

# **Dilemmas in Learner Transport: An Impact Evaluation of a School Transport Intervention in the Ilembe District, KwaZulu-Natal**

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*As the candidate's supervisor I have/have not approved this short dissertation for submission.*

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## **ABSTRACT**

The journey to school for a significant number of South African learners is characterised by long travel times, unsafe modes of travel and exposure to weather and traffic related dangers. A review of the literature suggests that poor access to schools impedes the accumulation of human capital and the right to a basic education. This research, conducted in a peri-urban municipal district near Durban, KwaZulu-Natal, is an impact evaluation of an existing school transport intervention. Impact evaluation is a rigorous methodology that aims to reliably test the effectiveness of interventions, policies and programmes. The findings from the study suggest that, if “scaled up”, a similar intervention could potentially improve travel times, reduce excessive walking distances, improve the safety of travel to schools and curb the rates of absenteeism in the nation’s schools. The study, however, also uncovers several impediments to the implementation of such an intervention within the existing policy environment.

## DECLARATION

This dissertation represents original work by the author and has not been submitted in any other form to another university. Where the work of others has been cited, it has been duly acknowledged and referenced in the text accordingly.

Research was conducted in the School of Development Studies at the University of KwaZulu-Natal, Durban. The research was conducted between August, 2005 and February, 2006 under the supervision of Professor Julian May. The opinions expressed and conclusions presented are those of the author alone.

Signed,

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Date

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## **ACRONYMS AND ABBREVIATIONS**

<b>AP</b>	<b>Accessibility Planning</b>
<b>CALS</b>	<b>Centre for Applied Legal Studies</b>
<b>CRC</b>	<b>Convention on the Rights of the Child</b>
<b>DMA</b>	<b>Durban Metro Area</b>
<b>ERP</b>	<b>Education Rights Project</b>
<b>GEAR</b>	<b>Growth Employment and Redistribution</b>
<b>GLTS</b>	<b>Gauteng Learner Transport Strategy</b>
<b>HRW</b>	<b>Human Rights Watch</b>
<b>HSRC</b>	<b>Human Sciences Research Council</b>
<b>KZN</b>	<b>KwaZulu-Natal</b>
<b>LDV</b>	<b>Light Delivery Vehicle</b>
<b>LTP</b>	<b>Law and Transformation Programme</b>
<b>MSA</b>	<b>Moving South Africa</b>
<b>NDoE</b>	<b>National Department of Education</b>
<b>NDoT</b>	<b>National Department of Transport</b>
<b>NHTS</b>	<b>National Household Travel Survey 2003</b>
<b>NLTTA</b>	<b>National Land Transport and Transition Act</b>
<b>NMT</b>	<b>Non-Motorised Transport</b>
<b>NRTS</b>	<b>National Rural Transport Strategy</b>
<b>PLTF</b>	<b>Provincial Land Transport Framework</b>
<b>PPP</b>	<b>Public-Private Partnership</b>
<b>RBA</b>	<b>Rights Based Approach</b>
<b>SAHRC</b>	<b>South African Human Rights Commission</b>

**SRNS**

**School Register of Needs Survey**

**SSATP**

**Sub-Saharan Africa Transport Programme**

**TRP**

**Taxi Recapitalisation Programme**

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## **Chapter 1 : Introduction**

In the ten years since the inception of democracy in South Africa, the redistribution of wealth and services has remained the ANC-led government's stated priority. During the course of this last decade, both successes and failures have been observed with respect to the delivery of services and the improvement of livelihoods among the poorest segments of the population. Concomitantly, new challenges have arisen as a result of policy implementation geared towards service delivery and the transformation of the nation's infrastructure. In some instances, progress on one front has impacted on development on another and created tension between government departments at both the national and provincial levels. These interactions have occurred amidst a general trend of administrative decentralisation as the national government has delegated increasing responsibility to the level of provincial and local government.

In 1999, the National Department of Transport (NDoT) released its policy strategy document, *Moving South Africa: The Action Agenda*, in an effort to consolidate the national goals of transportation development and to clearly define the responsibilities of provincial governments and the relationship between the public and private sector. Additionally, *Moving South Africa* (MSA) has identified the challenges facing the development of South Africa's transportation system and has highlighted the areas of greatest concern. Significantly, the document also recognises the impact that transportation has on development and outlines the specific needs of the poorest and most vulnerable members of society.

With respect to the challenges facing transport reform, MSA acknowledges three key factors. First, "the legacy of apartheid" is still very much a part of transportation infrastructure in South Africa. The National Department of Transport contends that,

Taken as a whole, the previous government created a transport system around national goals that were designed to accomplish employment creation for a privileged class of citizens and engineered to support a spatial dispensation of separation/dispersion with no rational long-term economic or social basis... Transport decisions tend to be long-term in character, due to the high fixed costs involved, the spatial nature of location decisions, and the difficulty of moving property-based assets. As a result, a transport system that reflects the old strategy carries powerful momentum (to operate as it always has) into the future, even though it no longer

reflects the new government's priorities, because of the difficulty and expense involved in altering it. (NDoT, 1999)

Thus, the embedded features of South Africa's transport network continue to be shaped by apartheid-era planning decisions and strategies based on the preservation of an elite minority.

Second, the expansion of basic services to formerly disadvantaged communities has created new challenges to the reconstruction of the national transport system. The NDoT is expecting a sharp increase in the demand for transport as a result of these improved services. MSA outlines the reasoning behind this expectation with the observation that, "With the rate of approval of new housing developments gathering momentum, transport will be needed to link commuters with their work locations, the unemployed with employment opportunities, scholars with schools, shoppers with shopping districts, traders with customers and communities with each other" (NDoT, 1999). Intuitively, the integration of previously isolated communities into the economy necessitates the expansion of South Africa's existing transportation framework into a flexible and holistic network that meets the needs of diverse and evolving spatial developments.

Third, a lack of financial resources severely limits the ability of the government to invest in appropriate transportation initiatives. The National Department of Transport contends that transportation reform is largely "capital-intensive" and generally exceeds the financial capabilities of the state (NDoT, 1999). As a result, the government has assigned itself a role as a facilitator to transportation reform by guiding the process through a national strategic framework. The lack of appropriate national funds, it is argued, challenges the reform process while simultaneously allowing an opportunity for locally-led development of transportation infrastructure and services.

It is against this policy background and the challenges that face the reform of passenger transportation in South Africa that the identification of the needs of the most vulnerable users of transport must be discussed. Primary and secondary school learners from low-income families are widely regarded as being particularly susceptible to transport limitations with dire consequences for the attainment of a quality education and thus a secure future. It is for this reason that the present study will evaluate the effectiveness of an existing learner transport intervention and investigate potential options for the provision of transport to learners. The remainder

of this chapter will focus on the current situation of learner travel in South Africa and the approach of this study to identifying appropriate solutions to the existing dilemmas in learner transport. Section one will set out several definitions that inform the subject of learner transportation and provide clarity for concepts that will be used throughout this report. Sections two and three will discuss the current plight of learner transport in South Africa and KwaZulu-Natal and attempt to clearly define the problem area. The final section of this chapter will describe the present study into learner transport, the rationale of the study and its objectives. The chapter will then conclude with an outline for the remainder of the report.

## **1.1 Definitions**

Several key terms must be discussed at the outset of this report, as they will inform both the conceptual analysis of learner transportation and the methodology of this study. For the sake of brevity, only three concepts will be expansively defined with the objective of establishing the parameters of their respective meanings in relation to both this study and the policy formulation process. Two frequently used words that appear throughout this report, however, must be briefly clarified prior to the elucidation of terms. First, it should be noted that the word “learner”, in this report, refers to primary and secondary school students and is often used interchangeably with the term “scholar” in both the literature and in South African legislation and policy discussions. Second, the term “transport”, for the purposes of the present study, includes: modes of travel used, infrastructure that facilitates travel and the regulatory framework that influences the provision of infrastructure and services. A wide survey of transportation literature emphasises that all three of these elements of transport contribute to the design of “inclusive transportation” and, thus, affect the travel experiences of vulnerable and special needs passengers (see Roberts, 2005:3).

### *1.1.1 Special needs passengers*

Research conducted for *Moving South Africa* classifies users of transport according to their specific needs. To this end, the document segments the urban commuter population into six groups. The most vulnerable of these groups consist of:

“strider” users (typically cycle or walk), “stranded” users (have no available means of transport at their disposal), and “survival” users (employ the cheapest mode of public transport) (NDoT, 1999). The term “special needs passengers” is used by the NDoT to describe members of these transport groups that have unique transportation requirements and are presently not adequately served by public transport. Examples of these groups as identified by the NDoT include: learners, physically disabled passengers and those isolated by distance or location (NDoT, 1999). Similarly, a 2002 World Bank report on transportation and “social exclusion” notes that, throughout the developing world, transport networks generally do not address the needs of learners, the physically disabled, women and the elderly (Gwilliam, 2002: 27-8). An analysis of learner travel patterns in Cape Town reveals that, apart from concerns related to safety and cost, the reason that learners may be labelled as “special needs passengers” is because they travel during “off-peak times for “non-work” related purposes and often utilise non-motorised transport (NMT) (Behrens, 2004: 255). Under several definitions, then, learners can be included in the category of “special needs passengers.”

### *1.1.2 Learner transport*

With respect to an acceptable definition of learner transport, a broader conceptualisation is often more practical. While the terms “transport” and “passenger” imply the use of motorised forms of transportation or public transport, a more appropriate definition of learner transport should encompass any means, or combination thereof, used to secure the safe and efficient transit of learners from home to school. The Gauteng Learner Transport Strategy (GLTS), for example, includes in its definition of learner transport: “...public and private transport, walking, cycling and non-motorised transport” (Gautrans, 2003: V). While describing the specific link between public transport and learner travel, the GLTS considers the role of: “...municipal and contracted busses, school busses, minibus-taxis and rail transport” (Gautrans, 2003: V). This distinction is key as the attributes of “motorised transport” will be compared with those of “public transport” as they apply to learners in various sections of this report.

Much of the literature on transport planning also indicates that non-motorised transportation is a critical part of urban travel in developing cities. Rao and Sharma

argue that acquisition of data concerning the “...operational, financial and infrastructure requirements” of NMT is essential to the effective formulation of policies and urban planning strategies (Rao and Sharma, 1990: 141). This type of reasoning seems particularly relevant to learner travel in low-income communities where motorised travel is often unaffordable and transport strategies must promote the use of NMT. For the purpose of this analysis, then, learner transport is understood to consist of any mode (both motorised and non-motorised) used for the conveyance of learners between home and school. As such, learner transport is best conceptualised as a “multi-modal” and “inter-modal” process in that learners are likely to continually use different modes and combinations thereof to travel to school.

### *1.1.3 Learner transport interventions*

A learner transport intervention is defined as any effort to improve the accessibility, affordability, safety, efficiency or reliability of learner travel between home and school. Examples of interventions with this objective are numerous in the South African context. The Gauteng Learner Transport Strategy makes special mention of busses contracted by the provincial education department and mini-bus taxis assigned to learner routes as two examples of public transport interventions initiated by school governing bodies or local/provincial governments (Gautrans, 2003: V). Interventions may also come from community efforts or private arrangements that affect a substantial number of children. A recent Human Rights Watch (HRW) report on farm schools observed private provisions of learner transport in various provinces that include: agreements with local mini-bus associations, organised car pool arrangements, community or private vehicle donations, and “cycle to school” programmes with privately donated bicycles (HRW, 2004: 13).

In South Africa, a great number and variety of learner transport provisions exist across the country. These initiatives range from generic, provincially subsidised programmes to locally implemented projects to address location specific challenges to learner transportation. The City of Cape Town, for example, has implemented “non-motorised network planning” and has recently proposed a learner transport project that it will administer with the Institute for Transportation and Development Policy and the University of Cape Town (Behrens, 2004: 273). Internationally, “school travel plans” provide examples of school-based interventions that serve to coordinate

lift clubs, pedestrian routes and cycle chains through a comprehensive planning process that includes "...teachers, parents, pupils, local authority representatives and local community groups" (Behrens, 2004: 275). Thus, the term "learner transport intervention" encompasses a wide variety of programmes, strategies and projects that may be implemented nationally, provincially or locally to improve the state of learner travel.

