Abstract

Road fatalities claim more than one million lives annually worldwide. The emotional, social and economic impact of road traffic fatalities demands urgent attention globally. This epidemic of road traffic fatalities is plaguing everyone, especially the poorer nations. Some countries like Australia and Sweden have been more successful than others in combating this epidemic.

South Africa is currently seeking strategies to combat this epidemic because South Africa's road traffic fatalities have been increasing annually, with a substantial percentage of teenagers and young adults between the ages of 16 and 29 contributing to these statistics. This age group will become or already have become part of the economically active population and concern is mounting as to why this particular age group is vulnerable.

This thesis provides an overview of the road safety problem globally, nationally, provincially and locally and also looks at the historical factors that have contributed to this problem. The Victorian model, which has been classified as the 'world's best practice', has been reviewed.

A pilot survey was conducted at the Mangosuthu Technikon and the focal survey was conducted at the tertiary institutions in the Durban area. Students from this sector were selected as they fall in the most vulnerable age group and data was collected from them on various aspects of road safety.

On analysing the data, various problems were identified, in particular, lack of resources and limited education pertaining to road safety. A range of possible solutions is recommended and the focus areas are the 3E's namely: education, enforcement and engineering. However, the focal recommendation is on education and looks at the possibility of introducing learner's licence testing to the grade 12 syllabi.

Declaration

This thesis, with exception to that indicated in the text, is the candidate's own work and has not been submitted in part, or in whole, at any other University, University of Technology or Technikon.

The research was conducted at the Durban Institute of Technology under the supervision of Dr Dhiren Allopi.

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Abbreviations

AA	Automobile Association
AARTO	Administrtion Adjudication of Road Traffic Offence
AMID	Association of Motorcycle Importers and Distributors
AUS	Australia
CSF	Curriculum and Standards Framework
CSIR	Centre for Scientific and Industrial Research
DoT	Department of Transport
DSE	Directorate of School Education
EC	Eastern Cape
FS	Free State
GA	Gauteng
GNP	Gross National Product
GRSP	Global Road Safety Partnership
GRSS	Global Road Safety Strategy
HMC	Highly Motorised Countries
JAP	Japan
Km/h	Kilometers per hour
KZN	KwaZulu-Natal
LI	Limpopo Province
MP	Mpumulanga Province
MTU	Mobile Training Unit
NC	Northern Cape
NGO	Non-Governmental Organisation
NW	North West Province
NZ	New Zealand
RAU	Rand Afrikaans University
RSE	Road Safety Education
SADC	South African Development Community
SAPS	South African Police Services
SWE	Sweden
TAC	Transport Accident Commission
TSE	Traffic Safety Education

UDV	United Distillers and Vintners
UK	United Kingdom
UNISA	University of South Africa
USA	United States of America
VCE	Victorian Certificate of Education
VIC	Victoria
WC	Western Cape
WHO	World Health Organisation

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1. Introduction

Road accidents claimed its first fatality in 1896 in London. Since then it has claimed more than 30 million lives worldwide.

Dr Howard Baderman, an accident and engineering specialist, cautioned that, " It was extraordinary for society not to realise the minefield it was creating for itself with new developments such as widespread use of cars, until as the years went by the carnage developed" (World Road Association, 2003).

Modern society, with the progressive development of the motorcar and its increased demand for individual mobility, has introduced an epidemic of plague proportions to societies around the world in the form of road deaths and injury. Some communities have been more successful than others in addressing this critical social issue.

"To date, road safety has received insufficient attention at international and national levels. This has resulted in part from a lack of information on the magnitude of the problem and its preventability, a fatalistic approach to road crashes, and a lack of political responsibility" (World Road Association, 2003).

1.1 Road Safety: A Global Problem

In 2002 road accidents claimed almost one million lives worldwide and caused injuries to more than fifty million people.
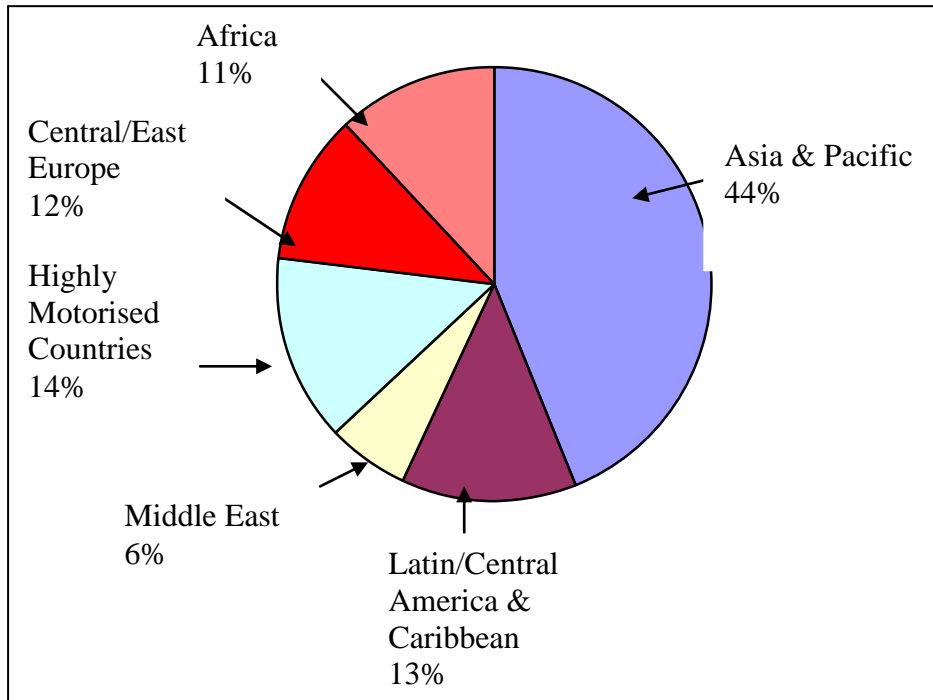
Figure 1.1 Estimate of Road Fatalities by Region
(Source: World Road Association, 2003)

Over 80% of these fatalities were in the developing and emerging nations of the world, such as Africa, Asia, Latin America and the Middle East, as illustrated in Figure1.1.

Regions	Regional GNP 1997	Estimated annual crash costs	
		GNP	Costs
Africa	370	1%	3.7
Asia	2454	1%	24.5
Latin America/Caribbean	1890	1%	18.9
Middle East	495	1.5%	7.4
Central /Eastern Europe	659	1.5%	9.9
Highly Motorised Countries	22665	2%	453.3
TOTAL			517.8

Table 1.1: Road Crash Costs per Region (US$ Billion)
(Source: World Health Organisation, 2002)

Road crashes are costing the world approximately US$518 billion a year as illustrated in Table 1.1. In developing regions such as Africa, road accidents cost approximately 1% of the GNP, which Africa can ill-afford.

"Road safety is an issue of immense human proportions; it is an issue of economic proportions; it's an issue of social proportions and it's also an issue of equity. Road safety very much affects poor people" (World Road Association, 2003).
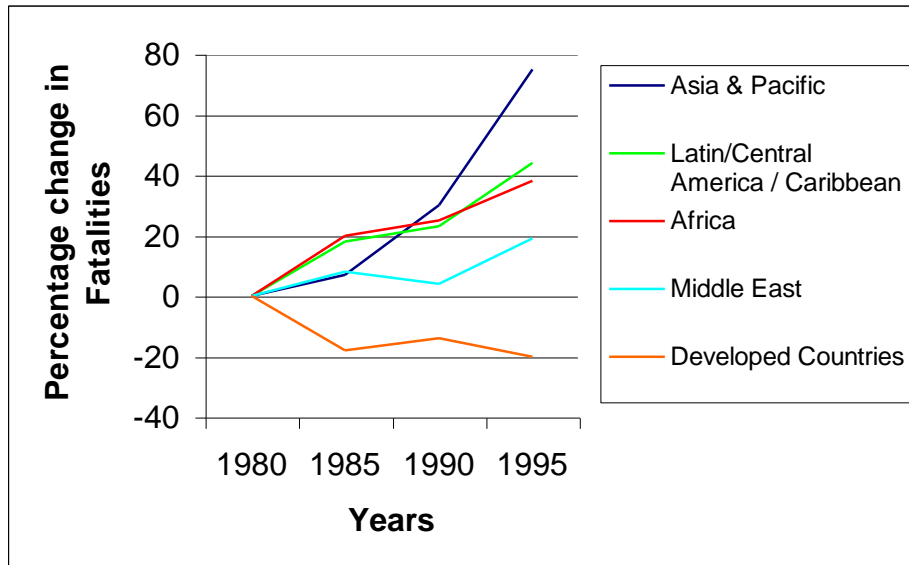
Figure 1.2 Percentage change in fatalities 1980 – 1995
(Source: World Road Association, 2003)

In the past three decades, the incidence of traffic crash fatalities and injuries has been reduced significantly in high income or developed countries but not in the lower to middle income countries (Figure1.2). The traffic patterns in the former are not only different but also less complex than those in the latter. Traffic in low income countries are more complex and comprise of a variation of traffic modes. Hence, vehicles, roads and the environment have to be designed for their safety. Solutions for such problems are not readily available and innovative work needs to be done around the world to arrive at new policies and designs. In addition to crashworthiness of vehicles; transportation planning, exposure control, intelligent separation of motorised and non-motorised traffic on major roads and traffic calming are likely to play a much more important role. Traffic crashes, fatalities and injuries have been significantly reduced in high income countries because of careful analysis and evaluation of the factors associated with crashes and the implementation of policies resulting from the analysis. However, most of these policies are

tailored to the specific situations and problems in those countries. The standards instituted for vehicles, roads and highway furniture are based on the traffic patterns and types of crashes that are more prevalent in those societies. On the other hand, almost no less-motorised country has been successful in reducing the number of lives lost and the people injured due to road traffic crashes in the past 2 decades. This is a curious situation, as all less-motorised country societies have been affected by the significant loss of lives due to road crashes for more than a decade. One cannot attribute the failure to reduce fatalities to the forms of government, culture or religious practices from the various developing countries. Among these countries there is a great variation in size (population may vary from one million to more than a billion), religions, cultural practices and forms of government. If these factors had a determining influence on road safety policies, then more developing countries would be successful. The fact that this has not happened means that there must be other reasons why the road safety situation in the less-motorised countries is less than desirable (Mohan *et al*, 2003).

The theoretical base of road safety injury control countermeasures may have international applicability, but many on the actual physical solutions may not. For example, most road safety measures instituted in developed countries have centred on the automobile and the automobile occupant. Figure1. 3 serves to illustrate that in developed countries, the number of fatalities is far less than the actual number of vehicles involved. In developing countries, the opposite has occurred.
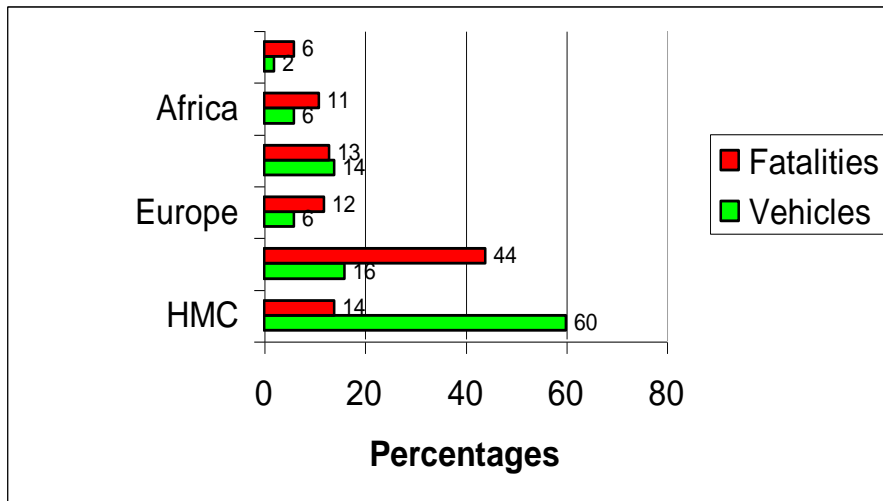
Figure 1.3 Vehicle and Fatality Percentages
(Source: Road Safety Manual , PIARC XXIInd World Road Congress, 2003)

Roads and intersection designs are based largely on car, bus and truck movement. In developing countries motorcycles, human powered vehicles, pedestrian carrying loads, and locally designed vehicles dominate the traffic. No traffic flow models and computer programmes are designed to account for this mix. Even if all the solutions developed in high-income countries were put in place on the roads of less motorised countries, the decrease in fatality rates would not be of the same magnitude as experienced in the high-income countries. Low income countries do not have the infrastructure to accommodate traffic flows as those in high income countries.

When a freeway is built through the countryside, it divides the landscape into separate zones. People from one side of the freeway cannot go to the other side easily by foot or bicycle. In developed countries this does not pose a serious problem as most people possess motorised transport. In developing countries however, people of low income who need to interact with each other may populate the countryside on both sides of the freeway. They need to

cross the freeway carrying or pulling heavy loads. In such a situation they prefer not to travel long distances to cross at designated over or under-passes. They end up breaking the fences and crossing at locations convenient to them. This makes a freeway more hazardous to everyone. The decision makers and international consultants come from a different stratum of society, which is only concerned with increasing the flow of intercity motor traffic and which sees the villagers as impediments to 'progress.'

Like all other developments in science and technology, road safety measures in high-income countries developed at certain historical junctures. They have an imprint of the prevailing socio-economic situation embedded in them. When the high-income country policies and designs are transferred to societies that have much lower per capita incomes, then large parts of these policies and designs are not successful. However, the attempt at introducing these measures in less-motorised countries also sets up a demand for instituting systems and technologies that imitate those in high-income countries. Since this is not always possible at low levels of income, these projects either become status symbols without much functional value, or remain in place as demonstration projects. While a few less motorised countries can experience high growth rate for some periods, most of the other countries will continue to function as less-motorised countries for quite some time to come (Mohan *et al*, 2003).

The World Health Organisation (2002) estimates that by the year 2020, road traffic fatalities will account for 2.3 million lives annually. Currently road traffic

injuries are the 9th leading cause of disease or injury and by year 2020 it is anticipated it will be the 3rd leading cause (Table 1.2).

1998 Disease or Injury	2020 Disease or Injury
1. Lower respiratory infections	1. Ischaemic heart disease
2. HIV/AIDS	2. Unipolar major depression
3. Perinatal conditions	**3. Road traffic injuries**
4. Diarrhoeal disease	4. Cerebrovascular disease
5. Unipolar major depression	5. Chronic obstructive pulmonary disease
6. Ischaemic heart disease	6. Lower respiratory infections
7. Cerebrovascular disease	7. Tuberculosis
8. Malaria	8. War
9. Road traffic injuries	9. Diarrhoeal disease
10.Chronic obstructive pulmonary disease	10. HIV/AIDS

Table 1.2: Disease burden for 10 leading causes
(Source: World Health Organisation, 2002)
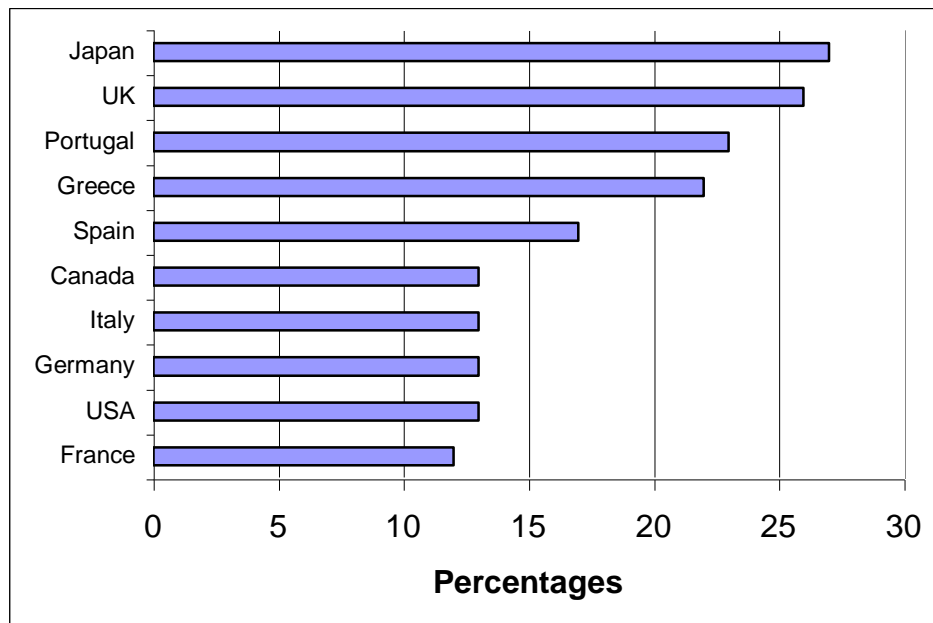
Figure 1.4 Pedestrian Fatality rates in High-motorised Countries
(Source: Road Safety Manual , PIARC XXIInd World Road Congress, 2003)
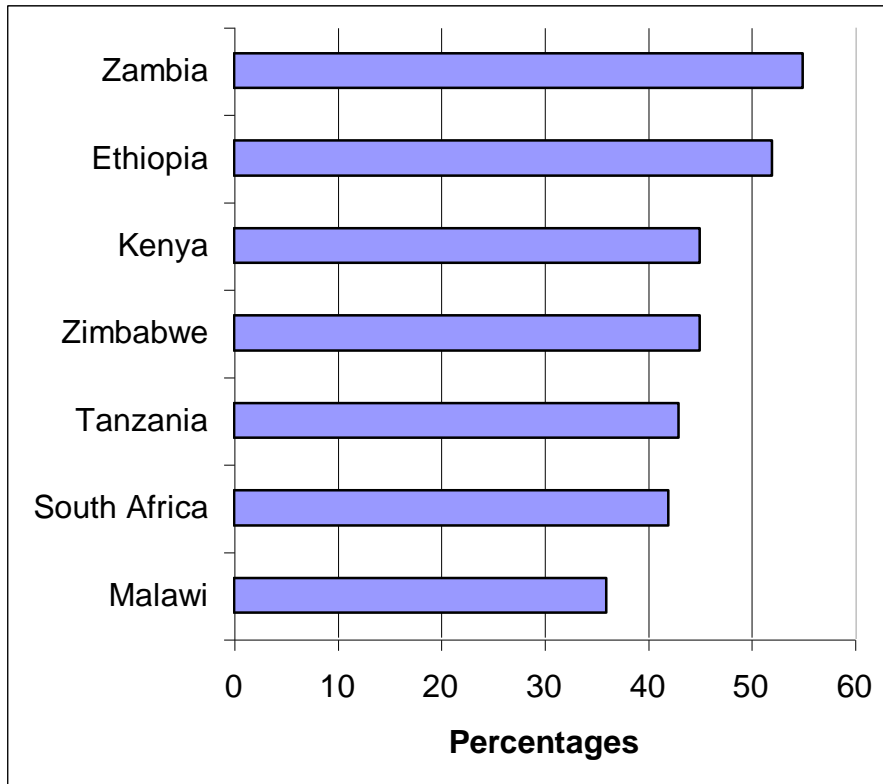
Figure 1.5 Pedestrian Fatality rates in Less-motorised Countries
(Source: Road Safety Manual , PIARC XXIInd World Road Congress, 2003)

Fatalities as a result of road traffic injuries differ by road user type, for example, pedestrians, cyclists, motor vehicle occupants, motorcyclists and users of public transport. Furthermore, the impact of road traffic injuries on these users varies considerably between high-income countries and middle to low income countries. For example, in most high-income countries, the majority of road traffic deaths relate to vehicle occupants (Figure1.4). However, in developing countries road traffic fatalities occur mostly among people who do not own or have access to a car, i.e. pedestrians, cyclists and users of public transport (Figure1.5). According to an Economic Commission for Africa study conducted in a number of African countries in 1997, pedestrians were the victims of 75% of road collisions in Abidjan, 65% in

Nairobi and 89% in Addis Ababa (Source: United Nations General Assembly, August 2003).

1.2 Road Safety: A National and Provincial Problem

The road death and serious injury rate in South Africa is a national disaster with an average of 34 people killed every day in the country, 6 in KwaZulu-Natal specifically.
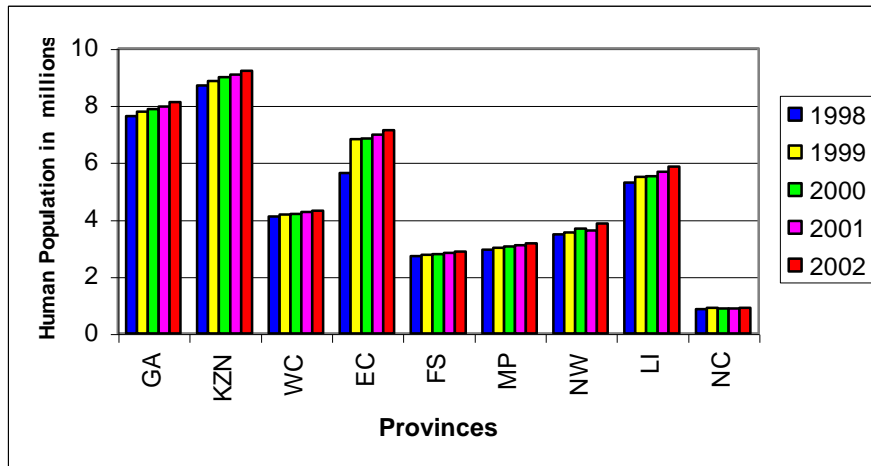
Figure 1.6: Human Population per Province
(Source: National Department of Transport, 2003)

KwaZulu Natal has the highest population among all provinces as illustrated in Figure 1.6.
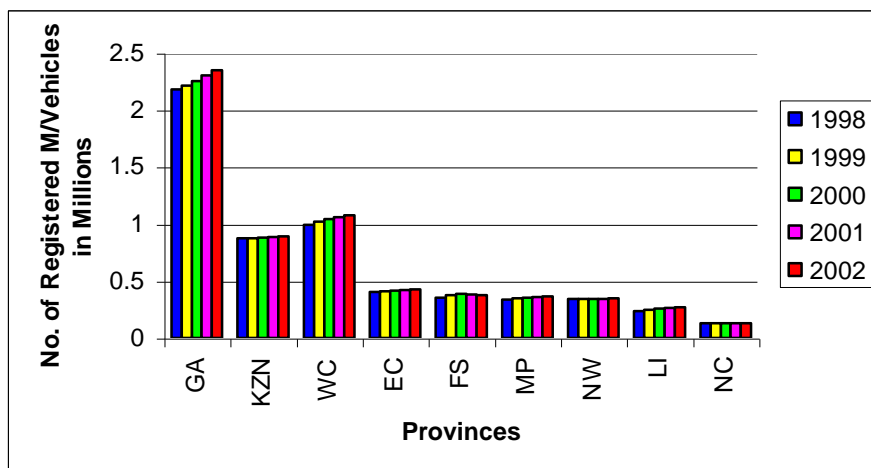
Figure 1.7: Number of registered vehicles per province
(Source: National Department of Transport, 2003)

KwaZulu Natal has the 3rd highest number of registered vehicles as illustrated in Figure 1.7.
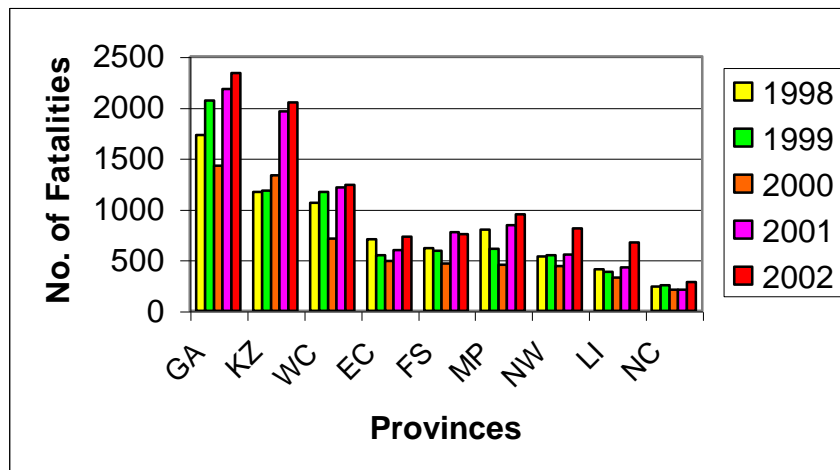
Figure 1.8: Number of Fatalities per province
(Source: National Department of Transport, 2003)

In summary, KwaZulu-Natal has the highest population, the 3rd highest registered vehicle ownership but the 2nd highest fatality rate (Figure 1.8) in the country.

With 19.9 road deaths per 10000 vehicles (Figure 1.9), the KwaZulu-Natal death rate is more than 15 times that of the state of Victoria (Australia), which has been classified as having the worlds' best practice in road safety.
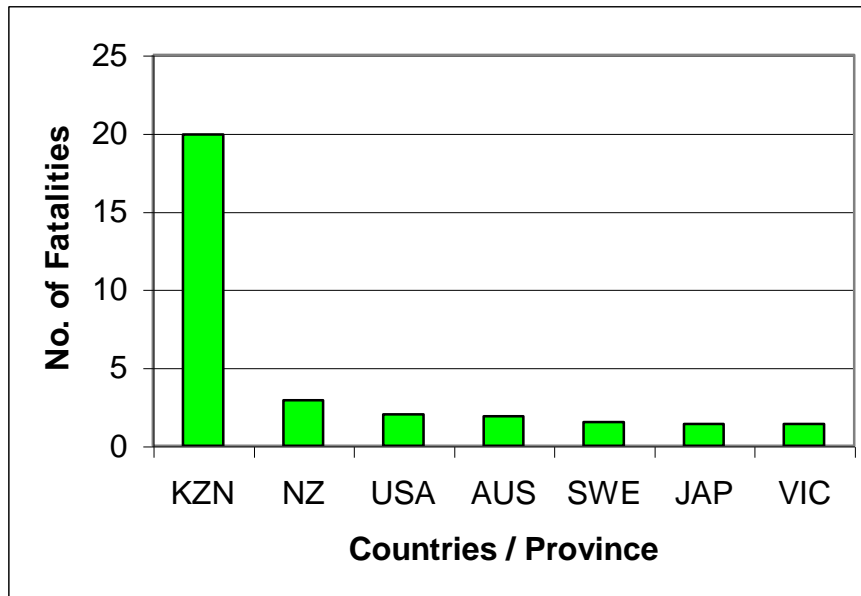
Figure 1.9: Number of Fatalities per 10 000 vehicles – International Comparison
(Source: Department of Transport (KZN), 1997a)

After many years of investigation into various road safety projects, a decision was made by KZN Department of Transport to use the very successful model from Victoria, Australia. This model was modified to suit local conditions. The Victoria Campaign reduced road deaths in Victoria by 58% during a five-year period, and has substantially reduced crashes and injuries (Department of Transport, 1997a). The introduction of an administrative adjudication system by the Victorian State Government made it possible to largely bypass the methods previously employed to collect fines, and thus reduce pressure on the courts caused by increased enforcement of road traffic offences.

Asiphephe, a provincial government road safety initiative, aims to reduce road deaths in this province by 14% per year, which will lead to a 50% reduction over a five-year period (Department of Transport, 1997b). This translates to a saving of 1000 lives per year and a subsequent saving of R1 billion per annum in costs related to traffic crashes. Every individual will benefit from this reduction in road trauma, not only financially but also in the reduction of pain, suffering and grief.

