

CHAPTER 1. AN OVERVIEW OF THE STUDY

1.1 Introduction

Road accidents are a major and growing cause of death and injury to children in developing and transition countries (Zeedyk, Wallace, Carcary, Jones & Larter, 2001; Roadsafe, 2006; Road Safety Manual, 2003). A Global Road Safety Partnership (GRSP) paper (2001, p. 2) titled *Road Safety Education: Saving Young Lives and Limbs* asserts that twice as many pedestrians are killed in road accidents in these countries compared with European countries and the USA. The paper further states that a high proportion of these accidents involve children of schoolgoing age. The grim scenario of children of schoolgoing age being fatally injured is also addressed by The Danish Road Safety Commission (2000). Thomson, Tolmie, Foot and McLaren (1996) add that with regard to children, the problem is so severe that child pedestrian accidents are widely regarded as the most serious of all health risks facing children in developing countries.

In order to rectify this situation, educational measures have long been advocated as a means of teaching children how to cope with traffic, and substantial resources have been devoted to the development and provision of such measures (Jacobs & Aeron-Thomas, 2000; Guldbrandsson & Bremberg, 2004; Odero, 2004; US.Department of Transportation, 2004).

Currently, there seems to be a widespread view that education on road safety has not achieved as much as had been hoped for and that there may even be quite strict limits to what can be achieved through education. This might shift the emphasis away from education altogether towards engineering or urban planning measures aimed at creating an intrinsically safer environment in which the need for education might be reduced or even eliminated (Mohan & Muhlrad, 1998, p. 118-125; Thomson, Tolmie, Foot, & McLaren, 1996; Zeedyk *et al.*, 2001; Ribbens, 2002; Forjuoh, 2003).

In South Africa and other developing countries where engineering interventions are very expensive to implement, education is the only feasible intervention to curb the deaths of pedestrians, especially children, on the roads. This study addresses the subject of road safety education (RSE) in South Africa, which takes the following trajectories:

- Formal education for children attending school;
- Non-formal education for outside educational institutions, and
- Informal education using mass media and publicity communication to convey traffic safety messages (Davis & Quimby, 2003).

Chapter 1 offers an overview of the study. Firstly, I describe the background to the study by highlight factors influencing road safety and the role of education. Then I elaborate on the problems concerning road safety and road safety programmes. I further define key terms in order to contextualise the study. The chapter concludes with an outline of the research design and the methodology I intend to use. In the conclusion of the chapter, I acknowledge anticipated limitations and briefly outline the organisation of the study.

1.2 Rationale

Worldwide, the epidemiology of road traffic deaths shows that traffic deaths account for almost 2% of all deaths among children. There are significant geographic variations which are important for the contextualisation of this study. The World Report on Child Injury Prevention (2004) indicates that in the South East Asia region, the proportion of childhood deaths due to road traffic injuries is 1,3%, while in the Americas it is as high as 4,7%. Some 93% of child road deaths occur in low-income and middle-income countries.

In 2004, low-income countries in the South East Asia and African regions and the low-income and middle-income countries of the Western Pacific Region accounted for two thirds of all road traffic deaths among children. Globally the road traffic death rate among children is 10, 7 per 100 000 population. However, the geographic variations are stark. In South East Asia the rate is 7,4% per 100 000 while in the African region it is 19,9% per 100 000. Although the mortality rate is not as high in Europe, road traffic injuries still account for around a fifth of all childhood injury deaths across the European Union.

A country's roads infrastructure is the nerve centre of that particular country's economic development and growth. However, as the road infrastructure is improved and expanded, with increased traffic, more people are injured and die in traffic accidents. The size of the traffic safety problem throughout the world is daunting. Worldwide, over a million people including children are killed and 50 million people are injured in road accidents each year (GRSP, n.d., p. 6; Commission for Global Road Safety, 2006; Turner, 2006; The Guardian, 2006).

In South Africa, even though large amounts of money are spent on RSE for children of schoolgoing age, they remain vulnerable road users as they engage in risky behaviour when using the roads. The GRSP report titled *Keep Death off our Roads* (n.d., p. 8) indicates that in many Asian, African, and Middle Eastern countries between 40% and 50% of people who are killed on the roads through traffic accidents are pedestrians. The report further shows that 20% of those killed on the roads are children. People from low-income groups are at great risk from road crashes, as they are more likely to be pedestrians or public transport passengers (The Danish Road Safety Commission, 2000; Jacobs & Aeron-Thomas, 2000; McComas, 2002; Road Safety Manual, 2003; World Health Organization, 2004; Sukhai, 2004; Commission for Global Safety, n.d.).

In South Africa alone 12 000 people die on the roads each year costing the country well over R36 billion (Department of Transport, 2001; Department of Transport, 2004). Forty percent of this number are pedestrians of which 10% are children. The literature review done for this study in the context of road safety indicates that there is an agreement that this situation need not be the norm (World Bank Group, 2002; Achara, 2001; North Lanarkshire, 2002; Ndebele, 2004; Carvin Goldstone, Mercury, 29/09/04; Cape Argus, 29/09/04, Cape Times, 28/09/04; Kostyniuk, n.d; World Health Organisation, 2004; Danish Road Safety Commission, 2005; Department for Infrastructure and Economic Cooperation, 2006).

Countries like South Africa can reverse the scenario described above by a strong political will and effective strategies and training measures. South Africa invests millions of rands in road safety in an attempt to arrest the situation. Table 1.1 shows the trend and the extent of the problem of road accidents and fatalities in South Africa. Ten

percent of the fatalities indicated in the table are children. What Table 1.1 clearly illustrates is that despite all the efforts to reduce the number of deaths of road users either as pedestrians or drivers, fatal crashes and deaths on the roads increase exponentially every year.

Table 1.1: Annual number of fatal crashes and fatalities on South African roads from 2001–4. (Road Traffic Management Corporation, 2005)

| Annual number of fatal crashes and fatalities | | | | |
|---|---------------|----------|------------|----------|
| Year | Fatal crashes | % change | Fatalities | % change |
| 2001 | 8 802 | | 11 201 | |
| 2002 | 9 973 | 13,30 | 12 198 | 8,90 |
| 2003 | 10 246 | 2,74 | 12 348 | 1,23 |
| 2004 | 10 523 | 2,70 | 12 709 | 2,92 |

The number of fatalities has continued to rise. In 2005 and 2006 there were 14 135 and 15 393 deaths respectively. Most of the accidents on the Moloto road are widely reported on local radio stations. The purpose of the *Arrive Alive* campaign, which is the Department of Transport's road safety campaign, is to reduce deaths and serious injuries on the roads of South Africa, by means of a multi-disciplinary approach to road safety. This approach includes communication (education, advertising and public relations) together with enforcement to reduce the offence rate for primary offences (speed, alcohol abuse and not wearing seat belts), as well as general law enforcement, in an effort to change behaviour and attitudes, which cause more than 90% of crashes (Road Traffic Management, 2005). The campaign alone spends R50 million sponsored by the Road Accident Fund (RAF) on road safety annually (*Arrive Alive* Business Plan Phase 9; National Road Safety Strategy, 2006 Onwards, 2006; Motzopoulos, 2002; Sukhai, 2004; Herald Reporter, 2004; Quimby, n.d.; Chiduo & Minja, n.d.).

The money for the *Arrive Alive* campaign is used to run road safety programmes in schools and on the SABC's School TV channel. Together with advertising on TV and

Radio, the *Arrive Alive* campaign is used to support law enforcement in provinces, municipalities and metropolitan councils. During all major holidays massive road safety advertising is run on both television and radio. A study conducted by the University of Nasal's Interdisciplinary Accident Research Centre (UNIARC) indicates that the *Arrive Alive* brand was recognised by 85,56% of the respondents nationally and correctly understood by 81,1% nationally. Although massive resources and effort by both government and the private sector are put into road safety, the death and crashes on our roads persist (Haarhoff, 2003, p. 14).

Road safety is a political and socio-economic issue. Many adults in South Africa and in developing countries do not own cars. Hence, many people are pedestrian road users. This study therefore will also investigate the role that the socio-economic environment plays in children's learning of road safety (Forjuoh, 2003; World Health Organization, 2004, p. 10).

In addition, the majority of pedestrians, including children, live along the highways that go through informal settlements. People gravitate towards the highways in search of a means of earning a living. Many hawkers sell their products along the highways. This leads to the establishment of settlements near these people's source of income – the highways. The problem manifests itself along most major routes in South Africa. The Moloto road is one such road. Others are the N4 east at the Clewer interchange in the Mpumalanga Province, the N4 West near Majakaneng settlement in North West Province, the N1 North in Hammanskraal, the N1 South near the Grasmere tollgate and the N28 near Diepsloot in Gauteng, to cite a few examples (Ribbens, 2002).

Wolfensohn, president of the World Bank (1999), illustrates my decision to investigate socio-economic factors as well:

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.

As a result of the socio-economic situation of many households most children from poor backgrounds do not have an opportunity for observational learning which takes place in the home environment.

RSE has been part of my life since 2002. I work as a RSE practitioner with special focus on RSE among children, particularly in areas devoid of resources. I was interested in the Moloto area as a research site as a result of the industrial theatre that I once took to a primary school in the area. The fascination and interest among children on the topic of road safety inspired this study. I believe that if road safety is taught effectively, it might assist in helping schoolgoing children and school leavers to gain a reasonable knowledge of road safety which will translate into safer behaviour when using the road infrastructure. In short, I believe that road safety and road user competency should be taught to children throughout the school system. This will make road safety a comprehensive and coherent programme in schools. The net effect will be that school graduates will leave school as competent road users either as pedestrians or as drivers of vehicles.

My stance is based on the World Bank Report titled *Road Safety* (2004, p. 5). The report points out:

Teaching safety skills to children can provide lifelong benefits to society, but should be seen as long term intervention strategy. Experience in many countries has shown that reliance on individuals or organizations visiting schools to give talks on road safety are not effective on their own. Children may remember the messages in the short term, but effective and sustainable development of positive attitudes towards road safety are best achieved by inclusion in the core curriculum, either as a compulsory subject in its own right or as a cross-curricular theme.

Assum (1998) and Odero (1995) also support this view.

The World Bank report (2004) further states that it is essential that education inputs are incremental (building on previous skills) and linked to the child's physical and psychological abilities. Training is best done in schools by professional teachers who have themselves been trained in the safety issues relevant to children. However, the literature states that despite RSE, statistics show alarming numbers of pedestrian deaths on the roads of South Africa. Questions come to mind like: Why is there this contradiction? Can it be rectified? What can be done to prevent child pedestrian deaths on the South African highways and roads?

The academic rationale for this study seeks to explore the response of rural primary school children to the RSE programmes that are offered to them through the national school curriculum, road safety officers and mass media like television and radio, and the inputs from the broad community. The study will focus on the age group 9 to 14 years as this is the stage when the child assumes more responsibilities and independence. Receiving RSE as part of their normal school curriculum is recognised as being one of the most effective ways of providing children with this type of knowledge and skills (Jacobs & Aeron-Thomas, 2002; Forjuoh, 2003). This was informed by the need to establish whether the amount of money invested in road safety programmes was having an effect.