## **1.2 Learner Transport in South Africa**

Learner transport policy in South Africa is characterised by a series of fragmented guidelines that have yet to result in a coordinated and effective strategy to ensure a safe, efficient and affordable journey to school for the majority of the nation's learners. Despite *Moving South Africa's* call for an integrated approach to meeting the needs of vulnerable and special needs passengers, little has been done to address the concerns of learner travel in a comprehensive manner. As a result, transport continues to be one of the largest components of the cost of education and represents a serious obstacle to accessing a basic education.

### *1.2.1 The cost of transport*

The cost of learner transport can be measured in terms of both the amount of money spent on commuting to school and as the amount of time spent travelling each day. A recent study estimates that transport to school in South Africa makes up about 38% of the total cost of education and roughly 13% of household incomes (Ramadiro, 2003: 3). The argument can, therefore, be made that the cost of transport to school in South Africa is prohibitively expensive. A report by the Law and Transformation Programme (LTP) confirms that access costs to education (transport costs, school fees, uniforms and textbooks) are extremely high and often force the nation's poorest households to choose between educating their children and meeting their basic needs (Centre for Applied Legal Studies, 2003: 5). Furthermore, since the costs of education are disproportionately high for poorer families, rates of absenteeism from school are higher for poorer households. In a study conducted by the Law and Transformation Programme on a relocated settlement in the Johannesburg area, researchers found that of those households that could not send their children to school,

the main reason given was the cost of transport (Centre for Applied Legal Studies, 2003: 7). Alternatively, research conducted for the Gauteng Learner Travel Strategy found that 45.7% of the survey participants in urban and peri-urban schools listed “unreliable transport” as the primary reason for not attending school regularly (Gautrans, 2003: 26).

The cost of learner transport is a problem that affects both rural and urban households (Pillay, 2003: 17). In an attempt to quantify the problem, one survey estimated that taxi expenditures, on a national average, range from R200-R400 a month for a learner to commute to school. Conversely, the survey estimated that a middle-class learner will spend an average of only R100 a month on transport fees. Further, the study found one case where transport costs for one month were almost equal to the amount paid for annual school fees (2003 NDoE survey cited in Pillay, 2003: 17). Clearly, the cost of school transport is a significant problem in South Africa and has a disproportionate impact on poorer households.

An obvious result of high transport costs for many learners is the choice between walking long distances and staying at home. Many households are simply unable to pay the necessary transport costs to send their children to school. According to a 2002 Statistics South Africa report, 90% of rural learners are forced to walk to the nearest school (Stats SA, 2002: 105). Nationwide, the 2003 travel survey conducted by Statistics South Africa estimates that over 560,000 learners in South Africa spend more than two hours commuting between home and school each day (Naidu and Khumalo, 2005: 5). Human Rights Watch observes that the distances walked by rural or farm school students are sometimes as far as 30 kilometres each way (HRW, 2004: 13). Naturally, walking such distances has adverse effects on the quality and availability of a basic education. According to more than one report, the cost and accessibility of transport directly affect school absenteeism, the ability to do school work and the physical safety and well-being of those who choose to walk to school (HRW, 2004: 15; HSRC, 2005: 47; V3 Consulting, 1999: 42).

This occurrence of this phenomenon has been corroborated by a number of mainstream newspaper articles over the past several years that have chronicled the long distances that learners walk to school and the dangers that they face along the way in terms of crime, violence, over-flowing rivers and traffic accidents (See Naidu and Khumalo, 2005: 5). Thus, the existing problem is that transport costs for low-income learners in South Africa are high in monetary terms, safety and in terms of the

time spent commuting. The result is a strain on poorer households and a challenge to the government's goal of "a quality basic education for all."

### 1.2.2 *A lack of policy coordination*

A lack of policy coordination and a shortfall in available funding has rendered South Africa's learner transport strategy framework severely impaired. The Law and Transformation Programme charges that the National Department of Education has, thus far, avoided the responsibility for subsidising school access fees for low-income families (Centre for Applied Legal Studies, 2003: 9). It has been further suggested that such reluctance on the part of the NDoE will have serious repercussions at the levels of provincial and local government. Without a clear precedent from the NDoE in favour of urgently addressing the needs of learners, little initiative can be expected from provincial governments.

The response to a perceived lack of policy coordination came in the National Department of Education's 2003 *Plan of Action: Improving Access to Free and Quality Basic Education for All*, which commissioned a study that was to be conducted jointly with the NDoT in 2004. The objective of the study is to determine which of the existing provincial transport provision programmes have been successful in assisting learners (NDoE, 2003: 22). Such an approach seems problematic, however, as formal assistance to learner transport programmes and interventions by provincial governments appears to be fairly limited (Pillay, 2003: 12). Additionally, no accurate figures on the learner transport programme budgets of provincial departments are available and where programmes do exist, financial inconsistencies have prevented an estimation of costs (Pillay, 2003: 12). Overall, however, it is evident that very little funding is available for provincial governments to spend on the provision of learner transportation and that the commissioned study is, thus, likely to be of limited value (Pillay, 2003: 12).

The outcome of this uncoordinated approach to learner transport provision is a series of scattered and under-researched programmes and projects throughout South Africa. On the whole, much of the evidence points to a lack of communication and un-integrated policy formulation between both national and provincial spheres of government and the National Department of Education and the National Department

of Transportation. Adding to the existing problem of costly and unavailable transport for learners, then, is a lack of knowledge about successful transport interventions.

### **1.3 Learner Travel in KwaZulu-Natal and Greater eThekweni**

In light of the existing state of learner transport provision in South Africa, a brief analysis of the corresponding situation in KwaZulu-Natal underscores the nature of the problem area and points towards the specific challenges that must be met. A synopsis of the state of transport for learners in the province is also of interest because it forms the setting of the present study and describes the existing policy environment that affects the participating schools.

#### *1.3.1 The state of learner travel in the province*

An analysis of the data acquired by the National Household Travel Survey (NHTS) indicates that learners in KwaZulu-Natal are severely affected by a lack of appropriate transport to school. On the whole, 79% of the province's roughly 3.5 million learners walk to school while just under 13% are able to use taxis or busses (NDoT, 2005a: 93). Learners in KwaZulu-Natal experience the longest travel times to school of all provinces in South Africa. Of all learners in the province, 42% travel for more than 30 minutes to get to school and 25% travel for more than 45 minutes (NDoT, 2005a: 96). Given that walking is the primary mode of transport to school in South Africa, it is significant that learners in KwaZulu-Natal also have the longest walking times in the nation with 23% spending more than 45 minutes walking to school (NDoT, 2005a: 97). Given these unfavourable learner travel statistics when compared with other provinces, a summary of the current approach to learner transport in KwaZulu-Natal is justified.

#### *1.3.2 Lack of an integrated approach to learner transport*

Despite the mandate of national legislation, there is currently very little evidence of progress towards a learner travel strategy in KwaZulu-Natal. While Gauteng and several other provinces have initiated surveys that specifically aim to understand learner travel patterns, it would seem that the responsibility for such an undertaking in KwaZulu-Natal has not been assigned to a particular department. In contrast to the

efforts of other provinces, the KwaZulu-Natal transport department has taken an ambiguous, and at times contradictory, stance on the creation of a provincial transport strategy. In the annual budget speech to the provincial legislature in April of last year, B.H. Cele, the MEC for Transport, Community Safety and Liaison, commented that the budget allocated to the transport portfolio would be used to uphold the principle of 'Defending the Weak' (Cele, 2005a). Elaborating on which groups constitute the "weak" in the province, Cele specifically noted that learners and teachers that cannot access their schools fall under this category (Cele, 2005a). However, in the section of his speech devoted to "scholar transport," Cele submitted that,

It should be noted by this House that this is not a competence of my department. In an attempt to address this matter, bilaterals were held between the executing authorities of the departments of Transport, Community Safety and Liaison and Education. The outcome of these bilaterals was the formation of a committee inclusive of members of these departments. This committee is tasked with matters that cut across these departments. We are confident that this matter will be dealt with in a befitting manner. (Cele, April 2005)

Notwithstanding the formation of a committee, then, it seems that very little has been done towards the formation of a provincial strategy for learner transport.

Further confusion on the position of the provincial transportation department with regard to learner transport was introduced at the department's annual summit in May of last year. On this occasion, Cele, in the keynote address, declared that one of the three strategy challenges facing his departments was "...the upgrading of scholar transport services" (Cele, 2005b). He then allowed that, "We regard this as one of the most important programmes for the Department" (Cele, 2005b). Interestingly, Cele qualified this statement in the very next sentence adding that, "It is our view that this is primarily an education problem and therefore the education department must lead us...The solution lies in a joint effort within the education authorities to formulate a comprehensive solution" (Cele, 2005b). The MEC finalised his comments on the issue by ambiguously suggesting that a permit system, subsidisation or the promotion of non-motorised transport were potential solutions to the problem (Cele, 2005b). On the whole, it is evident that the introduction of a comprehensive and integrated strategy for the safe and efficient transport of the province's learners is not immediately forthcoming.

An additional challenge to the formation of a learner transport strategy in KwaZulu-Natal is the interaction of provincial and local spheres of government. The MEC outlined as one of the three challenges facing his department; "...institutional relationships and capacity challenges in municipalities and transport authorities" (Cele, 2005b). Such an admission suggests a lack of cohesion and coordination amongst the relevant role players that influence the formulation and implementation of policy.

A recent report on the privatisation of transportation services in Durban outlines the impact of this challenge on learner transport. In this report, J.P. Govender contends that the national re-structuring of public transport, in line with the Growth Employment and Redistribution (GEAR) programme and the National Land Transport Transition Act (NLTTA), has affected bus services in Durban substantially. In particular, Govender explains that the tendering of transport projects, the expansion of public-private partnerships and the delegation of administrative responsibilities to provincial and local governments tend to strain municipalities in the Durban Metro Area (DMA) that currently lack sufficient capacity (Govender, 2001: 15). With respect to learner transport specifically, Govender notes that the removal of learner travel contracts in 1995 has increased demand for learner travel and overburdened existing bus routes and services (Martens and Williamson, 1996 cited in Govender, 2001: 16). As a result, there are presently, "...ongoing requests from schools and communities for learner services" (Govender, 2001: 16).

Although the report describes the challenges faced by the public bus service (Durban Transport), the problems experienced by Durban Transport in restructuring have been observed across the public transport sector. The main challenges can be summarised as follows: government switching its role from transport provider to facilitator; the inability of smaller companies to manage public services such as transport; local government incapacity; and coordinating initiatives at the municipal level (Govender, 2001: 18-19). Overall, then, the existing political dispensation in South Africa has impacted significantly on the public transport sector, which has, in turn, had implications for learner transport in KwaZulu-Natal and the greater eThekweni region.

## **1.4 The Present Study**

### *1.4.1 The rationale*

Several gaps in research have been identified with respect to transportation patterns in South Africa and the needs of disadvantaged segments of the population (“striders”, learners, women and the very poor). In his study on learner travel behaviour in Cape Town, Roger Behrens noted that analysis of travel and transport in South Africa has focused almost exclusively on problems associated with traffic and congestion (Behrens, 2004: 254). Furthermore, Behrens has observed that past research on the national level has largely ignored off-peak, non-work related and non-motorised travel in urban areas (Behrens, 2004: 255). Through the use of census data, he calculated that, in Cape Town, learner travel accounts for a significant percentage of overall travel in the city (Behrens, 2004: 254). The fact that a similar situation exists in KwaZulu-Natal is supported by data obtained from the 2003 National Household Travel Survey indicating that 46.4% of all trips in the province are made to “educational institutions” (NDoT, 2005a: 55).

At the national level, *Moving South Africa* and the NDoE’s *Plan of Action* document both call for research into local needs and the characteristics of learner travel in order to better inform policy formulation (NDoT, 1999; NDoE, 2003: 21). However, as noted above, existing learner transport projects are uncoordinated and disorganised while only Gauteng, the Western Cape and Mpumalanga have recognised learner transport strategies (Pillay, 2003: 12). In the case of greater eThekweni, it has been noted that due to the limitations imposed by apartheid-era transport and planning policies, more precise research is still needed on Durban’s public transport sector, but that a high demand for learner travel is evident (Govender, 2001: 15-16).

Thus, the main assumption of this study is that learners constitute a large proportion of urban and peri-urban commuters in the greater Durban Metro Area (DMA) and that they are particularly vulnerable to transport delays, unreliable transportation, lengthy commutes and costly transport fees. As such, an improved understanding of the effectiveness of specific transport interventions will provide valuable insight into the transportation challenges facing learners. Finally, this study

assumes that a research gap exists because learners often travel during off-peak times, travel for non-work purposes and frequently use non-motorised transportation.

