, especially pedestrians. It is of great importance for them to be part of the study population, because without them, the targets of the study will not be attained. All participants from the province covered by this research formed part of the study population to obtain answers to the problem of pedestrian fatalities and to gain their views so that the study can contribute towards contributing to knowledge, attitude, skills and preventing pedestrian fatalities on the road.

Sample size

Bless et al. (2013:165) noted that a sample is a subset of the population, and to be useful in research it must have all the properties of the population to be representative of the whole. The research sample consisted of 54 Municipal/Traffic police officials, 51 Teachers, 23 Civil Society Organisations, 15 Road construction companies and 52 Community members. The total size of the sample was 195.

Methods of data collection

Survey/Questionnaire

De Vos, Strydom, Fouché and Delport (2011:171) noted that quantitative data collection often employs measuring instruments. In the social and human sciences, measuring instruments refer to questionnaires, among others. Quantitative research aims to explain phenomena by collecting numerical data that are analysed using mathematically based methods (statistics). Therefore, as quantitative research is essentially about collecting numerical data to explain a phenomenon, questions seem immediately suited to being answered using quantitative methods. Data can be collected on a wide number of phenomena and made quantitative through data

collection instruments such as questionnaires. The researcher constructed a questionnaire, which was distributed to all respondents.

Babbie (2007:246) defined a questionnaire as a document containing questions and/or other types of items designed to solicit information appropriate for analysis. Although the term “questionnaire” suggests a collection of questions, a typical questionnaire may contain as many statements as questions, especially if the researcher is interested in determining the extent to which respondents hold a perspective. Babbie and Mouton (2001:233) noted that the basic objective of a questionnaire is to obtain facts and opinions about a phenomenon from people who are informed on the issue.

Data analysis

Bless *et al.*, (2013: 21), noted that once data are collected, the data must be organised and checked for accuracy and completeness. When this process was completed, the researcher used a range of arithmetical and statistical tests to describe the sample data and to generalise from this data set to the population from which the sample was drawn. Data were collected by means of questionnaires from the following: community members, Civil Society Organisations, Teachers, municipal/traffic police members, and road construction companies. The data from these participants were collected, reviewed, and then analysed to form findings or conclusions. The data was received in questionnaire format; all these analyses were conducted using STATA version12 statistical software. When the database was developed, it was made of rules with respect to the questionnaire and that set boundaries for different variables and the Likert scale was used.

Preliminary analysis

A Uni-variate descriptive analysis was performed on all the original variables; displaying frequencies, percentages, these descriptive statistics are shown in Table 1. The reliability of the statements in the questionnaire posed to the respondents of the survey was measured by using the Cronbach Alpha tests.

Inferential statistics

Inferential statistics used are:

- **Cronbach Alpha test:** Cronbach’s Alpha is an index of reliability associated with the variation accounted for by the true score of the “underlying construct”. Construct is the hypothetical variables that are being measured (Schindler and Cooper, 2001: 216–217). Another way to put it would be that Cronbach’s alpha measures how well a set of items (or variables) measures a single uni-dimensional latent construct. When data has a multidimensional structure, Cronbach’s Alpha will usually be low.
- **Fischer’s exact tests for ordinal data:** This was conducted to test for significant group differences. Chi-square was not conducted because some of the cells had less than five responses. Significance level was set at $p < 0.05$.
- **Factor analysis:** Factor analysis is used to reduce measurable and observable variables to fewer latent variables that share a common variance and are unobservable, which is known as reducing dimensionality (Bartholomew, Knott, and Moustaki, 2011). Factor loading in factor analysis is the relationship of each variable to the underlying factor. In this study, factor analysis was conducted to generate latent variables for the main variables.
- **Kruskal Wallis or Wilcoxon Rank-sum tests:** are non-parametric tests. Kruskal Wallis tests for more than 2 independent samples while Wilcoxon Rank-Sum (Mann-Whitney U) tests for two independent samples to compare the groups (Age groups, Gender, Marital status

and membership of traffic police/education departments). In this study, the tests were used to test the hypotheses and p-value was set at $p\text{-value} < 0.05$.