The study also seeks to investigate whether the attitudes of children translate into a safe behaviour on our roads after the children were exposed to RSE programmes. Linked with this will be an investigation of behavioural contributors to road safety related to children's accidents. Vavirk (1989, p. 24), a curriculum designer at the Insurance Corporation of British Columbia's Traffic Safety Research and Planning, highlights the importance of attitudes:

Attitudes can be characterised as learned, enduring and highly generalised predispositions, which underlie many specific behaviours. A better understanding of how attitudes are learned and how in turn they influence learning is essential to designing an effective curriculum or a programme for road safety training.

The Scottish Executive (2004, pp. 8-16) confirms Vavirk's statements.

The study will also suggest interventions that will enhance the effective teaching of RSE programmes in order to master the road safety competencies as outlined in the National Curriculum Statement (Department of Education, 2002).

1.3 Contextualising this study

1.3.1 Factors affecting road safety

A literature review on road safety in Europe, the United Kingdom and Africa (including South Africa) shows that road safety is an attitudinal issue. Children learn attitudes from their parents. Vavirk (1989, p. 24) stresses this argument:

Attitudes about driving and even road safety develop early through a process of observational learning in a social context. Long before they get a license, adolescents observe their parents drive. The strength of such indirect learning depends on four key elements:

Attention.

Retention.

Reproduction.

Motivation.

Recent data from research on young drivers, particularly when interpreted in terms of the attention and motivation components, suggests that the social context of the family represents a very effective observational learning environment acquiring attitudes about driving.

Parents and the community have a role to play in teaching road safety to children. The Oregon Driver Education Parent Involvement Resource Guide (10/11/02, p. 2) highlights this important factor:

Traffic Safety Education programmes need to involve family intervention and must take advantage of the families' strengths in influencing early driving behaviour. Parents and guardians need to take a more active and effective role as their children learn to drive. A major challenge for traffic safety education is to discover how to motivate parents to become more realistic about their children. The philosophy of traffic safety education in the schools includes the idea that the more time parents spend in the car with their student driver, the better prepared that young person will be to become a safe, licensed driver on the public roadways.

Literature and my own observations show that in developing countries road safety is not a priority issue for politicians. There are other pressing issues that governments in these countries are focusing on, like the fight against poverty, provision of water, health, roads and housing (The Star, 17/02/2005; Downing *et al.*, 1991; Sayer & Downing, 1996; Van Vuuren, n.d.; Thomson *et al.*, 1996; Odera, 1996).

1.3.2 Road safety and education

Several studies have been conducted in the developed countries about the effectiveness of education as an intervention measure in mitigating the deaths of children as pedestrians on the roads (see Jacobs & Aeron-Thomas, 2000; The Danish Ministry of Transport, 2000; World Report on Road Traffic Injury Prevention, 2004; Commission for Global Road Safety, n.d.). Unfortunately, this kind of knowledge and information about how education can be used to teach road safety is patchy and not comprehensive in developing countries like South Africa. It is this lack of information and knowledge about the effectiveness of education for teaching road safety that further prompted the undertaking of this study in the province of Mpumalanga in the Moloto rural area.

A recent study by Davis and Quimby (2003, p. 1) in the United Kingdom concluded that education and communication professionals have long recognised the need for a holistic education approach to influencing the behaviour of community members, especially the young. It is estimated that world-wide between 65% and 95% of road accidents are caused by “road users”. However, many of these accidents could be prevented if road user behaviour could be improved by raising awareness and knowledge by means of education programmes. Therefore, one aspect of the study will be to determine whether the rural environment, which seemingly lacks resources, impedes the effective teaching of road safety in rural schools like those in the Moloto area in Mpumalanga (Davis & Quimby 2003, p. 14).

A report by the GRSP entitled Road Safety Education in Schools: Saving Young Lives and Limbs (2001, p. 5) makes a strong case for RSE in schools especially in developing and transitional countries. The report says children from age eight to 12 should master the following learning outcomes/competencies:

- Identify and recommend to smaller children safe places to play;
- Understand the need to be seen (visibility) near and in traffic and judge the hazards of stationary vehicles and how to play or cross the road near them;

- Understand traffic lights, road signs, road markings and signals given by drivers and the police;
- Understand the concept of differing by observing traffic, know when and how to summon help in an emergency;
- Understand which road signs must be obeyed, which are warning and which provide information;
- Understand about visibility, conspicuity, adverse weather, vehicle control and braking,
- Be made aware that traffic rules are not always observed by other road users;
- Understand needs of special groups – the very young, the old and disabled;
- Understand problems of alcohol, drugs and fatigue in relation to road accidents;
- Understand immediate and long-term consequences of road accidents;
- Be aware of importance of planning safe school routes when going to school;
- Understand problems caused by domestic and wild animals near roads;
- Set a good example to other children.

The environments in which children live also influence the effect of RSE. Therefore, this study explores the effects of the environment on children's response to the learning of basic road safety skills. A North Lanarkshire Council study (2002) shows that pedestrian crash statistics peak around 13 years of age. There may be a number of reasons for this, such as overconfidence, travelling greater distances, peer pressure, unfamiliar surroundings and others. The Lanarkshire study goes on to show that young people are becoming independent in travel at this stage and will soon commence learning to drive. This stage of a young person's development therefore has important implications for road safety (see also World Health Organization, 2004).

Wittink (1998) sees RSE as the teaching of skills, knowledge, understanding and behavioural patterns, to enable road users to prevent accidents. It takes place at primary and secondary schools, driving schools and courses. He cautions, however, that road users learn more by themselves in practice. Therefore, education needs to be directed at providing a basis for the learning process in traffic. Safe behaviour cannot be learnt without practice. If education is not adjusted to the learning process of road users in a practical way, it might not be very effective.

Although road safety is implemented in developed countries, as the studies and literature cited above indicate, there are still deaths on the roads of developed countries. Education has thus been used to stabilise the situation (Mohan, 2003), but has not eliminated road deaths. Research is therefore needed to see whether there are impediments to children's responding positively to these road safety inputs. If this problem persists in developing countries where there is no dearth of resources and teaching aids, one may as well assume that the situation in the developing countries might be worse. This calls for more research in the developing countries, hence this study.

From an African perspective, the literature indicates that much attention has been given, by both national organisations and national donors, to instilling safe road use habits in children. Most of the efforts have focused on the formal education system with the development of materials and the inclusion of traffic safety in the school curriculum. Progress has been made in Ghana and the Department for International Development/Transport Research Laboratory materials are now being expanded to Uganda. The challenge in this regard for the study is to explore the responses of the children to the various road safety programmes that they are exposed to. A further literature review in the African context shows that road safety is still on the conceptualisation level and not on the implementation level in communities and schools. In short, there is a need to move from conceptualisation to implementation (The World Bank Group, 2002; McComas *et al.*, 2002, Odero, 2004; Zeedyk *et al.*, 2001; Forjuoh, 2003; Ribbens, 2002).

The kind of child that is envisaged in the National Curriculum Statement (Department of Education, 2002) is one who will be inspired by values that are very much different from those that underpinned apartheid education, and who will act in the interests of a society based on respect for democracy, equality, human dignity, life and social justice. The curriculum seeks to create a lifelong learner who is confident and independent, literate, numerate, multi-skilled, compassionate, with a respect for the environment and the ability to participate in society as a critical and active citizen (ibid.). In South African schools, according to the National Curriculum Statement (Department of Education, 2002) road safety falls within the LO learning area. It is against this background that the study seeks to investigate and explore the response of children to RSE and advocacy. Ideally, a positive response should lead to road safety literacy and road user competency among the children.

According to the LO learning area children have to master the following road safety learning competencies in the context of the National Curriculum Statement (2002):

- Grade two – the child should be able to identify road signs relevant to pedestrians and explain their meaning.
- Grade three – the child should be able to explore expressive movements using contrasts of speed, direction, body shape and position.
- Grade four – list and explain traffic rules relevant to road users.
- Grade five – explain the individual health and social effects of substance abuse.
- Explore and evaluate ways of responding effectively to violent situations and contexts.
- Apply children's rights and responsibilities to a range of problem situations.

Commenting on the impact of road traffic education on children in schools during the 16th International Cooperation on Theories and Concepts for Traffic Safety (ICTCT) Workshop, Van Vuuren (circa 1999) states the aim of this functional area is to educate school children to become safe road users. In South Africa education departments at

some tertiary institutions specialise in training teachers to introduce and operate road traffic education at schools (see also Guldbbrandsson & Bremberg, 2004; Forjuoh, 2003; McComas *et al.*, 2002). Although the time spent on structured or formal RSE in schools is limited, the effect could be invaluable for those children who are exposed to such education (Van Vuuren, circa 1999; see also Zeedyk *et al.*, 2001; Commission of the European Communities, 2003; Quimby, n. d.).

I am mindful that road safety practitioners, not to say experts, are divided as to what really works in the field of road safety in the reduction of injuries and accidents on the roads. A literature review on this topic reveals that those who propagate the use of engineering measures for the reduction of accidents are of the view that such measures are more effective in creating an intrinsically safer environment (Mohan & Muhlrad, 1998). Thomson *et al.* (1996, p. 1-2), in a report titled *Child Development and the Aims of Road Safety Education: A Review and Analysis*, warn about the counter-productiveness of such divergent views:

Unfortunately, there seems to be a widespread view at the present time that education has not achieved as much as had been hoped and that there may even be quite strict limits to what can be achieved through education. This would, of course, shift the emphasis away from education altogether towards engineering or urban planning measures aimed at creating an intrinsically safer environment in which the need for education might be reduced or even eliminated. However, whilst engineering measures undoubtedly have a major role to play in the effort to reduce accidents, this outlook is overly optimistic about the benefits of engineering and overly pessimistic about the limitations of education. At the same time, a fresh analysis is clearly required both of the aims and methods of contemporary road safety education.

On the other hand a systematic study conducted by Duperrex, Bunn and Robert (2002) shows that RSE for pedestrians could improve children's knowledge and change their observed road crossing behaviour.

Teaching road safety could provide lifelong benefits to society, but should be seen as a long-term intervention strategy. Studies in many countries show that reliance on individuals or organisations visiting schools to give talks on road safety is not enough. Children may remember the messages in the short term, but effective and sustainable

development of positive attitudes towards road safety is best achieved by the inclusion of road safety teaching in the core curriculum (World Bank Group, 2002, p. 5; World Health Organisation, 2004, p. 138; Van Vuuren, n.d.).

On the other hand what is of critical importance to this study is the response of children to road safety interventions in both the formal (school) and informal (community) environment. In the formal environment (school) the focus will be on the Intermediate Phase i.e. Grades 4-6. This is the phase when most children seem to understand that they have to take responsibility for their own safety on the roads (Road Safety Manual, 2003).

South Africa has got both urban and rural features. The urban settings have more resources than the rural ones. A study of this nature which seeks to explore the response of rural children to the learning of road safety in a developing country like South Africa characterised by a dearth of resources could increase understanding of the needs of rural children in learning road safety as compared to their urban counterparts who are exposed to helpful resources.