In 1997, in KwaZulu-Natal there were:

♦ 100 000 reported collisions each year

♦ 2000 people killed each year of whom 900 are pedestrians

♦ 70% of all drivers speeding in urban areas

♦ 30% of all drivers speeding in rural areas

♦ 37% of front seat passengers not wearing seat belts

♦ 47% of drivers in accidents having blood alcohol levels exceeding 0.08mg/l

♦ 75% of pedestrians involved in accidents having blood alcohol levels exceeding 0.08mg/l

♦ economic losses within the province in excess of R2 billion annually

(Department of Transport ,1997b)
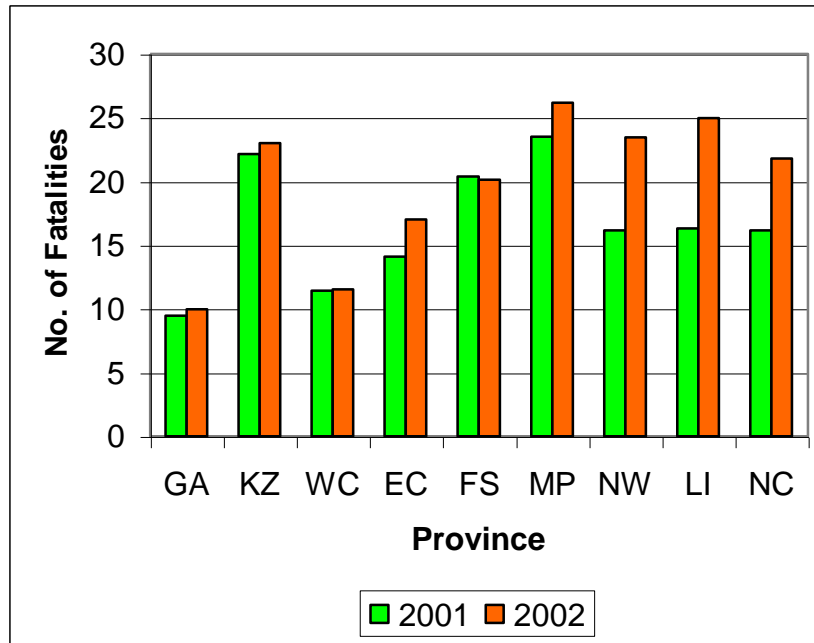
Figure 1.10: Fatalities per 10 000 vehicles per province
(Source: National Department of Transport, 2003)

As previously stated, it can be seen from Figure 1.10 that KwaZulu-Natal features among the top three provinces that have the highest number of fatalities.
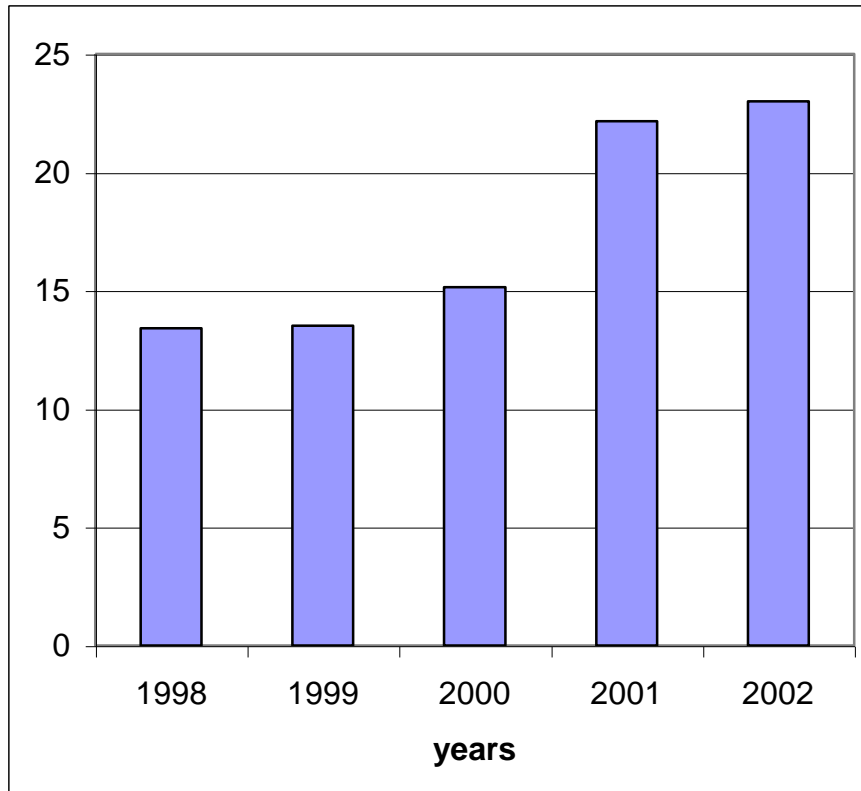
Figure 1.11: Number of Fatalities per 10 000 Vehicles in KwaZulu-Natal
(Source: National Department of Transport, 2003)

Figure 1.11 shows a steady increase in the fatality rate over the past five years in KwaZulu-Natal. Although the provincial government has spent millions of rands on road safety initiatives such as Asiphephe or 'Zero Tolerance' in KwaZulu-Natal, there is still a remarkable increase in the fatality rate.

In 1997, the Department of Transport : KwaZulu-Natal formed the Road Safety Education sub-directorate (RSE), to deliver road safety education programmes in KwaZulu-Natal. The RSE was tasked with designing road safety education programmes and forming an agreement with the Department of Education for the programme to be included in the school curriculum. Furthermore, the RSE was required to monitor, evaluate and report on the

effectiveness of road safety education programmes. Adult education programmes were to be designed and delivered through a range of methods that the RSE would identify. It was expected that the non-government and industry sectors would play a pivotal role in this area, and a rigorous programme designed to stimulate corporate sponsorship would be initiated. However, the success of this programme is debatable due to the lack of human and financial resources.

Road safety is a worldwide problem and South Africa is no exception and is currently seeking strategies to reduce the number of deaths and injuries resulting from motor vehicle collisions. The number and severity of accidents in KwaZulu-Natal is very high when compared with some of the other provinces. Road accidents are caused through a number of reasons including speed, alcohol, fatigue and reckless driving. People also do not have the necessary knowledge or skills that allow them to deal or identify with the hostile traffic environments. Receiving road safety education as part of their normal school curriculum is recognised as being one of the most effective ways of providing people with this type of knowledge.
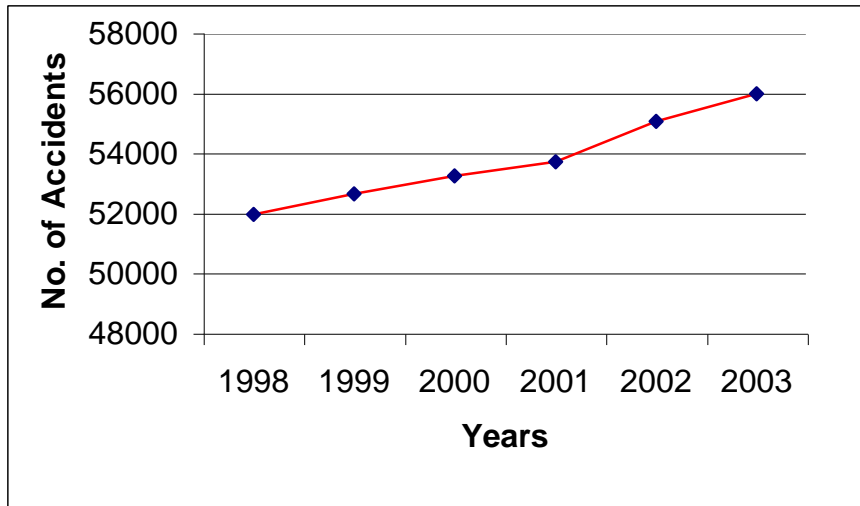
Figure 1.12: Accidents in Durban Metropolitan Area
(Source: eThekwini Municipality, July 2004)

Figure 1.12 reflects the steady increase in the number of accidents in the

Durban Metropolitan Area
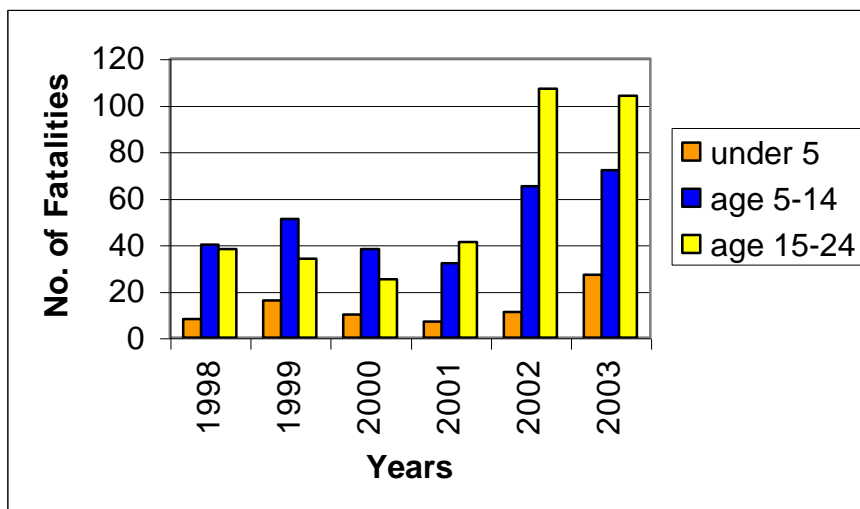
**Figure 1.13 : Fatalities according to Age Group for the Durban
Metropolitan Area**
(Source: eThekwini Municipality, July 2004)

It can also be seen from Figure 1.13 that the youth contribute significantly to

the high fatality rate. In the age group 15 to 24, traffic accidents is the second

leading cause of deaths behind HIV/AIDS (Kapp, 2003)

Year	Developing Countries % of children < 15 years old in road traffic crashes	Developed Countries % of children < 15 years old in road traffic crashes
1982	20	10
1990	15.5	6
1998	15	5.2

Table 1.3: Percentage Fatalities of Children younger than 15 years old in Road Traffic Crashes
(Source: Road Safety Manual , PIARC XXIlnd World Road Congress, 2003)

Evident from Figure 1.13 and Table 1.3 is that the youth of the world are the most vulnerable targets.

Road safety is not just a national problem but also a provincial problem and warrants an in-depth investigation in KwaZulu-Natal.

1.3 Historical Background

1.3.1 Why are our roads so dangerous?

The previous South African government embarked on a social engineering programme which became known world-wide as Apartheid, and which was denounced by the United Nations as " a crime against humanity." This policy was built on the inequalities which were rampant under 200 years of Dutch and British colonialisation, and which among other hardships, deprived more than 80% of the population of rights to most of their land from as early as 1913.

By the time the Nationalist government came into power in 1948, black resistance had already begun, and over the next five decades, suppression of black political ambitions and boosting of political and economic status of whites as well as maintenance of their privilege was the prime objective of the state structures, including the security forces.

As resistance movements attempted to organise in an endeavour to retain and then gain some political voice, the state became more and more heavy-handed in resisting change towards a more democratic and equitable society. For nearly half a century the majority of South Africans had no political, economic or social voice that was heard by government or the international community, and resistance to the fight for freedom and equality by state forces was heavy, violent and continual (Department of Transport, 1997b).

This was one of the factors which led to the legacy of violence which exists in our society today. There was no respect from the state for human life and property. In a well ordered society, the family is the main structure around which civil society, education systems, the organised religion, government agencies and the security forces form concentric circles of responsibility and authority. In a 'normal' society, if a family collapses, then the education system or social security acts to assist the victims to re-establish their position in society. If this does not operate, then the next level of authority should support the individual or community who is not managing.

In South Africa, the ultimate authority, the government, used their security forces to move through these levels of authority and attack individuals, families and entire communities in their homes. Legislation such as Pass Laws and Influx Control, forced families to live apart and caused traditional community and extended family support to weaken. The education system for blacks was designed to discourage academic advancement and to produce a subservient population who would fulfil roles as obedient labourers.

All of these discriminatory acts were resisted by the African majority, but found it difficult to mobilise because of violent state of suppression and lack of infrastructure in their communities. In 1990, only 2% of people in the black community had access to telephones (Department of Transport, 1997b). Television was only introduced in 1975 in South Africa and even then there was little world coverage, heavy censorship and limited coverage in the mother-tongue. The policy of disinformation and the control of the media by

the state kept people isolated from other communities, from the political struggle and from world trends.

Many black leaders went into exile to further their education and continued the struggle against oppression and vast numbers of their followers left the country to be trained as soldiers to take up the call to armed conflict when it was made. Many of the leaders who remained within the country went underground to continue the struggle, or were arrested, detained or killed, either judicially or extra-judicially. South Africa for many years had the highest rate of capital punishment in the Western world. Many of those who were hanged were killed for political crimes, when social crimes often went unpunished because security resources being used by the regime to maintain the system of apartheid, colloquially referred to as 'separate development.'

In the early 1990's when military trained exiles started to return to South Africa, the international economic recession led to a situation where many were unable to find work. Some of these men were able to survive and fill the material expectations of their families through resorting to crime.

The increasing suppression, the economic impoverishment, the breakdown of family life, the call to the people to make themselves ungovernable, and the proliferation of both legal and illegal arms, have all contributed to a situation where many South Africans were armed and dangerous. The economic situation, political frustrations and heavy state suppression with army and police concentrating on protecting 'white' interests, have led to a very high

level of crime in black society. Now that all South Africans are enjoying democracy, and security is more "equitable", levels of crime in areas which were previously advantaged, have increased markedly. The perception of a general increase in violence and crime is incorrect, but crime has moved from being mainly in the disadvantaged communities to being more general in all sectors of society (Department of Transport, 1997b).

The result of racial segregation and social engineering has meant that South Africa is still one of the most violent societies in the developing world. Our murder rate is among the highest in the world, and is only superseded by countries such as Columbia. One is 70 times more likely to be murdered in South Africa than in England, and more than 40 times more likely than in even the most violent parts of the United States. About 600 police in South Africa die each year at the hands of criminals and the police kill many more than that, although there is now no legitimate death penalty in terms of the new constitution (Department of Transport, 1997b).

Even some schools have become violent places. Some children and teachers are armed, and recently there have been two incidents where massacres have occurred when teachers have argued in staff rooms. In KwaZulu-Natal 15000 people were killed in political violence alone between 1984 and 1994. Levels of family murders, mugging, rape, high-jackings, security robberies, suicides and other violent crimes are extremely high in comparison with both first world and developing nations (Department of Transport, 1997b).

In this society of violence and intolerance, it would be extremely surprising if our roads were a safe place, where people were polite and tolerant and had respect for human life.

South Africa is a very authoritarian and paternalistic society, where the image of a man is to be strong, militant and 'macho.' It is a society which for years legislated a man's 'rights' over his woman and family, and which, to a large extent, still subscribes to this ethos in spite of the protection of one of the most progressive constitutions in the world. This ethos fuels aggressive behaviour, which is reflected in the driving conduct, a passion for fast cars, and even rampant road rage. South African society has for many years accepted abuse of alcohol as the norm, even to the extent of it being an extenuating circumstance for crimes committed. One in seven drivers on our roads in the evening is above the legal blood alcohol limit, and most crashes occur in the evening hours and over weekends. The same 'macho' ethos lead to wide-spread abuse of women and children in our society (Department of Transport, 1997b).

From a structural/road engineering point of view, the rural areas of South Africa and the 'townships' and informal settlements have remained largely undeveloped. There is a wonderful network of arterial roads and highways, sometimes four and five lanes wide, which criss-cross the land. These connect towns and cities and lead in and out of previously disadvantaged areas and were developed partially to make the safe and fast movement of troops and military equipment possible during times of political 'unrest.'

There has been insufficient infrastructure created for the safe road use of pedestrians in most areas, and too little government subsidy of travel for the poor, or facilities for taxis to enable them to pick up and drop off passengers safely. The taxi industry is not regulated, causing problems with control, which leads to poor vehicle design, maintenance and the procurement of illegal licences both for drivers and vehicles. Because many of our informal settlements have not been planned, often schools are on one side of the main road and homes on the other. Sometimes shack settlements have grown up illegally and are established actually in the road reserve. Taverns and shebeens are informal businesses, which are not planned to facilitate safe travel home for patrons. It is not surprising then that 70% of adult pedestrians killed on our roads are drunk. This means that nearly 3000 lives are lost each year nationally because of road use by drunken pedestrians. Also, approximately 1000 children die annually when they are hit by vehicles (Department of Transport, 1997b).

The South African judicial system cannot cope with the level of prosecutions in terms of either crime or road traffic offences. The Administration Adjudication of Road Traffic Offence Act (AARTO) of 1999 was designed and promulgated to bring about a change in the 'culture of impunity' on the roads which presently exists (Department of Transport, 1997b).

Nearly 10 000 people die annually in KwaZulu-Natal road accidents, and many times that number are disabled or seriously injured. This is seventeen times higher than the 'world's best practice', and can certainly be changed,

with skilful public relations campaigns, which will limit the resistance of sections of the community which sees heavy enforcement as a continuance of the suppression and over-regulation of the past.

1.4 Objectives of this research

Some of the objectives of this research were to determine:

- The impact of road safety education at the primary and secondary school levels.

- The level of emphasis placed on road safety by students at tertiary institutions.

- The resources and facilities that were available to promote road safety education at all levels.

- The means by which road safety was been addressed in KwaZulu-Natal.

- Road users' knowledge on engineering aspects of the road.

- Suitable long and short-term road safety programmes for implementation at various education and training levels.

1.5 Methodology of the research

The following points outline the research methodology:

- A literature survey was conducted into the problems and those affected by road safety internationally, nationally, provincially and locally.

- A literature survey was conducted into the 'world's best practice' in road safety, namely Project Victoria.

- Literature review on possible solutions and on research done locally and abroad.

- A questionnaire was designed to ascertain students knowledge on various aspects of road safety and to determine the emphasis placed on road safety.

- A pilot survey was conducted at Mangosuthu Technikon involving 650 students from the various disciplines. The questionnaire was tested and improved.

- The main survey was conducted at the four tertiary institutions in KwaZulu-Natal. A representative sample of 10% participated in the survey.

- Conclusion on research and recommendations on possible long and short-term solutions.

1.6 What is being done about Road Safety?

1.6.1 Globally

The Global Road Safety Partnership (GRSP) aims to find more effective and innovative ways of dealing with road safety in developing countries. Through a comprehensive approach to road safety, GRSP partners collaborate and coordinate road safety activities. This approach aims to build the capacities of local institutions by enhancing the ability of professionals and communities to actively tackle safety problems (www.GRSProadsafety.org).

In spite of years of assistance from the international donor community, governments in developing and transition countries have been unable to keep pace with the rapid growth of motorisation. Road accidents continue to rise, particularly in Asia, where pedestrians and two-wheelers are particularly vulnerable.

What can be done about this? If governments have been unable to deal with the problem, would a partnership between business, civil society and government have more success?

This dilemma underlies the Global Road Safety Partnership: a new paradigm for dealing with road safety in these countries. The partnership is an informal network of businesses, civil society organisations and relevant government departments working together to realise common goals. The expectation is that partnerships between these three sectors will result in more effective and sustainable development activities than if any of these partners acted on their own.

Global Road Safety Strategy (GRSS) embodies the following key elements:

- Forging a partnership between all the key groups in society with a strong vested interest in improving road safety, for example, the business community, civil society, government and donor agencies. This coalition becomes the focal point for interest in road safety interventions. Partners collaborate on road safety projects and press government to deliver on those interventions which only government can mandate and accomplish (e.g., research, major infrastructure improvements, road safety database analysis, etc.) (www.GRSProadsafety.org).

- Undertaking, with finance provided by the business members of the coalition, small-scale interventions and demonstration projects which show that road safety can be improved in achievable and cost-effective ways.

- In a typical donor intervention, the concerned government agency tends to focus unduly on only minor infrastructure improvements (e.g., black spot improvements and road safety audits). The local GRSP partners emphasize a collaborative and holistic approach to road safety with all stakeholders contributing resources by actually financing and implementing the required interventions.

- Sharing lessons learned from ongoing projects already being implemented or involving the business sector and demonstrating that partnerships can increase development impact.

The GRSP is not a funding agency and does not finance road safety interventions of the type normally financed by governments, bilateral and multi-lateral donors.

Initial attention is focused on the following developing countries due to their high fatality rates as a result of road traffic trauma:

Africa

Ghana, South Africa

Asia

India (Bangalore only), Malaysia (candidate), Thailand, Vietnam

Eastern Europe

Poland, Romania, Hungary

Latin America

Costa Rica, Brazil

Middle East

Jordan, Lebanon, Syria

1.6.1.1 Global Road SafetyPartnership: South Africa

Since its creation in July 2000, the GRSP South African National Committee has come to be considered by the national and provincial authorities as a key institution to supplement the official road safety activities. Over ten Focus Projects have been initiated since November 2000 to serve as pilot experiences, the outcome of which could lead to future legal decisions to enhance road safety and to encourage traffic rule enforcement nation-wide. It is also envisaged that this activity will be extended to other neighbouring South African Development Community (SADC) Member States. The following projects were sourced from http://www.GRSProadsafety.org./.

1.6.1.1.1 Pedestrian Safety and Visibility

The main target of "Pedestrian Safety and Visibility" is to reduce the pedestrian component of child road deaths and injuries by 30%. The industrial company, 3M, will supply retro-reflective material (using fluorescent retro-reflective materials), to be integrated into clothing and safety devices and special road signing in the vicinity of schools. Three pilot sites have been chosen for the GRSP Project implementation by end April 2001. School uniform manufacturers and distributors have been identified. Partners involved in the project are: 3M, University of South Africa (UNISA), Centre for Scientific and Industrial Research (CSIR), DRIVE ALIVE, SOUL BUDDYZ, RAPCAN, Child Health Policy Institute and Cape Town University. The success of the project will depend on reduction of deaths and injuries and the extent to which safety clothing and devices are used.

1.6.1.1.2 Traffic Safety Education Package for Schools

"Traffic Safety Education Package for Schools" is producing school education tools designed to create awareness and safe behaviour of children in traffic from ages 6 to 18 to ultimately result in a reduction of road accidents, deaths and injuries of at least 50%. Centre for Scientific and Industrial Research (CSIR) will manage the development of the school education packages based on its current research programme on a road safety curriculum which is a guideline for teachers on how to integrate road safety themes into the Life Skills curriculum. The CSIR will also link up any other similar research studies under-way in South Africa. Daimler Chrysler, the Auto-mobile Association of South Africa (AA) and other Partners will ensure the distribution of GRSP SA packages during the programme execution timetable to a selected number of schools nationwide. All teachers concerned by this GRSP SA Project will receive in-service training to implement the road safety education packages.

1.6.1.1.3 Two Wheeler Safety Training

The purpose of this project is to create a Mobile Training Unit (MTU) to visit schools and commercial centres to illustrate vehicle behaviour and driver skills in order to show other road users the dangers and risks of motorised traffic. It intends to reach as large a public audience as possible to promote safe behaviour in road traffic and to reduce considerably the number of accidents involving pedestrians and motorised vehicles. The project leader is the Association of Motorcycle Importers and Distributors (AMID) and other partners involved are the KwaZulu-Natal Department of Transport, the

Gauteng Department of Transport, Daimler Chrysler and 3M. The MTU will be multifunctional and will contain road safety information packages.

1.6.1.1.4 Responsible Alcohol Use (Pedestrians and Drivers)

The purpose of this project is to establish safety campaigns and educational material for distribution to all parties involved with the sale and consumption of alcoholic beverages. The effects on road safety are enormous as a high percentage of pedestrians killed on roads are under the influence of alcohol. The project leader is United Distillers and Vintners (UDV) and other partners involved are The South African Breweries, AA of South Africa, CSIR, South African Police Services (SAPS Gauteng branch) and 3M. Activities will involve the preparation of material to be distributed to educate drivers and pedestrians on alcohol abuse, a long-term initiative to reach consumers, the training of tavern owners and servers of alcoholic beverages and the provision of retro-reflective safety devices to pedestrians.

1.6.1.1.5 Seat Belt and Child Restraint Awareness and Use

The overall goal of this project is to create awareness and encourage the use of seat belts and child restraint devices as well as to enhance the chances of reduction of deaths and injury severity in the case of collisions. Brochures are to be distributed at all motor vehicle dealerships (new and second hand), during safety campaigns and at vehicle testing sites. These brochures are intended to explain the benefits of safety devices found in vehicles and to encourage their use. It is to be noted that all new vehicles licensed to be used

on roads in South Africa in future will be fitted with seat belts as approved by Government in 2000.

1.6.1.1.6 Awareness of Vehicle Roadworthiness

This programme aims to demonstrate to drivers of private and commercial vehicles the dangers of badly maintained, incorrectly repaired and overloaded vehicles. The programme includes the preparation of brochures to be distributed by garages and repair shops as well as basic training packages for use by local and provincial authorities in support of the existing campaigns and law enforcement operations on the road (eg. the overloading of vehicles).

1.6.1.1.7 "GRSP Safelands" Traffic Calming Demonstration Project

The GRSP Safelands project aims to demonstrate the efficiency of traffic calming measures. The metropolitan or local authorities that have already embarked upon a hazardous location scheme will be targeted. The "GRSP Safelands" will serve as a demonstration project for the study of potential safety measures to reduce accidents, and the gravity thereof as well as for research purposes. The Pretoria City Council envisages a reduction in pedestrian casualties from 14 fatalities per 100 000 population to 8 within a five-year period. The Cape Metropolitan Council envisages a reduction in the number of pedestrians involved in accidents by 10 % or alternatively a reduction in casualties from 140 per 100 000 population in 1998 to 110 by 2005. It also intends reducing the 85th percentile speed by 12 km/h in rural areas and by 10 km/h in urban areas. These activities have already begun. The Provinces of Gauteng and the Western Cape have embarked on the

development and implementation of pedestrian management plans. The City Council of Pretoria and the Cape Metropolitan Council have started to implement specific pedestrian improvement schemes in conjunction with these Provinces. Billiton Trust and CSIR are to start a community safety project in Evaton West, south of Johannesburg, to reduce the high number of child pedestrian casualties while crossing the Golden Highway. Schemes have been implemented or are underway in Pretoria (Gauteng) and in Delft (Cape). The implementation of "GRSP Safelands" will be focused on Class 4 and Class (a) and (b) roads.

1.6.1.1.8 Safe Communities

The general purpose of this is the development of a "Safe Community Partnership" to create safer environments and better road user behaviour in order to reduce the impact of injury on health, development and well-being of people in South Africa. A part of the program is to develop a comprehensive and integrated injury prevention model. Training will be provided to all the participating partners.

1.6.1.1.9 Management Assessment, Maintenance and Funding

Software programmes which allow authorities to manage and up-date their road safety equipment, signs and markings need to be implemented. The estimated effects of such software programmes on road safety are higher levels of road safety through high quality road signage and safety equipment which are expected to reduce road accidents by between 10 and 20% after regular management tools are implemented. These activities will include pilot

sites for testing the software systems "Sign View" and "Digitraff". Two sites have already been chosen, namely Bronkhorstspruit and Vereeneging.

1.6.1.1.10 Website Information Dissemination for Road Safety

A section will be added to the existing Website of Rand Afrikaans University (RAU) on Road Safety Information which will cater for all information related to GRSP International, GRSP South Africa activities, potential projects, focus programmes, research results and experiences.

1.7 Project Victoria

1.7.1 Background

VicRoads is the state road authority for Victoria, Australia, and is responsible for the development, coordination and management of Victoria's road safety policies and strategies, driver licensing and behaviour, vehicle safety standards and the safety of operations on Victoria's principal roads. Its aim is to achieve a sustainable reduction in the number and severity of road crashes and the cost of road trauma.

VicRoads road safety expertise has been "exported" to deliver to a global audience the full range of road safety components including the development of road safety strategies and action plans, road safety audits, blackspot analysis, road safety education and community consultation, vehicle safety and road user behaviour. Projects have been undertaken in Bangladesh, Botswana, Canada, China, Eritrea, Hong Kong, Indonesia, Laos, the Philippines, Samoa, South Africa and Thailand.

In 1995, 37 pre-school and school age children in the state of Victoria were killed and 769 were seriously injured as a result of traffic crashes. For children aged five to fourteen years road trauma is the greatest single cause of death. For children under five, road trauma is second only to drowning. VicRoads is actively involved in a programme to ensure that education about road safety is available to as many Victorian children as possible.

Elderly pedestrians are another over represented group in road trauma statistics. To address the specific issues related to pedestrian behaviour of the elderly, VicRoads, in conjunction with local government, has developed a programme which aims to identify and reduce road dangers through a combination of engineering and education activities. The role of VicRoads in educating the young, their parents and the elderly has evolved alongside a range of legislative, public education, engineering and enforcement countermeasures designed to reduce the incidence and severity of road trauma.

1.7.2 Traffic Safety in Educational Settings

Based on research into how children learn traffic safety skills and appropriate attitudes it was recommended that Traffic Safety Education (TSE) in schools be:

- ➢ continuous over the whole year
- ➢ sequential in the development of concepts and skills
- ➢ related to the abilities and experiences of children
- ➢ integrated into existing curricula

TSE also recommended that an education programme should also enable children to identify risk situations, develop and practice appropriate strategies to deal with these situations. Practical training should use the child's immediate environment, which is where most accidents occur.

Resources to support the teaching of traffic safety education have been developed by VicRoads in consultation with the Directorate of School Education (DSE), and early childhood educators and:

- ➢ are consistent with curriculum guidelines
- ➢ are easy for teachers to use
- ➢ have practical components
- ➢ are tried extensively in schools and
- ➢ are inexpensive

1.7.3 Traffic Safety Educational Plan

Delivery of the Traffic Safety Education programme is directed by the Traffic Safety Education (TSE) Action Plan. Key stakeholder organisations responsible for development and delivery of the Plan are the Victorian Board of Studies, Directorate of School Education, Transport Accident Commission (TAC) and VicRoads.

It provides a framework within which agreed and coordinated action by the relevant organisations can occur in an efficient and effective manner to deliver TSE to all Victorian school children. A Steering Group made up of the Chief Executives of VicRoads, DSE and TAC monitor the Plan and ensure appropriate evaluation takes place.

1.7.4 Factors which influence Traffic Safety Education
    programme delivery

1.7.4.1 Inclusion of Traffic Safety Education in the Prep to Year 10
    Curricula phase

The Victorian Board of Studies has produced the Curriculum and Standards Framework (CSF) which is currently being implemented in all Victorian schools. These documents provide general guidelines for the planning and delivery of all curricula. Traffic Safety Education is included in the Health and Physical Education Key Learning Area and is to be taught at all levels from prep to year 10. Road Safety issues can also be addressed in a number of other Key Learning Areas which facilitates a cross curricula approach.

In order to support schools in implementing the CSF the Directorate of School Education produced specific Course Advice to assist teachers in the planning and teaching of lessons. On behalf of the DSE, VicRoads had developed the Course Advice for Traffic Safety Education. This course advice, together with redeveloped curriculum resources and professional development for teachers enabled schools to become more self sufficient in providing traffic safety education to their students and represents the best opportunity for the inclusion of high quality TSE to date.

1.7.4.2 Victorian Certificate of Education (VCE)

Road Safety information suitable for inclusion in fields of study undertaken at year eleven and twelve continues to be produced for schools. At present material for a number of Fields of Study are available. Resources available are to be expanded and regularly reviewed to ensure they are well targeted and meet the needs of teacher and student VCE course requirements. Material targeting VCE Health has recently been put on the Internet via the VicRoads Home Page. In addition to printed material, an opportunity to expand availability through use of the Internet is being investigated.

1.7.4.3. Restructuring of VicRoads road safety education delivery

In the past VicRoads provided direct support to schools and preschools by seconding teachers from the DSE as Traffic Safety Education consultants. Their role was to raise awareness of the need to teach TSE, provide training and professional development and assist with the development and implementation of TSE programmes. Prior to 1995 there were around 30 TSE consultant positions in VicRoads regions.

With the transfer of responsibility for teacher training/professional development and the delivery of school based traffic safety education to the Directorate of School Education, VicRoads has:

➢ reduced the number of early childhood consultants to eight. These officers continue to support the TSE programme in early childhood centres and training institutions.

➢ appointed 9 Regional Child Road Safety Coordinators (2 per metropolitan region and 1 per rural) to coordinate the community stream of child road safety activities outlined in the TSE Plan.