Findings and discussions

Descriptive statistics

Table 1: Descriptive statistics for all the variables

Variables	Categories	Frequency	Percentage out of total (%)
Section A: Biographic variables			
Categories of the study participants	Civil Engineering companies	15	7.69
	Civil Society Organization	23	11.79
	Community Member	52	26.67
	Teachers	51	26.15
	Traffic Police	54	27.69
1. Age group	18–24 Years	33	16.92
	25–30 Years	45	23.08
	31–35 Years	33	16.92
	36 Years and above	81	41.54
	Missing	3	1.54
2. Gender	Male	90	46.15
	Female	101	51.79
	Missing	4	2.05
3. Marital status	Married	78	40.00
	Single	103	52.82
	Divorced	3	1.54
	Missing	11	5.64
4. Member of the Traffic Police/Education Department	Yes	100	51.28
	No	90	46.15
	Missing	5	2.56
5. Years of service	Less than 5	31	29.25
	6–10	27	25.47
	11–15	12	11.32
	16–20	15	14.15
	More than 20	21	19.81
Section B: Road safety education factors			
6. Non-involvement of parent/guardian	Strongly Agree	38	19.49
	Agree	87	44.62
	Don't Know	10	5.13
	Disagree	41	21.03

Variables	Categories	Frequency	Percentage out of total (%)
7. Ineffective scholar patrol	Strongly Disagree	16	8.21
	Missing	3	1.54
	Strongly Agree	46	23.59
	Agree	73	37.44
	Don't know	21	10.77
	Disagree	36	18.46
	Strongly Disagree	12	6.15
8. Lack of professional support	Missing	7	3.59
	Strongly Agree	54	27.69
	Agree	77	39.49
	Don't know	13	6.67
	Disagree	39	20.00
	Strongly Disagree	7	3.59
9. Limited resources	Missing	5	2.56
	Strongly Agree	65	33.33
	Agree	76	38.97
	Don't know	18	9.23
	Disagree	24	12.31
	Strongly Disagree	8	4.10
	Missing	4	2.05

In **Table 1**, most of the respondents were 36 years and above (41.54%; N=81) and female (51.79%; N=101). Also, 51.28% were either members of the traffic police or education department. For all the statements, most of the respondents chose either “Strongly Agree” or “Agree”. For the road-safety education factors, most of the study respondents agreed to the all the components.

Table 2: Cronbach's Alpha Coefficient for all the items forming the measuring instrument in this survey.

No	Statement (Test all statements without current one's input)	Variable number	Item-rest correlation	Cronbach's Alpha Coefficient
	Road safety education factors			
7	Non-involvement of parent/guardian	qb7	0.3641	0.9089
9	Ineffective scholar patrol	qb9	0.4754	0.9072
10	Lack of professional support	qb10	0.4829	0.9071
11	Limited resources	qb11	0.5375	0.9063

Hypothesis: Road safety education could prevent pedestrian fatalities in Limpopo Province.

Age group compared with respect to Road safety education factor

There was no statistically significant difference between age group for the latent variable “Road safety education”. There was no difference in the response to the questions that made up this factor between the age groups (Kruskal-Wallis test statistic chi-square=6.518, Degrees of freedom=3, P-value=0.089). This means that no age group agreed more than the other that road safety education could prevent pedestrian fatalities in Limpopo Province.

Gender compared with respect to Road safety education factor

There was no statistically significant difference between genders for the latent variable “Road safety education”. There was no difference in the response to the questions that made up this factor between gender (Wilcoxon Rank-Sum (Mann-Whitney U) $p=0.756$). This means that both male and female agreed the same way that road safety education could prevent pedestrian fatalities in Limpopo Province.

Marital status compared with respect to Road safety education factor

Similar to other variables, there was no statistical significant difference between the marital status groups (Kruskal-Wallis test statistic chi-square=2.762, Degrees of freedom=2, P-value=0.251). No group agreed more than the others that road safety education could prevent pedestrian fatalities in Limpopo Province.

Membership of traffic police/education departments with respect to Road safety education factor

Also, there was no statistical significant difference between the two groups (p -value=0.115). Being a member of traffic police/education department or not did not affect the responses of the participant to road safety education. Both groups i.e. members and non-members agreed the same level to road safety education preventing pedestrian fatalities in Limpopo Province.

With respect to the distribution of the respondents in this survey the following analogies can be drawn from this research:

- Most of the respondents were Traffic police officers.
- Most of them were female
- Most of the respondents were 36 years above.
- There were more respondents from the traffic police/education department than those who were not.
- Most of the respondents were single at the time of this study.

With respect to the road safety education factors as measures of preventing pedestrian fatalities in Limpopo Province, the following analogies can be drawn from this study:

- Generally, most respondents believed that parents/guardians were not involved in educating their children about road safety
- Limited resources in providing road safety education were one of the factors generally agreed to be affecting road safety education. More female respondents agreed that there were limited resources in providing road safety education than their male counterparts.

Based on the hypothesis of the study, the following results came out of the analysis:

Non-involvement of parents/guardians

Most of the respondents 64.1% agreed that non-involvement of parents compromises road safety education irrespective of age, gender, marital status, and being a member of the traffic police/education department while 5.1% indicated ‘don’t know’ response to the statement. 29.24% of the respondents disagreed with this statement that non-involvement of

parents compromises road safety education. Therefore, based on the responses, non-involvement of parents/guardians contributes to pedestrian fatalities in Limpopo Province and it is of paramount importance for parents to be involved in road safety education to prevent pedestrian fatalities.