The study seeks to explore the response of rural primary school children to RSE programmes that they are exposed to, whether in school or at the home environment.

1.4 Explanation of core concepts

The concepts emanating from the topic are the responses of rural primary school children to a road safety programme. The process of learning indicates that children respond to teaching input in various ways. To understand the expectation that the study has in respect of the children, I seek to understand the constructivist theory which states that children construct their own knowledge informed by their circumstances. For the purpose of this study, there are certain expectations from children who receive RSE to consider. These expectations are already outlined above in section 1.3.2. Road safety education is taken as one of the three “E’s” i.e. education, enforcement and engineering. In the context of schools it is a structured programme offered as part of the school curriculum. RSE includes the facilitation of all aspects of road safety such as pedestrian skills and safety.

1.4.1 Response of rural primary school children

As children grow and develop their world extends beyond the home and out into local roads, they are exposed to hazards and risks. In a rural environment like the Moloto village, the site of this study, children walk and play on the road. This exposure, along with other risk factors inherent to childhood, makes them particularly vulnerable in traffic (World report on child injury prevention, 2003). Despite the fact that children use roads as pedestrians and cyclists, it seems as if their responses to road safety issues and programmes are seldom documented, which directed me to ask the following questions:

Who are the children in the rural environment? Can we rely on their responses? Can their responses inform RSE? According to United Nations Convention on the Rights of the Child, Article 1: “A child means every human being below the age of 18 years” (Peden *et al.*, 2008). According to the South African Constitution and the African Charter on the Rights and Welfare of the Child, a child is any person under the age of 18 years. However, I am mindful of the fact that as the study focuses on a rural area in terms of customary law, there is no clear definition as to when childhood ends and adulthood commences. Transitions are marked by phases such as initiation, marriage or the formation of a separate household, as well as physical and intellectual maturity (The Presidency, 2001). In the context of this study, a child is defined as a person aged between 0 and 14 years. The definition is informed by the fact that the study aims at children who are still at primary level; at the Intermediate Phase (ages nine to 13) (Christie *et al.*, 2004b).

The contextualisation of the response of rural primary school children was informed by the constructivist developmental theorists which states that a child constructs their own knowledge informed by the environment around them. For Piaget, learning proceeds from context-bound actions towards increasingly generalised conceptual understanding. This Piagetian emphasis on learning as a bottom-up process of construction from specific actions in specific contexts stands in marked contrast to the practice in many road safety programmes, where knowledge is taught at a general level in the belief that this will then transfer to the many specific situations to be faced at the roadside (Schwebel & Raph, 1973). This approach of learning as a bottom-up process ties up

with the work of Vygotsky's work on the zone of proximal development, which emphasises that the child can acquire more knowledge if working with a competent adult (Department for Transport: no. 6; Biehler, 1974, pp. 119-120). The study also considers that to understand the response of rural children, we have to understand the environment they live in. The rural environment seemingly lacks the resources that are critical for the understanding of RSE input. The children in the study exist in an environment where they live with parents who generally commute forty kilometres from Moloto to the city of Pretoria.

The cognitive developmental level of the children was also considered as Piaget asserts that it determines the understanding of children in the learning process. Vygotsky goes further to say the child's cultural milieu and interaction with other members of the community help him to construct meaning and develop his education. The response of rural primary school children in the context of the study will therefore mean the way the rural child understands the road safety inputs from his school and his surroundings. In short, the social cognitive theory underpins the understanding of how children learn about road safety (Schunk, 2000, pp. 78-88).

1.4.2 Road safety education programmes

I define the RSE programme in this study as the structured road safety competencies that are taught as part of mainstream curriculum and as part of the LO learning area. These are a set of road safety skills that the children are supposed to master after they have been taught. The competencies are aimed at addressing the children's road safety skills, attitudes and behaviour. These programmes include the unstructured inputs from road safety officers who visit schools to address children on road safety issues and the inputs that children are exposed to through the mass media like television and road as part of the Department of Transport's *Arrive Alive* campaign

Based on the evaluation of RSE programmes in the literature review, I will also consider what such programmes can achieve and what limitations they have. A survey of the VicRoads traffic safety education programmes raised important questions about the effectiveness of these materials (programmes), in particular relating to the method of

providing the materials to schools, the way in which materials were used by schools and the general level and type of support provided to teachers and schools that were interested in using the materials (Harrison, Penman & Pennela, 1997).

Finally, my definition of a RSE programme is informed and underpinned by the British Department for Transport's Research report which states that a road safety education programme should be developed with key partners such as parents, and members of the wider community, and that road safety education is most effective when integrated through the refocusing of teacher awareness (Department for Transport report, Report No. 99, 2009; Road Safety Manual, 2003).

1.4.3 Rural environment

I define the rural environment as an area that does not have the resources that are taken for granted in an urban environment. It is an area characterised by a low quality of life, poverty and unemployment. About 12,7 million people (13,4% of the population) live in rural areas in the former homelands of South Africa. Ninety-three per cent of these households engage in subsistence farming and do not generate significant resources. Only 3% of the households rely on farming as their source of income. The households receive other income, such as salaries and wages, mostly from members of the households (The Presidency, 2001).

Most families in the Moloto village, which is a typical rural area, depend on social grants from government and they supplement their income by selling snacks and other goodies to children at school gates. This helped to inform me on the family background of the children and informed my understanding of their responses.

1.5 Research questions

The preceding discussion illustrates that education has its place in the teaching of road safety. Research on RSE supports the inclusion of RSE in the mainstream curriculum. What is also clear is that the environment for learning RSE is critical for the mastery of the road safety competencies set for young children. In the developing world, studies indicate that a lack of resources and inclusion of RSE into mainstream curriculum are

some of the impediments to the learning of road safety. The study therefore sets out to answer the following main question:

- What is the response of rural primary school children to the RSE programmes?

1.5.1 Sub-questions

In order to understand the children's responses, a number of sub-questions were also examined. These are:

- What are the views of the parents in the broader rural community in inculcating RSE to their children?
- What are the views of the teachers on teaching road safety as part of the mainstream curriculum in the rural community?
- How appropriate are the methods used by the teachers for the teaching of the RSE programme?
- What is the impact of the rural environment on the learning of road safety?

1.5.2 Aim of the study

The aim of the study is to explore and understand the response of rural primary school children and to provide ideas for a possible intervention to the teaching of road safety to rural primary school children. The rural environment seemingly puts the children at a considerable disadvantage, first as children and later as adolescents.

1.5.3 Objectives of the study

The objectives of this study are the following:

- To establish the state of RSE in a rural primary school in the province of Mpumalanga, South Africa.
- To establish whether appropriate facilities are available to enable the teachers to teach road safety effectively.

- To establish whether the rural environment affects the children in learning road safety competencies as it lacks the infrastructure that is taken for granted in an urban environment.
- To establish whether the rural environment supports both the children and the teachers in the learning and teaching of road safety.
- To establish what road safety teaching methods/or strategies are suitable for the teaching of road safety in a rural environment.
- To investigate whether the children and the teachers have the right attitude for the learning and teaching of road safety.
- To establish the role that the parents can play and whether they play this role to help both teachers and children in their endeavours to learn and teach road safety competencies.
- To analyse and describe through a review of literature the importance of RSE as one of the interventions to mitigate deaths on the roads, particularly in developing countries.

1.6 Significance of the study

The study is underpinned by two assumptions, namely that RSE will improve the road behaviour of children from rural environments to such an extent that when they go to an urban environment they will still be safe, first as children and later as adolescents. The second assumption is that RSE has the potential to reduce pedestrian fatalities on any road. The findings will hopefully help people involved with RSE. These are road safety practitioners in the Department of Transport, non-governmental organisations planning effective approaches for the implementation of road safety education, curriculum designers in the Department of Education responsible for compiling road safety competencies to be taught as part of LO in the mainstream school curriculum and other researchers who are interested in further developing the field of road safety and road safety programmes, particularly in rural areas.

Government is losing in the region of R50 billion annually as a result of deaths on the roads. According to literature, RSE can help to alleviate this situation. However, the effective implementation of RSE can be directed by research in this field. The researcher is mindful of the fact that before road safety can be taught effectively, teachers will have to be educated. The central thesis of RSE is that the focus is on the children and, the teacher only facilitates their learning process. In summary, the whole educative infrastructure should be conducive to the learning of road safety.

1.7 Unit of analysis

I chose a case study, namely the school in the village of Moloto in the Nkangala district in Mpumalanga. The school is situated forty kilometres outside the Tshwane metropole. Moloto is a village that has two ethnic groups as residents, namely the Ndebele and the Northern Sotho. The school is a Northern Sotho school – a legacy of the apartheid system of separate development when the various ethnic groups were separated. Fourteen years after democracy, the village still has two separate schools adjacent to each other, one Northern Sotho and the other one Ndebele. Because the people are living together in the village, some children are fluent in both Northern Sotho and Ndebele.

Parents who are employed in the Tshwane metropole commute daily from the village to their places of employment. They leave as early as 04:00 and return at around 20:00 when most children are already in bed. They use buses as the principal mode of transport as they do not have private vehicles. The Moloto road runs through the village and is very busy.

This school in the study is a typical rural school with the inherent characteristics of overcrowding and lack of resources, particularly teaching aids. Ten children in the Intermediate Phase were chosen randomly to take part in interviews while two classes were used in the drawing and message writing activity. Two teachers were chosen as participants as they were involved in the teaching of LO which includes the road safety competencies. The Intermediate Phase children were chosen purposefully as they would have had a considerable input of RSE in the preceding Foundation Phase. The

idea was that they would serve as relevant participants for assessing the possible effects of RSE as taught in a typical rural school.

Children in the two classrooms took part in two tasks of drawing a road environment in their area and the writing of road safety messages. The idea was to assess the overall picture of children's understanding of the RSE in the school.

When assessing the children's response I was to a large extent guided by Piaget's theory that development and grasping of issues does not only depend on maturation but also on the individual's previous experience and above all on the social milieu which can hasten or delay the appearance of a stage, or even prevent its manifestation (Rosin, 1973, pp. 50-51).

1.8 The study

I chose to do the study through the interpretivist paradigm in order to explore and investigate. The study is based on the qualitative interpretivist paradigm.

Denzin and Lincoln (1998, pp. 195-200) see paradigms as basic belief systems based on ontological, epistemological and methodological assumptions. They represent a worldview that defines, for its holder, the nature of the "world", the individual's place in it, and the range of possible relationships to that world and its parts. The beliefs are basic in the sense that they must be accepted on faith (however well argued). There is no way of establishing their ultimate truthfulness. A paradigm is therefore like a crystal ball that the inquirer uses to seek the truth about any phenomenon. The paradigmatic world is a contested terrain because people see things differently and each person wants his/her type of inquiry to hold sway.

Maykut and Morehouse (1994, p. 4) see a paradigm as a set of overarching and interconnected assumptions about the nature of reality. One must make assumptions, for example, about the nature of reality. The paradigm, like the postulates it is based on, cannot itself be tested; the paradigm provides the basis on which we build our verifiable knowledge (see also Mouton & Marais, 1992, p. 144-151).