#### *1.4.2 Objectives and research questions*

The objective of this study is to evaluate the impact of an existing transport intervention in order to determine its effectiveness in relation to the need for affordable, reliable, safe and efficient transportation for learners. The research questions in the study aim to evaluate the intervention's capacity to improve the transport experience for learners in a number of ways. Specific questions include: Has the provision of transport improved travel times? Has the programme had an effect on the affordability of transport for the students sampled? Has the transport intervention affected staff and student perceptions of accessibility, reliability and safety? Is there evidence that the intervention has changed the mode or combination of modes of transport selected by learners? Can the intervention be linked to increased transport options? Has transport provision coincided with an observable decrease in school absenteeism? Prior to the collection and analysis of data, it was hypothesised that the intervention being evaluated would result in: a detectable difference in modal splits<sup>1</sup>, a reduction in learner travel times, improved affordability and safety of travel to school, and a reduction in absenteeism for its beneficiaries.

An impact evaluation is an empirical study designed to uncover the effectiveness of a particular project or programme. In order to evaluate the relevant successes and failures of a project, input from beneficiaries and stakeholders is required. The purpose of analysing this input is to understand the effectiveness of the intervention through an analysis of primary quantitative and qualitative data. Impact evaluations are able to assess programme effectiveness by comparing such data from a sample that is the beneficiary of an intervention or project to a sample that is not-the counterfactual (Duflo and Kremer, 2003: 3). The differences detected, assuming that all other factors may be treated as being equal, can be then ascribed to the impact of the intervention. Thus, the anticipated result of this study is both an understanding

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<sup>1</sup> Modal split refers to the distribution of travel modes in a given sample; for this study the modal split includes the use of: walking, bicycles, taxis, busses and private cars.

of a particular intervention's impact on learner travel and a fuller realisation of the transport challenges facing low-income learners<sup>2</sup>.

#### *1.4.3 The study area*

The Ilembe District Municipality is a large peri-urban area situated to the north of Durban. As such, schools in the area are likely to serve learners from both urban and rural backgrounds. According to the 2001 census, Ilembe has a population of 560,388 (Stats SA: 2001). The two main industries are agriculture and manufacturing, however, unemployment in the district is fairly high at about 48% of the available workforce (Stats SA: 2001). There are currently about 178,623 learners between the ages of 5 and 24 in the district (Stats SA: 2001). Public transportation appears to be limited as the most commonly reported mode of transport to work or school, by far, is "on foot" according to the census report (Stats SA: 2001). The Ilembe District is primarily a low-income area with well over half of its households earning less than R19, 200 per annum (Stats SA: 2001).

The two schools participating in this study are located within Ndwedwe; the southernmost municipality in the district. Ndwedwe directly borders eThekweni and is connected to the town of Verulam by a single tarred road. Within each school's respective ward, over 90% of respondents that travel have indicated that they travel by "foot" to school or work (Stats SA: 2001). Evidence of the utilisation of mini-bus taxis and busses by commuters in Ndwedwe is limited. All motorised forms of transport (bus, taxi, car driver, car passenger, motorcycle and train) constitute roughly 2-8% of overall transportation in the two wards (Stats SA: 2001). Ndwedwe is serviced by a network of dirt and gravel roads in various states of repair and public transportation is largely unavailable or inaccessible.

#### *1.4.4 Outline of the dissertation*

The research conducted for this study is presented in the following format. Chapter 2 discusses the conceptual framework in which much of the available literature places learner transportation. The chapter also describes the post-1994

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<sup>2</sup> Within the constraints of a self-funded Master's project, a full impact evaluation is not feasible, rather, an attempt is being made to demonstrate the usefulness and feasibility of the methodology employed in this study.

legislation that pertains to “scholar transport.” Chapter 3 begins with a discussion of competing approaches to understanding transport interventions and then compares these to an impact evaluation. The chapter then outlines the advantages of the types of data acquired in the study and discusses the instruments used to collect data. An overview of the study’s methodology is described, followed by a discussion of data analysis.

Chapters 4 and 5 deliver the findings of the research and comment on the reliability and significance of the data. Finally, Chapter 6 summarises the findings from each sample group and attempts to say something about the effectiveness of the transport intervention. The chapter also discusses the ability of the study to objectively evaluate the intervention and then makes recommendations for future impact evaluations of learner transport provisions.

## **Chapter 2 : Conceptualising Learner Transport**

Learner transport may be conceptualised in several important ways following a variety of approaches. A broad review of the literature on transport planning in developing countries highlights the importance of access to goods and services and informs much of the conceptual framework in which learner transport is located. In turn, South African legislation pertaining to “scholar transport” may be seen as both a reaction to international trends in transport and spatial development and as the catalyst to a rights-based discussion centred on the promise of “a free and quality basic education for all.” Despite a healthy debate around the present state of learner transport in South Africa, however, much of the current discourse appears to be somewhat polarised with little crossover between the technical planning and human rights components of learner transportation.

The objective of this chapter is to place the transport of learners to South African schools firmly within the context of a rights based conceptual framework. A further goal of the chapter is to establish a link between the rights based paradigm and other development approaches, transport policy and planning. The chapter begins with a brief discussion of the rights based approach and its application to learner transport. Following this, the international literature on transport planning is reviewed and then analysed in the context of South African legislation. Finally, the chapter discusses the impact of current legislation and policy on the rights of learners to access schools.

### **2.1 A Rights-based Approach to Learner Transport**

A significant proportion of the literature on learner transport in South Africa conceptualises the subject in terms of the “right to a basic education” as enshrined in the *Constitution*. According to this rights-based approach, any obstacle or situation that prevents or discourages children from attending school is unconstitutional and contrary to the best interests of the nation’s learners. In recent years, several important challenges to the constitutionality of the existing dilemmas in learner transport have presented themselves in various forms. The objective of this section is to summarise the contribution of a rights-based approach to the conceptualisation of learner travel in South Africa.

### 2.1.1 *A rights based approach to development*

A rights based approach to development offers a number of advantages to understanding development problems and solutions. The approach, which is championed by the various agencies of the United Nations, underscores human rights as the centrepiece of a multi-dimensional perspective of development. As the United Nations (Phillipines country team) contends, a rights based approach promotes a “...framework for a holistic analysis of development, including its social, cultural, political and economic dimensions; and effective tools for designing results-oriented, empowering and sustainable development strategies” (United Nations, 2002: 12). In response to the World Bank’s paper series, *Voices of the Poor*, the rights based approach understands the fulfilment of human rights to alleviate “powerlessness” as a component of deprivation. Furthermore, the approach identifies the relationship between rights and the bolstering of human capital through the promotion of “...health, education, dignity, respect, social belonging and cultural identity” (United Nations, 2002: 11-12). Hence, a rights based framework is often seen to encompass both the material and human components of development.

Despite the holistic nature of a rights based paradigm, several limitations to the approach have been exposed by academics, development practitioners and policy makers. Perhaps the most serious of these is the principle of the “indivisibility” of human rights. This tenet elicits that all rights are of equal importance and value to the extent that one right may not be given preference over another. Obviously, such a claim frustrates policy makers and aid donors that are required to prioritise their interventions in the face of competing needs and limited resources (Cornwall and Nyamu-Musembi, 2001: 1418; Malone and Belshaw, 2003: 87). The idea of “indivisibility” is often at odds with development practitioners and has led to the perception that a rights based framework is a purely normative tool. Perhaps as a result of this notion, the approach has not yet been properly integrated into “development programming” (Malone and Belshaw, 2003: 80). Malone and Bradshaw explain that a rights based approach has, thus far, remained focussed on large international treaties and conventions and has not been integrated with “...fiscal, trade, and social policy or with the processes of decentralisation and poverty reduction” (Malone and Belshaw, 2003: 80). In short, a rights based approach has

emerged as a valuable normative tool for policy advocates but has not yet been successfully integrated into development policy or programming.

The potential of the rights based approach to become both a conceptual and practical framework, however, is evident. Andrea Cornwall and Celestine Nyamu-Musembi contend that recent discourse has uncovered three types of justifications for a rights based framework in development; normative, pragmatic and ethical (Cornwall and Nyamu-Musembi, 2001: 1416). Malone and Belshaw add that the existing challenge is to convincingly apply the framework (both normatively and practically) amidst an emerging trend of convergence between development and human rights discourse (Malone and Belshaw, 2003: 77). The advantage of applying the framework, it is argued, is that development strategies will become "...less arbitrary, more effective, more rational and more sustainable" (United Nations, 2002: 16). Thus, incorporating a rights based approach bolsters the analysis of development problems and solutions.

One area of development programming where the approach is most likely to be advantageous is during monitoring and evaluation. Rights based monitoring and evaluation identifies appropriate interventions by "assessing both processes and outcomes" (United Nations, 2002: 99). The result of this approach is an improved assessment of an intervention or programme in terms of its "...impact, sustainability and contribution to capacity building" (United Nations, 2002: 99). With respect to the challenge of the indivisibility of rights, recent literature on the incorporation of rights into development programming has endorsed the principle of "non-retrogression" to facilitate the integration of rights into existing approaches to development. The principle states that the prioritisation of a particular set of rights may be undertaken as long as the original conditions of other rights are not adversely affected as a direct result (Ljungman, 2004: 9).

In short, a rights based approach offers an effective set of conceptual and practical tools for addressing development issues at both the project and policy level. The framework can be used to understand both the processes and outcomes of interventions by analysing poverty in a multi-dimensional and holistic way. As the next section demonstrates, a rights based framework can also complement more established approaches to development and human poverty.

### 2.1.2 *Social exclusion, human rights and transport*

The consensus of recent discourse on poverty and mobility directly addresses the relationship between the cost of access to transport and the impact of social exclusion. Social exclusion is linked closely with rights and is broadly defined “...in relation to the social rights of citizens...to a certain basic standard of living and to participation in the major social and occupational opportunities of the society” (Gore, Figueiredo and Rodgers, 1995 Cited in Saith, 2001: 4). In line with recent conceptions of poverty as a lack of social and human capital, the World Bank acknowledges the link between poverty and “accessibility” to social networks, markets and activities (Gwilliam, 2002: 25). With respect to transport and the concept of social exclusion, Kenneth Gwilliam makes the following observations:

The role of transport in this complex concept of exclusion may be characterised as follows. The ‘income poor’ make fewer trips, and more of their trips are undertaken on foot. For most purposes they are restricted to whatever services that can be accessed within walking distance, making them ‘accessibility poor.’ The journey to work may be relatively long. Even if it is not, it will use slow modes and may be very time-consuming, so they are also ‘time poor.’ For poor people, and particularly for women, children and the elderly, trip making is often deterred because of their vulnerability as pedestrians, both to traffic accidents and to personal violence, making them ‘safety poor.’ Finally, there is evidence that long walking distances and times also creates tiredness and boredom that reduces their productivity by adding an ‘energy poverty’ dimension to their deprivation. (Gwilliam, 2002: 27)

From this analysis, it is clear that a lack of sufficient transport contributes towards a multi-dimensional impoverishment in terms of human capital and social exclusion. Moreover, the bulk of the available transport literature identifies that the “income poor” and the more vulnerable segments of the population (women, children and the elderly) are more susceptible to certain types of deprivation as a result of limited transport options. This enhanced vulnerability is identified by the rights based approach as detrimental to the realisation of full human rights and as an impediment to the formation of sustainable livelihoods. The rights based approach also justifies the use of terms such as “...marginalised, exploited and excluded” in order to underscore the “relational” nature of rights and to discover the institutions that are responsible for the “...acts or omissions” that have resulted in “...rights deprivations” (Maxwell and O’Brien, 2000: 6). As such, a rights based approach adds a new

dimension to the livelihoods approach by identifying the underlying causes of vulnerability, social exclusion and exploitation (Maxwell and O'Brien, 2000: 6).

Similarly, the importance of access is a related concept that is treated in much of the literature as a component of social inclusion. In a general interpretation, access is considered to be the ability to reach places of socio-economic importance such as "...work, school and the location of social services" (Gannon and Liu, 1997: 11). On the link between access and poverty, a World Bank sponsored report notes that, "For the poor, the lack of affordable access deprives them of the ability to take advantage of job opportunities and even of very basic social services. Reliable access to schools and health services for the poor contributes directly to their accumulation of human capital, which is a key factor in sustainable poverty alleviation" (Gannon and Liu, 1997: 11). The majority of the literature supports this relationship between social inclusion, access and human capital. Thus, the link between transportation and poverty is firmly established and contributes towards the justification for identifying sustainable and efficient transport strategies, programmes and interventions while asserting that specific human rights (especially for the most vulnerable) must be promoted and protected.