Ineffective scholar patrol

Most of the respondents 61% agreed that ineffective scholar patrol compromises road safety education irrespective of their age, gender, marital status, and being a member of the traffic police/education department while 10.77% indicated 'don't know' response to the statement. 24.61% of the respondents disagreed with this statement that ineffective scholar patrol compromises road safety education. Therefore, based on the responses, ineffective scholar patrol contributes to pedestrian fatalities in Limpopo Province and it is of great importance for Department of Education and Transport to review and ensure that scholar patrol is effective in preventing pedestrian fatalities.

Lack of road safety professionals

Most of the respondents 67.2% agreed that lack of road safety professionals' compromises road safety education irrespective of their age, gender, marital status, and being a member of the traffic police/education department while 6.67% indicated 'don't know' response to the statement. 23.59% of the respondents disagreed with this statement that lack of road safety professionals' compromises road safety education. Therefore, based on the responses, lack of road safety professionals contributes to pedestrian fatalities in Limpopo Province and it is important for Department of Transport to involve road safety professionals to assist in road safety education to ensure that road users are safe on the road.

Limited resources

Most of the respondents 72% agreed that limited resources compromises road safety education irrespective of their age, gender, marital status, and being a member of the traffic police/education department while 9.23% indicated 'don't know' response to the statement. 16.31% of the respondents disagreed with this statement that limited resources compromises road safety education. Therefore, based on the responses, limited resources contribute to pedestrian fatalities in Limpopo Province and it is important for Department of Transport and Education to avail resources in road safety education programs.

Conclusion and recommendations

In conclusion the study has made a significant impact in terms of closing gaps on road safety education in Limpopo Province. The study would also help Department of Transport and Education and other major stakeholders to prevent pedestrian fatalities. Pedestrian fatalities are a major problem for road traffic authorities in Limpopo Province and the inability of both pedestrians and motorists to understand and interpret the rules of the road also impact on road safety. Road safety education programs highlight the importance of educating road users about the importance of adhering to the rules of the road and respecting other road users in order to avoid fatalities on the road. Road safety is a collective responsibility and it is of paramount importance for all major stakeholders to play their roles in ensuring road safety. One of the leading interventions in road safety is road safety education, the more road users are informed about road safety the better in terms of road traffic accidents. This study explored road safety education to prevent pedestrian fatalities in Limpopo Province and based on the findings of the study road safety education contribute to prevention of pedestrian fatalities, the following recommendations are of great importance:

Road safety curriculum

Road safety education is a great subject to engage with children and young adults about the importance of road safety. Many children are affected by road traffic accidents where they lose their loved ones on the road and this approach will help them to become ambassadors of road safety. Road safety education should focus on three key areas which are knowledge, skills, and attitude. The Department of Transport, as well as the Department of Education in the Province, should work together in drafting a road safety curriculum. Road safety curriculum should be introduced at pre-school, primary and secondary education to ensure that children learn about road safety from young age as this will help them to maneuver in traffic. The curriculum should cover theory and practical aspects of road safety to empower children with knowledge, skills and attitude. The benefits of educating children about road safety is that the entire community will benefit in terms of sharing of road safety education and also in terms of conduct on the road. Children are able to influence their parents and friends about the rules of the road and this will help in terms of road safety. It is also important to ensure that our people learn about the rules of the road, because in most cases they learn about them when applying for a learner's license and this is the only knowledge available to them and this should be changed and become compulsory for learners.

Scholar patrol

Effective scholar patrol could prevent pedestrian fatalities especially to vulnerable road users such as children. Department of Education and Transport should ensure that every school in the province has the resources to conduct scholar patrol and also provide guidance in terms of how to conduct scholar patrol and ensure that children are safe to and from school. Training should be provided to teachers so that they can assist the children effectively with scholar patrol. Parents should also partner with teachers in helping their children in maneuvering in traffic because road traffic accidents are collective responsibility.

Involvement of road safety specialists

Road safety specialists should be involved in road safety education policies to assist in terms of providing their expertise in ensuring that policies are drafted in a manner that are accommodating the needs of all road users, as the current policies are favouring motorists even the design of the roads are not favourable to pedestrians as most they are injured or dying on the road as they try to accomplish this simple task of walking from point A to B. Road safety specialists should be involved in implementation programmes and monitoring to ensure that the needs of road users are taken into consideration in terms of their safety.

Public private partnerships

Pedestrian fatalities are a worldwide problem even in South Africa is prevalent, therefore the authorities in Limpopo Province should strengthen their relationships with other stakeholders to ensure road safety to all road users. Firstly, the issue of resources is a problem for every institution. It is important for law enforcement agencies to engage the private sector and businesses which are interested in making a positive impact on road safety to become involved and contribute towards road safety. Secondly, law enforcement agencies should engage communities to establish non-governmental organisations which will engage with pedestrians and inform them about road safety. Thirdly, building a good relationship with traditional and/or community leaders will make a positive impact on road safety as these leaders

will inform their communities about the importance of following the rules of the road because working in isolation will never bring a positive change on the roads.