The interpretivist paradigm has always argued for the uniqueness of human inquiry. Denzin and Lincoln (1998) point out that proponents of this paradigm have crafted various refutations of the naturalistic interpretation of the social phenomenon (roughly the view that the aims and methods of the social sciences are identical to those of the natural sciences).

The choice of the interpretivist paradigm is also underpinned by the understanding that qualitative research places emphasis on understanding through looking closely at people's worlds, actions and records. Qualitative research looks to understand a situation as it is constructed by the participants. It tries to capture what people say and do, that is, the product of how people interpret the world. The task of the qualitative researcher is therefore, to capture this process of interpretation (Maykut & Morehouse, 1994, pp. 17-18). One of the basic assumptions of this research approach is that meaning is embedded in people's experiences and that this meaning is mediated through the investigator's own perceptions (Merriam, 1998, p. 6).

The choice for this approach is in addition undergirded by the realisation that the qualitative approach is holistic in orientation, treating the phenomenon as a whole system and searching for patterns that lie within its bounds. This again is in line with Haddon's systems approach to road safety which sees road safety as an interconnected system (in World Health Organization, 2004, pp. 12-13). Cupchik (2001, p. 1) argues that this search for meaning is exhaustive and incorporates as many episodes as possible to appreciate the ways in which the different parts of the structure affect each other. A coherent account of the dynamics of a social process is one that accommodates the greatest number of individual episodes. It reflects an empathetic understanding as if the structure of the social world is seen through the eyes of its participants. Taking the roles of others lends a phenomenological grounding to understanding the dynamics of the social world. The process is constructive in that meaning is generated from a world that is observed and understood by scholars who generally come from outside it.

According to Denzin and Lincoln (1998, pp. 195-200), the basic beliefs that define inquiry paradigms can be understood on three levels. The first level is the ontological

question which seeks to establish the form and nature of knowledge and what there is that can be known about it. The second level is the epistemological question which seeks to establish the nature of the relationship between the knower or the would-be knower and what can be known. The third level is the methodological question which tries to find out how the inquirer (would-be knower) can go about finding out whatever he or she believes can be known.

The three levels of understanding reality as outlined above are relevant to the study as it seeks to explore the response of rural primary children to the RSE programmes that they are exposed to at school or community level. The study also seeks to investigate the attitudes and views of children on road safety. The study reflects the relationship between the interviews and the observation methods used in the study.

The qualitative interpretivist paradigm is appropriate for this study as it seeks to establish, explore and construct the reality regarding the response of children to RSE in primary schools with a view to assessing its effectiveness for equipping children with basic skills in road safety. This paradigm will enable the researcher to understand through interaction with the research partners (teachers and parents) the response of children to road safety programmes in primary schools.

This approach is also informed by the researcher's ontological assumption that the world is constituted by a myriad of realities. In a quest to achieve the objectives of the study I explored the views, the literature, the actions, attitudes and accounts of the research participants on the issue of RSE. I believed that once I had all this information collated and analysed, I would then be in a position to suggest possible interventions.

In this chapter I give an explanation of my methodology when presenting the evidence. This study used the observation, interviews and participatory data collection methods. Non-participant observations such as the taking of photographs were conducted together with data from child participants. The non-participant observations provided me the opportunity to observe the participants in their natural setting when using the roads. In-depth interviews were conducted with the child, parents and teacher participants. The participatory methods used were drawings and written messages by the child

participants. The photographs were taken during the non-participant observation. An array of all the methods used is discussed in Chapter 4.

1.9 Data analysis

I applied the guidelines for constructivist grounded theory analysis (Field & Morse, 1985, pp. 110-111; McMillan & Schumacher, 2001, p. 396) in the analysis stage of this study. Using this approach, each piece of data is compared with every other piece (the constant comparison). As an interpretivist, I applied a deductive data analysis approach. I studied the authentic data gathered and through the constructivist grounded theory analysis I identified the concepts which emerged from all the data sources. I then coded them and I grouped the relevant concepts together to form different themes and categories which helped me to understand the children's response to the road safety programmes taught in the classroom and the ones through TV and radio as part of the *Arrive Alive* campaign.

1.10 Anticipated research constraints

I was aware that my background in the field of RSE, as a road safety practitioner, might cloud my judgement during the data gathering process and influence the participants in one way or another. I accordingly attempted to stay clear of influencing the participants when I was interviewing them. Rather, I gave them the opportunity to express themselves and share with me their life experiences, as I did not make the participants aware of my background in this field.

The interviews with the children were conducted in Northern Sotho (Sepedi) as I was aware that their second language, viz. English, would have prevented them from expressing themselves freely and giving as much information as possible. When interviewing the two teachers I allowed them to complete the interview schedule while they were offering their views orally as well. This was a technique for obtaining as much information as possible and to ensure that they were not misquoted or misunderstood. Writing and talking ensured a degree of authenticity and originality. Parents were interviewed in their own languages as well. This made them feel more comfortable, since they were not proficient in the language of the study (English). In order to observe

realistic road safety behaviour among the participants, namely the children, I resorted to non-participant observation. This ensured that there was no posing and grand standing when pictures were taken. I tried to ensure that children on the road after school hours were not aware that they were being photographed.

Another concern was the selection of one site of investigation. While this limited the opportunity for generalisability, it was done purposefully in order to explore and obtain a holistic but deep understanding of children's experiences with regard to the RSE programmes. I described the case thoroughly for possible application by other researchers.

1.11 Organisation of the study

Chapter 1

Chapter 1 sets the background to the study and outlines the features of the research project. It includes the research questions to be investigated. The paradigmatic perspective underpinning this study is discussed and contextualised. The methodology and the data collection methods are also outlined. This chapter explains how the research questions are going to be investigated; data collected to answer the research questions and offers a justification for the methods used in the collection of data.

Chapter 2

Chapter 2 discusses the literature review. This chapter sets the basis and context for the study. Road safety literature from both developed countries and developing countries is reviewed. The object is to indicate the work that has already been done and to avoid duplication. The literature review also focuses on the best practices from countries that have made significant advances in the reduction of pedestrian fatalities in their countries. For this study the literature reviewed in the chapter contextualises the study and points out the areas requiring research particularly in developing countries struggling with high pedestrian deaths as a result of road accidents.

Chapter 3

Chapter 3 discusses the literature with special emphasis on child development and its relevance to RSE. The effective teaching of road safety skills, according to the literature review in this chapter, also hinges on the developmental level of children.

Chapter 4

Chapter 4 elaborates on the research design and methodological choices for the study. Key features of the chapter are the justification for and the discussions of the strengths and weaknesses of the data collection methods. Interviews and participatory methods were used in the data gathering process. The chapter also discusses the advantages and disadvantages of using the participatory methods of data collection.

Chapter 5

Chapter 5 presents a discussion of the results of the data and key themes that emerged from the data gathered through the methods discussed above. The results are analysed according to the themes. An interpretation is offered for each theme that is discussed to offer a holistic understanding of the results and the findings.

Chapter 6

Chapter 6 offers recommendations for teachers, policy makers and schools. The recommendations are discussed in detail as the study has intervention to offer to improve the situation as its purpose. The implications for the various role players mentioned above are also discussed to contextualise the findings and their relevance to the various role players. Further findings are indicated in Chapter 6 to highlight areas that need further research in order to understand the road safety phenomenon particularly in a rural setting like the case study.

1.12 Summary

Chapter 1 has introduced and outlined the state of RSE in the world and the challenges facing South Africa as part of the developing world. There are two discernible trends: a stabilisation in the highly developed countries and a continuing increase in the number of fatalities in the developing world. The chapter shows that South Africa can learn a lot from the developed world in the area of road safety. It also indicates that there are certain requirements with which the country has to comply before a significant impact

could be made in reducing the deaths of pedestrians (including children) on the roads. The effective implementation of RSE in schools is one of them.

The chapter also outlines the aims and objectives of the study, and the theoretical framework underpinning the study. In the broader context, it illustrates the possible contribution to the body of knowledge, namely RSE.

As the geographical comparative analysis in 1.1, 1.2 and 1.3 shows, in many parts of the world the majority of children injured or killed on the roads are pedestrians, particularly in low-income and middle-income countries like South Africa and India. Specific physical and cognitive developmental factors (discussed in Chapter 3) increase the risk of road traffic crashes among child pedestrians, especially among younger children, where physical stature and cognitive limitations restrict their ability to make safe decisions as described in the literature. In low-income and middle-income countries children use roads for playing and for conducting small roadside businesses, both of which increase their exposure significantly. Risk-taking behaviour and peer pressure from the environment may increase risks taken by children.

CHAPTER 2. ROAD SAFETY EDUCATION IN THE GLOBAL AND SOUTH AFRICAN CONTEXT

2.1 Introduction

The literature review provides an overview of road safety and aspects related to RSE. The chapter illustrates how the developed countries like Sweden, Norway and the Netherlands use road safety education as an intervention measure to educate children of schoolgoing age on road safety. The literature review will also describe best practices that developing countries like South Africa can implement in the context of their individual dynamics and specific needs. Best practices from the developed world could serve as a point of reference for the development of programmes and approaches for local conditions without the uncertainties and cost of “reinventing the wheel”.

A developing country is defined as a country that has an annual per capita gross national product (GNP) of less than US\$9 361 based on 1998 figures from The World Bank (Nantulya & Reich, 2002, p. 1139). This chapter will indicate South Africa’s current position as a developing country regarding RSE. A report from the Commission of the European Communities (2003, p. 4) points out that “road safety directly affects all of the territory of the European Union and all its inhabitants”. With the advent of motorised vehicles and the rise in vehicle population accidents became part of the developed world (Petersen, 2006, p. 10; U.S Department of Transportation, 2004). This is the reason why the developed countries use education as one of the intervention measures to ameliorate the situation, supporting my reasoning that developing countries may benefit from these examples.

In the first half of the chapter I discuss extensively previous research on RSE. I also describe issues related to RSE like human rights, road accidents as a global problem and children as vulnerable road users. In this chapter I locate and utilise the relevant literature and I will use this work as a plan to conduct observations in the setting or as an outline for interviews (Field & Morse, 1987, p. 35). The second half of this chapter deals with my theoretical framework.

The literature review in this study will cover countries that are regarded as developed, like Sweden, United Kingdom, Norway and the Netherlands. I will concentrate on best practices from which the developing countries like South Africa can learn. The literature review will also focus on what the developing countries in Africa, South East Asia and Brazil are doing. I will include any literature that illuminates the topic even if it does not fall within the classical categories of developed and developing countries. The literature review consists of reports, road safety programmes, books, newspaper articles, conference papers and internet documents. This demarcation is influenced by the need to use the achievements that have been realised by the developed world as a framework for the developing countries in order to avoid reinventing the wheel, as stated above. I am convinced that if the programmes implemented by the developed countries are modified for the conditions of the developing countries, much could be achieved in reducing child road fatalities in the developing countries as well.