➢ broadened the focus from 0-18 years.

The role of VicRoads Education Programmes Branch (Road Safety department) is to provide:

➢ policy and technical support for regional child road safety initiatives and programmes

➢ high level liaison with external organisations which can influence child road safety

➢ appropriate, high quality road safety educational resources for school communities and the wider community both directly and through the training of others.

1.7.4.4 Support for Traffic Safety by Directorate of School

        Education

The Directorate is responsible for:

- ➢ providing professional development for teachers relating TSE to the Curriculum and Standards Framework, Course Advice and programme planning

- ➢ providing teacher in-service and pre-service training for teaching of specific programmes including Bike Ed (refer to 1.7.4.7 for more details) and Travel On (refer to 1.7.4.8 for more details) which require practical skills

- ➢ providing a postgraduate course in TSE for primary and secondary teachers

- ➢ updating TSE Administrative Guidelines which constitute the guidelines for delivery of TSE in schools.

1.7.4.5. Resource development supporting TSE

VicRoads has over the years produced a wide range of high quality, user friendly resources for teaching traffic safety in schools and pre-schools. Ensuring resources are current in terms of pedagogy and road safety research is essential. The following resource development and community road safety projects reflect this approach and are integral to and supportive of the Victorian Traffic Safety Education Plan.

1.7.4.6 Development of the Streets Ahead Curriculum Unit

This primary curriculum unit which addresses pedestrian and passenger safety for Prep to Year 6 has been developed in the light of:

> ➢ the requirements of CSF
>
> ➢ evaluation of the behavioural outcomes from the use of Streets Ahead
>
> ➢ increasing adoption of the *Safe Routes to Schools* intervention programme which uses Streets Ahead in its education phase, but lacks a component that addresses the need for children to practice in real locations
>
> ➢ the opportunity to make innovative use of new technology to enhance learning, in particular, CD-ROM.

1.7.4.7 Development of Bike Ed as a National Resource

Bike Ed aims to teach children aged 9-13 to be safe and competent cyclists on roads and shared paths. This highly regarded VicRoads resource is currently being developed in conjunction with the Federal Office of Road Safety for national distribution. The resource will allow for both school and community based delivery of bicycle education. A Bike Ed instructor training course is also being developed. Whilst the preferred model for delivery of Bike Ed is through school curriculum, the delivery of bicycle education courses could be of interest to local government and community groups.

1.7.4.8 Travel On

An investigation into the travel safety needs of primary aged children and their teachers indicated that there was a need to develop a range of activities and materials to address the issue. In response to this need VicRoads has recently developed Travel On for the Public Transport Corporation. This resource provides classroom and community based learning activities which address topics such as safety, community use of public transport and the need for rules and laws. It explores issues which children face as they become independent public transport users and helps children value the public transport facilities in their community.

1.7.4.9 Motorvation

This innovative resource will combine classroom activities with an interactive multimedia CD-ROM. Motorvation will be a resource for use in secondary schools and the community to educate the pre-licence age group about issues related to licensing and driving. Major themes of the resource are the complexity of the driving task, limitations of novice drivers and strategies to minimise risk.

1.7.4.10 Crash Statsistics

Along with the community applications , Crash Statsistics is to be made available to schools for use in a wide range of curriculum areas.

1.7.5 Go Safe

This road safety intervention programme is based on the Safe Routes to School model but is aimed at young people aged 13 - 18. The programme was piloted in the City of Greater Geelong from July to December 1994 and involved educational, engineering and enforcement solutions to the road safety problems identified by the students who were closely involved in implementing the investigation and analysis of the data they collected. The delivery process is similar to Safe Routes to School and offers a community approach to road safety issues.

1.7.6 Intervention Programmes

1.7.6.1 Safe Routes to Schools

Through an interactive process, Safe Routes to Schools identifies the factors involved in children's accidents and develops integrated engineering and education actions to improve road safety around participating schools. This programme is promoted strongly in areas which have a relatively high incidence of child pedestrian and bicycle crashes. These generally occur in residential areas. The program involves local government, schools, community groups and VicRoads. A manual is available as a guide to the stages of the programme.

School-based education strategies target teachers, children and parents. Indeed, an important feature of Safe Routes to Schools is that it recognises the significant role played by parents in providing safe travel for their children. VicRoads regional Child Road Safety Co-ordinators assist teachers in planning activities for teaching children to adopt safer behaviour when travelling as pedestrians, cyclists and passengers. Teachers draw on available TSE resources to develop activities addressing specific local road safety problems. It is this focus on local problems, the local area and their relevance to the children's daily travel that is a major strength of the educational component of this programme.

As children's road safety attitudes and behaviour are most influenced by their parents, the school based programme is complemented by activities that involve parents with their children.

1.7.6.2 Walk with Care

Walk with Care is the exception within the context of this thesis because it targets the elderly rather than the young. It does, however, continue the theme of focusing on local area problems. The program has been developed by VicRoads and is implemented in municipalities which have a high incidence of older pedestrian crashes. Through Walk with Care local government, community groups and VicRoads jointly identify and reduce road dangers to older pedestrians through a combination of engineering

and education activities. As engineering issues will be dealt with elsewhere in this thesis, the following focuses on education.

A Programme Leader appointed by the municipality has responsibility for implementing the programme with support from the VicRoads Pedestrian Advocate. A programme manual and Walk with Care kit assist municipalities in their implementation of the programme. A key feature of Walk with Care is the one hour safety educational discussion sessions which serve to:

- ➢ heighten awareness amongst older pedestrians of their level of risk in traffic
- ➢ inform older pedestrians about safe ways of using the roads
- ➢ enable older pedestrians to inform the programme leader of locations that are dangerous or at which they have difficulty when crossing the road.

Educational components are further supported through local newspapers, information bulletins and council newsletters to participants and the wider community.

1.7.7 Community Based Injury Prevention Programmes

1.7.7.1 Child Restraint Program

A) Bassinet Loan Scheme

The Bassinet Loan Scheme is operated by local government with training and public information provided by VicRoads. A recent review of the scheme resulted in a one-off government grant of $300,000 for the purpose of upgrading Basinets. Whilst some municipalities have decided to opt out of the scheme, others are in the process of determining the most appropriate strategy for the continuation of delivery. This scheme has encouraged the habit of restraint use for babies and fostered the belief that restraining children is important.

B) Training of Community Advisers

VicRoads Early Childhood Co-ordinators provided training for community advisers in the following elements of the Child Restraint Program:

Ante-Natal Program: a 'train-the-trainer' program on infant passenger safety to ante-natal classes. This program helps mothers to learn the importance of restraining the child in a vehicle from as early as possible.

Post-Natal Program: a 'train-the-adviser' program which involves Maternal and child health nurses providing one-on-one advice to parents at prescribed stages in their child's development.

Police Officers*:* an information session for police recruits and Traffic Operation Group Officers to assist them to promote and enforce safe passenger behaviour.

C) Community Groups:

In-service training is also provided to the following community groups:

- ➢ Family Day Care
- ➢ Foster Care
- ➢ Children's Protection Services
- ➢ After Care and Family Support Services

1.7.7.2 School Crossing Supervisor Scheme

This scheme can support Traffic Safety Education programs in the schools and the Safe Route to Schools program through:

- ➢ Reinforcement of correct road crossing procedures and behaviour
- ➢ Reinforcement of the role of parent/guardians in relation to appropriate role modelling.

1.8 National initiatives on road safety

Turning our attention to South Africa, some of the initiatives currently in place to address road safety are:

1.8.1 Mobility with safety: the national bicycle program

A national bicycle transport initiative known as Shova Kalula (or Ride Easy) has been initiated. The program is in the first instance targeted at primary and secondary school students in our most disadvantaged rural and urban settings. In a later phase, it is hoped to focus on the many thousands of urban workers and rural workers who currently have to walk long distances to get to work. It has grown into an exemplary joint initiative between national, provincial and local government and the South African NGO, Afribike, supported by partners in the US, UK and the Netherlands. Together they have been able to procure low-cost new and used bicycles and have developed a delivery chain that includes a container-based shop, a cycle repair training course and light engineering modifications to produce load carrying work-cycles. They are also running a scholar programme and a women's training programme. (www.transport.gov.za)

1.8.2 Arrive Alive

This campaign is aimed at the promotion and enforcement of road safety and responsible road user behaviour in South Africa. Arrive Alive works in-conjunction with their provincial counterparts, especially during the holiday season, to try and curb national fatality rates.

1.8.3 Minibus Taxi Industry

The primary aim of the National Department of Transport is to legalise, regulate and formalise a violence free minibus taxi industry with the potential to advance broad-based black empowerment on a scale second to no other industry in this country. The national government has introduced the taxi re-capitalisation programme which will result in much safer vehicles for the travelling public (www.transport.gov.za).

1.9 Provincial initiatives on road safety

The following road safety projects are currently been undertaken by the KwaZulu Natal Department of Transport: Road Safety unit:

* Young road user

* Participatory education techniques

* Leadership camps

* Road safety and sport

* Adult pedestrian

* Church programmes

* Peak / holiday programmes

* Community outreach programmes

* Driver development

(www.kzntransport.gov.za)

1.9.1 Young Road User

The young road user programme is targeted at scholars from ages 3 to 14 years old or from pre-primary to grade 7. The activities include the Child in Traffic programme and the scholar patrol programme. Schools are selected and the programmes normally have a duration of one year. The general theme of the programme is pedestrians as road users. These programmes are run in conjunction with the Community Road Safety Councils and educators from the schools.

1.9.2 Participatory Education Techniques

The participatory education techniques programme is targeted at secondary schools, scholars 14 years and older or grades 8 to 12. The activities are based on the scholar identifying problems relating to road safety on his way to school and in the immediate vicinity of the school. The theme is pedestrian enforcement and also identifying solutions to these problems.

1.9.3 Leadership Camps

The target audience is secondary schools, youth out of schools, youth organisations and clubs. The activities include drama, poetry and art with the main focus being alcohol abuse, pedestrians and seat belt wearing. The

intention of this programme is for the youth to become road safety activists or ambassadors.

1.9.4 Road Safety and Sport

Spectators, sporting personalities and once again the youth are the intended targets. Alcohol abuse, overloading, pedestrians and passenger behaviour are the themes of this programme and includes the Asiphephe logo and messages at all major sporting events.

1.9.5 Adult Pedestrian

Communities in both rural and urban areas are targeted. Activities include pedestrian management plan, outdoor advertising and training of community members. The theme is on alcohol abuse and pedestrian behaviour. Community members who are trained, then go to hospitals, clinics and industries to train the community.

1.9.6 Church Programmes

Congregation at churches, the ministers, Sunday schools and elders of the churches are targeted. Pedestrian and passenger behaviour are the main themes with emphasis being placed during festive periods.

1.9.7 Peak / Holiday Programmes

Holiday makers and local communities are reminded of the Zero Tolerance approach in KZN. Alcohol, speed, fatigue, seatbelts, overloading and vehicle fitness are among the key targeted areas with regards to enforcement.

1.9.8 Community Outreach Programmes

Rural and urban communities are the targeted audience. Activities are public awareness campaigns during public holidays on pedestrian and passenger rights, alcohol abuse and overloading.

1.9.9 Driver Development

This programme is targeted at the motoring public and include activities such as driver of the year, code of conduct for driving schools and school driver education programmes. The emphasis is placed on defensive driving and the K53 method of instruction.

2. Review of related literature

The literature reviewed was from various books, reports, journals and conference proceedings from various international, national and local sources. Material was also acquired from the World Roads Conference held in Durban in 2003, which the author attended. This chapter is divided into two sections, namely:

       2.1 Problems associated with road safety.

       2.2 Possible solutions to road safety

2.1 Problems associated with road safety

Fildes *et al* (1991) describe the relationship between driver and vehicle characteristics, travel distances and times, and drivers' attitudes towards speeding with actual on-road speeding behaviour in Australia. Drivers travelling at excessively fast and slow speeds were of particular interest. Drivers younger than 34 years of age were more likely to exceed the speed limit than those older than 45 years of age. The majority of motorists interviewed believe that travelling at 30km/h above the posted speed was not dangerous and their chances of being caught by a traffic officer in these locations were remote. The report discusses a few countermeasures against speeding but the underlying solution is enforcement and education to change behaviour.

Department of Transport (KZN)(1997b), is broken down into 4 phases.

Phase 1- A South African delegation from KwaZulu-Natal left for Australia to investigate their road safety policies and plans for possible implementation in KwaZulu-Natal. The report discusses VicRoads road safety policies and strategies.

Phase 2 – A delegation arrived from Australia to investigate and produce an assessment study report on road safety in KwaZulu-Natal. This phase discusses the short-fall in our laws and systems and possible remedial measures to improve road safety and reduce the fatality and accident rate in our province.

Phase 3 – a business plan was put together by the Department of Transport in conjunction with the Australian delegation for implementation in phase 4. Phase 4 discusses the implementation plan and dates are suggested for implementation with time frames.

Department of Transport (1997a) details the Department of Transports' vision and road safety strategy for the period 1998 to 2002. The report centres around essentially the 4 E's: Education, Enforcement, Engineering and Evaluation. Mass media campaigns, education workshops, community outreach programs and enforcement campaigns are detailed. Time frames have been put in place together with details of staff members responsible for each task. Emphasis was also placed on the need to establish a research centre that would provide valuable data and input into future planning. The report also details evaluation procedures and processes and relevant timeframes.

Safety programmes, such as enforcement and advertising campaigns against drunken-driving, speeding or seatbelt wearing, aim to improve road user behaviour. Guria (1998) estimates safety outcomes of these programmes over time and compares them with their resource cost. Due to common outcome of several of New Zealand's road safety programmes, was difficult to identify the effects of individual programmes. However, the cost / benefit ratio over time indicates that the investment in road safety programmes is well below optimal levels.

Schmidt *et al* (2002) describe the South African Transport Minister's reaction on hearing of corrupt law enforcement officials who allowed un-road worthy vehicles go through roadblocks. The sub-title of the article read: *Transport minister fumes as coffin on wheels travels length of South Africa* . A 47 seater, un-roadworthy bus had travelled approximately 1150 km around South Africa, passing through many road blocks and eventually stopped after passing through a red traffic signal. The bus was overloaded, had bald tyres, a worn-out steering mechanism, no front brakes and according to Ashref Ismail, spokesman for Arrive Alive, 'The bus was literally held together by strings and wire coat-hangers.' Minister Omar promised swift action against those corrupt law enforcement officers and said his department would under-take a full investigation. (Sunday Times newspaper, 22 December 2002)

Calisir and Lehto (2002) describe the relationship between drivers' demographic characteristics and seat belt usage. The study compared the impact of situational and demographic factors and criteria elicited from subjects regarding seat belt usage. A conceptual model was developed and the model indicated that the drivers' decision-making process when judging the level of accident risk and usefulness of seat belts differed from those that determined actual behaviour. People were able to rationally judge the risk. Furthermore, the study showed that seat belt usage was influenced by individual factors such as gender and age.

Democratic Alliance spokesman James Selfe was quoted in parliament as stating that "The fact that more than half of all drivers' licences issued since 1998 are thought to be issued in an irregular manner is an indictment on the process that has been followed. It also makes a mockery of the time and effort of thousands of honest motorists who have had to stand in queues for several hours to obtain their credit card format licences." This was the reaction of the Democratic Alliance to a report on the investigation of fraudulent licences presented to parliament in April 2003. The then acting Minister of Transport, Jeff Radebe, said that his department was already involved in the investigation and were due to make arrests soon. He also emphasised that in terms of the National Roads Traffic Act, such licences were void or invalid. (The Dispatch, 8 April 2003.)

Kapp (2003) describes the need for key role players to work together to combat the rising road traffic fatalities. Fatalities as a direct result of road traffic accidents contribute 2.2% of the global death rate. The World Health Organisation, The World Bank, The Red Cross, car manufacturers and government agencies have all agreed to work together in combating rising road traffic fatalities. Kapp believes that global awareness needs to be increased especially in developing countries where the mortality rate per 100 000 is steadily increasing. She cites Sweden for example which has a death rate of 1.3 per 10000 vehicles as compared to 100 deaths per 10000 vehicles in some African nations. Kapp maintains safety campaigns against speeding, drinking and driving, seat belts, child restraints and emergency response times need to be urgently addressed.

Lord and Persaud (2003) say that transportation planning models are typically used to estimate future traffic patterns, peak period traffic, travel time and various environmental or other related traffic flow characteristics. Traffic safety is seldom, if ever, considered during the transportation planning process. The omission is attributed to various factors, including the lack of available tools needed to estimate the number of crashes during this process. The use of specialised software packages would to a large degree help simulate traffic flow patterns, thereby pointing out problem areas regarding safety such as black spots which could be addressed in the planning stages.

Zeedy and Kelly (2003) discuss the influence of parents on a child's behaviour. Pedestrian accidents are a serious health risk to children and there remains a considerable amount to be learned about children's behaviour in real-traffic situations. Child-adult pairs were observed crossing streets, at traffic signals, in shopping centre parkings and at pedestrian crossings in the city of Dundee, Scotland. The survey reveals that while most adults will hold the child's hand when crossing, less than 6% of adults interviewed actually used the opportunity to educate their child on the proper way to cross the road. The implications of these findings prompted the United Kingdom road traffic authorities to implement parental training programmes.

World Road Association (2003) highlights the global road safety problem which is increasing at a rapid pace. The fatality rates from road traffic accidents in the different continents are compared to those in developing countries, which are extremely high. Partnerships between government and non-governmental agencies are encouraged in an urgent attempt to reduce the fatality rates on the global road network. Suggestions on how to approach road safety and to get funding and support from government and non-governmental agencies are discussed.

A study conducted on aggressive driving in the United States of America by Shinar and Crompton (2003) revealed that the most consistent aggressive driving habits were hooting, cutting across one or more lanes in front of other vehicles and overtaking on the shoulders. The study was conducted over six

sites with more that 2000 aggressive drivers being observed. Men were more likely to commit aggressive behaviour than women. Aggressive behaviour was predominately committed by men younger than 45 years of age. The study also revealed that the presence of a passenger had a positive effect in the reduction of this aggressive behaviour.

Seat belt usage on Spain's highways is more than 80%, while on the urban roads this figure drops to about 50%. Cunill *et al* (2003) investigated the factors surrounding the lower seat belt usage on urban roads and found that drivers on urban roads reported that discomfort from seat belt usage was the main criteria for non-usage. Safety perceptions and being fined for non-usage of seat belts did not seem to perturb the 398 candidates who were interviewed. Lower traffic volumes and reduced enforcement on urban roads contributed largely to the reduction of seat belt usage. The highways presented a much higher risk to drivers and therefore the usage was considerably higher. The issue of discomfort had been referred to the vehicle manufactures.

There is a strong relationship between crash severity and speed as described by Garder (2003) when he conducted a study in Maine in the United States of America. Prediction models from Sweden and the United Kingdom were used to analyse data as the United States did not have a model. Pedestrian and traffic volumes were collected from 122 locations of varying environments. Drivers exceeded the speed limit on multiple lane roads more often than on single lane roads. Most pedestrian accidents occurred on multiple lane roads

or on roads that are wider. Safety improvements such as traffic calming measures needed to be implemented at pedestrian locations.

Bound rationality is a generally adaptive behaviour characterised by a rapid decision making process that involves only the most salient aspects of the problem. Sivak (2003) says in the driving context, bound rationality is evident on a societal level as well as on an individual driver level. On the societal level, bound rationality underlines the development of many of the early, common-sense countermeasures for road safety problems. On the individual driver level, bound rationality can lead to unexpected driver behaviour and thus to unexpected effects of some common-sense countermeasures.

Millot (2004) discusses the problem that urban growth is having on travel patterns and road safety. Urban growth involves new travel practices. This also involves the use of private motor vehicles, the mode most suited to urban reality. The author's case study was based in France and took into account travel patterns and accident data from 1981 to 1994. The analysis of this data showed that while accidents decreased in the cities, there was an enormous increase in urban areas. He found that large volumes of traffic on the existing road network can be accommodated to a certain degree but these increased volumes cause road safety problems.

2.2 Possible solution to road safety

Horberry *et al* (2001) discuss the link between hand held mobile phone and road crashes is Western Australia. The observation was conducted during daylight hours on 40 locations. It was observed that 1.5% of drivers used hand held mobile phones. Of those infringing the law, 78% of them were male. These figures were compared to previous year's data and showed a significant decrease although the hand held mobile industry had grown by 15%. This decrease in usage is attributed to the vigorous media campaigns and an increase usage of the hands free kit.

Drivers aged 17 to 21 years old make up 7% of licence holders but 13% of this age group are involved in road traffic accidents in the United Kingdom. Roberts (2001) examined the problem of teenage road deaths and the British Governments proposal of driver education programmes in schools and colleges. The Driving Standards Authority developed an educational package and programme which was implemented at schools. The programme involved presentations by driving examiners, theory and practical tests and a range of road safety issues. In the first year, the programme reached 125 000 learners and the programme was expanded to reach a further 750 000 learners.

Wong *et al* (2002) proposes a qualitative assessment methodology that comprised of a cluster analysis and an auto regression analysis that accessed the effects of various road safety strategies implemented in Hong Kong over the last decade. These strategies together with trend factors, seasonal

patterns, car crashwothiness and meteorological data were used in the auto regression analysis to relate to the fatality and casualty rates of driver, passenger, motorcyclists and pedestrians. This method allowed for the evaluation of the overall effects of the road safety strategies and the effects of relative significance of each individual strategy.

A pilot project run in Northamptonshire, United Kingdom, was aimed at people who were caught speeding to help them change their attitudes towards speeding. Those caught infringing the law would have to pay a fine and attend a half-day speed workshop. These workshops examined and challenged attitudes towards speeding and assisted people in understanding the effects of driving at excessive speeds. Results from those who attended the workshop were very positive in that 92% had indicated that they were more likely to keep to the speed limits. One of the participants said after the workshop that this made him think not only of the fines or the points that were deducted against his licence, but also about accidents which could happen when speeding. The aim of this project was to make speeding socially unacceptable as drinking and driving. The workshop also looked at reason as to why people speed. http://www.northants.police.uk/ (accessed on 3 March 2003)

CSIR Transportek (2003) discusses the pilot project that was set-up in the Umlazi area. The report outlines the principles of safer communities and the need for this pilot project. BP Southern Africa's commitment to road safety and its social responsibility is highlighted. The project was driven by CSIR and

sponsored by BP. Training and community involvement are the key issues with problems and problem solving techniques being highlighted. The report also highlighted stakeholders and their responsibilities. The success of the project was largely dependant upon these stakeholders.

In 1986, the Australian Government introduced a formal road safety education programs into schools. These education programmes were introduced from early childhood to tertiary level. They believed that in order to produce behavioural changes, people needed to be taught from an early age the correct habits regarding road safety. With a strong financial backing and positive commitment from all stakeholders, these road safety education programmes formed part of the formal school curriculum. The State of Victoria, Australia had very positive results and is today known as the 'worlds best practice' on road safety. http://www.rta.nsw.gov.au/ (accessed on 22 August 2005)

3. Pilot Survey

650 students were randomly selected from the three faculties at Mangosuthu Technikon to participate in the answering of the questionnaire. The questionnaire was based on some background information pertaining to their schooling career and included questions on various modes of transport. General questions relating to road safety were also incorporated in the questionnaire. The purpose of the pilot survey is to test the questionnaire (appendix A)
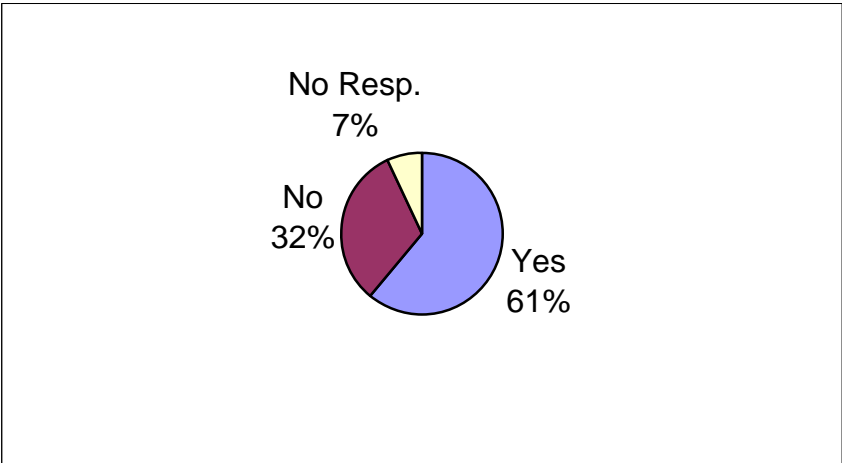
3.1 Background

In figure 3.1, 90% of the respondents attended government school with 7% attending Model C type schools and 3% attending private schools.
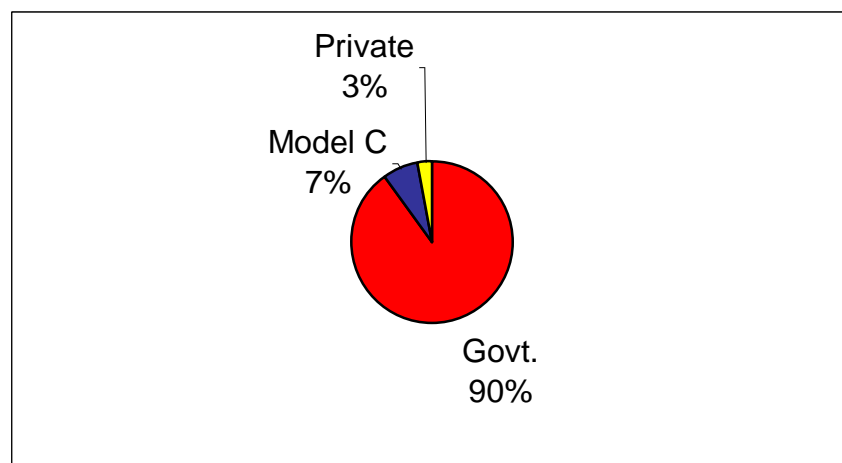
Figure 3.1 Type of school attended

Mangosuthu Technikon serves the previously disadvantaged communities and this is evident in the schooling ratios.

Figure 3.2 Percentage of students who received road safety education at school

In figure 3.2, 61% of the respondents indicated that road safety was taught at school level. This is encouraging as all the respondents are from previously disadvantaged backgrounds and the majority have attended government school.
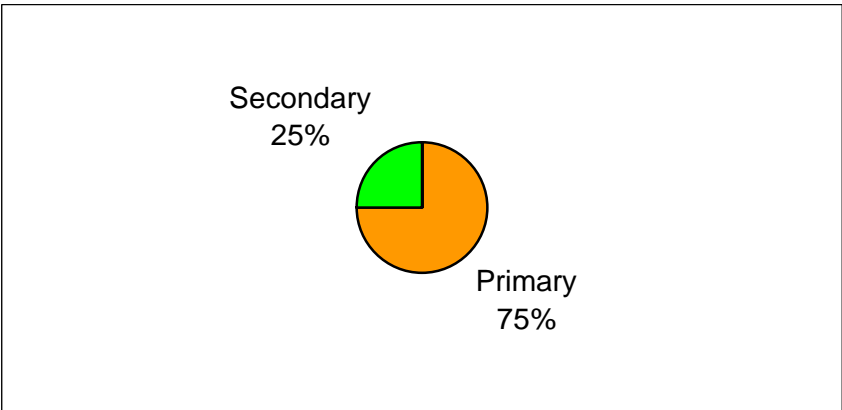

Figure 3.3 Was road safety taught at primary or secondary school

Figure 3.3 indicates that 75% of the respondents who have received road safety at school received some form of road safety education at primary school level.
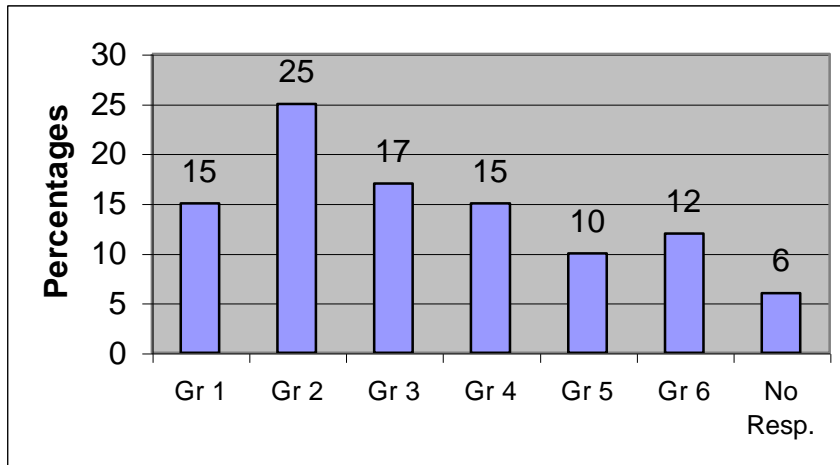
Figure 3.4 Grades at which road safety was taught

The grades at which road safety was taught varied and this is indicative of the absence of a structured and formal road safety education syllabus for schools (Figure 3.4). It is also apparent that some respondents received some road safety education and others none.
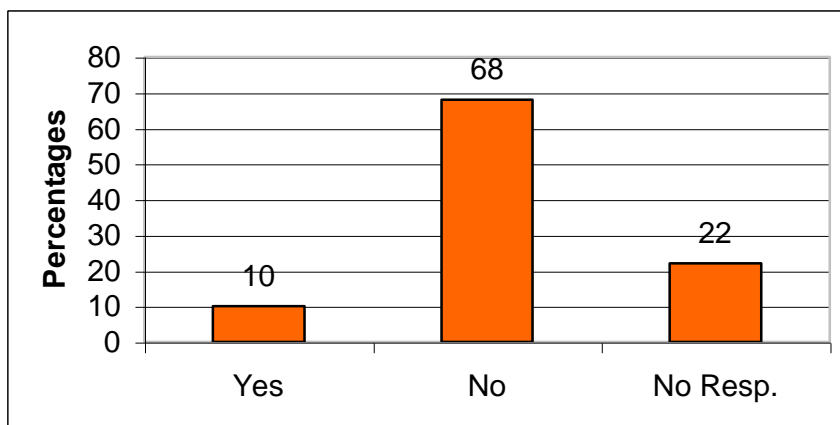
Figure 3.5 The prevalence of scholar patrols at school

Only 10% of the respondents indicated (Figure 3.5) that they had scholar patrols at their schools. Scholar patrol services are the responsibility of the

local municipalities and it would appear that these services in previously disadvantaged areas were lacking.
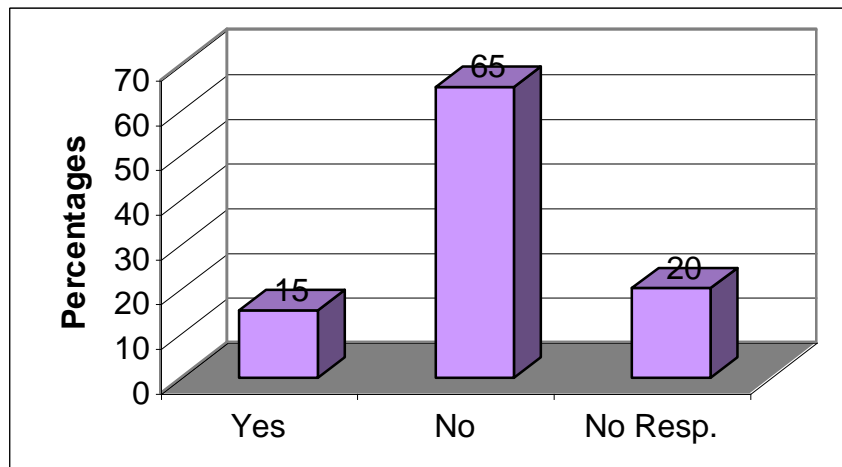
**Figure 3.6 Are you in possession of a valid driver's licence**

Figure 3.6 shows that 65% of students were not in possession of a valid driver's licence. With the hardships these students experience, money is scarce and most students rely on public transport, possessing a valid driver's licence would be a luxury for most students.