### 2.1.3 *Children's right to a basic education*

Section 29 of the *Constitution* contains the frequently cited claim that "...Everyone has the right to a basic education" (Government of South Africa, 1996: 14). As a point of departure, the rights-based literature typically focuses on the qualifying statement that follows immediately after and mandates that the state use "reasonable measures" to ensure the "further" education of its citizens (Government of South Africa, 1996: 14). Thus, much of the current discourse has centred around the definition, clarification and applicability of "reasonable measures." With respect to the government's accountability for the education of children, the literature also points towards the formal commitment to education that the government has made internationally.

South Africa's commitment to the education of its children exists most explicitly in three documents: the *Constitution*, the United Nations *Convention on the Rights of the Child* (CRC) and the *African Charter on the Rights and Welfare of the Child*. The CRC represents the fullest international obligation that the South African

government has recognised with respect to children's rights to an education. The document recognises the right to a compulsory and free education and the importance of making "...education accessible to all" (United Nations, 1989: Article 28). Similarly, the African Charter makes provisions for the right to free education and further stipulates that states should "...take measures to encourage regular attendance at schools and the reduction of drop-out rates" (Organization of African Unity, 1999: Article 11). These international conventions, combined with the *Constitution*, provide the bulk of the framework for discussions on the government's obligations to the provision of a free and accessible education to all.

The legal interpretation of the government's obligation to provide an education for all is a contentious subject. Much of the language in the *Constitution* is ambiguous and leaves the notion of "qualified" versus "unqualified" rights open to debate. Brian Ramadiro, in his report on the costs of education in South Africa, argues that, "There is a difference...between the right to basic education and other socio-economic rights. In theory, this right is not conditional on the state's capacity to deliver on it. In concrete terms, this means: schools must be accessible and that, when [learners] are at school, the facilities and infrastructure to support learning and teaching must be adequate" (Ramadiro, 2003: 2). This stance embodies the argument of much of the rights-based approach and points to the notion that accessibility is an essential component of the provision of education.

#### *2.1.4 Applications of the rights-based approach to learner transport*

Human Rights Watch maintains that it is the legal responsibility of the government to provide transport for learners where the lack of reliable transportation affects school attendance or performance. HRW points to the admission by the South African government to the United Nations Committee on the Rights of the Child that, in order for schools to be made accessible, learner transport will have to be provided or arranged by the state (Government of South Africa, 1997 cited in Human Rights Watch, 2004: 17). In a related claim, HRW and the Human Sciences Research Council (HSRC) note that the safety of learners is also a component of transport and the concomitant accessibility to education. These accounts submit that walking long distances to school places learners in a greater danger of both sexual violence and traffic accidents (HRW, 2004: 17; HSRC, 2005: 47). Exposure to violence and

harassment is conceived by the human rights literature to be a breach of the government's obligations to learners. In an Education Rights Project (ERP) report, Nikki Taylor writes that, "A school environment where sexual violence and harassment is tolerated compromises the right of learners to enjoy education on equal terms- a lesson that is damaging to all children and at sharp variance with South Africa's constitution and its international obligations" (Taylor, 2002: 3). Thus, the accessibility of education facilities has been construed as a fundamental rights issue with respect to the ability of learners to experience a safe and efficient commute to school.

A more technical challenge for the legal obligation of the state to ensure the provision of learner transport has been made by the Law and Transformation Programme. The LTP asserts that,

[It] is of the view that school access costs [uniforms, fees, transport and textbooks] place an unreasonable burden on many poor households wishing to access schools. [It] submits that, to comply with its constitutional obligations, the state must take steps either to increase cash grants to poor families in order to wholly subsidise these costs, or to step in and provide free of charge the services in respect of which they are usually incurred. (CALs, 2003: 5)

Additionally, the LTP charges that the provision of "free education" as described by the international conventions, to which South Africa is a party, must include the subsidisation of learner transport, textbooks and school uniforms for low-income households (CALs, 2003: 9). Furthermore, the programme's report finds the National Department of Education's uncertainty regarding its obligation to subsidise learner transport costs unwarranted and counter-productive to the goal of improving access to education (CALs, 2003: 9). The point of departure for this type of approach is consistent with the majority of the rights-based literature in that the concept of a "basic education" is interpreted to be free from the qualifications that affect other socio-economic rights in the *Constitution*.

An important legal precedent that validates the rights-based approach has been observed in the Eastern Cape. In this case, the South African Human Rights Commission (SAHRC) responded to allegations by the Eastern Cape District School's Association that the provincial education department had neglected its responsibility to subsidise transport and boarding costs at farm schools in various districts (SAHRC, 2000: 1). The association argued that the failure of the department to pay service providers resulted in the closure of several schools, drastic increases in learner

absenteeism and, thus, a breach of rights in terms of section 29 of the *Constitution*. The provincial education department countered that the agreement to subsidise learner transport and boarding in certain schools had been arranged under the previous government and that, at the time of the hearing, the department had no policy on farm schools. Most importantly, however, the department submitted that it was financially unable to meet the obligations required of it by the *Constitution* (SAHRC, 2001: 3-4).

The findings of the Commission in this matter have been of some significance to a rights-based approach to learner transport. In its final report, the Commission found that the provincial education department was responsible for the outstanding amount needed to continue the subsidisation of farm school students and for the formulation of a policy towards farm schools. With respect to the constitutionality of the department's scarce financial resources, the Commission recommended that, "...the matter be taken up by the MEC both at the provincial and national level with a view to ensuring that the department is indeed placed in a position where it is able to comply with its constitutional obligations" (SAHRC, 2000: 6).

Thus, the rights-based literature places the issue of learner transport within a framework of constitutional obligations and generally holds both provincial departments and the National Department of Education accountable for the implementation and formulation of policies that ensure that learners can access schools. While much of the literature approaches the issue as a response to contentious qualifying language in the *Constitution*, a rights based approach has, thus far, been successful in supporting normative, ethical and legal appeals for the provision of learner transport in South Africa.

## **2.2 Learner Transport and Transportation Policy Planning**

The international literature on transport planning provides a robust discussion on the "developmental approach" to urban and rural transport in developing countries. Through a brief analysis of a few seminal transport theories, it becomes clear that the South African government's approach to transportation reform, in general, and learner transport, in particular, is shaped by international trends and discussions. This section outlines the principle theories that influence the discourse around transport in South Africa and describes their effects on the formulation of rights sensitive policies.

### 2.2.1 Trends in international transport policy and planning

Globalisation, liberalisation and governmental decentralisation have emerged over the past several decades as dominant international trends that influence the internal affairs of modern democratic nations. Within the field of transportation planning and development, a framework that addresses the challenges presented to transport reform by the prevailing global structure influences the transport policy environment in South Africa. The framework consists of an amalgamation of seminal transport theories complemented by guidelines to assist the practical implementation of transport policy in the current global dispensation. Not surprisingly, much of the literature describing this framework is derived from the World Bank's various transportation agencies.

In a World Bank working paper entitled *Cities on the Move*, Kenneth Gwilliam comments on the need for developing countries to adapt the implementation of transport reform to the realities of governmental decentralisation. Gwilliam writes, "Integrated planning of urban transport infrastructure and services is important in any setting. As responsibility for the management of urban services is decentralised to the cities, such integration becomes more feasible" (Gwilliam, 2002: 172). The paper goes on to list the importance of "city development strategies", maximising public-private partnerships and coordinating transport policy with land use strategies (Gwilliam, 2002: 172). The significance of this approach is that it entails a specific strategic framework that acknowledges the idiosyncrasies of transport systems in developing nations in the context of liberalisation and decentralised governance.

The above approach is strongly defended by the Sub-Saharan Africa Transport Policy (SSATP) programme. The SSATP has outlined the experiences of urban transport interventions throughout sub-Saharan Africa and has compiled a list of strategic guidelines that are particularly relevant to African nations. Most notably, the 1998 SSATP report, *The Urban Transport 1998-2002 Strategic Development Plan*, addresses the importance of "managing the interfaces" between national and local governments involved in transport programmes (Bultynck, 1998: 18). On its role in assisting project implementation, the SSATP notes that priority is given to programmes that exhibit "...synergy between national and local actors" around an established urban strategy (Bultynck, 1998: 19). With respect to privatisation and public-private partnership in transport programmes, the SSATP advocates "...an

enhanced but regulated private sector role in the supply of transport services” (Bultynck, 1998: 19). The emergence of an accepted formula for transport reform amidst decentralisation and increased privatisation has, thus, become evident in recent years. As the SSATP suggests, the majority of recent thought on the subject has found both the creation of public-private alliances and the increased independence of local authorities under the strategic supervision of national government to be “good practice.”

The end result of the framework described above is a set of guidelines that can be used to design a sustainable and efficient transport system within an “urban development strategy” that acknowledges the influences of the present global structure in developing nations. On the whole, much of the described literature attempts to address the need to reconcile the implementation of specific transport strategies with broader national objectives and approaches. Thus, in the face of administrative decentralisation and increased fiscal austerity, the World Bank literature suggests that transport planning should encourage the mobilisation of the private sector, develop policy strategy coordination between local and national spheres of government and incorporate land use strategies into transport programmes.

### 2.2.2 A “developmental approach” to transport

In addition to the broad strategy recommendations of the World Bank, a more applied branch of transport planning outlines an approach that seeks to improve the accessibility of goods and services is identifiable in the literature. Former World Bank transport planner, Harry Dimitriou, describes what he refers to as an emerging “developmental approach to urban transport planning” (Dimitriou, 1990: 383). Building on his previous work in developing transport sectors, Dimitriou outlines a set of criteria for urban development that applies directly to transport reform. According to these criteria, two of the principle purposes of transport development are the reduction of “poverty and deprivation” and the “accommodation of community needs and social and cultural identities” (Dimitriou and Safier, 1982 cited in Dimitriou, 1990: 383). As a point of departure, Dimitriou lists four inter-related guidelines that will assist urban transport planning to satisfy the framework of criteria discussed within his analysis. The first two of these are directly applicable to learner transport interventions and can be described briefly. First, Dimitriou advocates a

creative technical approach to the “...mobilisation of presently unused or idle...existing transport facilities through improved management and administration before additional facilities are provided” (Dimitriou, 1990: 384). In practical terms, this approach encourages local solutions to transport dilemmas through the application of existing resources conceived in alternative forms. As an addition to this principle, however, Dimitriou warns of the need to carefully consider the negative externalities that may arise as a result of the initiative and, as a result, require a cost-benefit analysis to evaluate the trade-off (Dimitriou, 1990: 384). Second, he submits that,

Urban transport systems need to be planned, provided and operated in a manner whereby they: a) decrease the inequality of access to transport services... and b) improve the opportunities for the less privileged through the provision of public transport services linking, for example, the places where they live with those of work, education and recreation...(Dimitriou, 1990: 384)

While this analysis is, on the surface, both abstract and fairly intuitive, the guidelines presented by this approach incorporate both the technical and “basic needs” components of transport reform.

As a broad formula, Dimitriou’s guidelines serve to highlight both the means and ends of a “developmental approach” to transport planning. The main contribution of broader theories of this nature to the discipline of transport reform is the provision of a framework that can be applied at national, regional and local levels. Regardless of the scale or context of the programme, these guidelines inform transport policy formulation and project implementation by aligning the technical and “needs-based” components of transportation reform in a development setting.

### **2.3 Post-1994 Legislation in South Africa**

In light of the international literature on human rights, social exclusion, transport planning, and strategy development, a review of South African legislation pertaining to learner transport will illustrate the influence of current transport thinking on local transportation policy formation. In addition, the legislation discussed in this section reflects the policy environment in which transport intervention strategies are conceived, identified and implemented.

### 2.3.1 *White Paper on National Transport Policy*

The 1996 *White Paper on National Transport Policy* represents the earliest attempt of the post-apartheid government to address the unique transport needs of South Africans. The *White Paper* is perhaps best known for its “vision” for transport in South Africa, which reads as follows:

Provide safe, reliable, effective, efficient and fully integrated transport operations and infrastructure which will best meet the needs of freight and passenger customers at improving levels of service and cost, in a fashion, which supports government strategies for economic and social development whilst being environmentally and economically sustainable. (National Department of Transport, 1996: 3)

In order to realise the ideals set forth in its vision for transport, the document lists a series of objectives for future transport policy. Within this set of policy objectives, several sections apply directly to the provision of learner transport and are outlined below.