The study seeks to describe and interpret the responses of rural children to RSE programmes, using children from rural Mpumalanga. This is a case study of one school located in the Moloto area in the Mpumalanga Province. The study is located within the qualitative and interpretivist paradigm in exploring the children's responses from the hermeneutical approach. This approach enables me to describe in detail the conditions pertaining to the rural area of Moloto in Mpumalanga, which I did in Chapter 1. Key concepts that are used in the study are explained in Appendix B. The explanation of the concepts will assist in the understanding of the meanings of the concepts as used in the context of the study.

2.2 Road safety as a human right

In May 2002, the 6th World Conference on Injury Prevention and Control was held in Montreal, Canada. An outcome of that conference was the finalisation of a draft charter on the People's Right to Safety. It was recognised that this issue of health and human rights with its special focus on violence, health, and human rights, provided an opportunity to bring together a group of health and human rights experts with diverse opinions and perspectives on the value of recognising this new right (Mohan, 2003).

In 1948, the General Assembly of the United Nations (UN) adopted and proclaimed the Universal Declaration of Human Rights (UDHR). Article 3 of this Declaration states: “Everyone has the right to life, liberty and security of person.” The legal obligations of governments under international human rights law have been used effectively all over the world in many areas: the rights of the child, the rights of women, the rights of workers and the rights of people in development in general. These rights have been enshrined and strengthened in international human rights instruments like the International Covenant on Economic, Social and Cultural Rights, the Convention on the Rights of the Child, the Declaration on the Elimination of Violence against Women, and the Employment Policy Convention (Mohan, 1998).

By adopting these instruments, civil society is able to demand safer products, safer living conditions and safer environments. Although the right to a life safe from debilitating injuries may seem implicit in the right to life, decision-makers and the public at large have yet to use this right to influence policy in this respect. It has become even more imperative to promote in clear and explicit terms the right of people to live in a world safe from harmful injuries as a fundamental human right (ibid.; Proudlock & Mahery, 2006).

The South African Constitution, which incorporates the Bill of Rights, guarantees the right to safety and dignity for every individual (South African Constitution, 1996; Moson, Hall, Smith & Shung-King, 2006, p. 32). However, if the state cannot create an environment that makes it possible for the individual citizens to enjoy the right that is guaranteed in the Constitution, that right becomes unimportant. It is one thing to guarantee certain rights, quite another to create an environment that will make it possible for that right to be a reality (Kollapen, 2006). Ramphele (2006, p. 22) puts the issue into sharp focus:

Injury and safety issues are matters of concern for both rich and poor countries. It is however important to draw a distinction between the particular circumstances and levels of safety in the two settings. Most rich countries have set standards and elaborated practices that create a climate for higher levels of awareness and commitment to the prevention of injuries, and the promotion of safety for the citizens and others living within their territorial spaces. Their citizens are also assertive in securing performance against those set standards of safety. Citizen activism ensures that acts of omission and

commission by public and private entities are kept to a minimum to avoid costly litigation and other enforcement mechanisms.

What the paragraph above illustrates is that in developed countries issues of safety are part of the culture of the community. Communities play an active role to ensure that they enjoy the rights promised in their constitutions and they hold the state to account.

Ramphela continues to show that in developing countries communities are unable to force the state to ensure that the citizens enjoy the rights promised in the constitution like the right to safety:

In a developing country like South Africa although the right to safety is enshrined in the constitution there are no resources to enforce or create an enabling environment for enjoying the right to safety. Children are exposed and injured on their way to and from schools. Poor developing countries are by and large struggling with many more challenges of effective policy-making and implementation, development of appropriate regulatory frameworks, and building of institutions that focus on safety issues may seem like a luxury. Citizens of poor countries are often uneducated, disempowered and lacking institutional capacity to assert even those rights that are their entitlement. Levels of mobilisation of public support for the enforcement of set standards to meet constitutional and legal obligations are often weak in resource-poor settings. Without this, public civic pressure performance by both private and public entities suffers (ibid., p. 23; see also Kollapen, 2006, p. 30; Museru, Leshabari & Mbembati, 2003; Monson, Hall, Smith & Shung-King, 2006; SIDA, 2006; Mohan 2003).

Knowledge among citizens is not a guarantee that citizens will use that knowledge to ensure their safety. Policy differences among the various departments and working in isolation make the fight against road crashes and deaths an impossible task. Finally, even when the right values, policies and enthusiasm are there, incoherence remains a stumbling block to performance between and within sectors. Incoherence between policy and practice leads to unsafe environments for citizens.

For instance, when we reflect on road accidents, we understand that modern technology has delivered safer and more reliable motor vehicles. Modern technology has also delivered a means to monitor and enforce adherence to road safety measures including insistence on roadworthy vehicles on the road. Yet, in many developing countries including South Africa, there is a culture of impunity with respect to disregard for traffic rules. The carnage on our roads is a classic case of the gap between what we know to contribute to safety, and what we do in our conduct as drivers, passengers,

pedestrians and citizens. Greater coherence in enforcing the rules between education, health care, road transportation, law enforcement, and the judiciary in signalling zero tolerance of unsafe road conduct could go a long way to reducing this carnage (Ramphela, 2006, p. 26; Monson *et al.*, 2006; Quimby, n.d.; Mutabazi & Bishanga, n.d.).

In the case of South Africa in particular, 95% of road accidents that happen are preceded by human error and disregard for traffic rules. The Department of Transport is in the process of setting up two agencies that will focus on issues of law enforcement. The agencies are the Road Traffic Management Corporation and the Road Traffic Infringement Agency. The concern, however, for this study is that unless RSE is entrenched in school, particularly in primary schools, the culture of impunity and disregard for road rules described above might not be arrested.

2.3 Road safety education and road accidents

Since the invention of motorised vehicles, road accidents and fatalities have been the feature of this scientific evolution. Invariably, this development is characterised by deaths and injuries, which are a feature all over the world. Some countries have managed to reduce the number of pedestrian deaths and accidents on their roads particularly using a variety of interventions ranging from engineering, enforcement and education in the developed world but in the developing world, the problem has reached alarming proportions.

In studying the literature on road safety, education is considered as one of the interventions that seems to be important in mitigating the deaths that are taking place on the roads, together with engineering and enforcement. Although there is consensus that education is very important and has been used successfully in developed countries as the literature shows, there are other writers who are sceptical about the virtues of education (Mohan, 2002; Department for Transport, 1996; Department for Transport, 2003; Department for Transport, 2009; Johanson, 2004). Mohan (2002) states that education alone would not solve road safety problems.

The literature review in this chapter elaborates in detail on literature about RSE in the teaching of road safety. In Chapter 3 I discuss the significance of child development and

the relevant teaching and learning theories that could be used as the basis for teaching RSE. In Chapter 3, the focus will be on the child, the child's construction of road safety and how communities play a crucial role in developing children who will be safer road users.

The World Report on Road Traffic Injury Prevention (Commission for Global Road Safety, 2004, p. 45) indicates that road traffic injuries and deaths (including pedestrian casualties) are a worldwide problem. Research reports on this subject (A Review of Pedestrian Safety Research in the United States and Abroad, 2000; Collins, 2006) indicate that well over 70% of pedestrian injuries and deaths are the result of either improperly crossing intersections or dashing out in the street between intersections.

The Danish Road Safety Commission (2002) indicates that road accidents are one of the most frequent causes of deaths among children and young people. In 1998, 40 children and young people under the age of 18 were killed on Danish roads. As a result, developed countries turned to education as an intervention measure to alter the situation. The approach for best practice was (The Danish Road Safety Commission, 2002, p. 20; Downing, 1991; Downing *et al.*, 1991; Quimby, n.d.; Thomson *et al.*, 1996; Van Vuuren n.d.):

- Road safety for children must be viewed as a whole, where parents, schools, institutions, and the children themselves must participate and be active.
- Parents are responsible for teaching their children "road manners" and how to respond to traffic, and as road users they are also responsible for the safety of all children, including their own.
- Schools and institutions – including the boards of governors elected by parents – can help teach children how to behave in traffic in collaboration with parents. Such collaboration can also extend to school routes, choice of transport, use of safety equipment, and "road manners".

The United Kingdom's Neighbourhood Road Safety Initiative (NRSI) which has been set up to find fresh and innovative ways to reduce road casualties, particularly those

involving children, also follows a holistic approach, like the Danish approach explained above. Most members of the European Community follow this holistic approach when using education as an intervention measure (Petersen, 2006; Department for Transport, 2007; Sayer & Downing, 1996; Harrison *et al.*, 1997; Department for Transport, Road Safety Research Report No.56, 2005). The Neighbourhood Road Safety Initiative was born out of the realisation that children from disadvantaged backgrounds are five times more likely to be killed or seriously injured on our roads than their peers from the least deprived areas (Collins, 2006, p. 2; Department for Transport, no. 1; Ribbens, 2002; Mutabazi & Bishanga, n.d.).

Although countries, especially in the developed world, have made some strides in the prevention of road accidents the problem is far from being solved. In the developing world, the problem is greater. The World Report (2004, p. 33) reports as follows:

The vast majority – 90% – of road traffic deaths were in low-income countries and middle-income countries. Only 10% of road traffic deaths occurred in high-income countries. Road safety interventions to address the problem of road accidents could be done on three levels: engineering, enforcement and education. Furthermore, a wide spectrum of literature review and a systematic analysis of the prevention research for pedestrians injuries found that preventive measures utilised to date include educational programs, environmental modifications, vehicle modification, daylight savings time, community campaigns and reflective clothing.

Education can help bring a climate of concern and develop sympathetic attitudes towards effective interventions (Peden *et al.*, 2004, pp. 137-138, see also U.S Department of Transportation, 2004, p. 115; Van Vuuren, n.d.).

While education alone cannot be credited with the success of the developed countries in bringing fatalities down, in developing countries like South Africa where scarce resources pertain, education could be a very effective measure in the absence of resources to improve roads and law enforcement. The reality of the situation, though, is that in the Southern African Development Community (SADC) countries like Tanzania, Mozambique and others depend on aid to balance their books (Baffour, 2007; Quimby & Davis, 2003). As such they are left with very little money, if any, for road safety. It is against this background that the study argues that if education is incorporated in the

mainstream curriculum children will exit the education system better informed about road safety.

According to the South African Constitution, section 29 (1), everyone has the right to basic education, including adult education, to further education, which the state, through reasonable measures, must make progressively available and accessible. The child has a right to education and the state's duty is to ensure that primary school is free and compulsory, to encourage different forms of secondary education accessible to every child and to make higher education available to all based on capacity (South African Constitution, 1996). Since the advent of democracy in 1994, South African enrolment rates compare favourably with other African countries, and many developing countries in other parts of the world. A high proportion of public expenditure is allocated to education. The South African Schools Act (Act 84 of 1996) provides that basic education is compulsory for all children from the age of seven to 15 (or Grade1 to Grade 9) (Presidency, 2001).