3.2 Cyclists
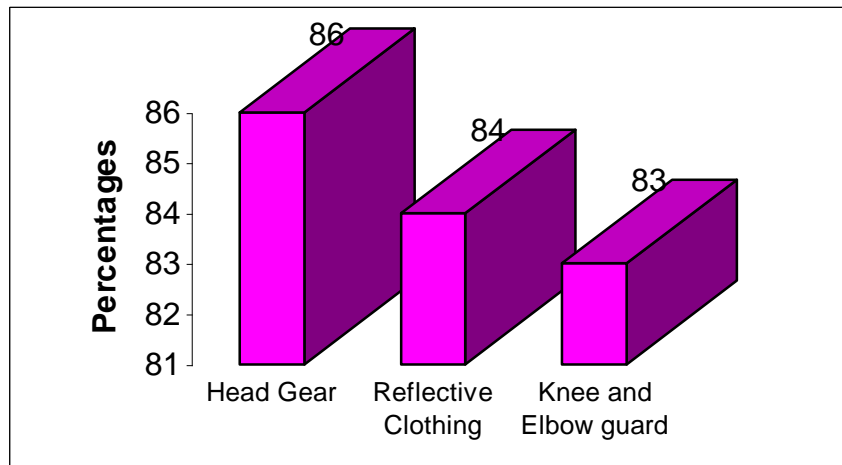
Figure 3.7 Are head gears, reflective clothing and knee and elbow guards essential

The majority of the students agree that the use of protective gear when cycling is essential (Figure 3.7).
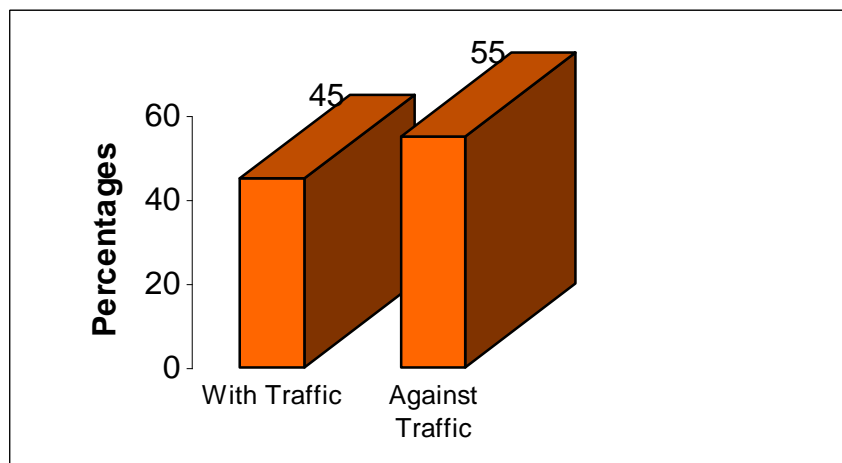
Figure 3.8 Should you cycle with traffic or against traffic

45% of respondents have indicated (Figure 3.8) that you should ride with traffic. However, there is an element of doubt and this is perhaps due to the lack of education or even perhaps due to the lack of access of bicycles.
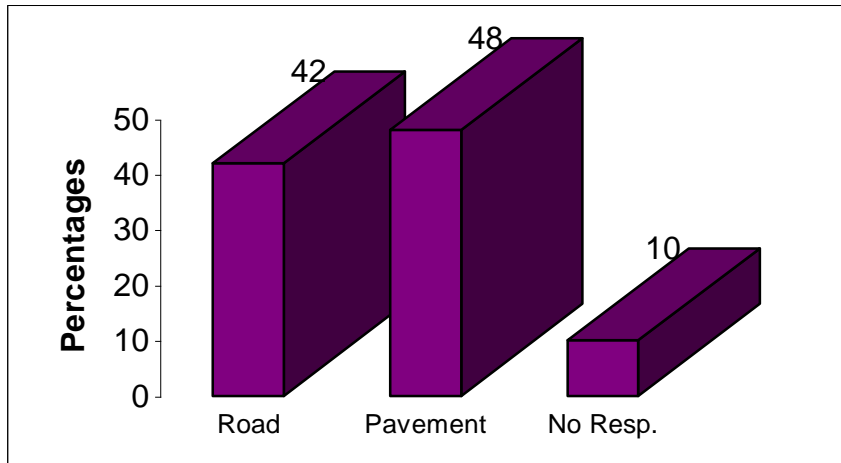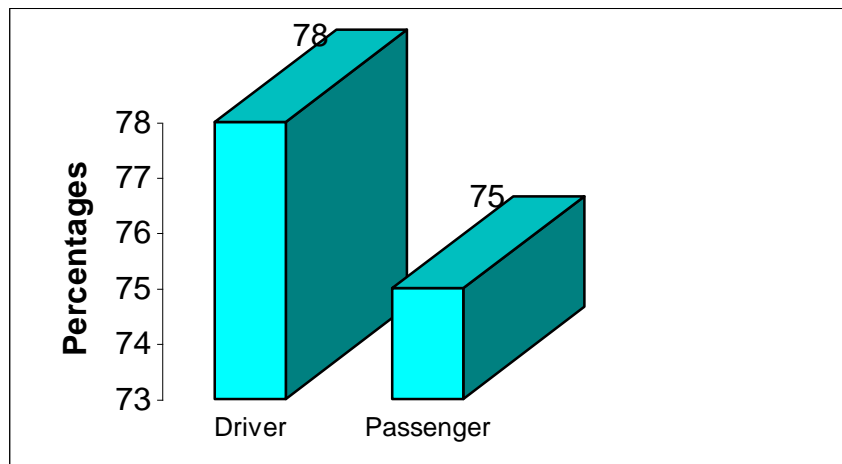
Figure 3.9 Should you ride on the road or on the pavement

As illustrated in Figure 3.9, 42% of respondents have indicated that you should ride on the road while 48% said you should ride on the pavement. Uncertainty could be attributed to the lack of proper infrastructure in the previously disadvantaged communities.
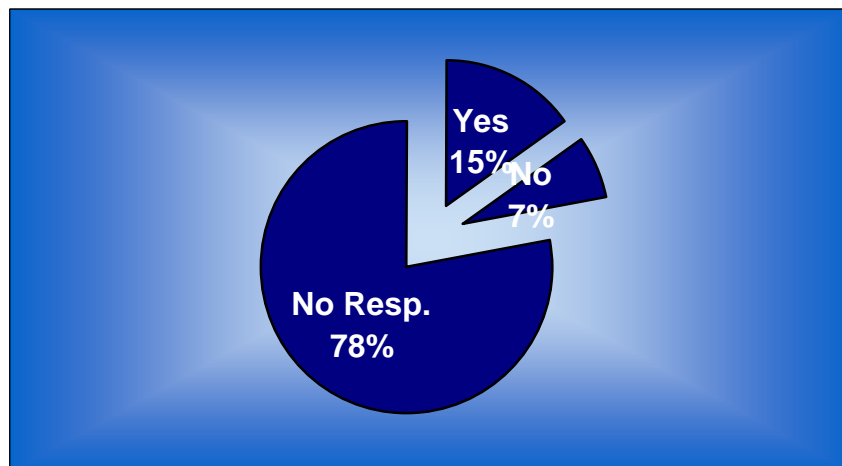
3.3 Motorbikes

Figure 3.10 Do you think helmets are necessary for both driver and passenger

The majority of candidates has indicated that helmets were necessary for both driver and passenger. It is encouraging to note that students are aware of the need to use protective equipment which was also illustrated in figure 3.7.


Figure 3.11 Would you weave through traffic

Figure 3.11 shows that 15% of candidates said it is acceptable to weave in traffic. 78% of students did not answer this question perhaps due to a lack of understanding or perhaps not too many students are riding motorbikes.
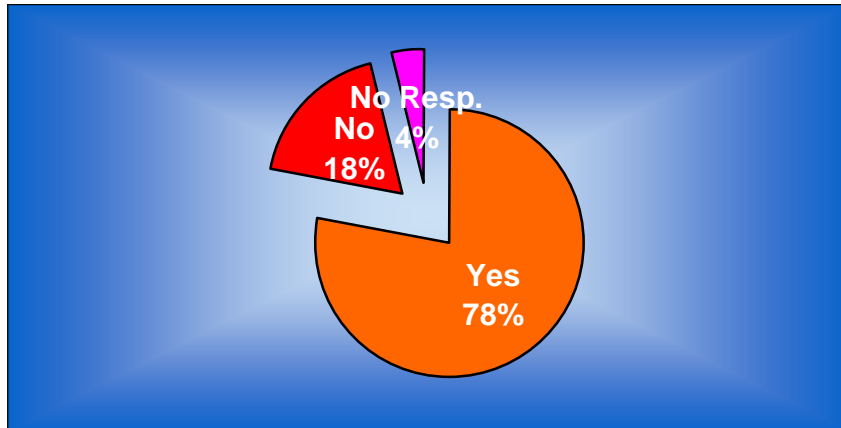

Figure 3.12 Would you carry a passenger under the age of 16 years old

Figure 3.12 shows that 78% of the respondents indicated that they would carry passenger under 16 years old. It would appear that the majority of students are unaware of the laws regarding the carrying of passengers on a motorbike.
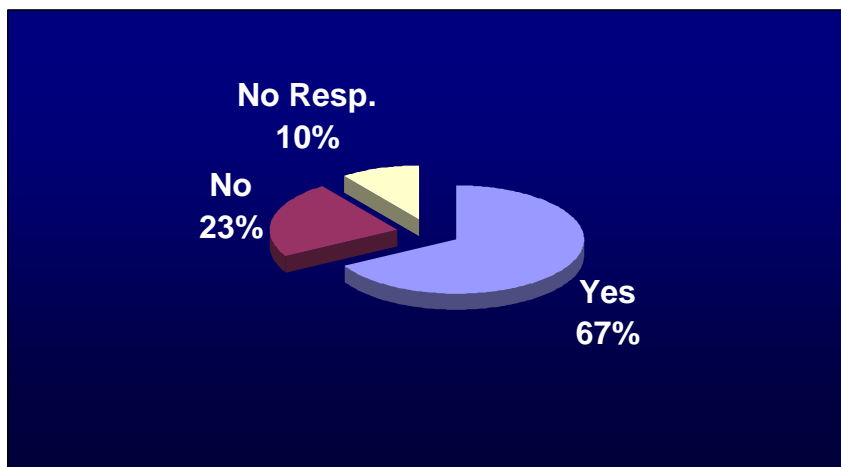
**Figure 3.13 Would you indulge in alcohol and ride a bike**

As illustrated in Figure 3.13, 67% of respondents have indicated that they would indulge in alcohol and ride a bike. This is indicative of the lack of education on the effects of intoxicating substances.
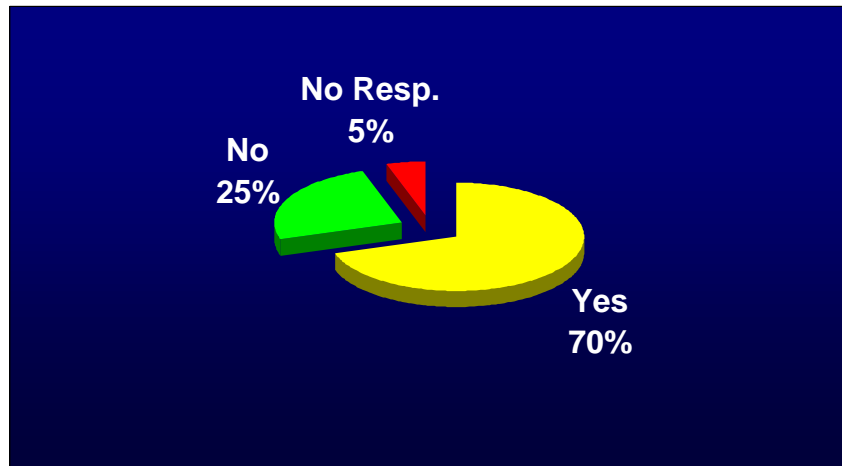
Figure 3.14 Would you give a friend a lift if you were under the influence of alcohol

It can be seen from Figure 3.14 that 70% of students indicated that they would give a friend a lift. This is evident of the lack of education on drinking and driving. Safety of other road users, pedestrians and for that matter, passengers, has been ignored and lives have being put in great danger.

3.4 Drivers/Pedestrians
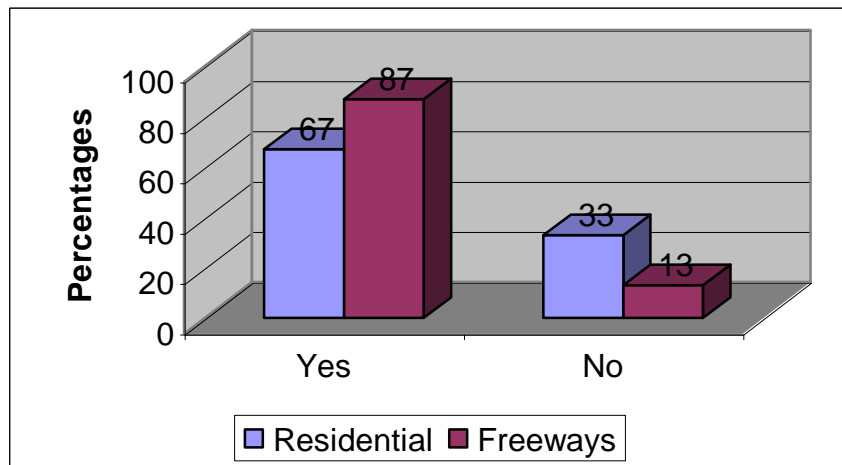
Figure 3.15 Speed limits in residential areas and freeways

Figure 3.15 shows that 67% and 87% of candidates knew the legal speed limits in residential areas and on freeways respectively. It was rather surprising that more students knew the speed limits on freeways than in residential areas. This is perhaps due to the lack of infrastructure and signage in townships.
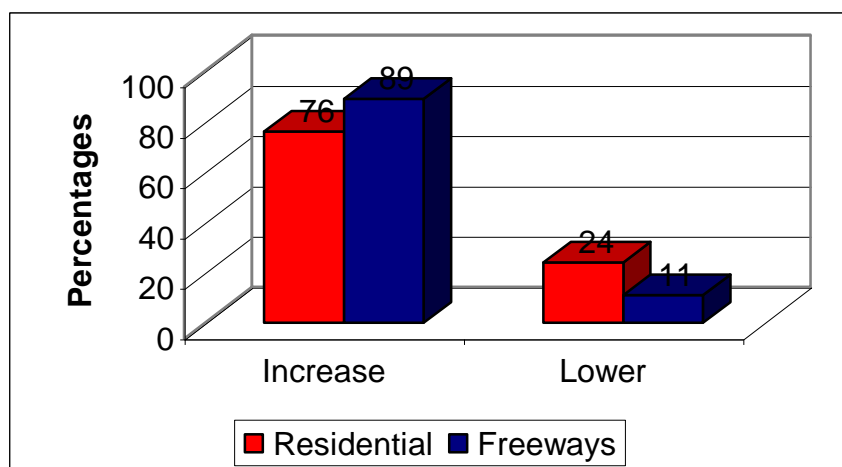

Figure 3.16 Should the speed limit be increased or decreased

The majority of respondents indicated an increase in both the freeway and residential area speed limits. Lack of education and the effects of speed have resulted in this high percentage of students who have recommended an increase in the speed limit. It is also evident that the Asiphephe campaign regarding speed is not well advertised and not reaching grass-root levels.
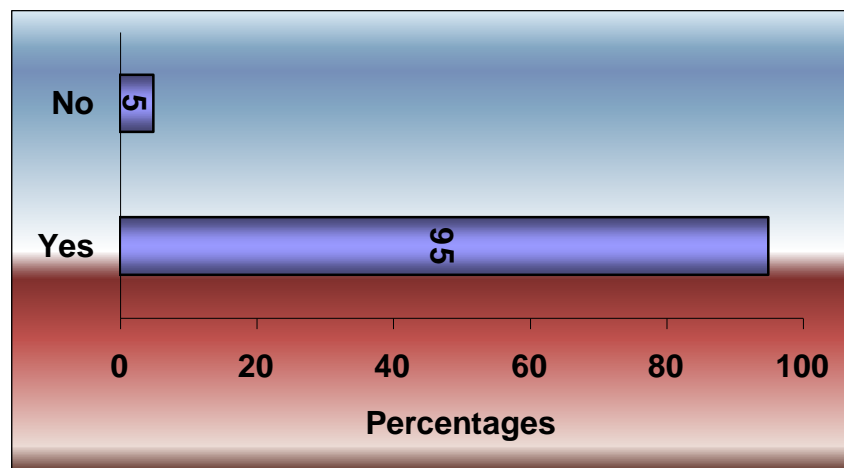
**Figure 3.17 Are seatbelts necessary**

As illustrated in Figure 3.17, 95 % of candidates believe seatbelts are necessary. This is encouraging to note. However only 50% of respondents would insist on their passengers using seatbelts. More needs to be done with regards to the promotion of seatbelts and the effects of not using one. The Asiphephe slogan of 'buckle up' needs to be promoted more vigorously.
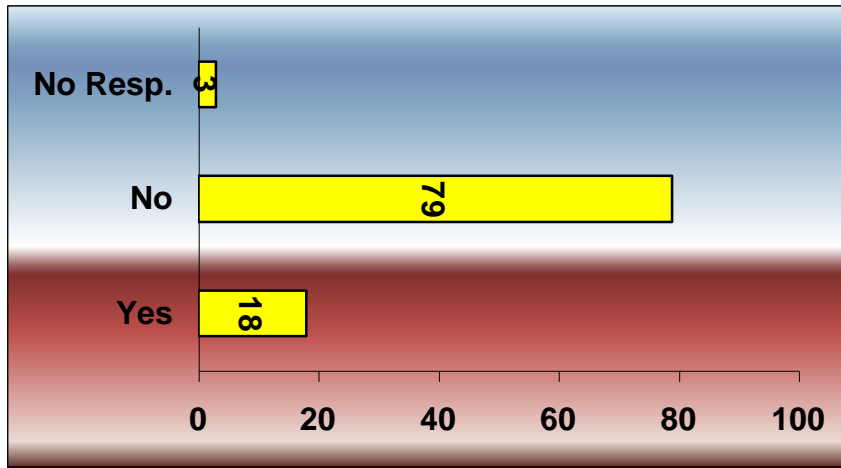
Figure 3.18 Would you use intoxicating substances and drive
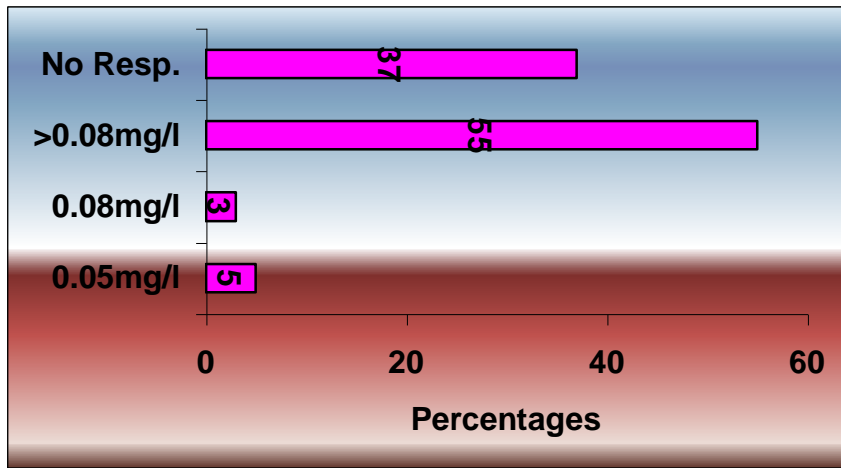
Figure 3.19 What is the legal blood alcohol limit

Although 79% (figure 3.18) of students are against the use of intoxicating substances and driving, only 5% (figure 3.19) of students knew what the legal blood alcohol limit was. On the one hand, it is very encouraging that the respondents are against the use of intoxicating substances but on the other hand more in terms of education needs to be done for respondents to be fully aware of all the legal requirements and the effects of intoxicating substances.
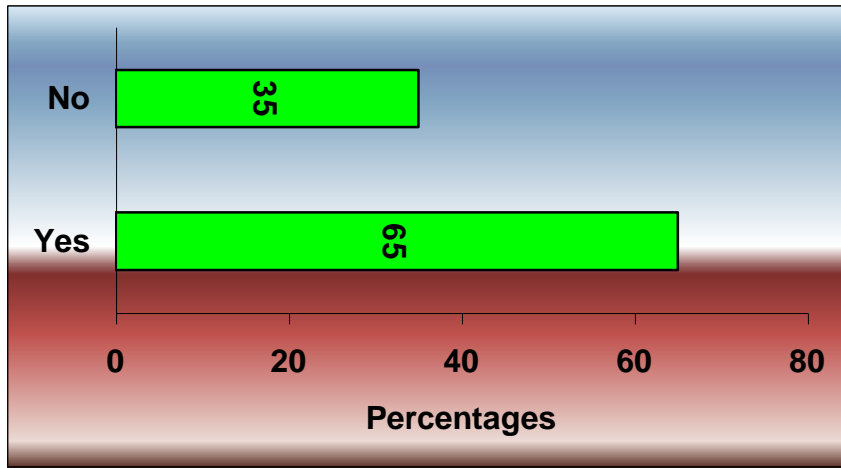
Figure 3.20 Would you accept a lift from a friend who had too much to drink

Figure 3.20 shows that 65% of students would accept a lift from a friend who had too much to drink. This is indicative of students who generally don't have a high regard for safety.
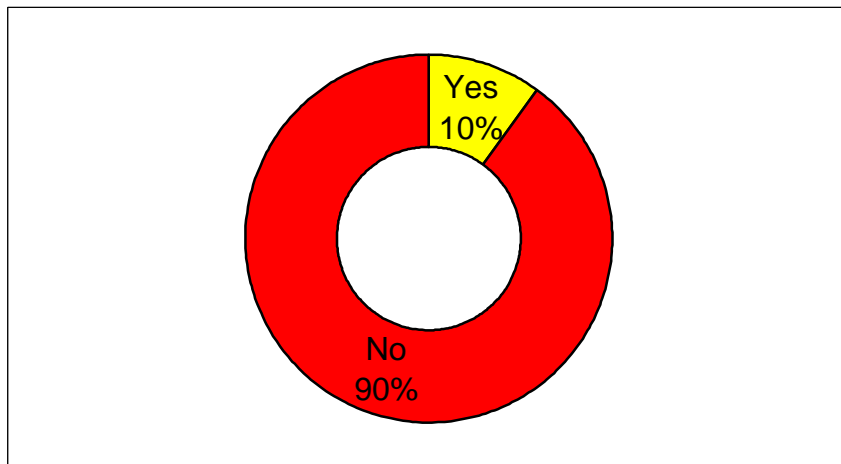
Figure 3.21 Would you use your cell phone while driving

As illustrated in Figure 3.21, 90% of candidates agreed that it was not safe to use a cell phone and drive. This is encouraging as the use of a cell phone is very distracting as one tends to lose concentration while driving.
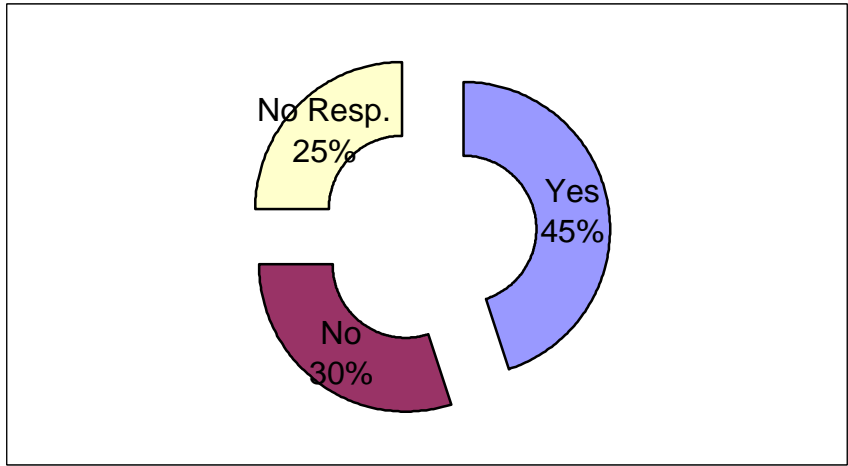
Figure 3.22 Would you drive if you were sleepy or tired
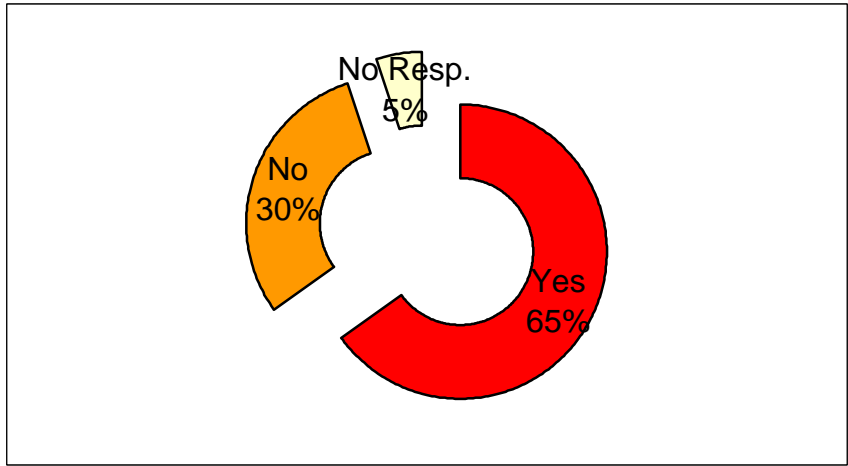
Figure 3.23 Would you drive an entire long distance trip without stopping

Figure 3.24 After how many hours would you stop

45% of respondents (figure 3.22) indicated that would be able to drive if they were tired or sleepy. From Figure 3.23, 65% of respondents said they would drive an entire long distance trip, for example, Durban to Gauteng, without stopping. 78% of candidates said that they would only stop for a rest after 4 to 5 hours of driving (figure 3.24). It 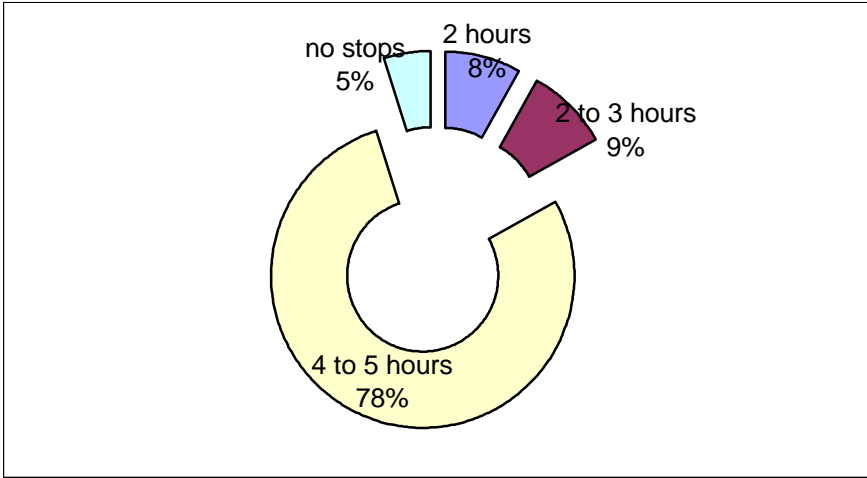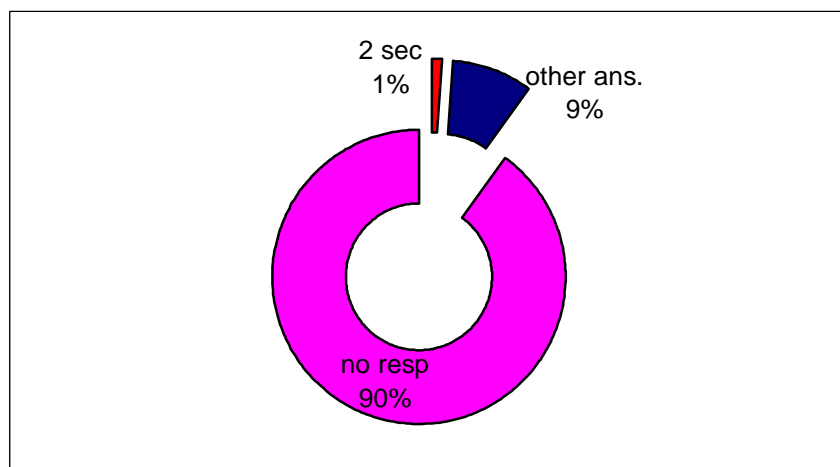is quite evident that the effects of fatigue do not affect these candidates or that they are not aware of the importance of taking a rest after approximately 2 hours of driving. The loss of concentration due to fatigue can be very disastrous and the effects of fatigue needs to be incorporated into a road safety syllabus or learners' licence testing.