The *White Paper's* objectives that are most applicable as guidelines to the provision of learner transport are as follows (NDoT, 1996: 20):

- “To ensure that passenger transport services address user needs, including those of commuters, pensioners, the aged, scholars, the disabled, tourists and long distance passengers;”
- “To improve accessibility and mobility, limiting walking distances to less than about one kilometre in urban areas;”
- “To ensure that public transport is affordable, with commuters spending less than about ten percent of disposable income on transport;”
- “To encourage, promote and plan for the use of non-motorised transport where appropriate;”
- “To promote and implement a system of regulated competition for public transport routes or networks based on permissions or tendered contracts.”

Importantly, the document specifically mentions scholars amongst several other groups of transport users that may be described as “special needs passengers.” Additionally, the *White Paper* recognises the need to incorporate non-motorised transport into transportation strategy and sets objectives around the reduction of both the time and cost of transportation.

### 2.3.2 *Moving South Africa- The Action Agenda*

*Moving South Africa* is intended to be the government's integrated twenty-year national strategic framework. As such, the document outlines many broad objectives of the NDoT and describes the government's approach to transport reform in general. As noted in Chapter 1 of this report, MSA has divided the urban population of South Africa according to transport needs and created an agenda centred around the concept of commuters as customers. Under the section titled, "Strategic Actions", the document outlines several strategies and observations that are both representative of the NDoT's approach to transport reform and will likely impact on strategies to provide for learner transport. The main objectives and observations of MSA are as follows (NDoT: 1999):

- "Empower customers with special needs;"
- "Striders, especially scholars, have a special need for security as well as safety and protection from motorised traffic and the strategy aims to provide pedestrian/bicycle infrastructure and facilities where adequate customer demand exists;"
- "To reach the goal of a genuine all-day public transport service that not only meets the needs of commuters but also caters for shoppers, scholars, the physically impaired and the unemployed will require urgent action to halt the current dispersion trend;"
- "Creating corridors and focusing investment and resources on them is the key component of the urban passenger strategy since dispersed land use is the biggest driver of poor public transport performance;"
- "The corridor approach is appropriate for the typical South African city with its distant high-density townships, low density suburbs and the decentralisation of business development to satellite nodes. Corridors already exist to some extent in South African cities. Therefore, the strategy focuses on densification of existing corridors;"
- "After some debate and consideration, the NDoT has decided that problems of ineffective co-ordination, within a local metropolitan council structure for example, will not be solved by national command. Rather, local government functions- in this case- need to jointly agree on a common framework to

achieve denser, more public transport-friendly settlements (in line with national legislation).”

On the whole, it would appear that the main thrust of the *Moving South Africa* strategy, with respect to learner travel, is the development of existing transport corridors to include the special requirements (especially non-motorised) of learners amidst an overall densification of land use activities. The last observation, regarding the coordination of local and national government, is likely to have a significant impact on the provision of learner transport as it embraces the notion that the implementation of transport reforms is the responsibility of local government.

### 2.3.3 *National Land Transport Transition Act (Act 22 of 2000)*

In line with the objectives of *Moving South Africa*, the *National Land Transport Transition Act* (NLTTA) further prioritises the needs of special category passengers and defines the obligations of provincial transport departments towards scholar transport programmes. The most pertinent sections of the legislation are as follows (NDoT, 2002: sections 1(1), 4(1), 18(6)(d), 22(3)(h), 44):

- “ ‘Special categories of passengers’ means learners, persons with disabilities, tourists, transferring long-distance passengers, the aged, pregnant women, and those who are limited in their movements by children with or without pushchairs or prams;”
- “The needs of special categories of passengers must be considered in planning and providing public transport infrastructure, facilities and services, and those needs should be met as far as may be possible by the system provided for mainstream public transport;”
- “The MEC must ensure the co-ordination of the planning processes of all planning authorities under the jurisdiction of the province and, in doing so, must ensure that all plans address (d) the needs of special categories of passengers;”
- “The provincial land transport framework must (h) set out a general strategy for the needs of learners and persons with disabilities;”
- “The conveyance of learners, students, teachers, or lecturers to and from schools or other educational institutions on a daily basis, is regarded as a public transport service.”

The most influential contribution of this legislation, with respect to learner transport, is often perceived to be the section, as outlined above, that calls for the design of a Provincial Land Transport Framework (PLTF) that is to be reviewed every five years and must address the needs of learners. Significantly, the NLTTA unambiguously assigns the responsibility of designing and implementing effective learner transport programmes to provincial governments.

#### 2.3.4 *National Rural Transport Strategy*

In response to the high incidence of poverty in rural parts of South Africa and in recognition of the obligations of provincial governments towards developing sustainable transport strategies, the *National Rural Transport Strategy* (NRTS) aims to coordinate the national and provincial approaches to transport provision in rural areas (NDoT, 2003: 1). As a result of the unique challenges facing rural transport, the NRTS envisions rural transport delivery in a number of ways. Two components of this vision affect learner transport directly and can be described as follows (NDoT, 2003: 3):

- “Passenger transport services along the main connector routes (to towns, clinics and other facilities), served mainly by combi-taxis, converted LDV’s- and, in some areas, subsidised bus services;”
- “Special needs transport services- to address the needs of persons with disabilities, the elderly, trauma and non-emergency patients, learners and tourists- provided, either in-house by the relevant sectors or on an out-sourced basis.”

On the whole, then, transport policy in South Africa since 1994 can be described as an attempt to recognise the needs of vulnerable segments of the population while encouraging the creation of strategies to meet these needs at the provincial and local levels. Where resources and funding are scarce, the transportation policy environment encourages the formation of public-private partnerships that will operate under the general guidelines set out by national transport legislation. Additionally, PLTF’s are required to coordinate their strategies with other departments with a view to optimising current land use patterns along identified transport and service delivery corridors. While this body of existing national legislation is broadly in line with the recent literature on developmental transport

planning, a rights-based approach to understanding the obligations of government to learners identifies a significant gap in the current policy environment.

## **2.4 Transport Literature and Legislation and the Rights of Learners**

The disjuncture in the literature between the technical aspect of transport planning and the promotion of learner transport as a fundamental human right has contributed towards an ambiguous policy and legislative environment in South Africa. A review of the discourse, thus far, has revealed that a framework encouraging public-private partnerships, decentralised planning and denser transport corridors has emerged in South Africa and is at odds with a rights-based approach. The main objective of this section is to briefly outline the impact of this discord on identifying appropriate learner transport policies and interventions.

On the whole, the lack of policy coordination between the NDoT and the NDoE with regard to the provision of learner transport is symptomatic of a weak policy environment. Eduardo Vasconcellos, in an analysis of learner transport in developing countries has argued that, despite research into the social and economic factors contributing to a lack of access to rural schools, an investigation of "...distance-related obstacles to schooling has been surprisingly disregarded in the available educational and transportation literature" (Vasconcellos, 1997: 127). Vasconcellos adds that a lack of intensive learner transport provision and planning by either education or transport departments is a by-product of this "neglect" of the subject in the literature (Vasconcellos, 1997: 127). With respect to learner transport policy in South Africa, the fact that only three provinces have recognised learner transport strategies, despite the mandate of the NLTTA, underscores the weaknesses in the existing policy environment.

A further link between the somewhat eclectic discourse on learner transport and its impact on policy and the rights of learners is observed in the promotion of public-private partnerships. On this issue, Vasconcellos submits that learner transport is generally perceived in line with a nation's stance on welfare (Vasconcellos, 1997: 129). He writes, "Solutions to the school access problem rely to a large extent on the political acceptance of the right of children to be transported to schools whenever necessary" (Vasconcellos, 1997: 129). Furthermore, the "market-based" or cost-recovery approach to transport provision must then be seen in terms of its inability to

guarantee the right of transport to special needs or “marginalised” passengers (Vasconcellos, 1997: 130).

The connection between public-private partnerships and “market-oriented” approaches to public services is well established in a separate branch of literature. Most notable is Faranak Miraftab’s submission that, in developing nation contexts, public-private partnerships often serve as “Trojan horses” for neoliberalism and outright privatisation (Miraftab, 2004: 89). Similarly, Patrick Bond makes the direct claim that the ANC’s readiness to privatise state services has already adversely affected service delivery in sectors such as “...telecommunications, transportation, electricity and water” (Bond, 2004: 51). In the context of the government’s education policy reform process between 1994 and 1999, “...the need for state intervention sat [sic] uncomfortably with the global emphasis on extending markets to education...” (Chisholm, 2005: 208). The argument derived from this observation is that a legislative framework that encourages public private-partnerships is implicitly linked to a policy environment that, on the whole, is not welfare-oriented and does not ensure the rights of learners to transport. In such an environment, the promotion and protection of rights becomes an exercise in defending negative (non-interference) rights instead of promoting positive rights (Malone and Belshaw, 2003: 79). The impact of this distinction on the identification of appropriate learner transport interventions is that the current policy environment accepts that only the negative rights of learners need to be protected by the state and that rights enjoyed as a result of a determined action by the government are not constitutionally guaranteed.

A similar implication for learner transport policy is contained in legislation that decentralises administrative responsibility. When responsibility for the provision of learner transport is devolved to the local level, decision-making is undertaken closer to the level of beneficiaries but issues such as local capacity, available resources and the prioritisation of allocated funding often compromise the realisation of an unfettered right to available transport to school (Vasconcellos, 1997: 130). Similarly, the local distribution of national or provincial funding allocated to education is likely to be uneven across districts and municipalities as learner transport is prioritised in differing degrees as it competes with teacher’s salaries, school improvements, the provision of textbooks and school meal programmes (Vasconcellos, 1997: 131). Thus, the extensive framework of transport legislation and the influence of the literature on transport and education planning have far-

reaching policy implications for the identification of possible solutions to the existing dilemmas in learner transport.

## **2.5 Conclusion**

A review of the literature on transport planning in a development setting and learner transport in South Africa has demonstrated that the post-1994 policy environment is generally in line with international trends in transport and spatial planning development. Despite this responsive legislative framework, however, the rights-based approach has effectively exposed a gap in coverage with respect to the identification and implementation of an affordable, safe and efficient transport solution for low-income learners in South Africa. In short, the approach has demonstrated that, in specific cases, a lack of local government capacity, a lack of inter-departmental coordination and an over-reliance on private transport initiatives has compromised the unqualified rights of learners to obtain access to schools. Some analysts have even attributed these shortcomings to an overall ideology that implicitly and, perhaps even explicitly, eschews the rights of learners in favour of free market principles (Bond, 2004: 51). Regardless of the source of the present dilemmas learner transport provision, however, the rights based discussion demonstrates that learners in South Africa benefit from a variety of negatives rights rather than a comprehensive network of positive rights - with serious implications for the attainment of their constitutionally guaranteed access to a “free and quality education.”

## **Chapter 3 : Methodology**

Various approaches to the collection and analysis of transport related data have influenced the present study. These approaches offer alternative ways of understanding transport dilemmas and interventions while generally informing the methodology employed in this study. The aim of this chapter is to briefly review several recent transport models and to compare their attributes with those of an impact evaluation. The chapter will then justify the types of data used in this study and provide an overview of the data collection and data analysis process.

### **3.1 Transport and Accessibility Models**

#### *3.1.1 Human capital model*

An important study into the effects of access to education in developing nations was conducted by Victor Lavy in the early 1990's. The study built on earlier human capital theories focusing on the "...rational investment of present resources" in terms of "...education, health, occupational choice and mobility" (Ben-Porath, 1967: 352). Lavy argues that, in many developing nations, anticipated future costs associated with education influence decisions to send children to primary schools (Lavy, 1992: 1). In his analysis of human capital investment decisions, Lavy observed that, "Although user fees may be nil, supply constraints like difficult access to schools (long distance to the nearest school, high travel cost, boarding fees) are very real for many rural households in Africa, especially for post-primary schooling" (Lavy, 1992: 1). The objective of Lavy's study was to interpret household travel data in Ghana with the goal of understanding the impact of future learner travel costs ("shadow costs") on primary school attendance (Lavy, 1992: 2). While differing significantly in its objectives from the present study, Lavy's work provides valuable insight into the analysis of transport data.