RSE will help to complement other aspects that work to ensure that the deaths on the roads are minimised, like vehicle safety features that are built into vehicles from the factory floor. Education will also complement engineering and law enforcement as interventions that are aimed at curbing the carnage on the roads. The implications for the country are:

- RSE as an intervention measure could be a step in the right direction for children of schoolgoing age.
- A holistic approach involving parents, teachers and road safety officers could be a suitable approach based on the best practice model indicated above.

2.4 Children as vulnerable road users

The focus for this study is RSE for young schoolgoing children as a vulnerable group of road users and their response to the RSE programme. Accidents in the developed world present significant differences from those in the developing world. A Transport Research Laboratory (TRL) Report by Downing *et al.* (1991, p. 4) indicates that in the

developing countries (see Table.1) a relatively high proportion of fatalities are pedestrians and children under 16 years, and many fatal accidents involve trucks, buses, and other public service vehicles. In Table 2.1 below the pedestrian fatalities refer to children below the age of sixteen.

Table 2.1 Pedestrian fatalities as percentage of all road accident fatalities

| Region | Percentage |
|--|-------------------|
| Europe and United States of America (14) | 20% |
| South East Asia (4) | 29% |
| South America (1) | 31% |
| Asia (3) | 42% |
| Africa (9) | 43% |
| Caribbean (3) | 44% |
| Middle East (5) | 51% |

() = number of countries: Source: Downing *et al.*, 1991

As the global figures in Table: 2.1 show, the developing world accounts for higher numbers of casualties than the developed world comprising Europe and USA. It therefore confirms what the literature shows, namely that accidents severely affect the poor. Although a significant number of children are still outside the school loop in the developing world, the impact of RSE on those who are attending school might be considerable.

A study by the United Kingdom Department for Transport (2007) shows that road traffic accidents are one of the main causes of death and injury to children of schoolgoing age. As a major countermeasure to this threat, RSE seems to be an essential part of a child's education. The study further gives a profile of a typical child who is more likely to be involved in an accident:

- Accidents in general and road accidents in particular are a serious threat to the health of children and young adults. On average, out of a class of 30, two will be killed or injured in a road accident before their seventeenth birthday.
- Children over the age of 11 are more likely to be involved in a road accident on major roads.
- Child pedestrian casualties peak at age 12, the age at which most children move on to secondary school.
- Child cyclist casualties peak at age 14.

If the picture painted above applies to the developed countries like the United Kingdom, then a conclusion could be made that the situation in the developing world is even more dire.

As vulnerable road users, children are at particular risk. Children in low and middle-income countries are much more likely than children in high-income countries to be involved in a road crash or accident. As pedestrians, children and professional drivers constitute such a large proportion of the accident problem, it is clear that many developing countries need to give priority to improving the safety of these particular three groups.

The literature review further indicates that in the developing world a significantly large percentage of children under 16 years are victims of road accidents as Table 2.2 shows (Downing *et al.*, 1991).

Table 2.2 Road accident fatalities

| Country | Percentage of fatalities of children under 16 years | Percentage of fatalities involving buses and trucks |
|-------------------------|--|--|
| Botswana (1988) | 16 | 25 |
| Egypt (1984) | 12 | 37 |
| Ghana (1989) | 28 | 50 |
| Pakistan (Karachi) 1988 | 14 | 44 |
| Papua new Guinea (1987) | 20 | 37 |
| Zimbabwe (1989) | 11 | 45 |
| United Kingdom (1988) | 9 | 21 |

The data in Table 2.2 supports the information in Table 2.1 that in developing countries the percentage of children who die on the roads is high, as is the number of people who die on the roads. In South Africa for example, more than 26 child deaths per 100 000 population occur as result of road traffic crashes compared to 1,7 per 100 000 population in the European Union (EU) as a whole (Commission for Global Road Safety, n.d., p. 8). Overall, 96% of child road fatalities occur in low and middle-income countries.

Adamson (Commission for Global Road Safety n.d., p. 8) warns of the consequences of failing to act on road traffic injuries:

Without being alarmist you can see that there will be millions of young children killed on the roads of the world in the years ahead. There is so much that could be done by developing countries at their current stage of economic development, and it could prevent so much misery and tragedy. It would be outrageous if it were allowed to continue in the years ahead.

The graph in Figure 2.1 shows the pattern of road accident deaths for both developed and developing countries. While the developing countries have a rising trend of accident fatalities on roads, the developed world on the other hand is reflecting a decreasing trend. The information on the graph corroborates what has been discussed and analysed above in Tables 2.1 and 2.2.

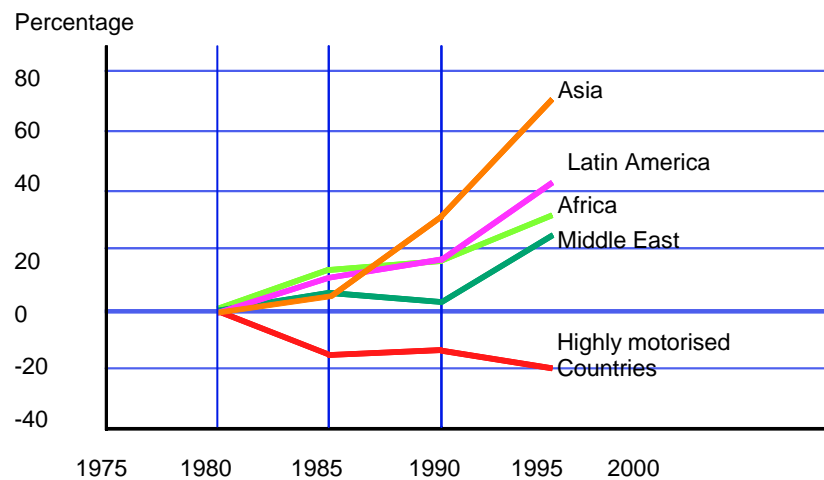


Figure 2.1 Percentage in number of fatalities in 1980

Source: Global Road Safety Partnership (2003)

As indicated in the introduction section and on the graph in Figure 2.1, countries that have made remarkable progress in reducing the number of deaths on their roads implemented a range of intervention measures including RSE in schools (Smit, 1990; McComas, MacKay & Pivik, 2002; Department for Transport, 2004; Christie, Towner & Cairns, 2004). Conversely, those countries with a high number of deaths on their roads do not have RSE as an intervention at school level; or where they do have it, it is sporadic and unstructured as Table 2.3 clearly illustrates. To illustrate the point: in Sierra Leone there is no RSE in schools and in South Africa until the introduction of the national curriculum it was partly compulsory (see also Van Vuuren, n.d.a; Van Vuuren, n.d.b; Kobusingye, 2004, pp. 119-200).

Table 2.3 Road safety education in different countries and accident rate per 100 million km travelled

| Country | Accident rate (deaths per 100 million km travelled) | Road safety education |
|---------------|---|-----------------------|
| USA | 1.8 | Compulsory |
| Canada | 2.9 | Compulsory |
| Denmark | 2.6 | Compulsory |
| Finland | 2.0 | Compulsory |
| France | 2.0 | Compulsory |
| West Germany | 3.8 | Compulsory |
| Great Britain | 2.1 | Compulsory |
| Luxembourg | 3.5 | Compulsory |
| Norway | 2.29 | Compulsory |
| Israel | 4.2 | Compulsory |
| Turkey | 12.0 | Compulsory |
| Sierra Leone | 23.6 | None |
| South Africa | 16.8 | Partly compulsory |

Source: Chiduo & Minja: Accident rates obtained from report of International Road Federation, 1986

All the countries listed in Table 2.3, except South Africa and Sierra Leone, have RSE as a compulsory part of the school curriculum and have low accident rates per 100 million kilometres travelled. Road accidents are ranked second in the causes of deaths in those developing countries that do not have RSE in their curriculum.

Table 2.4 shows the leading causes of death in low and middle-income countries where road safety was not yet part of the curriculum and compulsory in 2000 for the two age groups most affected.

Table: 2.4 Leading causes of death in low and middle-income countries

| Age 5-14 years | Age 15-29 years |
|--|-----------------------------------|
| Childhood cluster diseases (200 131) | HIV/Aids (852 793) |
| Road traffic injuries (114 087) | Road traffic injuries (317 654) |
| Drowning (112 512) | Tuberculosis (237 757) |
| Lower respiratory infections (112 307) | Self-inflicted injuries (196 246) |
| Diarrhoeal diseases (88 411) | Interpersonal violence (178 651) |

Source: Mock et al., 2005

The progress that has been made in the developed world supports the view that the road safety problem can be turned around. We should avoid falling into a defeatist mode in tackling this problem as RSE can help reverse the situation. Although there are people who believe that the pressure of accident increase is so strong that there is no way to push the toll down, I do not share this defeatism because the view to my mind is not true.

For the situation to be turned around I think that the current safety activities should be revised and redirected towards more efficient implementation of more effective measures in order for us to reduce the toll again.

My view is that education could be a catalyst in turning the situation around particularly in developing countries if properly coordinated and supported by a home environment that is conducive to the learning of road safety. Ideally, the home environment should support and reinforce what is learnt at school. As already indicated, South Africa has a high number of pedestrian deaths seemingly because the children are not exposed to effective RSE in both the home and the school environments.

The study does not discount other factors but argues that literature shows that an effective, well-structured RSE in the school supported by a home environment that lends itself to road safety might improve the situation. However, most families in the

developing world do not have vehicles and depend on public transport for their movement and this is not an ideal way of fostering a sense of road safety awareness and education in children (SIDA, 2006; Christie *et al.*, 2004a; Christie *et al.*, 2004b; Organisation for Economic Co-operation and Development, 2004).

2.5 Theoretical framework

This study's assumption is that education can play a very important role in the developing world in reducing the accident rate and educating young road users about road safety if implemented in a structured and comprehensive way at primary school level when the children are still young and impressionable. The study moves from the premise that road safety is a social activity for children, for learning from peers, teachers and parents. Children are part of a community (Davis & Quimby, 2003; Department for Transport, 2007). Learning should therefore take a dialogical approach where the child and the facilitator have mutual respect for each other and discover new knowledge together.

The study's theoretical framework therefore moves from the basis that road safety is a socio-economic issue and the environment of the children is critical in their effective learning of RSE. My theoretical framework also deals with how children learn RSE. This part of the theoretical framework will be addressed in Chapter 3. I reason from the premise that there is an overlapping relationship between the way the child develops (Child Development), RSE and learning theories related to the child (Department for Transport, n.d.). This triangulation is illustrated in Figure 2.2. In the rest of the chapter I elaborate on theories related to RSE and the different aspects thereof.