Figure 3.25 What is the safe following distance between vehicles

A mere 1% (Figure 3.25) of candidates knew the answer. 9% of candidates gave the answer in meters when the questionnaire asked for the answer in seconds and 90% of respondents did not answer this question. Not maintaining a safe following distance, gives the driver less time to react to a situation and this could lead to a rear end collision.
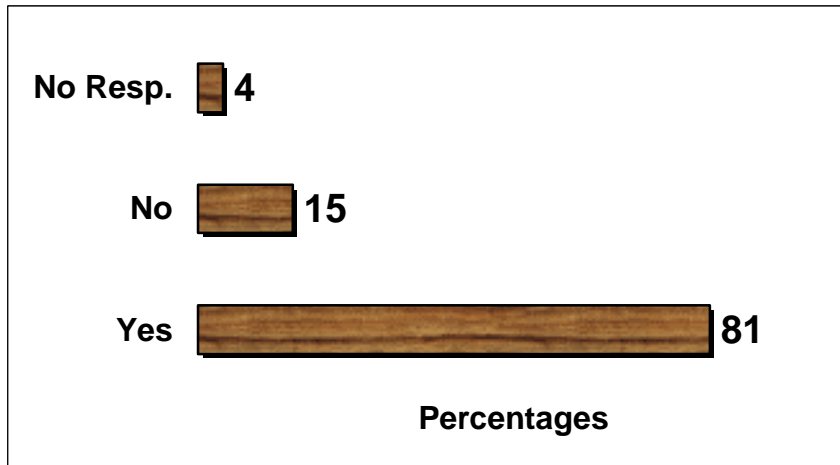
Figure 3.26 Would you pick up a friend anywhere on the road

Figure 3.26 indicates that 81% of the candidates said that they would pick up a friend anywhere on the road. This is a rather dangerous practice as this could lead to rear end collisions, temporary traffic jams and road rage. Further, it is an illegal practice to stop anywhere on a public road or to cause disruptions to traffic.
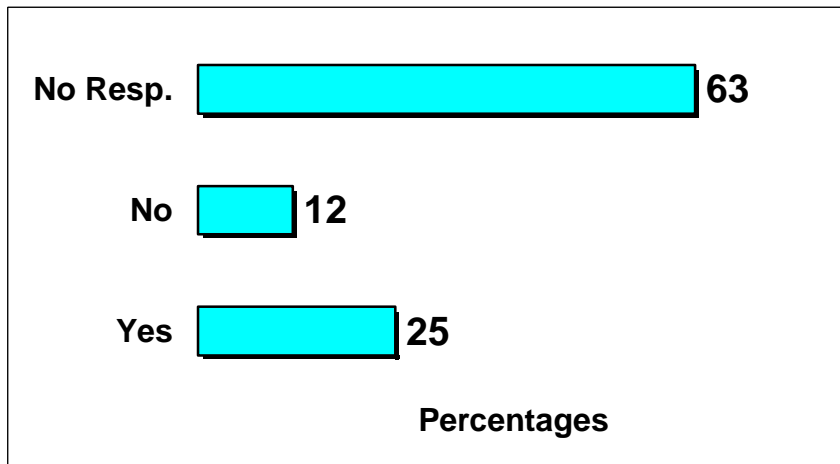
Figure 3.27 Have you observed anyone crossing at a blind rise

As illustrated in Figure 3.27, 25% of the respondents have said that they had observed people crossing at a blind rise. The majority of the respondents did not respond to this question which leads the author to believe that the students did not understand the question or the word 'blind rise.'
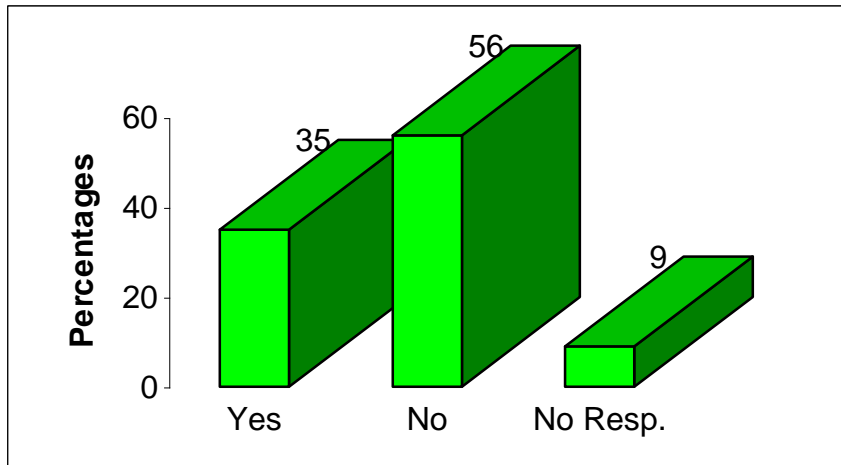
Figure 3.28 Would you use a pedestrian bridge

Figure 3.28 indicates that 56% of students are not in favour of using pedestrian bridges. Pedestrian bridges are generally situated at high risk accident locations which the general public needs to be made aware of and the use of the bridges are of vital importance in order to reduce accidents.
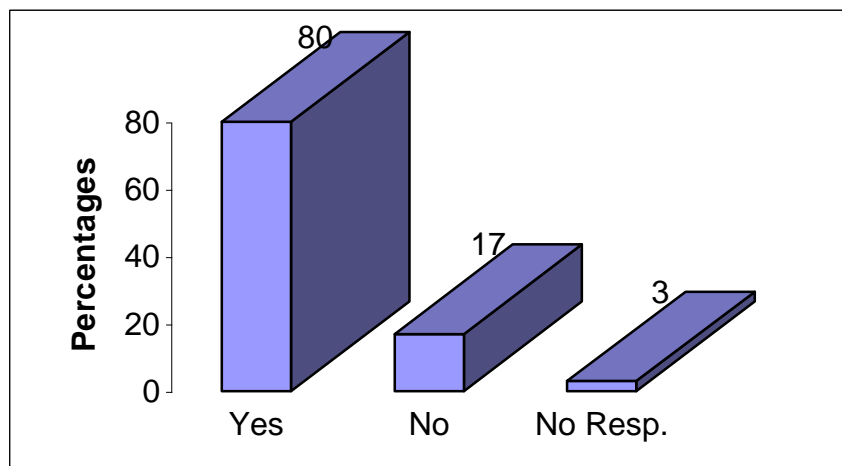
Figure 3.29 Would you wait anywhere on the road to be picked up by a taxi

As illustrated in Figure 3.29, 80% of respondents indicated that they would wait anywhere convenient for them to be picked-up by a taxi. Taxis are obliging to their customers as this is their only source of revenue regardless of whether it is a dangerous practice or not.
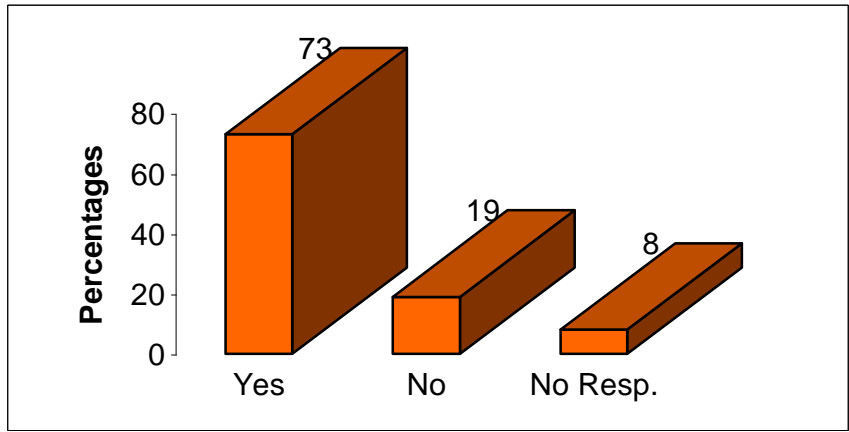
Figure 3.30 Would you overindulge in alcohol and walk home or to a taxi or bus stop

Figure 3.30 shows that 73% of candidates stated that they would over-indulge in intoxicating substances and become pedestrians regardless of the potential risk of becoming pedestrians. Education regarding intoxicating substances needs to be spread more widely especially among the youth and young adults.
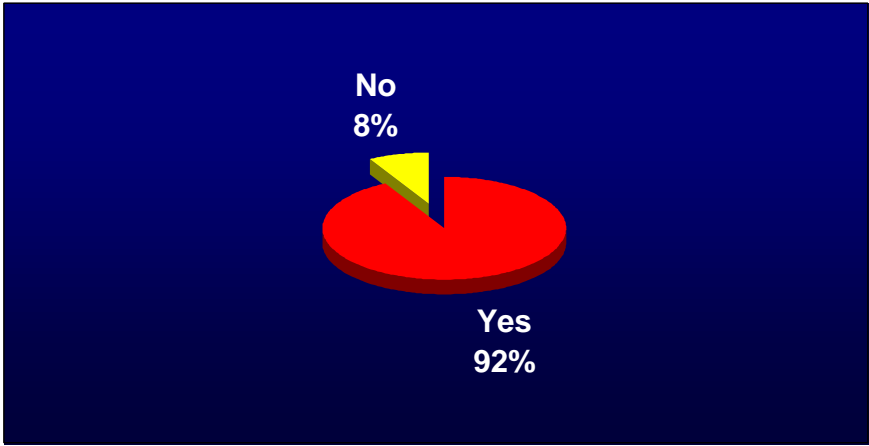
Figure 3.31 Have you observed people crossing the road at any point or weaving through traffic

As illustrated in Figure 3.31, 92% of students have either observed this practice or are currently doing it themselves. This is perhaps one of the possible causes of vehicle/pedestrian accidents as people do not cross at designated pedestrian crossings.
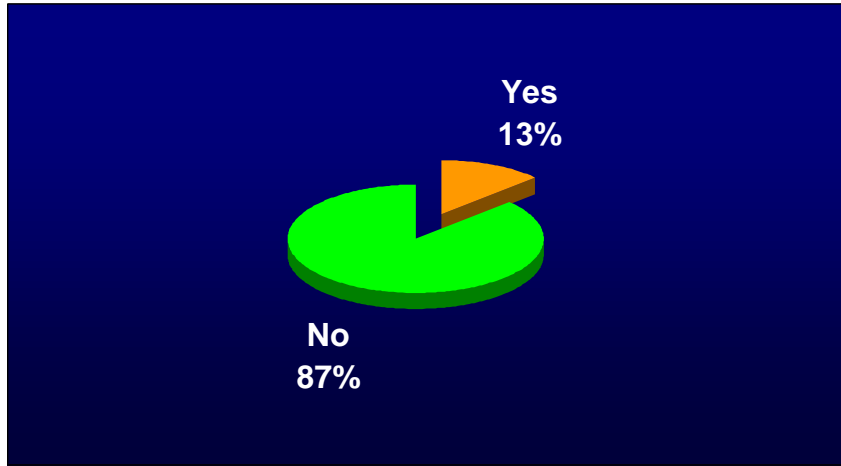
Figure 3.32 Have you heard of the Asiphephe campaign

The respondents from Mangosuthu Technikon are predominantly from disadvantaged backgrounds with the majority of them attending government schools. 87% (Figure 3.32) of these candidates have not heard of the Asiphephe campaign. The Asiphephe campaign is advertised through various media but it would appear that the various forms of advertising are not reaching grass-root levels where it is needed the most.
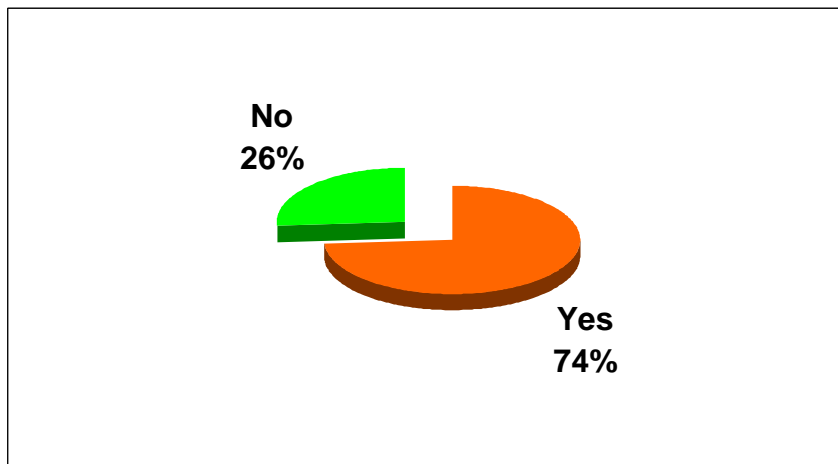
Figure 3.33 What does the Asiphephe campaign mean to you

As illustrated in Figure 3.33, 74% of respondents answered this open ended question by saying 'let us be safe' which is the meaning of the word Asiphephe but knew little or nothing about the campaign.
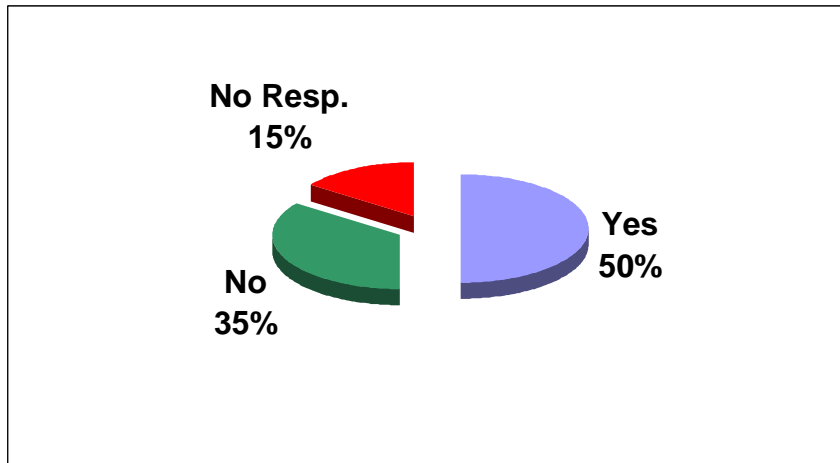
Figure 3.34 Are police doing enough with regards to speed, drinking and driving, unroadworthy vehicles and fraudulent licences

Figure 3.34 indicates that 50% of the candidates responded positively towards this question with the other 50% not convinced or not responding.
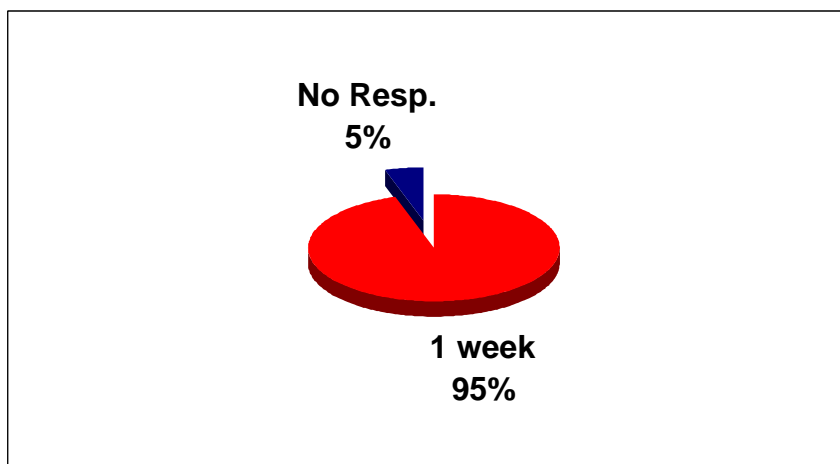
Figure 3.35 When last did you see a road block

As illustrated in Figure 3.35, 95% of candidates responded positively by stating "1 week ago." This high response was due to the roadblock set up in Umlazi due to third force activities that occurred in Soweto with the bombing of the train routes.

When asked the question where should road safety start, 24% of respondents indicated at school, 36% said at public gatherings and driving schools and 19% indicated that it should start at home.

Respondents cited speed, alcohol and reckless driving as the main causes of traffic incidents. Higher police visibility, increase in the frequency of roadblocks, stiffer penalties for those transgressing the laws and an increase in public awareness should be initiated to promote road safety.

In summary, the results of the pilot study revealed that students have very limited knowledge on aspects of road safety. This is perhaps due to the lack of education, especially on road safety. Students have heard of some road safety campaigns but have little or no knowledge of the actual campaign. Student do acknowledge that road safety is a problem.

4. The Focal Survey

After the pilot study was conducted at Mangosuthu Technikon, the questionnaire was re-evaluated. Certain questions had to be re-worded and others incorporated and compressed. These were done to remove ambiguities and get more precise answers. Overall, a few minor edits were done before the final questionnaire was completed (appendix B).

4.1 Sample
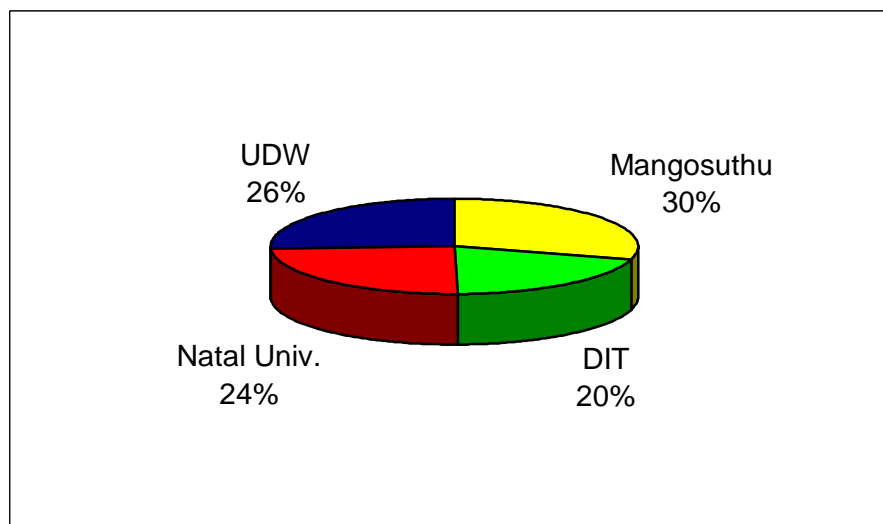
Figure 4.1: Percentage of sample from the four tertiary institutions in the Durban area

2753 students were selected randomly from the various faculties at the four tertiary institutions in the Durban area, namely; Mangosuthu Technikon, Durban Institute of Technology (DIT), University of Durban Westville (UDW) and University of Natal to participate in the answering of the questionnaire. The questionnaire survey was completed in December 2003 before the merger of the two universities which is now called the University of KwaZulu-Natal. The four tertiary institutions in the greater Durban area were used as a

basis for the survey since these students were starting to use the roads as drivers, pedestrians, potential vehicle owners or prospective drivers and were due to become part of the economically active population. The questionnaire was based on some background information pertaining to their schooling career and included questions on various modes of transport. General questions relating to road safety were also incorporated in the questionnaire. The questionnaire was specifically targeted at students to determine:

➢ The emphasis placed on road safety.

➢ To what extent road safety was covered at the school level.

➢ Feedback in respect of short and long term remedial measures.

4.2 Background
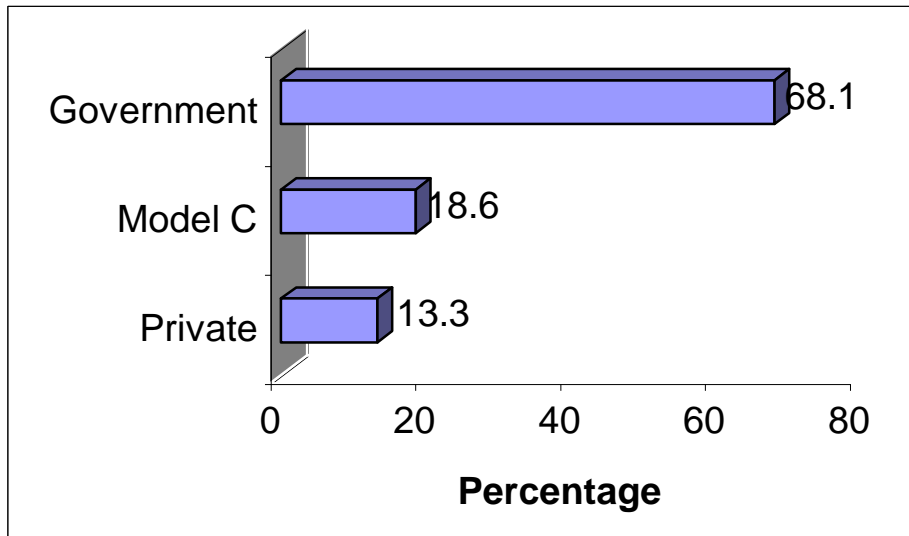
Figure 4.2: Type of school attended

In Figure 4.2, 68.1 % of the students have attended government schools, with

18.6 % attending model 'C' schools and 13.3 % attending private institutions.
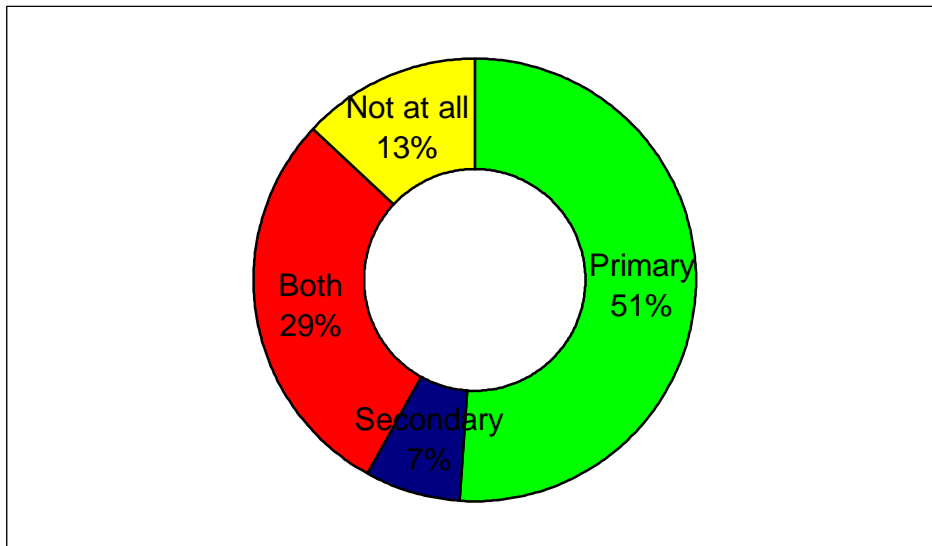
Figure 4.3: Percentage of students receiving road safety education at schools

As illustrated in Figure 4.3, 87% of students have had some form of road safety education at school. 7% of the students had this education at secondary school level only and not in their initial development years while 29% were fortunate to have had continued road safety education. 51% had some form of road safety education at primary school level with 13% receiving no road safety education.
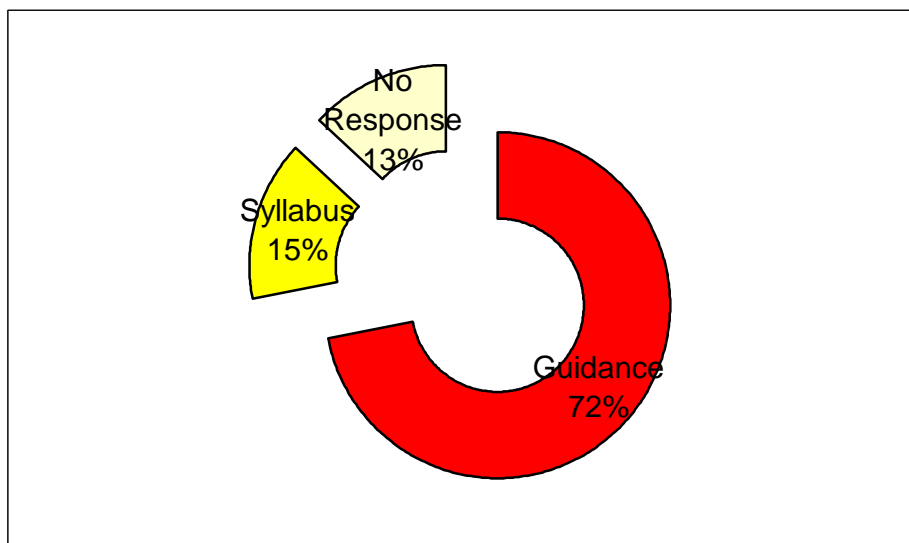
Figure 4.4: Percentage of the period when road safety education was received

Out of the 87% of students receiving road safety education at school, 83% received road safety education on an informal basis during the 'guidance' period only. This guidance period is a life skills period and is conducted once a week only. The grades at which road safety was taught varied and this is indicative of the absence of a proper road safety education curriculum.
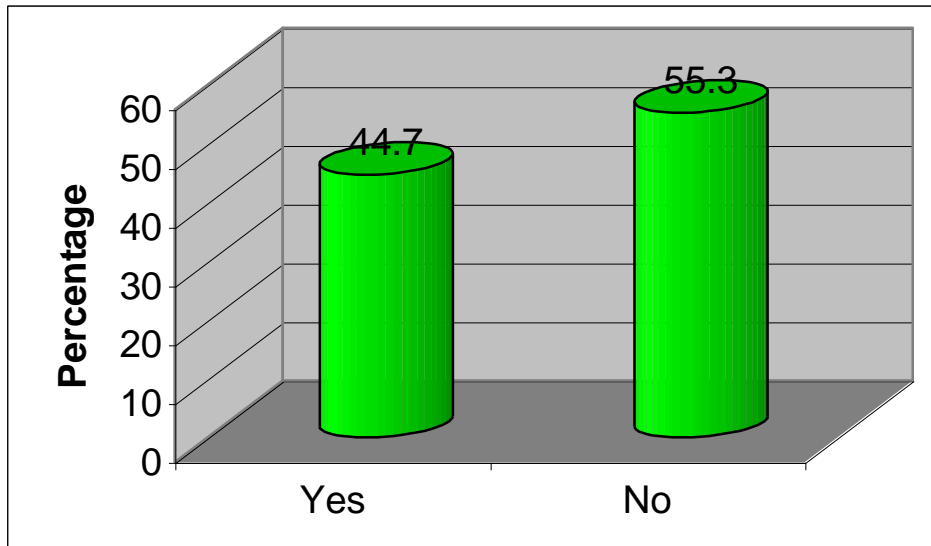
Figure 4.5: Percentage of students in possession of drivers' licence

It was encouraging to note that 45% of students were already in possession of drivers' licence. These were mainly the 3rd and 4th year students at the universities and technikons.
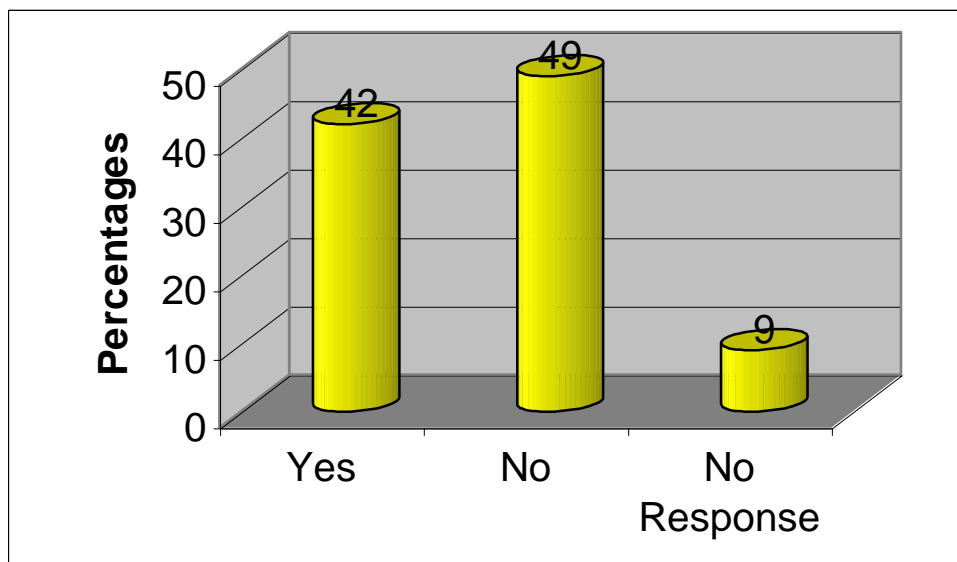
Figure 4.6: Percentage of students driving without licence

As shown in Figure 4.5, 55% of students did not have drivers' licence, but a remarkable 42% of them were driving illegally! (Figure 4.6)