Lavy used household data gathered from Ghana's 1987-88 Living Standards Measurement Survey (LSMS) and created a model to estimate the function of increasing school costs on early school attendance (Lavy, 1992: 2). The approach is based largely on an earlier Ben-Porath/Heckman human capital investment model that outlines decisions inter-temporally across life cycles (Lavy, 1992: 2). Of significance

to the present study, Lavy collected community survey data on the distance of sampled communities to primary, middle and secondary schools and controlled this variable with data collected on the size, age, condition and quality of schools accessible to the communities (Lavy, 1992: 13). Analysing these two groups of data, he posited that his adapted model could be used to estimate the probability of primary school attendance based on the accessibility (primarily in terms of distance) of middle and secondary schools by the community.

Significantly, Lavy has empirically demonstrated that initial school attendance in developing countries and particularly in rural areas is likely to depend upon the accessibility of educational facilities at later stages of schooling. Lessons that can be drawn from Lavy's use of transport survey data include: the importance of distance between communities and schools, the role that the cost of travel can play in the decision to attend school, and also the need to consider and control for the condition and quality of the schools themselves when conducting research that aims to determine the effect of travel on school attendance.

### *3.1.2 Accessibility planning*

One of the most influential contributions to transport analysis in developing nations is found in the process of "accessibility planning" (AP). In describing the origins of the AP model, Geoff Edmonds submits that this specific approach designed to understand "personal accessibility" developed as the result of a series of transport studies in the 1980's (Edmonds, 1998: 49). This type of accessibility study aims to understand the characteristics of transport users and the types of transport used to access specific services (Edmonds, 1998: 49). Commenting on the evolution of the earlier rural transport studies, Edmonds notes,

The results of the studies... were then recognised as having a broader application. Not only did they show why people travelled and by what mode, they also showed what the destination of the trips were and how long it took people to reach the particular destination. Thus not only were the mobility problems of the people identified, but also their level of access to the different types of services they required. (Edmonds, 1998: 49)

Emerging from this discovery, the development of accessibility indicators became applicable to a variety of rural services. In particular, indicators have been established to gauge access in rural areas to "...water, energy, health, education,

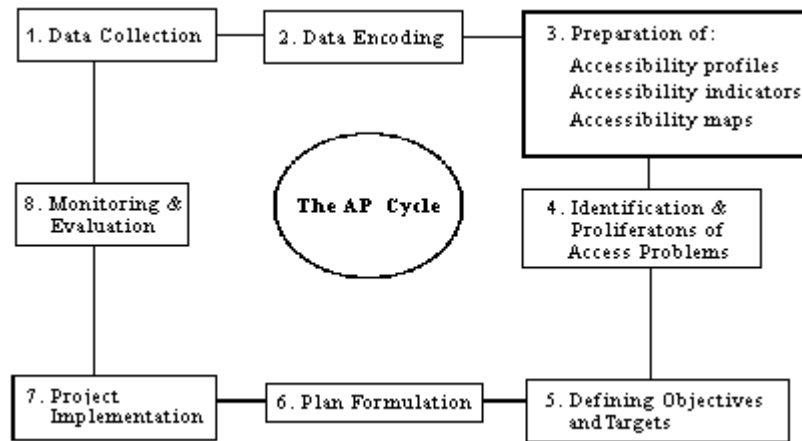
markets, agricultural inputs and outputs, crop marketing and post-harvest facilities” (Edmonds, 1998: 51). Overall, the AP model is most accurately described as an empirically based body of information that serves, in its primary function, as a tool to guide the planning of effective transport interventions (Edmonds, 1998: 50).

Accessibility planning utilises several types of primary data to identify the need for transportation. Edmonds explains, “Data is collected at the household level on time taken and manner in which households obtain access to services and facilities. The analytical procedure results in a demand-oriented definition of access or transport need” (Edmonds, 1998: 51). Significantly, the process results in the identification and prioritisation of promising transport interventions rather than the formation of an explicit planning framework. Edmonds elaborates with the observation that, “The data are used to identify a set of interventions which would most effectively reduce the time and effort involved in obtaining access to supplies, services and facilities” (Edmonds, 1998: 51). Of particular relevance to the present study, the AP model differentiates itself from its origins in the field of transport geography in developed nations. In its identification of appropriate interventions, the AP process considers both the ability of transport users to pay for transport and the existing state of infrastructure in the community/area being evaluated (Edmonds, 1998: 52). To this end, data is collected primarily at the household level and generally includes both the distribution of questionnaires and the perspectives of key informants (Edmonds, 1998: 52). As such, the data is expected to comprehensively identify all aspects of the need for a transport intervention.

Another expected outcome of accessibility planning is the creation of access maps and indicators. The objective in this respect is the “accessibility profiling” of specific sectors (access to water, services, schools, clinics) in a particular village or community (Edmonds, 1998: 53). The importance of this step is best demonstrated by the diagram of the accessibility planning cycle depicted in Figure 1. As indicated below, the primary use of the data obtained from questionnaires and informants is the “preparation of access indicators and maps” that outline the priority areas for intervention. The diagram also reinforces the notion that the process of accessibility planning is intended to identify and prioritise needs rather than to implement interventions. With respect to the sixth step of the cycle, “plan formulation” is most ideally suited to include the setting of local targets and objectives based on recognised needs and the identification of relevant interventions (Edmonds, 1998: 57).

Additionally, access indicators and maps are useful for describing the existing distribution of services and their accessibility to the community (Edmonds, 1998: 54).

**Figure 1 Accessibility Planning Cycle**



(Source: Edmonds, 1998: 53)

Perhaps the most relevant component of the AP Cycle, with respect to the present study, is the implementation of monitoring and evaluation procedures. In his analysis of this step, Edmonds asserts that,

In assessing the viability of individual projects at the local level, again a variety of factors come into play. In general, economic analysis of the costs and benefits at this level is the exception rather than the rule. More qualitative criteria is generally used. In the case of access, these will be based on the overall reduction of time to the largest number of people. This can be derived from the accessibility indicators. (Edmonds, 1998: 74)

Additionally, Edmonds warns of the need to carefully ascertain the quantifiable benefits derived from an intervention. An improved quality of life, for example, is potentially achieved by simultaneous factors not necessarily associated with improved access. Reduced access time, on the other hand, is a reliable indicator of the effectiveness of the prescribed intervention and is thus a measurable “economic value” (Edmonds, 1998: 75). The significance of this observation is that it effectively exposes the danger of endogenous influences in the assessment of transport interventions. These empirical experiences from the AP cycle have informed the types of quantitative measures that are included in the present study.

On the whole, the AP cycle may be viewed as a model that makes careful and analytical observations about both the access needs of communities and the effectiveness of potential interventions. Further comment on the process suggests that

it might also contribute to the careful monitoring of interventions over time if conducted regularly with the aim of assessing specific programme impacts and the targeting of interventions towards their intended beneficiaries (Edmonds, 1998: 75). It is this function of the AP cycle that is of the most interest to the present study as the effective evaluation of an existing transport intervention is the objective of this research.

### 3.1.3 *Evaluating transport interventions: existing limitations*

Building on the theme of evaluating the effectiveness of interventions, two important works in the field of transport theory supply critical support to this end. The main contributions of these works are the identification of existing limitations in evaluating interventions and the provision of guidelines to quantify the effects of a transport intervention. With respect to the problems inherent in assessing transport project effectiveness, Gannon and Liu issue several caveats. First, the authors contend that there is currently a paucity of “reliable methodologies” to determine the benefits, cost-effectiveness and ability of transport interventions to reach their intended beneficiaries (Gannon and Liu, 1997: 26). These problems, it is noted, are often compounded by the use of approaches designed to understand transport user demand in developed nations rather than in a developing context (Gannon and Liu, 1997: 26).

Second, Gannon and Liu argue that available methodologies are particularly ill-equipped to evaluate interventions that have been introduced in sectors that rely primarily on non-motorised transportation (Gannon and Liu, 1997: 27). This is generally recognised to be symptomatic of evaluation techniques that are lacking in adaptability and, consequently, tend to ignore the effects of interventions on NMT user groups. “As a result, the benefits to the NMT users and pedestrians are either neglected or incorporated using *ad hoc* methods” (Gannon and Liu, 1997: 27). From this analysis, it would seem that the need for a rigorous methodology to evaluate the effectiveness of diverse types of multi-modal and inter-modal transport interventions is a pressing priority.

In his seminal paper on transport systems, Alan Armstrong-Wright offers several general guidelines for the evaluation of transportation interventions. With respect to acceptable travel times, he submits that,

A condition of excessive travel time can be considered to exist when many journeys comprising transit use and a reasonable amount of walking (say 2 km) and waiting consistently exceed 40 minutes for a door-to-door trip of 6 km, 60 minutes for a 10-km trip, and 90 minutes for a 16-km trip. (Armstrong-Wright, 1986: 25)

This guideline serves as the basis for many transport policies and interventions in both industrialised and developing nations. As such, these recommendations also inform the evaluation of the transport intervention in this report.

With regard to the cost of travel, Armstrong-Wright's guidelines have emerged as the proverbial "rule-of-thumb" on assessing the acceptable costs of travel and have been cited in governmental white papers and various national transport strategies (see NDoT, 1996: 20). As a guideline to the costs of transportation, he asserts that, "A fare structure discriminates against low-income people when cost makes it impractical for them to use the transit system. One reasonable criterion is the cost of a week's transit fares to work in comparison with the total weekly income of the household" (Armstrong-Wright, 1986: 25). Armstrong-Wright goes on to suggest that transport costs should be less than 10% of household income in order to avoid being discriminatory (Armstrong-Wright, 1986: 25). Overall, these contributions to the guidelines for transport evaluation serve as a justification for the use of time and cost as two factors in considering relative transportation effectiveness and accessibility in the present study.

### **3.2 Impact Evaluation**

As the current study adopts a modified impact evaluation approach, it is important to explain the attributes of this type of assessment. Impact evaluation may be usefully described as a technique that aims to address the limitations of monitoring, evaluation and assessment methodologies as outlined above. The objective of an impact evaluation is an accurate and reliable determination of the effectiveness of a given intervention. As a point of departure, an evaluation differs from project monitoring in a number of ways. Ezemenari *et al.* explain that,

The key difference is that evaluation is concerned with tracing causes to outcomes whereas monitoring is concerned with tracking the progress of implementation and processes (especially inputs and outputs) to ensure that agreed targets are met. An impact evaluation assesses the extent to which a program

has caused desired changes in the intended audience. It is concerned with the net impact of an intervention on households and institutions, attributable only and exclusively to that intervention. Thus, impact evaluation consists of assessing outcomes and, thus, the short or medium-term developmental change resulting from an intervention. (Ezemenari *et al.*, 1999: 1-2)

Impact evaluation accomplishes this assessment of outcomes by comparing how a beneficiary would have fared without the intervention. In determining the counterfactual, a successful intervention controls for “intervening factors” that may also have an effect on the outcome of the intervention (Ezemenari *et al.*, 1999: 2). Hence, the use of a carefully selected counterfactual forms the crux of a reliable evaluation. As Ezemenari *et al.* comment, “‘Control groups’ [the most commonly used counterfactual] consist of a comparator group of individuals who did not receive the intervention, but have similar characteristics as those receiving the intervention, called the ‘treatment groups.’ Defining these groups correctly is the key to identifying what would have occurred in the absence of the intervention” (Ezemenari *et al.*, 1999: 2).

In comparison to transport data applied to human capital models and the accessibility planning cycle, an impact evaluation of an intervention or programme may be especially useful because it can attest to the effectiveness of that intervention in a controlled environment. Barbara Henschel explains, “Impact evaluation is an indispensable tool to assess whether a programme is achieving its objective, how the beneficiaries’ situation changed as a result of the programme and what the situation would have been without the programme” (Henschel, 2002: 2). In short, a rigorous impact evaluation is more reliable than a simple assessment of programme outcomes in terms of establishing effectiveness (Henschel, 2002: 2).

Esther Duflo and Michael Kremer add that impact evaluations are suited for certain environments and particular types of programmes. Included among these, the authors contend, are programmes to address issues related to: “sanitation, local government reform, education and health” (Duflo and Kremer, 2003: 2). The primary advantage of impact evaluations in these fields is that they can statistically and reliably answer the counterfactual question of how a programme or intervention participant would have fared without involvement in the project (Duflo and Kremer, 2003: 3). Duflo and Kremer suggest that much of recent development policy is based on assumptions and policy “fads” and that increasing the number of impact

evaluations would allow policy decisions to be based on “evidence” (Duflo and Kremer, 2003: 3). Thus, impact evaluation is a valuable technique in the face of an existing lack of “reliable methodologies” with respect to project assessment.