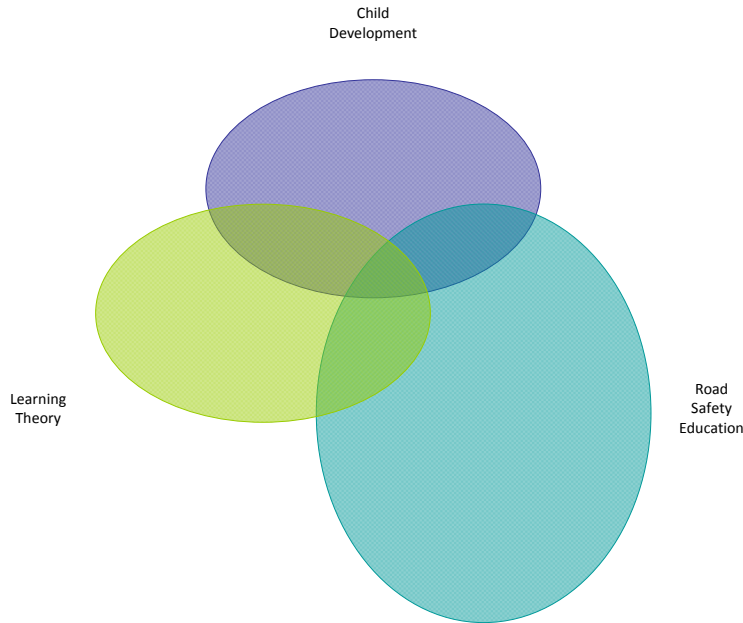


Figure 2.2 The triangulation of the relationship between, child development, road safety education and learning theory

Education has always been one of the measures that were employed in developed countries together with engineering and law enforcement to address the problem of children of schoolgoing age dying in road accidents. The literature indicates that education is as important as engineering and law enforcement. The three complement each other. Thomson *et al.* (1996) argue that educational measures have long been advocated as a means of teaching children how to cope with traffic and substantial resources have been devoted to their development and provision. At the same time, they argue that a fresh analysis is clearly required of both the aims and methods of RSE.

Clear, achievable, practical and explicitly stated objectives are a *sine qua non* for an effective road safety programme. All this should be stated in the school curriculum. Teachers who are to implement the road safety curriculum should be thoroughly trained before they embark on teaching the road safety competencies. A holistic approach should be followed in order to address a range of fundamental psychological skills of the child in order to interact with traffic, together with the ability to deploy these strategically

in different traffic situations. The curriculum should target to change the child's behaviour. In short, the overall training should be practical.

In a report commissioned by the UK Department for Transport (n.d.), one of the implications drawn from the research is that a narrowly knowledge-based style of training of pedestrian skills is likely to be inadequate. In order to gain expertise in the pedestrian task children need to acquire a complex range of sophisticated understandings and strategies which they are able to apply appropriately in the many and varied road traffic situations they are likely to meet. Such is likely to be related to development in the metacognitive processes of awareness and strategic control. A style of training is therefore required which encourages children to be more reflective and self-regulating in relation to the pedestrian task.

The literature review in this chapter indicates that most developed countries have RSE as a compulsory subject within the mainstream curriculum. Although RSE alone cannot be credited for the low numbers of children who die on the roads of these developed countries it does make a significant contribution to the low number of fatalities, especially among children.

Conversely, in developing countries where there is no or very little RSE the number of road accident fatalities for children of schoolgoing age is very high. This makes a compelling case for the introduction of RSE in the mainstream curriculum and making it compulsory for all children.

The introduction of RSE in sub-Saharan countries and other developing countries should be preceded by the training of teachers who will be able to teach the road safety competencies. The challenge, however, is that in most African countries some children remain outside the formal education system (Jacobs & Aeron-Thomas, 2000, p. 25). A holistic approach involving parents and community-based organisations will nevertheless see to it that RSE reaches a significant number of children, even those outside the school setting.

RSE is not a high priority issue in African countries. Despite Africa's serious road safety record, the region has other more important causes of premature mortality. RSE is

unlikely to become a top medical, educational and political priority in these developing countries. As a result, limited resources can be expected to be allocated to RSE (ibid., 2000, p. 1).

2.6 Mainstreaming road safety education as an intervention measure in the school curriculum

UNESCO, quoted by Tight (2002, p. 17), views education as “organised and sustained instruction designed to communicate a combination of knowledge, skills and understanding valuable for all the activities of life”. Wittink (1998) sees RSE as the teaching of skills, knowledge, understanding and behavioural patterns, to enable road users to prevent accidents.

These definitions of education indicate that at the very least it should transfer skills and knowledge to the children in order to prepare them for life, in this case to prepare them to face the challenges of using public roads safely. The role of the home environment therefore should be to reinforce and transfer values, skills and knowledge of any given society. As the rural nature of the environment at both school and home environment does not expose children to skills and knowledge that will prepare them to face the challenges of using the road infrastructure safely, children are therefore a danger to themselves and other road users.

UNESCO’s definition of education presupposes that education in the formal setting i.e. school setting is based on a curriculum – an organised framework for instruction to paraphrase the definition. According to Wittink (ibid.), education takes place at primary and secondary schools, driving schools and courses.

As education is based on a curriculum in the formal environment, it is imperative to explain what curriculum is and what it seeks to achieve. This will help contextualise the argument presented here. There are a number of definitions of curriculum provided by various writers. A useful definition for this study is provided by Marsh and Stafford (1988, p. 3) who see curriculum as “an interrelated set of plans and experiences which a student completes under the guidance of the school”. Marsh and Stafford (ibid.) further provide an extrapolation of their definition:

The phrase “interrelated set of plans and experiences” refers to the point that curricula which are implemented in schools are typically planned in advance but, almost inevitably, unplanned activities also occur. Therefore the actual curricula, which are experienced by the students consist of an amalgam of plans and experiences (unplanned happenings). The phrase also refers to the importance of both actors (teachers and students) and the resulting interactions which occur between them to produce the “lived” curriculum.

Johnson (in Zais, 1976, p. 9) provides a short but apt definition of curriculum as “a structured series of intended learning outcomes”. According to the above definitions, curricula are produced on the assumption that the children will complete or master certain tasks, activities and skills or competencies that have been predetermined over a period of time.

An analysis of the literature on the subject of RSE shows that there is an agreement that road traffic accidents, deaths and serious injuries are to a great extent preventable, since the risk of incurring an injury in a crash is largely predictable and many countermeasures, proven to be effective, exist (Peden, 2004, p. 109; Keep death off our roads, PIARC/DFID/GRSP, n.d.; Forjuoh, 2003; Zeedyk *et al.*, 2001). In developed countries, road traffic accidents and deaths of children because of motor vehicle accidents are reasonably low compared to those in countries in the developing world where road traffic accident numbers are very high. It could be concluded therefore that RSE works to arrest the situation. RSE is an integral part of the school curriculum and is compulsory in most developed countries (see Table 2.3).

In the United Kingdom RSE and training is provided for all age groups and classes of road user from pre-school to secondary school (North Lanarkshire Council, 2002). The United Kingdom Department for Transport runs a programme throughout the country called the Child Development and Road Safety Research Programme, which is concerned with the development of pedestrian skills in 4-11-year-old children. The intention of the programme is to improve the effectiveness of road safety training for children in the Primary school age range (Department of Transport, n.d.).

In the European Union and United States of America, receiving RSE as part of their normal school curriculum is recognised as being one of the most effective ways of providing children with the necessary knowledge and skills that will allow them to deal

with the hostile traffic environment GRSP, 2001; U.S Department of Transport, 2004, pp. 115-116; Organisation for Economic Cooperation and Development, 2004).

I conclude by stating that education is based on a curriculum and a curriculum in the main consists of the “overt” and “covert” parts. The overt parts of the curriculum would be what the child learns in the classroom but the “covert” part of the curriculum would be what he learns around him, both consciously and unconsciously – the live experiences. Thus, education in both the school and the home should provide the children with role models. The parents should serve as role models for road safety and the teachers as well. It is this element that the children are sorely missing in both the home and the school environment because in countries that have not yet introduced RSE in the curriculum it means the teachers are not ideal role models either. In the case of South Africa where road safety awareness and safe behaviour on the road is very low as attested by the high number of deaths through traffic accidents, 13 000 per annum, the situation is far from being satisfactory.

2.7 The purpose of a road safety curriculum and RSE in schools

Education has a purpose. Conversely, curriculum is purposeful too. In the case of South Africa, road safety competencies have been identified that have to be part of the curriculum. Road safety curriculum designers move from the assumption that education pervades all our activities. We are educated informally in our homes, at our work, in the streets and countryside, and with our friends (Mathews, 1989, p. 2; Wittink, 1998, pp. 107-125; Muhlrاد, 1998, p. 128).

Where education is non-existent or just not enough it places the child in a dangerous situation. As far as RSE is concerned this is the context of the rural South African child. The study attempts to show that the exposure of children to RSE is not enough to prepare them for the hazards presented by the road infrastructure if used without safety knowledge.

Road traffic accidents and deaths among children of schoolgoing age is a worldwide problem. Forjuoh (2003) makes this observation:

While traffic-related injuries take a very huge toll in almost every country around the world, particularly in low-income and/or less industrialised countries (LICs), significant progress toward prevention and control has been limited to high-income and/or highly industrialised countries (HICs). Much of the progress in HICs is attributable to the combination of interventions, strategies, and policies that have been developed mainly in these high-income settings over the past few decades. Such factors as high health budgets, adequate numbers of researchers, high levels of health and safety awareness, and near universal literacy, have also catalyzed this progress.

Developed countries make provision for RSE to address the problem of children of schoolgoing age being killed in road accidents. This is a sound investment as children are going to graduate from being pedestrians to being drivers. If they were not taught road safety principles from a young age they are going to graduate into drivers who have no knowledge of road safety whatsoever. This accounts for the low level of safe behaviour on our roads.

Mathews (1989, p. 14-23) identifies five bases of curriculum content: knowledge base, subject base, culture base, employment base and child base. Literature from the developed countries on the subject indicates that in their road safety curricula they address the aspects of knowledge and culture for the child. Wittink (1998, p. 125) expresses the importance of curriculum as follows:

It is very important that schools provide a curriculum about traffic. When children are e.g. 12 years, they should know about the main characteristics of roads and of the different traffic modes and about traffic rules. They also should understand how to fulfil mobility needs and also know about characteristics of behaviour of different modes of transport and different road user groups.

The Swedish school curriculum states, inter alia, that traffic knowledge and skills shall be established at an early age and developed later during the children's school. At all stages, the knowledge gained should be regularly applied in a realistic traffic environment (Ryhammar, 1988, p. 14; Muhlrad, 1998, p. 233).

In the United States of America, the state of Oregon's Driver and Traffic Safety Education (DTSE) curriculum aims to provide learning experiences, which equip students with the knowledge, thought processes, insights, and motivations needed so that they may become safe and efficient drivers. These qualities are instilled through

classroom and laboratory learning activities, which are guided by measurable objectives. The curriculum stipulates that the best results are obtained when student experiences in the classroom and behind the wheel experiences are closely correlated in philosophy, content, methods, and scheduling (see also U.S Department of Transport, 2004, p. 115-116; Muhlrad & Wittink, 1998, pp. 246-256). RSE works well when the local tier of government is taking the initiative and organising the programmes.