4.3 Cyclists
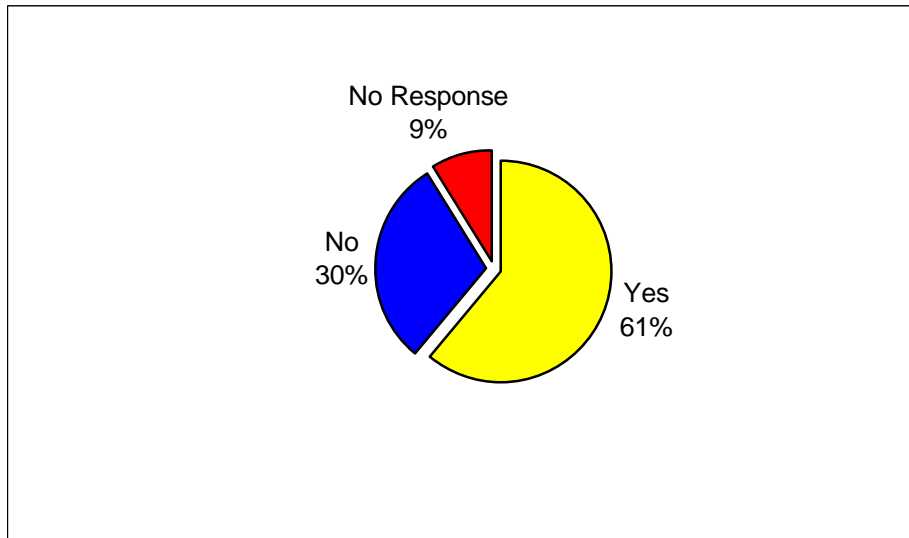
Figure 4.7: Percentage of students using head gear
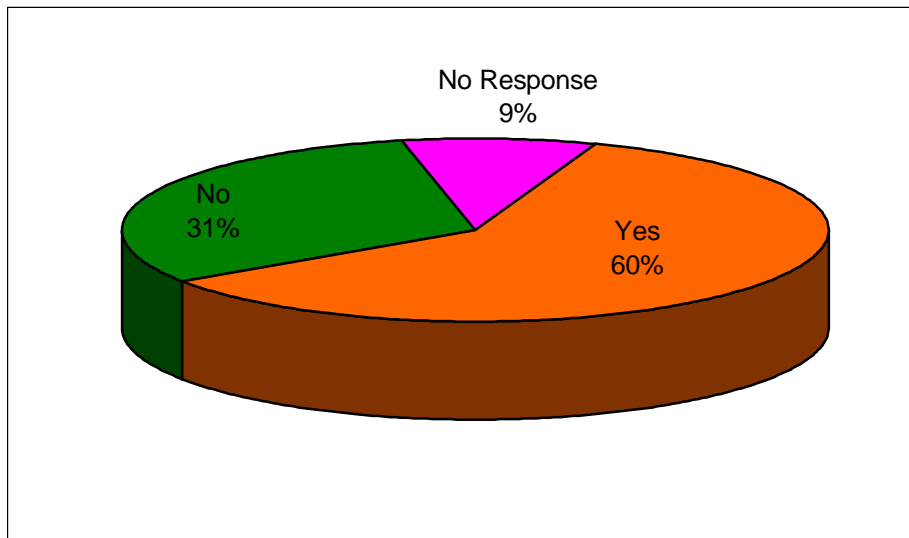
Figure 4.8: Percentage of students using reflective clothing
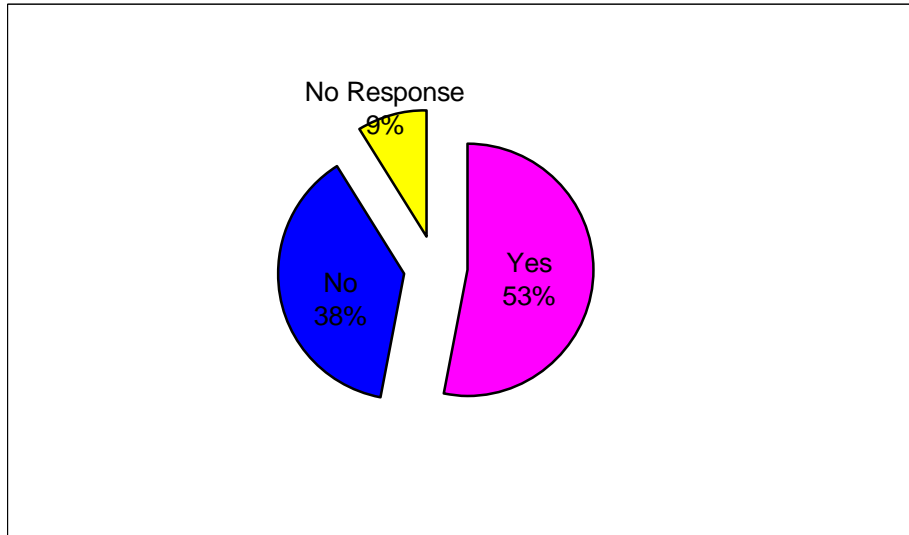
Figure 4.9: Percentage of students using knee and elbow guards

From Figures 4.7, 4.8 and 4.9, it is evident that at least 60% of students placed emphasis on safety gear. All safety gear helped prevent serious injury in the unforeseen circumstance of accidents.
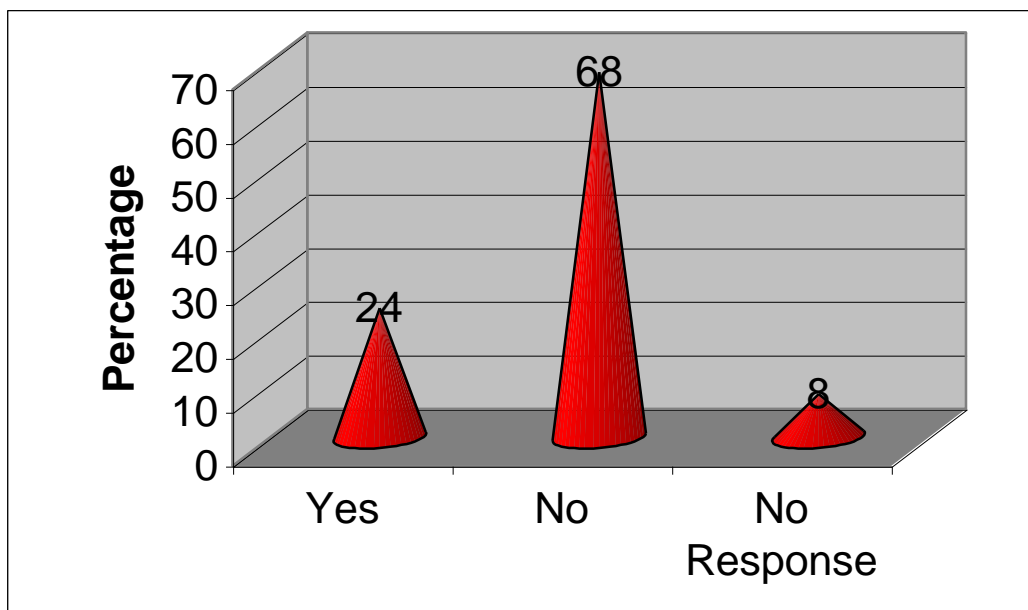
Figure 4.10: Percentage of students using safety gear

It is interesting to note that 60% of students acknowledged that safety gear was important but only 24% actually used safety gear (Figure 4.10). This is possibly due to financial constraints placed on students due to rising tertiary costs or possibly even arrogance. Some people do realise the importance of safety gear but due to macho (arrogance) or attitude do not use them.
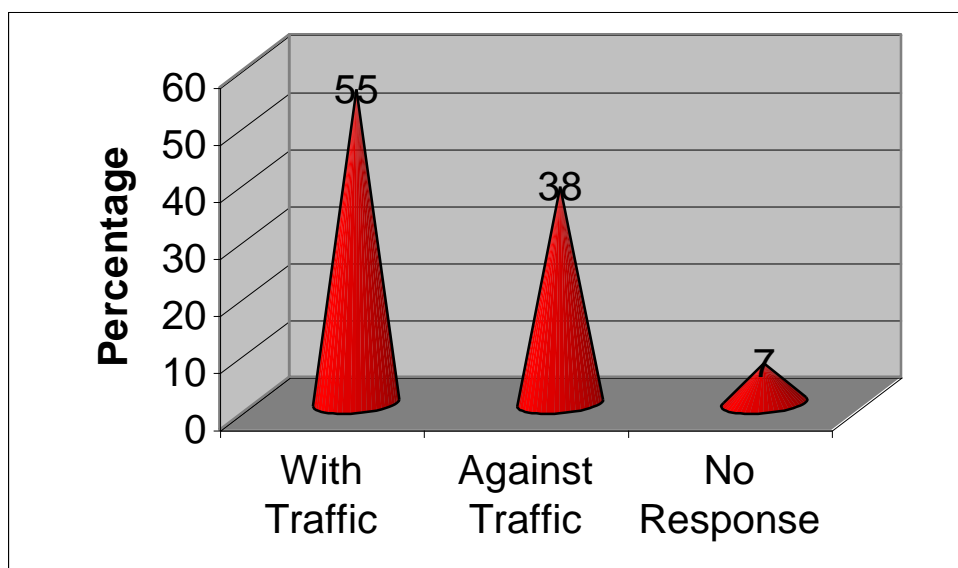
Figure 4.11: Percentage of students riding with and against traffic

Although 55% of students agreed that they should cycle with traffic (Figure 4.11), confusion still arose. This could be attributed to the lack of education on road safety issues. Another issue that cannot go unnoticed is the lack of surfaced roads in the previously disadvantage communities which also contributed to this confusion.
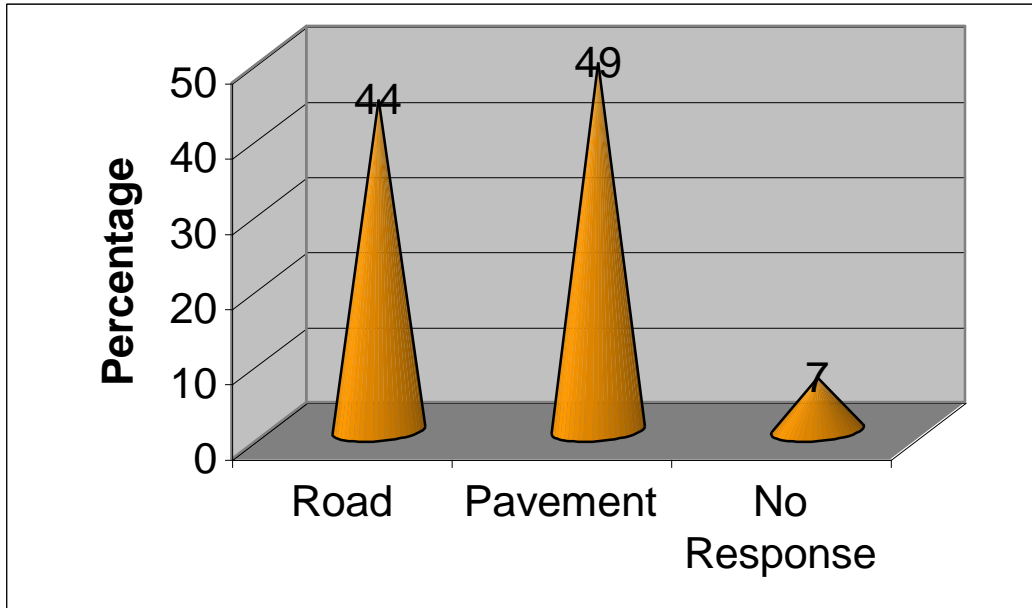
Figure 4.12: Percentage of students cycling on road or pavement

It can be seen from Figure 4.12 that students were unsure as to where to ride. This can be attributed to the fact that most of the roads in previously disadvantaged areas were gravel and lacked sidewalks or cycle lanes. Another possible reason is that black education was severely lacking resources and road safety was not on the priority list.

4.4 Motorbikes
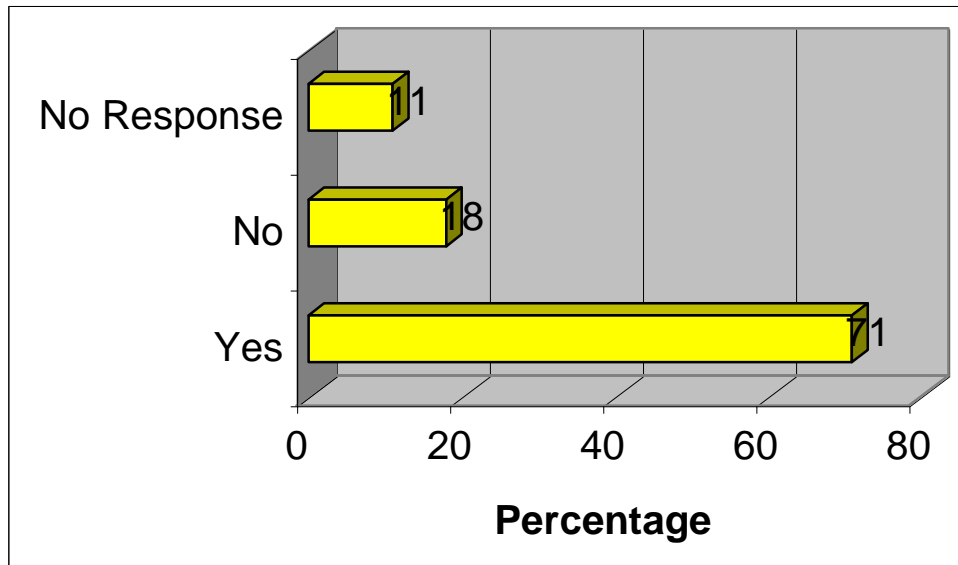
Figure 4.13: Are helmets necessary
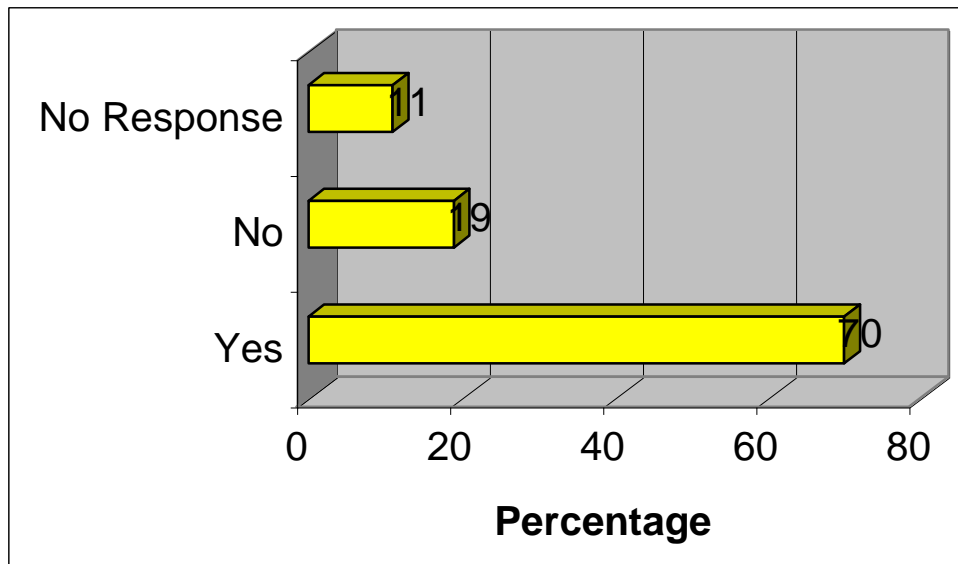
Figure 4.14: Are passengers required to use helmets

It is encouraging to note that a large percentage of students do place emphasis on the need to use helmets for both drivers and passengers.
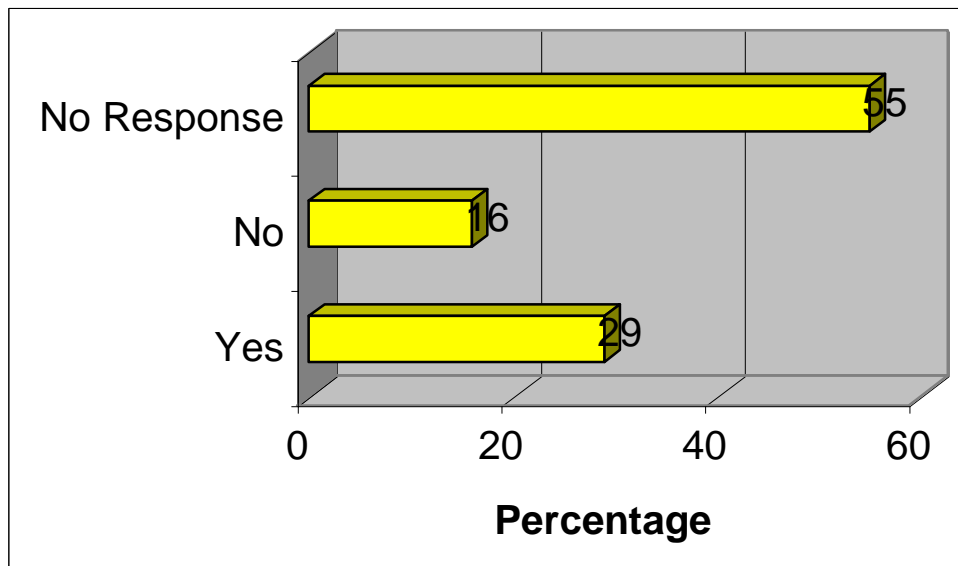
Figure 4.15: Percentage students riding motorbike without helmets

The high percentage of 'no response' can be attributed to the large number of students who do not ride motorbikes (Figure 4.15). Surprisingly out of the 45% of students who do ride motorbikes, 64% of them ride motorbikes without helmets. It would be fair to assume that although a large percentage of students acknowledged that the use of helmets was important, not many of them adhered to the laws governing the use of helmets or for that matter, chose to ignore their own safety.

4.5 Drivers / Pedestrians
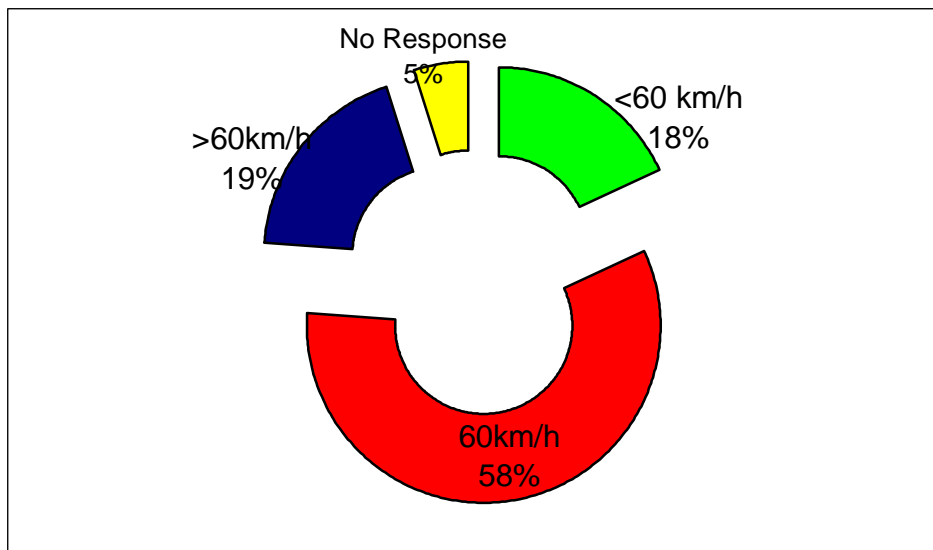
Figure 4.16: Speed limit in residential area

Figure 4.16 shows that only 58% of students knew that the speed limit in residential areas was 60 km/h. 18% of students did indicate a lower speed limit, 19% of students indicated a higher speed limit and 5% of them had no clue.
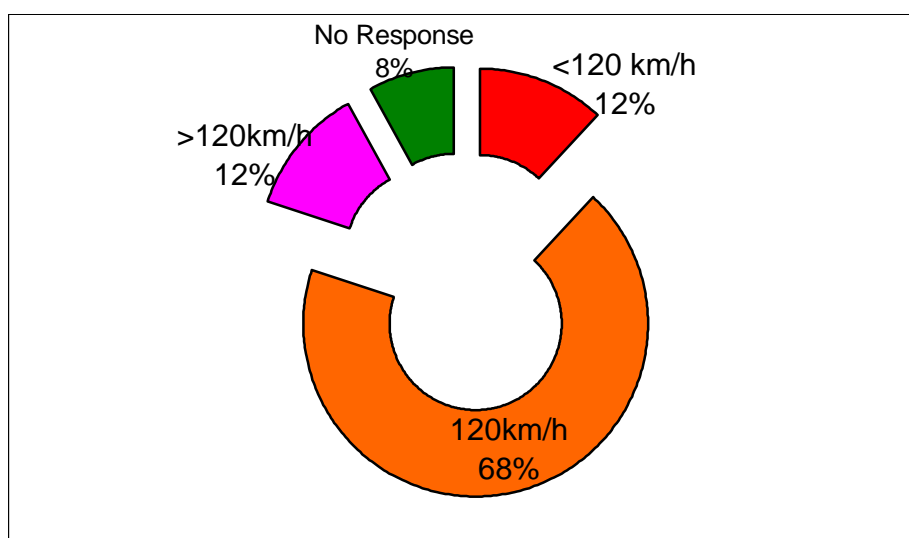
Figure 4.17: Speed limit on freeways

In Figure 4.17, 68% of students knew what the speed limit on freeways was, 32% either did not know or stipulated a higher or lower speed limit.
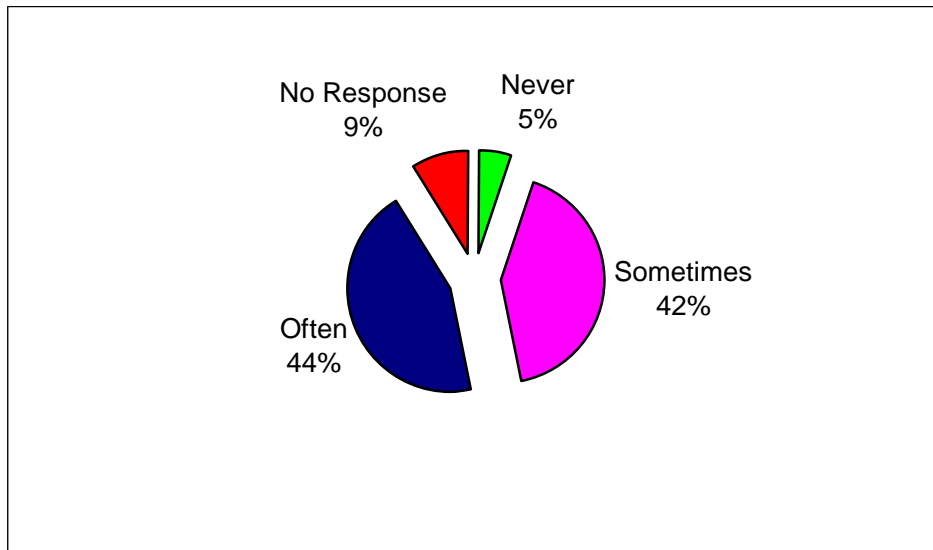
Figure 4.18: Percentage of students exceeding speed limit

In Figure 4.18, 86% of students had a disregard for the country's speed limit with 44% of them often exceeding the limits. Figure 4.5 revealed that only 45% of candidates were in possession of a driver's licence which further highlights the fact that there are too many unlicensed drivers on our roads who are possibly contributing to this epidemic of traffic fatalities by ignoring speed limits.
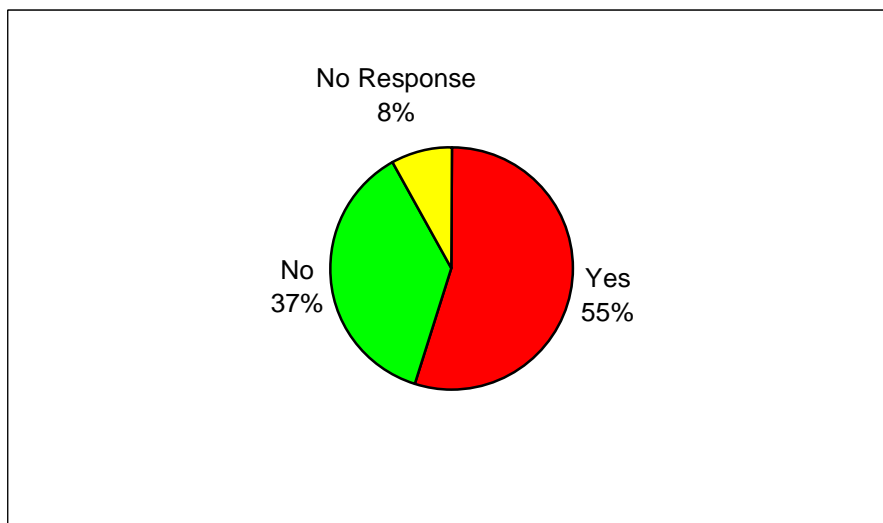
Figure 4.19: Percentage of students who think current speed limits are adequate
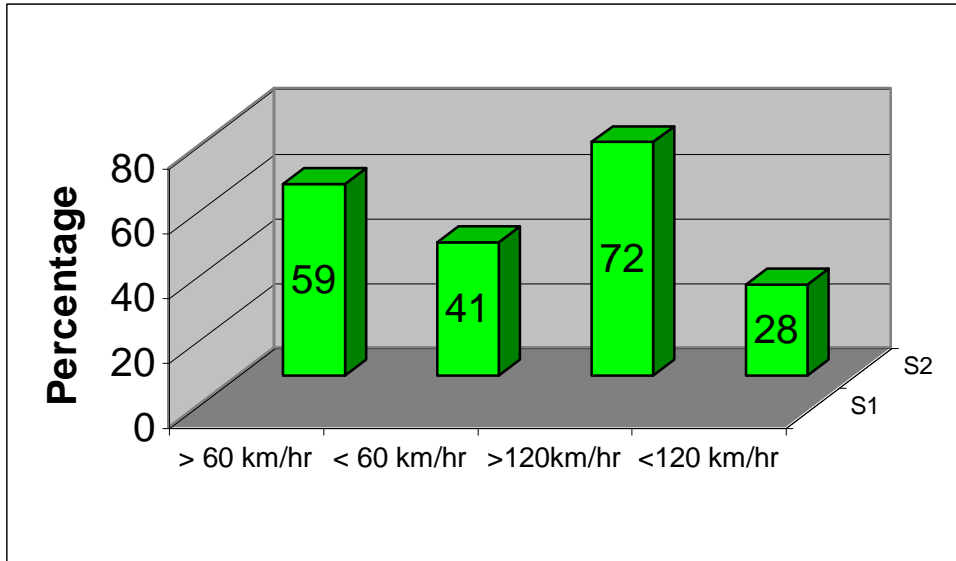
Figure 4.20: Speed limits suggested by students

In Figure 4.19, 55% of students agreed with the current speed limit with 37% disagreeing. 59% and 72% of those who disagreed with the speed limits indicated an increase in the limits in residential areas and freeways respectively. This is very disconcerting in view of the large number of speed related accidents. It would be reasonable to assume that a large percentage of students do not believe in the slogan 'speed kills.'
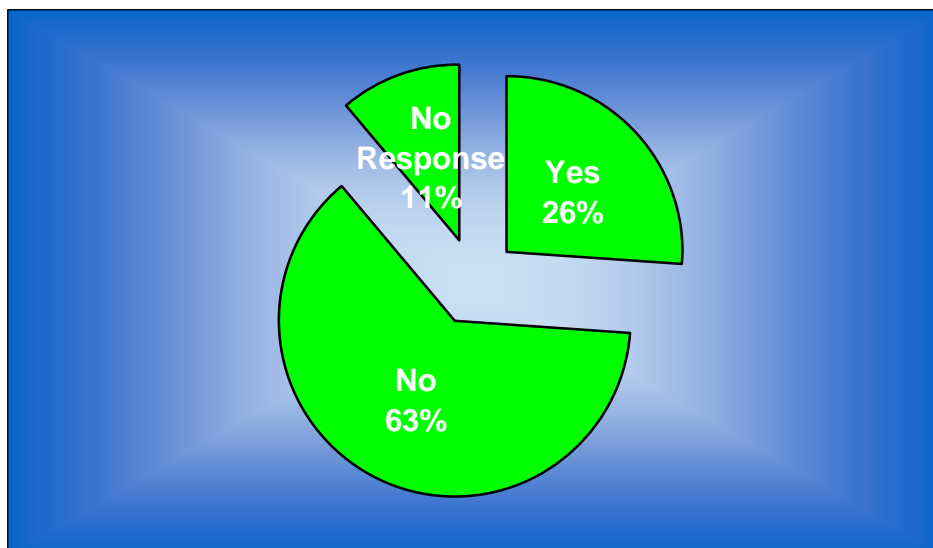
Figure 4.21: Percentage of students using seatbelts
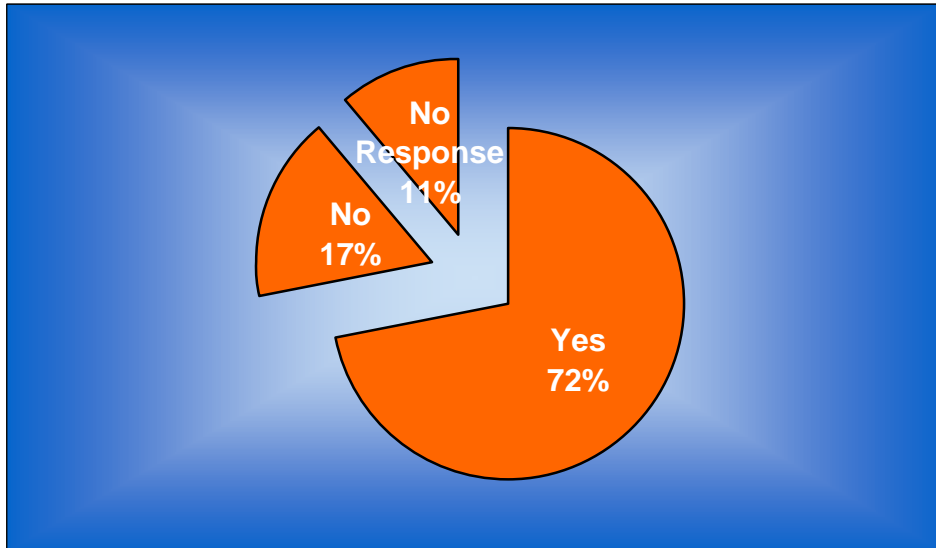
Figure 4.22: Percentage of students driving without seatbelts