An additional advantage of impact evaluation, with particular relevance to the present study, is its ability to determine whether or not an intervention should be “scaled up.” Esther Duflo argues that impact evaluation has the unique ability to establish the potential of a smaller intervention to be implemented at the national or international level (Duflo, 2003: 2). Duflo submits that this potential for the use of evaluations is of critical importance to both international organisations and national governments with an interest in adopting programmes and policies that have been proven to be effective (Duflo, 2003: 2-3). Martin Ravallion suggests that this type of approach can be realised in several different ways. In his description of “counterfactual analysis” he submits that evaluation often begins with the intervention already in operation. However, the overall analysis might include the assessment of a pilot project that could indicate the ability of the intervention to be “scaled up.” Alternatively, an evaluation might coincide with the start of the intervention or might even be designed prior to the implementation of the intervention (Ravallion, 2005: 3).

### **3.3 Types of Data**

#### *3.3.1 The use of quantitative and qualitative data*

Recent trends in the use of both quantitative and qualitative primary data have infiltrated a number of fields in social science research. In general, it would seem that a consensus has emerged with respect to the acceptance of studies that use both kinds of data to inform their findings. Howard White makes this claim as he writes that, “Both quantitative and qualitative techniques have their place in social analysis. There is no reason to give primacy to one over the other. Different methods are required to tackle different problems, and a combination of techniques will frequently yield greater insight than either one used in isolation” (White, 2002: 519). Thus, despite long-standing ideological resistance to a dual approach to research, the use of both quantitative and qualitative techniques is now commonplace and widely accepted.

With respect to impact evaluation, a large body of literature suggests that the use of both quantitative and qualitative data enriches the evaluation process. White relays that qualitative data originally gained favour with evaluation specialists due to its ability to describe the non-economic dimensions of poverty in social research. Despite their obvious value, however, qualitative methods have recently been downplayed in an effort to quantify the impact of development programmes in relation to the Millenium Development Goals (White, 2005: 1). This, White asserts, is most likely attributable to their emphasis on understanding “processes” rather than outcomes (White, 2005: 1). While substantial literature exists supporting one approach or the other, a strong case can be made for an integrated approach that uses both techniques in the evaluation. Judy Baker makes the comprehensive argument that,

Integrating quantitative and qualitative evaluations can often be the best vehicle for meeting the project’s information needs. In combining the two approaches, qualitative methods can be used to inform the key impact evaluation questions, survey the questionnaire, or the stratification of the quantitative sample, and analyse the social, economic, and political context within which a project takes place, whereas quantitative methods can be used to inform qualitative data collection strategies, to design the sample to inform the extent to which the results observed in the qualitative work can be generalised to a larger population by using a statistically representative sample, and, statistical analysis can be used to control for household characteristics and the socio-economic conditions of different study areas, thereby eliminating alternative explanations of the observed outcomes. (Baker, 2000: 8-9)

Overall, then, a combined approach is said to provide a quantifiable estimate of an intervention’s impacts while describing the processes that contribute to the outcomes (Baker, 2000: 15; Ezmenari *et al.*, 1999: 5).

### 3.3.2 *The use of primary data*

In order to evaluate the relevant successes and failures of an intervention, input from beneficiaries and stakeholders is required. The specific types of data used often depend on the nature of the intervention, the availability of data collection instruments and the amount of time available to conduct an evaluation. Primary data, however, are typically preferred because the direct impact of the intervention on beneficiaries is often the best means to understand the counterfactual situation. As

Ravallion explains, "...evaluation is essentially a problem of missing data" (Ravallion, 2005: 3). The reason for this, he submits, is that the use of primary data to create "outcome indicators" relevant to the intervention is imperative to the success of counterfactual analysis (Ravallion, 2005: 3). In the present study, for example, the assessments of time and cost, based on the responses of participants in the research, were used to evaluate the impact of the intervention on learner travel experiences.

With respect to different types of primary data, it is often accepted that many forms of data are appropriate for an evaluation. Both quantitative survey data and qualitative data collected from structured or semi-structured interviews are both commonplace in evaluations (Baker, 2000: 20; Ravallion, 2005: 14). Data describing the "outcomes" of the intervention are usually obtained from survey responses and originate directly from the observation unit (schools in this study) (Baker, 2000: 22). Thus, primary data, as used in the present study, typically form the core of the evaluation process and serve an essential part of understanding the specific impact of an intervention on its beneficiaries.

### **3.4 Data Collection and Analysis**

#### *3.4.1 Selection of schools and the identification of the intervention*

Contact with several stakeholders in the regional education department revealed that a number of secondary schools in Ndwedwe experience problems due to a lack of transport for learners. Upon further investigation and continued contact with key stakeholders, the names of four secondary schools in the municipality were suggested and the names of their respective principals were provided. After permission to conduct research in these schools was granted by the KwaZulu-Natal Department of Education (see Appendix 1), the principal of each school was approached for an interview. Interviews with the four principals revealed that, while transport is a problem for all of the schools, one school (School A) makes use of a specific intervention to facilitate learner transport. The intervention consists of an agreement between the community and the local taxi association to reduce the taxi fare by half for learners before 9:00 AM and again in the afternoon when learners leave school. Additionally, community members, parents and the school have negotiated with the local bus company to adjust the bus schedule to accommodate the start time of the school day. One other school principal noted that students in his/her

school benefit from a reduction in taxi fares. The other two principals were aware of the arrangement but explained that the taxi routes affecting their learners were not part of this agreement. School A thus forms the treatment group for this study.

The selection of the counterfactual school (School B) in this study was conducted based on a proven methodology used in impact evaluation. Evaluations make use of several widely accepted techniques for selecting a counterfactual or “control group.” In general, these methods consist of either experimental or non-experimental (quasi-experimental) designs (Baker, 2000: 6). The evaluation design most appropriate for the selection of a comparison school in this study was of the non-experimental type. Selection of the comparison or “counterfactual” school was accomplished based on the “propensity score matching” or “constructed control” method. According to this design, a control group (school in this case) is selected based on the observation of a number of “observable similarities” between the two groups (White, 2005: 11; Ezmenari *et al.*, 1999: 8; Ravallion, 2005: 21). Observable similarities between the two schools in this study include: size, age, composition (i.e. gender and age), overall condition of school buildings, availability of water, availability of electricity, and spatial location (Table1).

**Table 1 Observable Characteristics of School A and School B**

<b>Observable Characteristics</b>	<b>School A</b>	<b>School B</b>
<b>Size (number of students)</b>	500 students	400 students
<b>Size (number of buildings/classrooms)</b>	5 buildings/ 14 classrooms	6 buildings/14 classrooms
<b>Age of school</b>	18 years	29 years
<b>Male:Female student ratio</b>	50:50	60:40
<b>Learner:Educator ratio</b>	29:1	27:1
<b>Water Supply</b>	Office and flush toilets	Bore hole only
<b>Electricity</b>	Office and 7 classrooms	Office only
<b>Distance to a tarred road</b>	7 km	7-8 km

As baseline data on the two schools was not available from the office of the Regional Department of Education for greater eThekweni, information about the two schools was obtained through two techniques. First, each principal was asked to provide as much information about his/her school as possible. Second, the condition

and physical quality of each school was gauged using a technique called “windshield surveying” (Table 2).

**Table 2 "Windshield Survey" of School A and B**

<b>Windshield Survey</b>	<b>School A</b>	<b>School B</b>
<b>Number of broken windows</b>	10-15	3
<b>Condition of the access roads (see photos in Appendix 2)</b>	Dirt and gravel	Dirt and gravel
<b>Number of holes in the roof</b>	0	0
<b>Number of students without a proper desk</b>	0	0
<b>Number of available toilets</b>	2 blocks/6 toilets	2 blocks/8 toilets

According to this approach, the researcher observes the “physical-quality dimensions” of the school by recording a list of pre-determined characteristics of the schools (see Burton *et al.*, 1997: 138). Some of the characteristics used in Table 2 were adapted from the NDoE’s *School Register of Needs Survey*, which was conducted in order to evaluate the physical condition of the nation’s schools (see NDoE, 2000). The structured characteristics that were observed in the two schools participating in the present study include: number of broken windows, condition of the surrounding roads, holes in the roof, number of students without a proper desk and the number of available toilets. Following the “constructed control” selection process, then, the only significant observable difference between the two schools was the transport intervention. Statistical sampling (probability of participation) was not conducted as this is an indicative study intending to serve as a pilot study for a possible larger scale and more technical impact evaluation in the future, which is, once again, beyond the research activities that can be undertaken for a mini-dissertation.

### 3.4.2 Selection of participants

All Grade 10, 11 and 12 students (N=275) in each school were supplied with questionnaires on their travel experiences. This approach selected uniform age groups in both schools and targeted students that are old enough to understand their choices with regard to travel. Staff members that helped distribute the questionnaires to their students were approached for semi-structured interviews (mostly teachers of

Government, Social Studies or Civics). Additionally, the headmaster or relevant administrator of each school was asked to participate in a similar interview regarding the nature of learner travel in his or her school.

### *3.4.3 Limitations of the selection process*

A “selection bias” is always the single greatest danger with an impact evaluation. The bias may arise with the selection of the comparison group and is often caused because the chosen counterfactual group is simply not a good comparison. This is often the case because the group that receives the intervention typically does so because it had a recognised need for assistance (Duflo and Kremer, 2003: 4). However, the comparison group may also feature a variety of unobservable characteristics that make it a poor choice for a control group. Typical unobservable characteristics in studies such as this often include factors such as learner ambition; community social dynamics; and attitudes towards education by educators, learners and households. As a result, the differences detected between the two groups may be a product of “pre-existing conditions” rather than a result of the impact of the intervention (Duflo and Kremer, 2003: 4). Thus, the objective of the school selection process was to identify a counterfactual control group with as many observable similarities to the school with a transport intervention as possible, so that any differences found during data analysis could be reliably attributed to the impact of the intervention in question.

### *3.4.4 Methods of data collection*

This study used two methods of data collection to optimise the accuracy of the research results: one quantitative, the other qualitative.

#### 1) School Surveys/Questionnaires

Questionnaires (see Appendix 2) asked learners a series of 20 questions relating to their experiences with transport to school. Questions attempted to discover information such as: modes of transport used, cost of transport, time spent travelling to school, reliability of transport, time spent waiting for transport, distances travelled, and perceived safety of transport. The relevant educators/administrators were asked to distribute the questionnaires and explain their purpose to the learners in order to

improve the response rate. Questions were phrased to inquire about travel in general or travel on the day of the survey instead of inquiring about average or typical days to improve the accuracy of student responses (see Baker and Denning, 2005: 11). The questions were printed in English and the researcher worked with the educators, principals and students to help clarify any confusion associated with the questionnaire. The questionnaire was pre-tested in a school not associated with either of the schools participating in this research. Several questions had to be re-worded to improve the clarity of the questionnaire and to better accommodate students that use several modes of transport to travel to school. Consultation with school principals and the results of the pilot survey revealed that comprehension of the questionnaire did not require that it be printed in isiZulu. After the necessary revisions of the pilot survey, the questionnaire was administered to the students participating in this study.

## 2) Interviews

Interviews with school principals and educators were expected to be especially relevant to understanding the overall nature of learner travel in each of the two schools. These interviews were semi-structured (see Appendix 3) so that they could be compared with one another and examined for similar themes, but open enough for the interviewee to describe the issues specific to his/her school (The 6 interviewees referred to as Principal A and Principal B; Teacher 1A,2A and Teacher 1B,2B in the report).

### 3.4.5 *Limitations of the data*

The main limitation of the school questionnaires was most likely the ability and willingness of the sampled learners to take the questionnaire seriously. It was hoped that requesting teachers of relevant social science disciplines and principals to help with the distribution of the surveys and to explain their purpose to the learners would reduce the instances of “non-response” and “inappropriate response.” Limitations from the semi-structured staff interviews might have included the existence of unobservable motivations concerning the transport intervention and its success or failure.

### 3.4.6 Data analysis

The school surveys contained coded responses that were entered into SPSS for a descriptive analysis to determine relevant cross tabulations and frequencies of the acquired data as well as chi-square and strength of association tests where appropriate. The taped interviews were transcribed (see attached compact disc) and evaluated using content analysis- a process that lends itself well to impact evaluation (Baker, 2000: 38). In conducting analysis, the researcher attempted to discover common themes through the semi-structured questions and created codes to represent various processes, questions, problems and outcomes. Additionally, the comparison of identifiable themes from the survey results with those from the interviews was conducted using a process called distributional analysis (see Baker and Denning, 2005: 14). The advantage of distributional analysis is its ability to integrate quantitative and qualitative data into a structured framework that provides valuable insight into the nature of the impact being measured. Finally, careful documentation and a complete understanding of the specific components of the transport intervention were critical throughout the data analysis stage (see Baker, 2000: 20).