The GRSP (2001) identified the following as key design elements of RSE:

- A RSE programme should begin at the pre-school level and educate continuously throughout the child's school life.
- Base the education on practical training in a realistic road environment.
- Use teaching methods which follow the principles of child development – for example, under 6 years of age children cannot put themselves in someone else's position and under 11 they find it difficult to only focus on what is relevant.
- Training needs to be regular, frequent and must be combined with practice.
- It should be tailored to take account of education, cultural, transport and financial circumstances.
- RSE should have a formal place in the school curriculum ideally, schools programmes should be reinforced by community safety schemes.

(The complete curriculum proposed by the GRSP is given in Appendix A.)

Quimby (n.d., p. 224) cautions that child development and RSE should always be factored into the curriculum as a child can only be taught what he or she is able to comprehend. Therefore, RSE needs to take account of their cognitive and social development. This development is usually related to their age so that a road safety curriculum (and the rest of what is being taught in school) can be based on their age and/or the number of years they have attended school (see also Fowler, 1991, pp. 24-27; Schunk, 1991, pp. 265-282; Saad, 1998, p. 50; Wittink, 1998, p. 125; Patel *et al.*, 1998, p. 217; Muhlrad & Wittink, 1998, p. 246; Department for Transport, n.d.).

Research conducted in more developed countries on child development and RSE (Molen, 1981; Rottengatter, 1981, DETR, 1999a, 1999b, Schunk, 1991) could be used as reference points in designing a road safety curriculum for schools in developing countries but it should be recognised that what works in one country is not necessarily transferable or even relevant in another country. This means that local conditions should be the basis for any road safety curriculum. In the rest of this section, I shall address RSE in sub-Saharan Africa as well as the contribution of the different role players to the teaching and learning of RSE.

2.7.1 Road safety education in sub-Saharan Africa

Most, if not all, countries in Africa can be categorised as developing or transitional countries. Similarly, such countries are less motorised compared to the developed countries of Europe and the United States of America. However, in the field of road safety The Africa Road Safety Review Final Report (2000) indicates that much emphasis has been placed, by both national organisations and donors, on instilling safe road use habits in children. Most of the efforts have focused on the formal education system with the development of materials and the inclusion of traffic safety in the school curriculum. Progress has been made in Ghana and the DFID/TRL developed materials are now being expanded to Uganda.

Many children in Africa however, remain outside the formal school system. In Ethiopia, Radda Barnen (Swedish: *save the Children*) has included traffic safety lessons as part of their proposed syllabus for non-formal education. Few publicity campaigns appear to be conducted, if ever, and the evaluation of the effectiveness of the *Arrive Alive* campaign in South Africa was the only example of where a campaign's impact was evaluated. Assum (1998) conducted an appraisal of road safety initiatives in five selected countries in Africa (Benin, Cote d'Ivoire, Kenya, Tanzania and Zimbabwe) and found that children were receiving traffic education in all countries, except Tanzania. In some countries it is part of the curriculum; in others *it is an option for interested teachers*. Lack of funding may limit the number of schools reached by the traffic education efforts of the programmes. Education seems to emphasise road signs, which

may not be the most important aspect, considering that the lack of road signs is a problem in the five countries.

In South Africa, progress has been made in the area of RSE since 1994 when different education departments were amalgamated and a new curriculum formulated. In the New Curriculum Statement 2002, road safety competencies have been included in the curriculum to be part of the LO learning area. These competencies are outlined in Chapter 1 of this study. The formalisation of RSE in most schools is a fairly new development to address the problem of road traffic casualties.

Smit (1990) sketches a path for the development of introducing road safety as part of mainstream curriculum. He writes:

In order to reduce the high fatality rate due to road traffic collisions in South Africa the South African government appointed various committees and commissions at different times since the 1930s to investigate the problem. Almost all of them emphasised the necessity and importance of training teachers and other relevant occupations in traffic safety education to combat this problem.

As a result the National Road Safety Council (NRSC) who is designated to manage and coordinate road traffic safety in the Republic of South Africa (RSA), decided in 1985 to sponsor an investigation as to what form, function and level of operation a unit for traffic safety education should have when executing such leadership and training functions. As a result it was decided to establish the Division for Education and Traffic Safety (DETS) at a university because of the academic nature of teaching, research and community service it has to undertake in the field of road traffic safety education.

The literature review indicates that there is an emerging road safety curriculum in African countries like Ghana and South Africa with potentially positive content (see Ribbens, 2002, Odero, 2005).

2.7.2 The role of the school with special reference to the teaching and learning of road safety education

Road safety literature views RSE as a continuum. What the child learned and learns at home is complemented by what s/he learns in the formal environment of the school. The school should provide a safe environment and encourage safety awareness among

both children and teachers. According to the United Kingdom Department for Transport, a school should develop safe practices and include RSE in the curriculum. Schools should also develop a road safety policy which may be discrete or part of a more general policy on health and safety (Department for Transport, 2001; Saad, 1998, p. 50). In UK schools, the school helps the child to identify a safe way to and from school.

The school should purposefully and consciously teach the child road safety skills and knowledge in order to equip them with the required knowledge for them to become safe road users. The role of the school in the context of this study is therefore to provide the child with an environment that will enable him/her to learn RSE effectively. The school should also provide a holistic learning environment catering for both theoretical and practical aspects of learning RSE.

2.7.3 The role of the teacher with special reference to the teaching and learning of road safety

Apart from the home environment, there are other factors that influence the child's performance and happiness at school. A primary factor is the teacher's attitudes and actions on a daily basis. Unfortunately, because of the rise in school population in the past few decades and the attendant demand for teachers, not all persons entering the educational field have been well prepared, or are personally suited to teaching or happy in their occupation. Regardless of the physical facilities of the school, the type of teaching materials available, the class size and schedule, the teacher is the main factor or player in a child's educational experience. The conclusion drawn is that if the teacher is not well adjusted and does not have the welfare of each child in the class in mind as plans are made and executed, learning and growth will not be maximised. The teacher has the best opportunity to inspire and prepare the leaders of tomorrow for the nation and the world (Williams & Stith, 1974, p. 118).

In the European Union and the United States of America teachers who are responsible for teaching RSE have been trained in it themselves (Christie *et al.*, 2004b). These teachers therefore act as role models for the children. They serve as a link between the

school and the parents. Teachers have the responsibility to instil the appreciation and significance of road safety in the children.

In South African schools, RSE has recently been included in the national curriculum but most teachers are not knowledgeable enough to teach it effectively. Given the low morale of teachers because of exogenous factors like low salaries and unavailability of resources, the temptation would be not to teach road safety at all.

Discussing the contribution or role of the teacher in the imparting of road safety skills in RSE, Smit (1990, p. 15) indicates that teachers are seen as professionals who, based on their expertise, are charged by society with making leading inputs with regard to the planning, implementation and evaluation of educational programmes. The latter refers to matters such as setting realistic goals; recommending the essential content; developing and selecting the appropriate processes, teaching materials to be utilised; helping in defining and creating the environment for purposeful learning; motivating people to learn; and setting sound criteria for determining the outcome and quality of the programmes. A very important contribution is the input to lobby and persuade decision-makers to create opportunities and make the necessary funds available to implement the programmes within various structures in society (see also Mohan 1998a, b; Mohan & Tiwari, 1998, p. 1).

2.7.4 The role of the community and parents in road safety teaching and learning

Children start to learn about traffic before they even go to school. They look around, see what others do, make their interpretations, listen to what others tell them, feel the fear, pleasure, aggressiveness and other emotions of people who accompany them. They understand more than we think and it is therefore right to show them how to keep control of traffic situations and to teach them early on in a simple way about right behaviour (Wittink, 1998, p. 125; see also Carnelley Rangelcroft Consultancy, 1992). From age 0 to 4 parents have to teach children about the importance of road safety. They should lay a good foundation for the appreciation of road safety, which teachers could build on in later years.

RSE is grounded on observational learning. Parents should serve as role models too to instil the right behaviour and attitude to their children. Parents should also work with teachers to ensure that there is continuity in the child's learning of road safety.

Bloomfield (quoted by Shrader, 1990, p. 6) makes some succinct and pertinent points:

Parents will play a more important role in tomorrow's education. Today's parents are smarter; they have more education...parents are the key to maintaining strong traffic safety education programs. If you do not have parent involvement in your traffic safety education program, get started.

A number of writers point out that road safety is grounded on the observational learning theory. This presupposes that parents should set good examples for their children in order to influence their attitudes and behaviours (Vavirk, 1989, p. 24; Mohan, 1998; Muhlrud & Wittink, 1998).

Cullen (1998, pp. 40-41) underlines the importance of parents and the community thus:

Community-based approaches that have yielded positive outcomes include the involvement of crossing guards (parents) in a training programme designed to improve the quality of safety instruction and feedback with young children...and involving parents in a pedestrian training programme for children (see also Saad 1998, p. 110).

The child in a rural environment (like the one the study is based on) is at a disadvantage as parents, if they are available, might be working in the city of Pretoria and commuting daily. There is therefore little interaction between parents and children on all matters of life, let alone road safety.

Rothengatter (1984) shows that parents can play a critical role in behavioural training programmes implemented by parents and teaching assistants, which are aimed to improve independent road-crossing behaviours of 4-6-year-olds. However, the impact and effectiveness of this approach could be maximised by embarking on driver education as well. This would fall in the realm of inculcating the sharing of the road among all road users (Fildes & Lee, 1993).

2.7.5 The role of the child in road safety learning in the post-modern era

A key aspect of RSE is the interaction between the child and the teacher. In this relationship, the children must have a predisposition to learn. Their attitude towards both the teacher and RSE should be such that they are receptive to both. The child should be able to learn from his peers as RSE is a social activity which involves interactive learning, i.e. the learning that takes place through social interaction (Thomson *et al.*, 1996; Wittink, 1998).

In the post-modern era where everything is relative, the child is the focus of the educational programmes. He needs to be convinced that RSE is indeed in his best interest, otherwise the need to learn it will not develop and this will affect the whole process of RSE.

2.8 Conclusion

There is an agreement among commentators on this subject that education is an important intervention for equipping children with road safety skills. In some countries in Africa, RSE forms part of the mainstream curriculum. African countries can learn from developed countries where research is available to indicate what works and what does not when teaching RSE in schools. The literature review of this chapter points out that in African countries, RSE lacks a coherent theoretical base to guide the learning process. In addition, parental involvement and clear understanding of road safety is very weak in African countries because of high levels of illiteracy.

This study's conceptualisation and design was informed by the reality that young schoolgoing children are exposed to traffic dangers as a result of their environment. The study concludes with the theory that RSE can contribute to the general educational goals of the whole curriculum by promoting moral, cultural, mental and physical development and preparing children for the opportunities, responsibilities and experiences of adult life (Mohan, 1998, p. 200). I subscribe to the theory that RSE can play a very important role in raising the level of awareness amongst young children, particularly in developing countries where resources for building safer roads (engineering) are not readily available.



I am mindful of the fact that in a developing country like South Africa a significant number of children of schoolgoing age are still outside the school environment. However, on the other hand, a significant number of children are in schools because of the advent of democracy from 1994. The constitution of the country states that the state has to provide primary education and that every child has the right to access this education without discrimination. RSE as part of mainstream curriculum has to reach all children of schoolgoing age.