From Figures 4.21 and 4.22 it is evident that the use of seatbelts is not high on the students' list of safety measures. Approximately three quarters of the students who participated in the questionnaire do not use seatbelts.
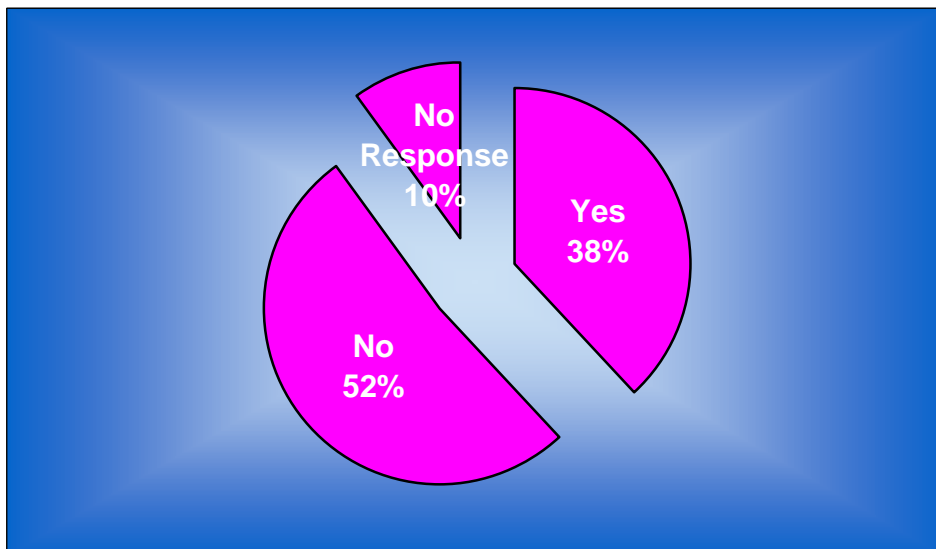
Figure 4.23: Would you ask your passengers to use seat belts

Only 38% of students would insist on passengers using seatbelts (Figure 4.23). It is quite evident that a great deal needs to be done to promote the use of seatbelts and enhance the laws governing seatbelt usage.
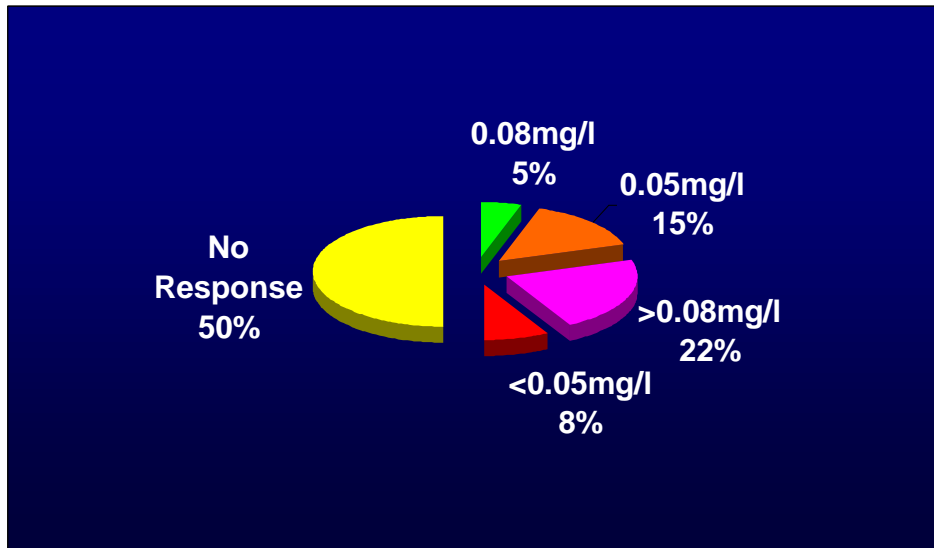
Figure 4.24: Blood alcohol limit

As illustrated in Figure 4.24, 15% of students knew that the legal blood alcohol limit in South Africa was 0.05mg/l. 5% did not know it had been reduced, but what was most alarming is that 80% of students had no clue as to what the limit was. Their answers ranged from 0.01mg/l to 1000mg/l.
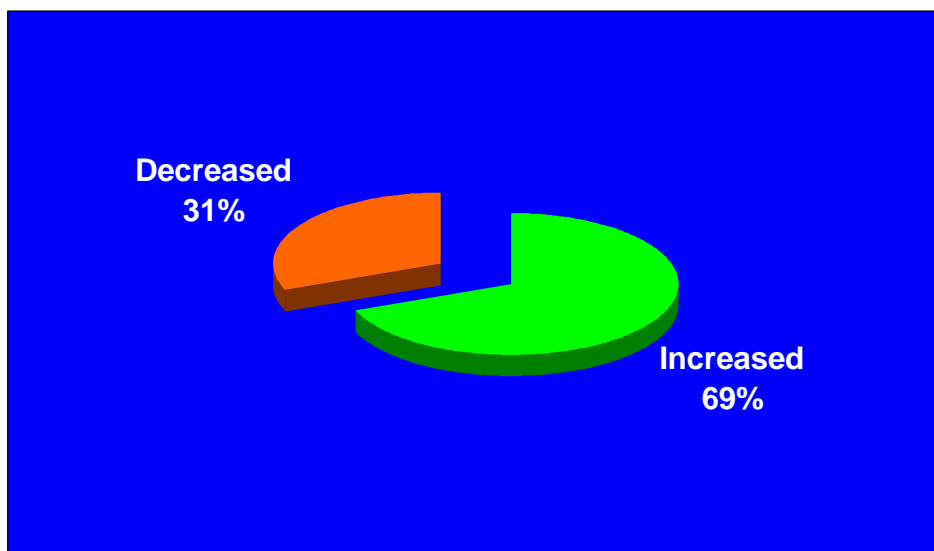
Figure 4.25: Increase or decrease in blood alcohol limit

Figure 4.25 shows that 69% of students have suggested an increase in the blood alcohol limit. This further demonstrates the lack of knowledge of the effects of alcohol consumption on road safety.
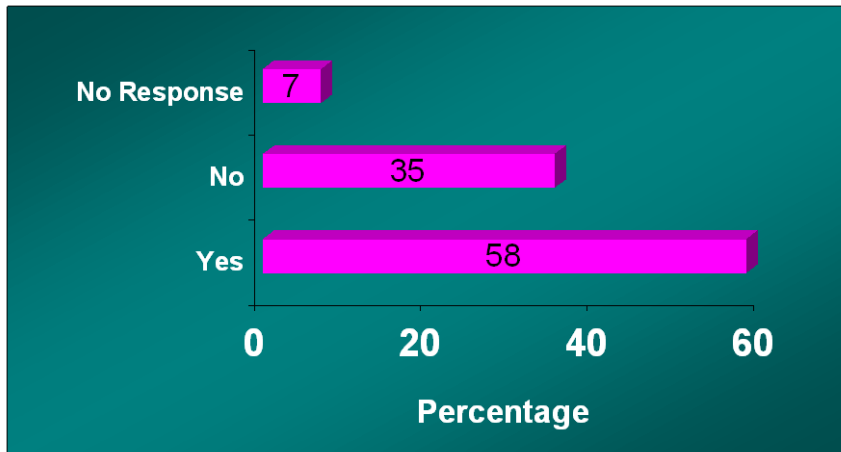
Figure 4.26: Percentage of students driving under influence of alcohol

In Figure 4.26, 58% of students consumed alcohol and then drove a motor vehicle. This further emphasises the lack of understanding of the effects of alcohol.
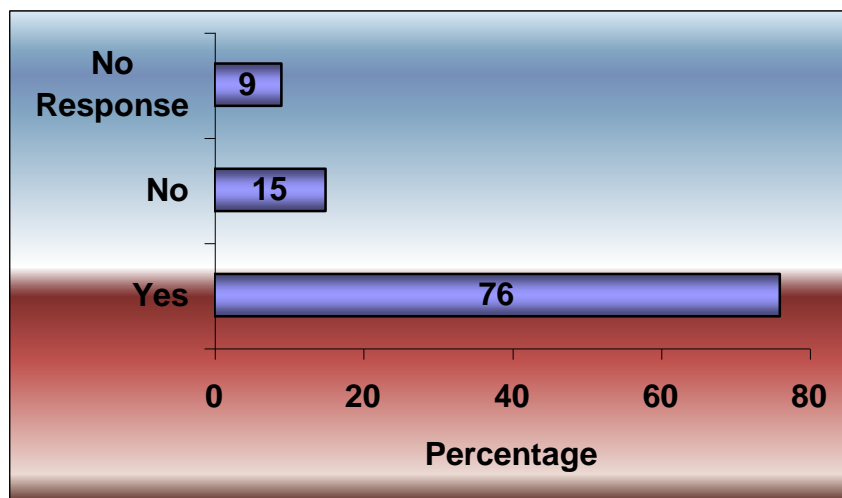
Figure 4.27: Percentage of students answering cell phones while driving

As illustrated in Figure 4.27, 76% of respondents disregard the laws regarding the answering of cell phones while driving.
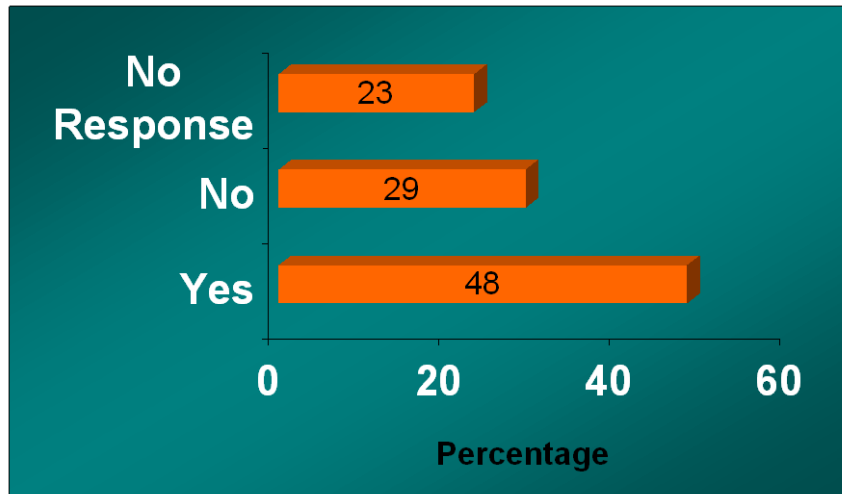
Figure 4.28: Driving long distances without stopping

Figure 4.28 shows that 48% of respondents endeavoured to drive long distances without stopping while 29% have indicated that they would stop at some point.
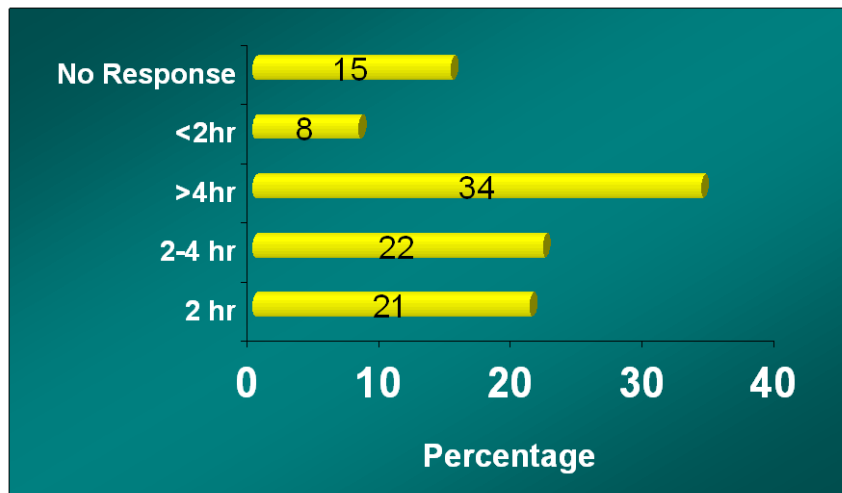
Figure 4.29: After how many hours would you stop while engaged in a long distance trip

In Figure 4.29, 34% indicated a time greater than 4 hours which was extreme when one considers fatigue while 8% have indicated less than 2 hours. 21% of respondents indicated 2 hours which is the norm for a rest period. 22% have suggested between 2 to 4 hours of driving which would allow fatigue to set in.
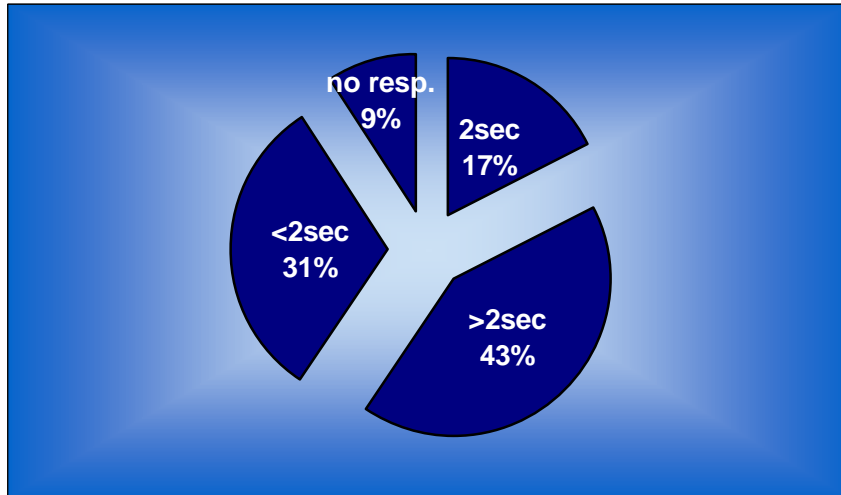
Figure 4.30: Following distance between vehicles

As illustrated in Figure 4.30, 17% of students knew the following distance is 2 seconds while 43% indicated a greater following distance. 40% of students did not know the following distance. Although 45% of the candidates were in possession of a valid driver's licence, one can only wonder how much time and effort was spent on attaining the learner's licence and how much was actually learnt by the students.
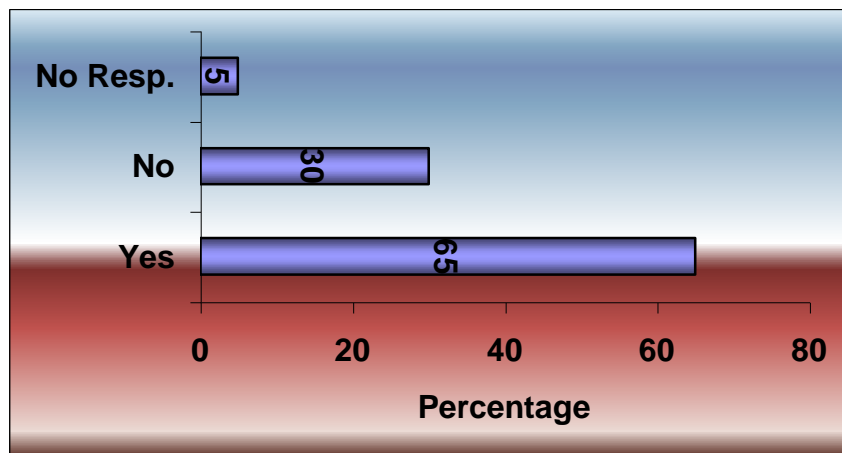
Figure 4.31: Picking up a friend anywhere on the road

Figure 4.31 shows that 65% of students would pick up friends anywhere on the road. This practice leads to an increase in rear end collision and is extremely dangerous. Once again, education and the lack of infrastructure could be possible causes of this ill-natured habit.
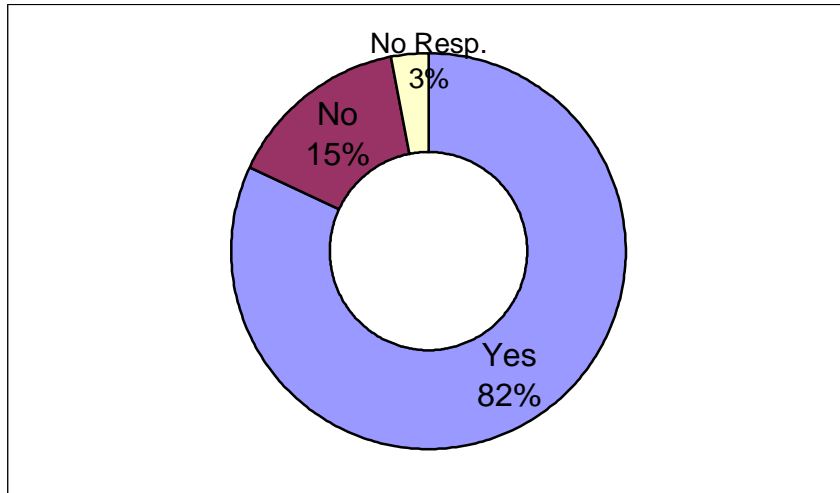
Figure 4.32: Crossing the road at a blind rise

In Figure 4.32, 82% of respondents indicated they would cross a road on a blind rise. This raises the question of the education of the basics of crossing a road, (look left, look right and left again) as well as using safe or designated areas to cross.
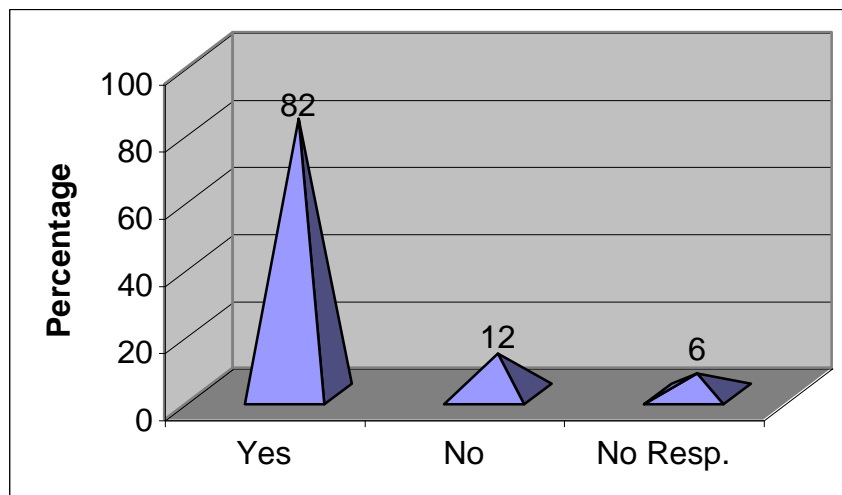
Figure 4.33: Use of pedestrian bridge

In Figure 4.33, 82% of students indicated that they would make use of the pedestrian footbridge but this statistic is contrary to the observations made by the Durban Metro Traffic and Transportation Department which suggests that

only 20% of people actually use pedestrian foot bridges. It would appear that people do not like using bridges but prefer to take the short route across a road. Pedestrian foot bridges are situated at high pedestrian accident locations and students need to be educated that these bridges are for their safety.
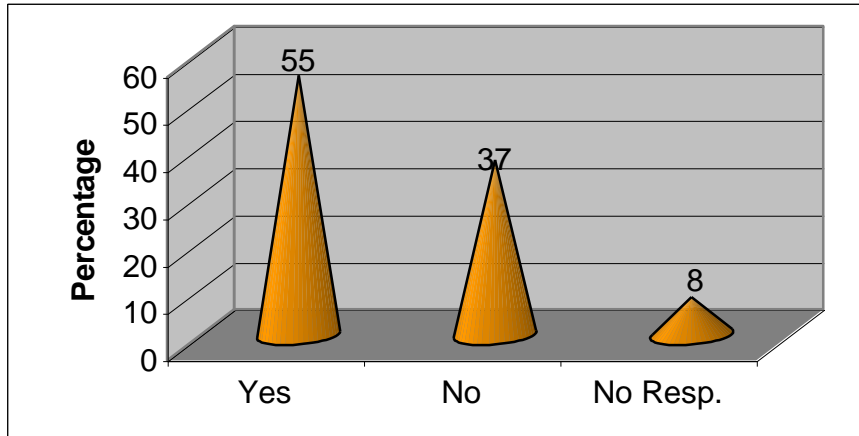
Figure 4.34: Over-indulging in alcohol and walking home

Figure 4.34 shows that 55% of respondents have over-indulged in alcohol and have walked home. This is another example of the effects of the lack of education regarding the effects of alcohol on individuals.
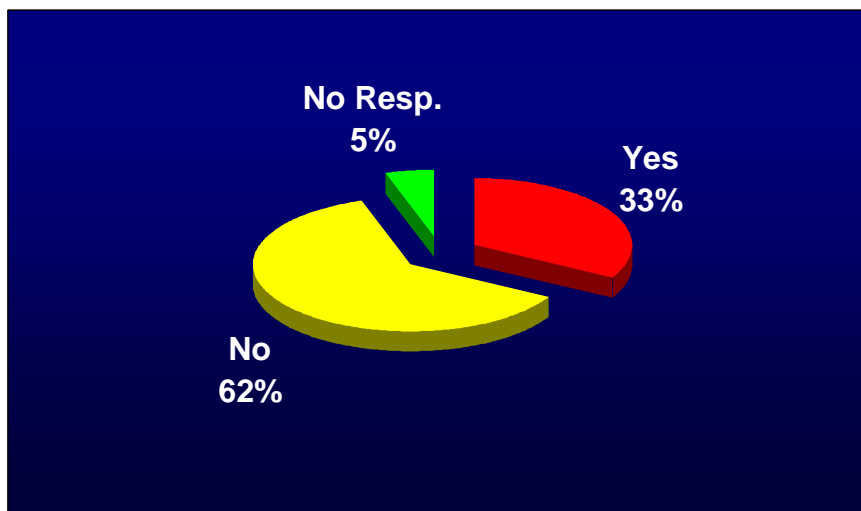
Figure 4.35: Knowledge of Asiphephe campaign

As illustrated in Figure 4.35, 62% of respondents have not heard of the Asiphephe campaign which is startling but true. This was further emphasised by Dr. M Noah of the University of Natal Interdisplinary Accident Research Centre at the South African Transport Conference, 2003.
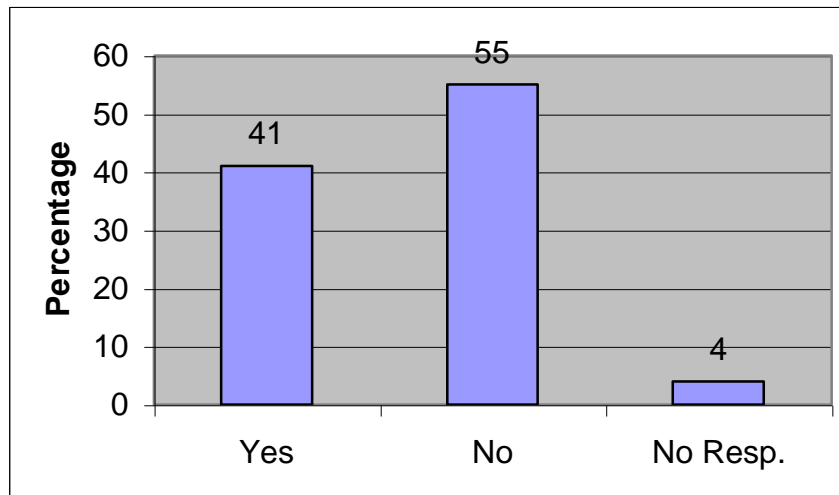
Figure 4.36: Are police doing enough to clamp down on speedsters

As illustrated in Figure 4.36, 55% of respondents do not believe that traffic authorities are enforcing the law when it comes to speeding.
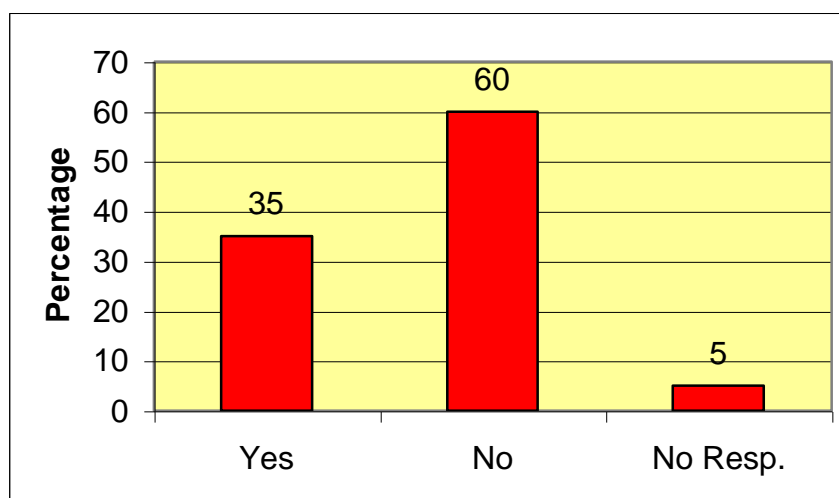
Figure 4.37: Are police doing enough to clamp down on drinking and driving

Figure 4.37 shows that 60% of students did not believe that enough was being done with regards to drinking and driving. Being under the influence of alcohol and driving is among the top 3 leading causes of road accidents and fatalities.
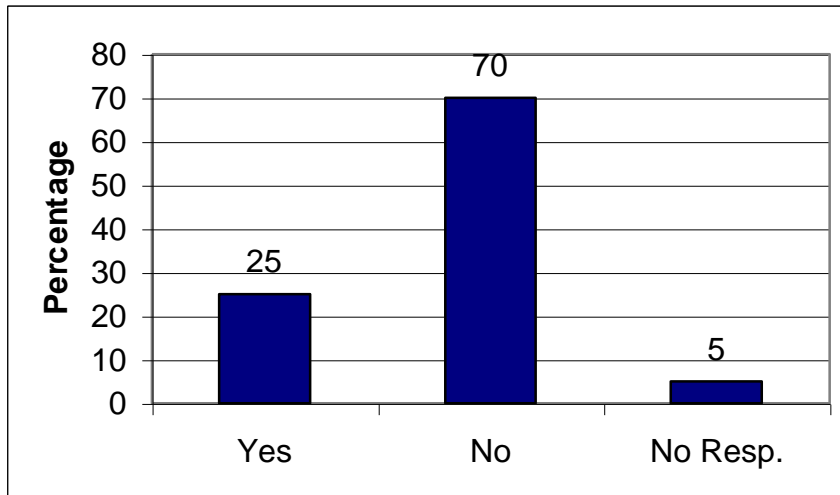
Figure 4.38: Are police doing enough to clamp down on un-roadworthy vehicles

In Figure 4.38, 70% of respondents did not think that enough was being done regarding un-roadworthy vehicles.
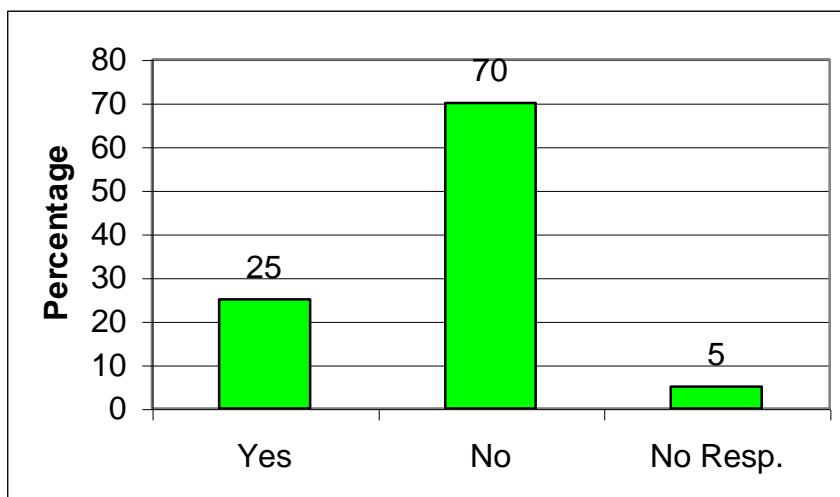
Figure 4.39: Are police doing enough to clamp down on fraudulent licences

Figure 4.39 shows that 70% of respondents did not believe traffic authorities were doing enough to clamp down on fraudulent licences.
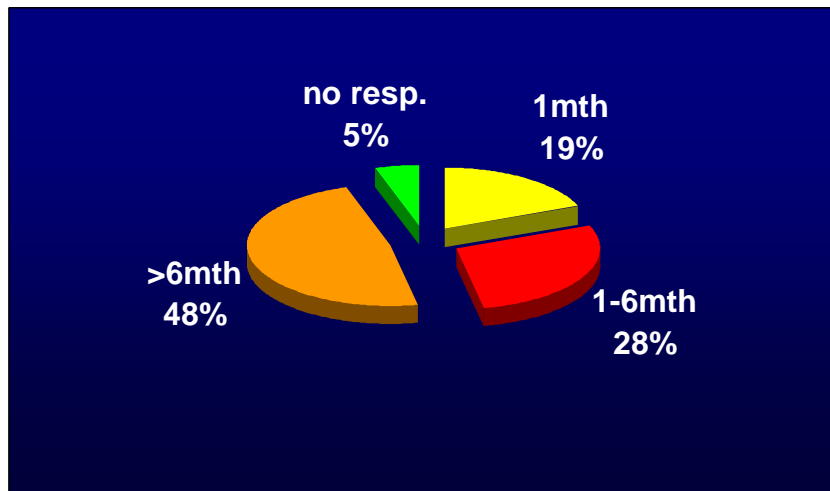
Figure 4.40: When last did you pass a road block

As illustrated in Figure 4.40, 48% of respondents had not passed through or seen a road block for more than 6 months. At the time this questionnaire was being answered, there were 2 bomb blasts on the railway lines in Soweto and the police had heightened security as they suspected a third force was trying to disrupt the April 2004 elections. This figure of 48% could therefore have been much higher. The pilot study was conducted 6 months earlier and at that stage the bombings had just occurred (Figure 3.35) and the figure was then 95%.