References

- [1] ARRIVE ALIVE. 2018. Education and Road safety. Available online: <https://www.arrivealive.co.za/Education-and-Road-Safety>. Accessed on 23/08/2018.
- [2] ARRIVE ALIVE. 2018. Scholar Patrol and Road Safety. Available online: <https://www.arrivealive.mobi/scholar-patrol-and-road-safety>. Accessed on 04/09/2020.
- [3] AUTOMOBILE ASSOCIATION. 2017. Pedestrian safety needs urgent attention. Available online: <https://www.aa.co.za/about/press-room/press-releases/pedestrian-safety-needs-urgent-attention.html>. Accessed on 05/06/2017.
- [4] BABBIE, E. & MOUTON, J. 2001. *The practice of social research*. 8th ed. USA: Oxford University Press.
- [5] BABBIE, E. 2007. *The practice of social research*. 11th ed. Belmont: Thomson Wadsworth.
- [6] BARTHOLOMEW, D., KNOTTS, M. & MOUSTAKI, I. 2011. Latent variable models and factor analysis: A unified approach. (3rd ed.). West Sussex, UK: John Wiley & Sons.
- [7] BLESS C., HIGSON-SMITH, C. & SITHOLE, S.L. 2013. *Fundamentals of social research methods: An African perspective*. 5th ed. Cape Town: Juta.
- [8] DE VOS, A.S., STRYDOM, H., FOUCHÉ, C.B. & DELPORT, C.S.L. 2011. *Research at grassroots for the social sciences and human service professions*. 4th ed. Pretoria: Van Schaik Publishers.
- [9] DRAGUTINOVIC, N. & TWISK, D.A.M. 2006. The effectiveness of road safety education, a literature review. SWOV Institute for Road Safety Research, Leidschendam, the Netherlands.
- [10] MCBURNEY, D.H. 2001. *Research methods*. 5th ed. Singapore: Thomson Asia.
- [11] MOHAN, D. 2002. Traffic safety and health in Indian cities. *Journal of Transport and Infrastructure*, 9, 79–94.
- [12] NEW ZEALAND TRANSPORT AGENCY. S.a. Good practice in road safety guide: Road safety education in secondary schools. Available online: <https://www.pikb.co.nz/assets/Uploads/Documents/14-271-Guide-Road-safety-education-in-secondary-schools-v3.pdf>. Accessed on 19/07/2018.
- [13] NORTH YORKSHIRE ROAD SAFETY COUNCIL. 2015. Road Safety in the Secondary Curriculum Resources for Key Stage 3 and 4. Available online: <http://www.roadwise.co.uk/wp-content/uploads/2015/09/secondary-schools-road-safety-v2doc.pdf>. Accessed on 19/07/2018.
- [14] SCHINDLER, D.R. & COOPER, P.S. 2001/2003. *Business Research Methods*. Seventh/Eight Edition. New York, NY. McGraw-Hill.
- [15] SCHOOL DRUG EDUCATION AND ROAD AWARE. 2009. Getting it together. Available online: <https://www.sdera.wa.edu.au/media/1311/getting-it-together-road-safety-education.pdf>. Accessed on 18/07/2018.
- [16] SCHRIEBER, R. & VEGEGA, M. 2002 Education versus environmental countermeasures. Is it really an either-or proposition? *Injury Prevention*. 8; 10–11.
- [17] SMITH, N. 2014. Road deaths marred by flawed statistics. Available online: <http://www.bdlive.co.za/business/transport/2014/01/13/road-deaths-marred-byflawed-statistics>. Accessed on 2017/01/11.

- [18] STATISTICS SOUTH AFRICA. 2016. Media release: Limpopo community survey 2016 results. Available online: <http://www.statssa.gov.za/?p=7988>. Accessed on 19/09/2018.
- [19] THOMPSON, T. 1994. Self-worth protection: Review and implications for the classroom. *Educational Review*, 46.
- [20] WEGMAN, F., AARTS, L. & BAX, C. 2007. *Advancing sustainable safety: National road safety outlook for 2005–2020*. Leidschendam, The Netherlands: Institute for Road Safety Research.
- [21] WORLD HEALTH ORGANISATION. (2013). *Pedestrian safety: A road safety manual for decision makers and practitioners*. Geneva: WHO.
- [22] WORLD HEALTH ORGANISATION. 2018. Online library of road safety mass media campaigns. Available online: http://www.who.int/violence_injury_prevention/videos/background/en/. Accessed on 25/07/2018.