A few open-end questions were asked and the feedback is summarised below:

' What does Asiphephe mean to you?'

Students response to this open-ended question varied from no answer to various aspects of road safety. Ultimately, the message conveyed by students is that road safety is a serious problem and it is governments' responsibility to deal with this problem.

Where do you think road safety should start?

The response from candidates varied from the area you live in, to school, to driving school and at home. There was no single defining answer to this question. Candidates believe that different authorities while others believed that their parents were responsible for road safety.

What aspects of road safety do you consider important and why?

Students responded to the former part of the question and not the latter. Among the responses that featured prominently were driving under the influence of alcohol, speed, unroadworthy vehicle, seatbelts, removing of taxis, cell phone laws, overloading and fraudulent licences.

What would you like to see being done in order to promote road safety?

A host of responses were received which included honest traffic police, more government involvement, education campaigns, stricter laws, improved safety at schools and an improved public transport system. The most common response pertained to the taxi industry as it was felt that this industry contributed to most of the road safety problems and harsher penalties needed to be meted out.

5. Conclusion and Recommendations

5.1 Conclusion

With the dismantling of apartheid, the formation of a new democratic South Africa and the 'merger' of different cultures and beliefs, it is anticipated that a change in road safety behaviour will take a whole generation. Road safety is a culture and cannot be learnt overnight. As a child grows up, he or she will develop new habits. Whether these habits are good or bad depends on the parental supervision and what the child learns from the educators. In the old apartheid system, education was segregated just like everything else, but in the new South Africa, the education system caters for all racial groups. Road safety education is a vital life skill that needs to be implemented in every school as part of a new curriculum.

Culture and attitude changes need to take place. These new positive attitudes need to be instilled into the new generation in order to progress and to reduce this epidemic which is plaguing our society in the form of road trauma. Every country in the world has had, or presently has, road safety problems but the success of some of these countries in combating this epidemic of traffic fatalities lies in the manner in which road safety is approached and continues to be approached.

Infrastructure, whether good or bad, is in place and engineers need to use creative thinking to adapt or to improve this infrastructure to make it more road user friendly. Transportation planning, exposure control, intelligent

separation of non-motorised traffic on major roads and traffic calming are likely to play much more vital role in the promotion of safety.

It is evident from the focal survey that issues such as alcohol abuse, usage of seatbelts and speed are been constantly ignored by students. It would appear that safety is low on the priority list and has not been embedded or taught at an early age. It is also evident that the effects of such issue is not known.

In a developing country like South Africa which did not effectively implement road safety policies, it will take a number of years before actual change will be evident. Stakeholders need to formulate policies for the long and short-term. Long-term policies need to be directed at grass root levels, namely scholars, students and the young adult who will soon become economically active. Road safety needs to be instilled in this category of people so much so that it forms part of their daily routines. Short-term policies need to be directed to those who are already drivers in terms of rigorous enforcement and for policy makers to look at alternative solutions to the prosecution of offenders in order to change attitudes. Road safety, like every other problem in the world, will not disappear overnight and we as proud South Africans need to ensure that we do everything in our power to practise safe road user behaviour and to be tolerant towards one another in an attempt to eradicate this epidemic of traffic fatalities.

5.2 Recommendations

In light of the appalling results that were presented in the previous chapters, it is clearly evident that there is a total lack of knowledge among most road users regarding basic road safety rules and regulations. There is also a lack of knowledge with regards to the laws of the country, in particular to those pertaining to road safety. The four fundamentals of ensuring road safety and commonly referred to as the 4 E's of road safety are:

- Education
- Engineering
- Enforcement
- Evaluation

Education, is perhaps the long-term approach to rectifying this epidemic which is plaguing our modern societies. Road safety education has to become part of the school curriculum if we, as a society, hope to reverse the ever-increasing number of fatalities on our roads. Education is also one of the major mechanisms for achieving a culture or attitude change.

Engineering can be interpreted as both short and long term. Short term engineering for example, refers to identifying 'black spots' and implementing corrective procedures which could have a positive effect on that location. Long term engineering refers to improving the appalling infrastructure of previously disadvantaged areas and thus alleviating traffic congestion.

Enforcement is regarded as a short-term remedial solution. This has not proved very effective in KwaZulu-Natal as it is evident from chapter 1, figure 1.11 that the fatality rate is on the increase. Enforcement needs to be combined with some form of education to be effective. Meyers, 2003 explains that education is the key deliverable to road safety with enforcement having a secondary or supporting role.

Evaluation can only be done if any of the 3 E's above has been implemented in some form. Some programmes have been put in place but it is too early to start evaluating those programmes. More data is required to conduct a full evaluation.

5.2.1 Learners' Licence Testing

A possible short-term solution in the absence of a structured formal road safety education curriculum is to change the current system of conducting learners' licence tests. The current system is based on a one-hour multiple-choice examination set and supervised by the Department of Transport Road Traffic Inspectorate Division. Potential candidates are required to get a copy of 'Pass your Learners Easily' book, which essentially teaches you how to interpret the various road signs. The book is aimed at people who are not aware of the rules of the road or the laws governing driving. Currently the learners licence tests have come under scrutiny as there are only three different types of test a person could write. There has also been evidence of fraud with respect to the learners' licence and this was exposed on Carte

Blanche on 11th June 2000. Following the screening, the Minister of Transport KZN, Minister Ndebele ordered a high-level investigation into the matter and on 14 July 2004, the new Minister of Transport, Safety and Security, Minister Cele issued a press release to the effect that senior traffic officers had been arrested in connection with fraud and corruption of the learners' licence testing.

It is recommended that the learners' licence test/exam becomes a compulsory subject at matric level. Generally, all learners are either turning seventeen or eighteen years old in their matric year. At the end of the matric year, a learner is at minimum of seventeen years old and in terms of the law is eligible to be in possession of a valid learners' licence. A minimum of two periods a week (1hour) needs to be spent on this essential life-skills course. The subject should be examinable with two three hour papers to be set by an external source, namely The Department of Transport and The Department of Education. Marks for both examination papers need to be taken into account for a learner to pass.

The proposed syllabus should include:

5.2.1.1   Laws and regulations of the road

The following laws and regulations need to be discussed in detail with learners:

 ⊕ Seat belts – the current laws pertaining to seat belt usage, the legal requirement that each vehicle must have front and rear seatbelts fitted and

the importance of both the passengers and the driver using seatbelt. Videos or computers should be used to demonstrate the effects of not using a seatbelt in an accident.

✦ Speed – the laws governing the speed limits on freeways, in residential areas and on urban roads. Educators should use technology to demonstrate the effects of speeding.

✦ Alcohol and drugs – laws relating to alcohol and drugs. Learners need to be made aware of the legal limits pertaining to intoxicating substances and what quantities one needs to consume to reach these limits. The effects of alcohol and drugs on a person's senses and his ability to make judgements should be demonstrated.

✦ Overloading – learners should be aware of what the legal seating limits are in a vehicle, whether the vehicle is a car, taxi or bus. Learners should also be aware of the effects of overloading, their rights in an overloaded vehicle and the potential risks.

✦ Cell phones – laws pertaining to cell phones and the use of hands free kits. Learners should also be made aware of the distraction cell phones cause while driving as concentration is affected.

✦ Vehicle roadworthiness – a pupil must be able to identify unroadworthy vehicles by doing some simple checks. Tyres, brakes, lights, hooters and the general all round appearance of a vehicle need to be checked. Videos are a good means to demonstrate these checks.

✦ Overtaking – when does one overtake, where to overtake, distance perception for safety distance and time to overtake and which side to overtake on.

✦ Use of helmets – laws governing the use of helmets for both riders and passengers of bikes and the consequences of a person not using a helmet in an accident situation.

✦ The vehicle and its controls – a learner should be familiar with all the controls of the vehicle and their uses.

✦ Contravening the laws and the consequences – a learner should be aware of the possible consequences of contravening the various traffic laws and the penalties associated with these contraventions.

5.2.1.2 Pedestrians and cyclists

✦ Visibility – Types of clothing one uses when travelling at night. The importance of using reflective belts or bands when running, walking or cycling at night.

✦ Use of alcohol and drugs – alcohol and drug laws have been discussed earlier but to also explain to the learner how the senses are affected and the possible consequences of alcohol abuse.

✦ Protective equipment – the different types of protective equipment available, their uses and their importance to a cyclist.

✦ Where to walk or cycle – which side of the road to walk or cycle, the use of pavements or sidewalks and where to walk or cycle in the absence of this level of infrastructure.

✦ Use of pedestrian bridges – why are pedestrian bridges built, their intended use and their importance.

- Use of pedestrian crossings – crossings are strategically placed to assist pedestrians; how to use the crossing, the roles and responsibilities of the pedestrian and the driver at these crossings.

- Crossing at blind rises – disadvantages of crossing at blind rises due to its restriction on visibility.

- Use of the green and red man – how to use the green and red man phase at a traffic signal.

- What to do if there is no safe place to cross – how to identify possible dangers before crossing, the general rule of "look right, look left and then right again" and to walk briskly across without any distraction.

- Where to wait for public transport – the use of taxi and bus bays and the potential dangers of public transport stopping anywhere to pick up passenger.

5.2.1.3 Drivers and passengers

- Responsibilities of the driver - what are his/her responsibilities, tolerance towards others and use of seatbelts.

- Rights of the passenger – rights as a passenger on public and private transport.

- What to do in an emergency – what to do in the event of a minor or major accident, basic first aid and how to keep those involved in accidents calm.

- Vehicle classes – the different classes of vehicle, their uses and the different types of licences required.

5.2.1.4 Road traffic signs and markings

✛ Regulatory signs – what is a regulatory sign, their intended purpose and illustrate the various regulatory signs in the country

✛ Warning signs - what is a warning sign, their intended purpose and illustrate the various types of warning signs in the country

✛ Information signs - what is an information sign, their intended purpose and illustrate the various information signs in the country

✛ Different types of road markings and uses – illustrate their use and intended purpose

✛ Barrier lines – different types and uses

✛ Traffic signals – what is each phase, how to use them correctly and the different types, for example those with arrows

✛ What to do if a traffic signal is out of order – how do you use the intersection

✛ 4 way stops – illustrate proper use

✛ Proper use of intersections and roundabouts – illustrate graphically for better understanding

All the above topics need to be explained in detail and as graphically as possible. All advantages and disadvantages need to be explained and a learner needs to be aware of the consequences of contrevening the laws in terms of fines and other related punishment. Modern technology such as computers need to be used to illustrate the effects of not using seatbelts, the effects of alcohol and drugs on a driver and the effects of driving at

inappropriate speeds. It is essential for a person to have this prior or embedded knowledge of the dos and the don'ts of the road before starting to practice on the road.

One has to also take into account those students who fail the subject and those who have finished school and are not in possession of a learner's licence. Firstly for those who have failed, it should be possible that they can repeat the exams once only at the same school that they attended or at a school near them. If they fail the exams again, then they fall into the category of those who have finished school and are not in possession of a learner's licence. For the latter it is suggested that learners' licence centres be set up at major city centres namely: Durban, Pietermartizburg, Escourt, Ladysmith, Newcastle, Vryheid, Ulundi, KwaDukuza, Scottsburg and Portshepstone. A person would enrol for the learner's licence course at a set fee for a period of three months. Lectures would be given every Saturday for the duration of the three months on the same syllabus as prescribed earlier. This course would also include two three-hour examinations with both marks contributing equally towards the final mark.

The proposed new system is much more intensive when compared to the old one, as one needs to prepare thoroughly for the tests/exams. With the current system however a person can prepare overnight and still pass. In the current system his or her chances of passing are increased, as the questions are multiple choices. With the proposed new system, questions are varied and

more in-depth knowledge is required. The proposed new system has the following advantages:

- A broader scope of work is being covered with more emphasis on rules and regulations of the road.

- A student is educated on the laws of the country and the possible action that can be taken if those laws are contravened.

- A student is more enlightened on the effects of intoxicating substances.

- A student will have embedded knowledge regarding safety and other aspects before starting to learn to drive.

- He/she is more equipped to handle an emergency situation.

- With the learner's licence testing becoming more intense, a greater emphasis is being placed on safety issues and the rules and laws that govern the roads. This will help in ultimately bringing about an attitude change which will be of vital importance if we as a society are to reverse the epidemic of traffic related fatalities.

- In the civil engineering fraternity it is now becoming essential for students to be in possession of a drivers' licence in order for him/her to conduct his/her work. This is also becoming essential for other fraternities. With the learner's licence being done at school, a learner is more equipped to get their licence before finishing tertiary education and getting into the working world.

There will obviously be sceptics and those who will want to resist change as the new system involves more work and is far more intense. If one weighs the cost of saving a life by equipping a person with an essential life skill against

more work and set-up costs, the author is of the opinion that the former would take precedence.

5.2.2 The establishment of Safer Communities

Safer Communities are aimed at creating safer environments and behaviour in order to minimise the impact of traffic injuries on the health, development and well being of people in South Africa. Community–driven traffic safety is the empowerment of people to enable them to meet their needs through participation and ownership in the process of development. One of the main building blocks of Safer Communities is the establishment and maintenance of partnerships to meet the safety challenges and to influence the outcomes of safety problems in the community. Partnerships are very useful for accomplishing a broad range of goals that reach beyond the capacity of any individual member or organisation. These goals range from information sharing to co-ordination of services, from community education to advocacy for major environmental or policy changes.

In Kwa-Zulu Natal, a pilot Safer Communities project was set up in the Umlazi area. The Umlazi area was identified by the eThekwini Municipality due to its high road accident statistics. In 2001 and 2002, 2 persons were injured every day and I person killed every week. The vehicle/pedestrian accidents and the proportion of persons under 20 years of age were of serious concern. Approximately 22% of persons under 20 years of age were involved in accidents as compared with the entire eThekwini region (BP Umlazi Safer Communities Report, 2003).

The partners of this project are: BP Southern Africa (Pty) Ltd, CSIR, Department of Transport KwaZulu-Natal, Department of Education, Mangosuthu Technikon (custodians), eThekwini Municipality, University of Natal Interdisciplinary Accident Research Centre (UNIARC), Umlazi Councillors and the Umlazi community.

Since its inception in June 2002, The Umlazi Safer Communities (which the author is a member of) have managed to achieve the following:

- Four training workshops for the community members and partners
- Community members trained in traffic safety education
- Substance abuse workshops
- Launch of the project on 26 February 2003
- Identification of 'black spots' on Mangosuthu Highway together with eThekwini Municipality Technical Team. Solutions have already been implemented for some of the 'black spots' that were identified.
- Traffic safety education programme was implemented in 22 schools in the Umlazi area. 70 educators were trained and given material for their schools. This education benefited approximately 8000 learners from grade 1 to 6 who then participated in a road safety competition. This eventually culminated in a road safety day and schools and learners have benefits in terms of prizes and financial rewards.

5.2.3 Establishing Junior Traffic Training Centres (JTTC's)

A junior traffic-training centre is a miniature version of the traffic environment. The centre consists of miniature replica buildings, a paved road with road markings and a shoulder or sidewalk, a cycle path, traffic signals, road traffic signage and push wheels or motorised go-carts. Real life situations are created and are explained to learners. The proper ways on how to cross a road or the use of a pedestrian crossing and other road safety aspects are demonstrated and practiced by learners. Although these centres are termed junior traffic training centres, these centres are very versatile and can be used by all learners and students. The centre can be adapted to demonstrate the current K53 driving rule and regulations. Learners can benefit from these centres in the following ways:

- Knowledge with regards to safe pedestrian behaviour
- Knowledge of traffic safety rules, traffic signs and road markings
- Relevant pedestrian skills
- Motor skills with regard to the handling of push wheels
- Positive attitudes in road usage

5.2.4 Establishing Traffic courts

The establishment of traffic courts would lessen the burden on the presently overloaded court system. This will also assist in defaulters being brought to book on a quicker basis than the current system with a time frame of approximately three months. The current system for a traffic related offence is

traffic fine in most cases; this system is not helping in changing attitudes of people. The judiciary needs to think of more creative methods to assist people in changing their attitudes towards traffic related offences.

In the United Kingdom, speed workshops have been set-up and it is compulsory for everyone who has transgressed the speed laws that they pay a fine and attend this two-day workshop. 92% of respondents who attended these workshops said that they were less likely to speed and they were more aware of the effects of speeding (www.northants.police.uk).

Another suggestion is that offenders must be required to do community service work in addition to paying a fine. As a developing nation, there is much that people can do to help others especially in disadvantaged communities.

5.2.5 Transport models to incorporate road safety

Engineers and technologists alike need to pay more attention to road safety issues in their planning processes. Computer based transport models don't often take road safety issues into account. In South Africa there is currently a huge housing shortage and low cost housing developments are springing up where there is land that is available. The housing problem is being addressed to a degree but the safety issues have not been taken into account. With new development taking place, there is an increase in traffic on roads that are under-designed and cannot take this new traffic capacity, which leads to

frustrated motorists who try alternative methods to beat the traffic. All these problems further compound road safety issues.

5.2.6 Central body controlling road safety activities in the province
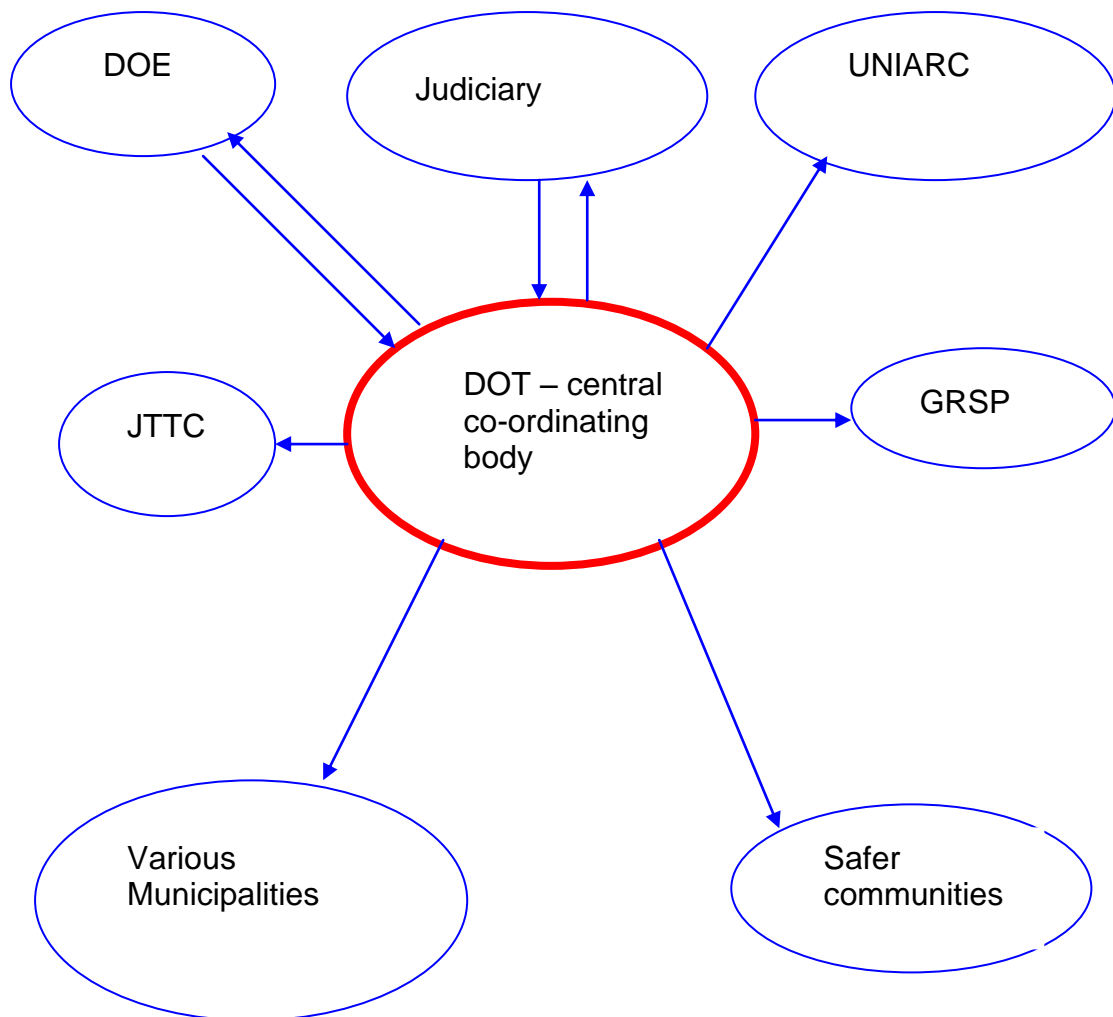
Figure 5.1 Proposed central co-ordinating body and sub-bodies

Figure 5.1 proposes that the Department of Transport KwaZulu-Natal takes firm ownership and responsibilities of all road safety activities in the province.

There should be a master plan with input from all stakeholders with time frames attached. The current system is that the DOT KZN has its own road safety plan, municipalities have their own or are in the process of doing their own and non-governmental organisations such as GRSP have their own initiatives as set out in chapter 1. There are numerous overlaps in what each organisation is doing with a common goal in sight but resources (human and financial) can be better utilised if there is a co-ordinated effort by all. For example, in the Umlazi area, the Umlazi Safer Communities group have embarked on an education programme with twenty-two schools in the area but the Department of Transport is also doing education programmes with some of these schools.

These recommendations can have very positive long-term effects in changing the attitudes of the young adult of the country. It is evident from earlier chapters that a large percentage of traffic fatalities are from school going children to young adults (those under 35 years old) and these recommendations will have positive spin offs if implemented in a structured and co-ordinated manner.

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Road Safety Education Questionnaire

Please answer all questions as honestly and objectively as possible

1.Background

1.1. Was road safety education taught to you at school? Yes ☐ no ☐

1.2. What type of school did you attend. Private ☐ Model C ☐ or Government ☐

1.3. If taught, at primary ☐ and/or secondary ☐ school

1.4. If taught, at what level grade/s 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐

1.5. Did your school have scholar patrol? Yes ☐ no ☐

1.5. Are you in possession of a drivers licence Yes ☐ no ☐

2. If you are a cyclist, do you think the following are necessary:

2.1. Head gear yes ☐ no ☐

2.2. Reflective clothing yes ☐ no ☐

2.3. Knee and elbow guards yes ☐ no ☐

2.4. On which side of the road do you ride on? With traffic..........against traffic............

2.5. Do you cycle on the pavement or on the road? Road.............pavement...............

3. When riding a motorbike,

3.1. Is a helmet necessary? Yes ☐ no ☐

3.2. Is your passenger required to use a helmet? Yes ☐ no ☐

3.3. Is it acceptable to weave through traffic? Yes ☐ no ☐

3.4. Are you allowed to carry children(age < 16 years) as passengers? Yes ☐ no ☐

3.5. Would you ride a bike if you are drunk or on drugs? Yes ☐ no ☐

3.6. Would you carry a passenger if they are under the influence of alcohol or drugs? Yes ☐ no ☐

Driver/pedestrain

4.1. What is the speed limit in residential areas? ....km/hr

4.2. What is the speed limit on freeways? ....km/hr

4.3. Do you think the speed limits are adequate? Yes ☐ no ☐

4.4. If no, suggest limits. Freeways............. Residential Areas..............

4.5. Are seatbelts necessary? Yes ☐ no ☐

4.6. If you are a driver, would you insist on your passengers using seatbelts? Yes ☐ no ☐

4.7. Would you take drugs and drive? Yes ☐ no ☐

4.8. What is the blood alcohol limit? ....mg/l

4.9. Do you think the limit should be increased or decreased? Increased ☐ decreased ☐

4.10. Would you accept a lift from a friend that has had too much to drink? Yes ☐ no ☐

4.11. Do you think it is safe to drive while talking on a cell phone? Yes ☐ no ☐

4.12. If you are tired and very sleepy, would you drive? Yes ☐ no ☐

4.13. If you are going to engage in a long distance trip eg. Durban to Gauteng,

    4.13.1.Would you drive the entire trip without stopping? Yes ☐ no ☐

    4.13.2.If no, after how many hours? ....

4.14. What is the safe following distance between vehicles in seconds?   ....

4.15. Have you observed people stopping anywhere on the side of the road to pickup a friend?

Yes ☐ no ☐

4.16. Have you observed people crossing the road at a blind rise?   Yes ☐ no ☐

4.17. If a pedestrian bridge is provided at a blind rise, would you use this bridge? Yes☐ no ☐

4.18. When waiting for a taxi, would you wait at the taxi bay or anywhere on the road?

Bay ☐ anywhere ☐

4.19. Would you over indulge in alcohol and walk home or to the bus/taxi stop? Yes ☐ no ☐

4.20. Have you observed people crossing the road at any point or weaving through traffic
while in the city center?   Yes ☐ no ☐

General

5.1. Did you hear of the Asiphephe Campaign?   Yes ☐ no ☐

5.2. What does the Asiphephe Campaign mean to you?

_____

_____

5.3. Do you think the police is doing sufficient with regards to clamping down on:

    5.3.1. speedsters   Yes ☐ no ☐

    5.3.2. drinking and driving   Yes ☐ no ☐

    5.3.3. unroadworthy vehicles   Yes ☐ no ☐

    5.3.4. fraudulent licences   Yes ☐ no ☐

5.4. When last did you see or pass through a roadblock. _____

5.5. Where do you think Road Safety should start?

_____

_____

_____

5.6. What aspects of Road Safety do you consider as the most important and why?

_____

_____

_____

5.7. What would you like to see been done in order to promote Road safety?

_____

_____

_____

5.8. Do you have any other points or comment regarding Road Safety?

_____

_____

_____

Road Safety Education Questionnaire

Please answer all questions as honestly and objectively as possible.

1. Background
1.1. What type of school did you attend. Private ☐　Model C ☐　or　Government ☐
1.2. Was road safety education taught at primary ☐, secondary ☐, both☐ , not at all ☐
1.3. If yes, was it during the guidance period ☐　or was it part of the school syllabus ☐,
     and at what grade/s 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐
1.4. Are you in possession of a valid drivers licence　　　　　　　　yes ☐ no ☐
1.5. If no, do you currently drive a motor vehicle?　　　　　　　　yes ☐ no ☐

2. If you are a cyclist, do you think the following are necessary:
2.1. Head gear　　　　　　　　　　　　　　　　　　　　　　yes ☐ no ☐
2.2. Reflective clothing　　　　　　　　　　　　　　　　　　yes ☐ no ☐
2.3. Knee and elbow guards　　　　　　　　　　　　　　　　yes ☐ no ☐
2.4. As a cyclist, have you used any of the above safety gear?　yes ☐ no ☐ n/a ☐
2.5. On which side of the road do you ride on?　With traffic..........against traffic............
2.6. Do you cycle on the pavement or on the road?　Road.............pavement...............

3. When riding a motorbike,
3.1. Is a helmet necessary?　　　　　　　　　　　　　　　　yes ☐ no ☐
3.2. Is your passenger required to use a helmet?　　　　　　　yes ☐ no ☐
3.3. Have you ridden a motorbike without a helmet　　　　yes ☐ no ☐ n/a ☐

4. Driver
4.1. What is the speed in residential areas?　.........................km/hr
4.2. What is the speed on freeways?　............................km/hr
4.3. As a driver, have you exceeded the speed limit? Never ☐, sometimes ☐, often ☐, n/a☐
4.4. Do you think the speed limits are adequate?　　　　　　yes ☐ no ☐
4.5. If no, suggest limits.　　Freeways...........km/hr Residential Areas.............km/hr
4.6. Do you use a seatbelt?　　　　　　　　　　　　yes ☐ no ☐ n/a☐
4.7. Have you ever driven a motor vehicle without a seat belt?　　yes ☐ no ☐
4.8. If you are a driver, would you insist on your passengers using seatbelts? yes ☐ no ☐
4.9. What is the blood alcohol limit?　..................mg/l
4.10. Do you think the limit should be increased or decreased?　　Increased ☐ decreased ☐
4.11. Have you driven a vehicle while under the influence of alcohol?yes ☐ no ☐ n/a ☐
4.12. Have you at any stage answered your cell phone while driving? yes ☐ no ☐ n/a ☐
4.13. If you are going to be engaged in a long distance trip eg. Durban to Gauteng,
　　　4.13.1.Would you drive the entire trip without stopping?　　yes ☐ no ☐
　　　4.13.2.If no, after how many hours would you stop? ....
4.14. What is the following distance between vehicles in seconds?　.....................
4.15. Have you stopped anywhere on the side of the road to pickup a friend?yes ☐ no ☐

5. Pedestrains
5.1. Have you crossed a road at a blind rise?   yes ☐ no ☐
5.2. If a pedestrian bridge was provided, would you use the bridge to cross the road?
                                                                           yes ☐ no ☐
5.3. Have you over indulged in alcohol and walked home?   yes ☐ no ☐

6. General
6.1. Did you hear of the Asiphephe Campaign?   yes ☐ no ☐
6.2. What does the Asiphephe Campaign mean to you?

_____

_____

6.3. Do you think the police is doing enough with regards to clamping down on:
      6.3.1. speedsters   yes ☐ no ☐
      6.3.2 drinking and driving   yes ☐ no ☐
      6.3.3 unroadworthy vehicles   yes ☐ no ☐
      6.3.4 fraudulent licences   yes ☐ no ☐

6.4. When last did you see or pass through a roadblock. _____

6.5. Where do you think Road Safety should start?

_____

_____

_____

6.6. What aspects of Road Safety do you consider as most important and why?

_____

_____

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6.7. What would you like to see been done in order to promote Road Safety?

_____

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