The process of data analysis was conducted alongside the structuring of the impact evaluation. The incorporation of the “three critical steps” to successful evaluation was adhered to throughout the analysis and design of the study. These three steps include: “1) defining the expected outcomes which are contingent upon the intervention 2) setting performance standards and indicators at the outset 3) defining a counterfactual” (Emenari *et al.*, 1999: 3). The expected outcomes of the intervention include: increased use of motorised transport (as primary transport mode and as a secondary mode), reduced walking distances, reduced travel times (especially learners that live far from school), reduced travel costs (for learners that live farther away), reduced absenteeism from school, reduced incidence of tardiness and improved safety of travel.

## **Chapter 4 : Findings- Access to Transport and Travel Modes**

In order to accurately test the effectiveness of the transport intervention employed by School A, several factors affecting learner travel behaviour must first be defined and measured. Established international practice for the collection and analysis of transport survey data suggests that key issues such as access, quality, safety and affordability should be analysed in the context of travel to school or work in order to better allow "...transport programs and policies to meet the needs of the poor by understanding their travel needs and travel behaviour" (Baker and Denning, 2005: 1).

The first step in such an analysis of learner travel in the two schools, then, is to compare the level of physical access to school by learners in School A and School B. Physical access in this study is measured using the following proxies: the distances learners need to travel to get to school, the availability of public transport in the area of each school and the ability of motorised transport to use the roads surrounding the schools. The presentation of this chapter will begin with an overview of the sample group and an analysis of physical access to transport followed by a discussion on access to transport by educators and school staff members. The chapter will then conclude with a comparison of the modes of transport used by learners in each school and a comment on the impact of the intervention on transport modal splits in the schools.

### **4.1 Physical Access to Public Transport**

In addition to the observable similarities noted between the two schools prior to data collection, information regarding the physical access that learners have to public transport (busses and taxis in Ndwedwe) in each school is critical to the control for endogeneity in the study and, thus, to the ability to make accurate comparisons between learner travel patterns in School A and School B. As outlined above, the distances travelled by the learners, the availability of transport and the condition of the roads surrounding each school will ultimately determine learner access to public transport and influence the mode of transport selected by learners. Accordingly, the objective of this section is to compare the physical access of both groups of learners

to public transport prior to an evaluation of the impact of the intervention on the choice of travel modes.

#### 4.1.1 Demographic characteristics of the treatment and control school

Prior to the comparison of physical access to transport between the groups, however, a brief description of the sample group is required. The total sample size of the learners surveyed from both schools is 275. As the table below demonstrates, the two groups share a number of similar demographic characteristics.

**Table 3 Characteristics of the Two Sample Groups**

Characteristics	School A	School B
<b>Number of learners sampled</b>	129	146
<b>Average age</b>	17	17
<b>Male:female ratio</b>	64:65	79:67
<b>Percentage that live in a “house”</b>	49.2	73.2
<b>Percentage that live on a “farm”</b>	33.6	24.6
<b>Average number of siblings attending school</b>	2.8	2.4

In particular, the learners surveyed in both schools are from a similar age group and both come from farms or free standing houses rather than rondavels or flats. The finding that 33.6% and 24.6% respectively come from farming households is especially significant as farm “chores” have been linked with school absenteeism in a recent study of rural schooling in South Africa (see HSRC, 2005: 44-45). On the whole, then, the above table further demonstrates that School B is an appropriate counterfactual group for the purposes of the evaluation.

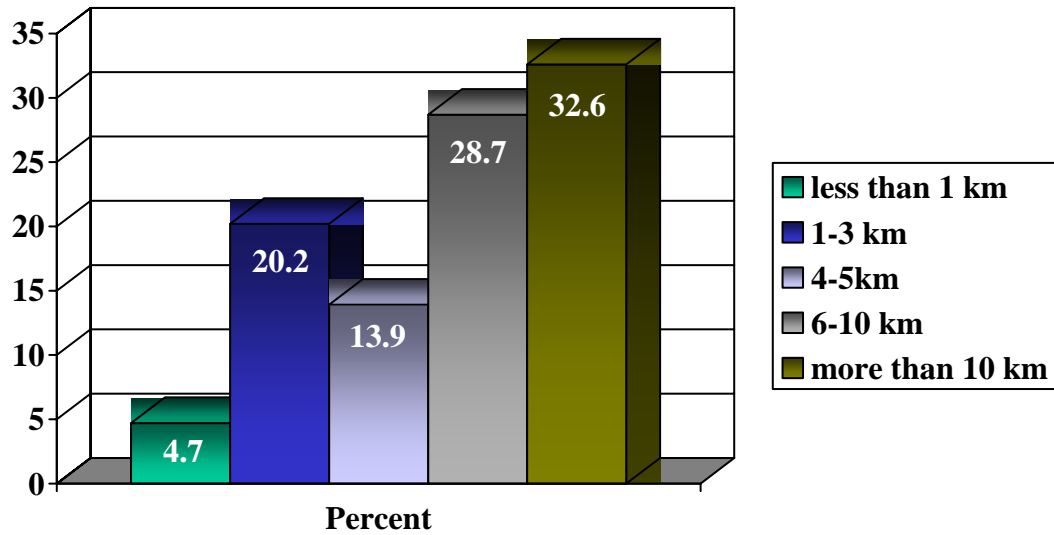
#### 4.1.2 Distances travelled by learners

The reported distances that learners travel each day in order to arrive at school are understood to have a potential influence on the choice of travel mode<sup>3</sup>. In light of this, it is important to understand the distances that are covered by the learners in each

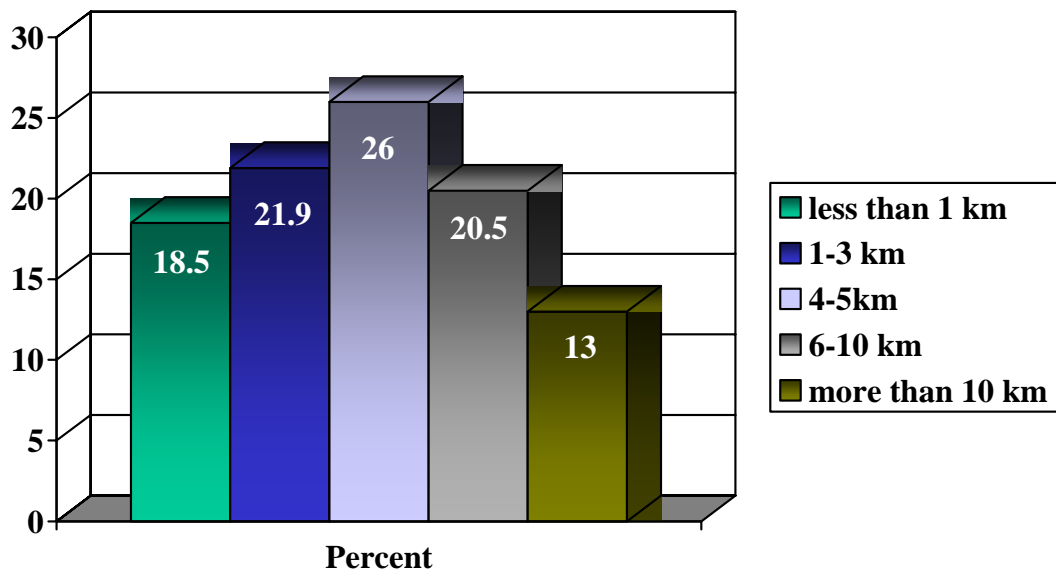
<sup>3</sup> An important caveat is that the distances presented in this report are estimates made by the learners themselves and, as such, a certain degree of error is expected.

school and to make appropriate comparisons. Figures 2 and 3 illustrate the distribution of distances travelled as reported by learners in the questionnaire.

**Figure 2 Distances Travelled by Percentages of Learners in School A (N=129)**



**Figure 3 Distances Travelled by Percentages of Learners in School B (N=146)**



As the figures suggest, the learners from School B generally live closer to school than their peers from School A. Only 4.7% of the survey respondents in School A live within a kilometre of their school while 18.5% of the study participants in School B indicated that they live within this distance from school. At the other end of the

distribution, 32.6% of the learners from School A reported living more than 10 kilometres from school compared to only 13% in School B. However, putting aside the tail end distributions of distance, it may be summarised that 42.7% of the students surveyed in School A live between 4-10 kilometres from school compared to 46.5% in School B. Overall, then, a significant portion of learners in both schools travel a long distance to reach their places of education.

Evidence from interviews with staff members from both schools supports the conclusion that distance is a serious obstacle for learners. Commenting on the main problem for the learners travelling to school, the principal of School A explained, “Distances that are covered are sometimes plus or minus 10-12 kilometres to and from... and also the topography has a bearing on it. And yes... topography, rivers and all those things. Some have to go through a bridge and take a long route- even if [the school] is near” (Interview with Principal A: November 22, 2005). Thus, the distance of the safest route to school appears to be a significant factor in the travel patterns of learners in School A.

Similar accounts were relayed by the educators from School B. In response to the same question, one teacher noted that, “They must walk far and they are tired, hungry- they are wet. This is the main problem; they come great distances” (Interview with Teacher 1B: February 6, 2006). Another educator from the same school indicated that, “[Learners] travel long distances and I think the main problem is the distance. Ja. That is the problem” (Interview with Teacher 2B: February 6, 2006). Perceptions by staff members in both schools, then, indicate that the distances that learners have to travel are a serious problem.

While quantifiable differences between the distances travelled by learners in the two schools can be observed, qualitative evidence suggests that distance is the most significant problem faced by learners in both schools. The differences detected by the student questionnaires, however, must be used to inform judgements about the effect of the intervention on both the mode of travel used and the quality components (time, cost, safety) of learner travel in each school.

#### *4.1.3 The availability of public transport*

The availability of public transport in the network of roads that serves each school is another factor that is likely to influence the mode of transport selected by

learners. This factor, in particular, is extremely difficult to quantify as learners tend to travel to school from all directions and are not necessarily associated with a particular community or concentrated geographical area (Interview with Principal A: November 22, 2005; Interview with Principal B: December 5, 2005). The approach of this study, however, was to determine whether the roads surrounding each school are equally served by taxis and busses. Additionally, access to a tarred road was measured in distance to compare the proximity of each school to a main road (see Table 1). On the whole, the evidence suggests that public transport is available on the roads in the immediate vicinity of both School A and School B.

Evidence of the existence of public transport in the area surrounding School A can be found in the staff interviews. While speaking about the problems with learner transport, the principal commented that, “Secondly, with regards to transport, availability of transport is... although it’s not that bad, but then, ... kids come from poor families so they cannot afford transport to take them to and from school- so they have to walk” (Interview with Principal A: November 22, 2005). Interviews with educators in the school revealed that the school is accessible by public transport which, in Ndwedwe, is comprised almost exclusively of busses and taxis (Interview with Teacher 1A and Teacher 2A: February 7, 2006). On the whole, then, it would appear that the school is served by both taxis and busses that are available on the main transport routes, but not always affordable to the learners.

A similar situation appears to exist in School B with regard to the availability of transport. The principal explained during an interview that busses do serve the area, but that they are used by the general public rather than by learners. It was also mentioned that there is no communication between the bus operators and school officials regarding routes and timetables (Interview with Principal B: December 5, 2005). With respect to the availability of taxis, the principal relayed that,

...I think with the learners, the problem... it usually comes from the fees. Because with the staff, [the taxis are paid] on month end or at the beginning of the month; the whole amount that covers the whole month. So if the learners are going to pay on a daily basis [the operators] think it’s risky because they don’t know how many learners they are going to collect for a day. So it’s a gamble for them.  
(Interview with Principal B: December 5, 2005)

In an interview with a teacher from the school, it was further revealed that staff members from the school had previously approached a taxi association for assistance, but “taxi wars” and disputes over territory and routes prevented an agreement between

the school and taxi owners (Interview with Teacher 1B: February 6, 2006). Thus, in general, it would appear that public transport is also available in the areas surrounding School B but that a failure to reach an agreement with bus companies and taxi associations has had a detrimental effect on the ability of learners to use public transportation.

While a sound quantitative method for corroborating the qualitative evidence on transport availability near the schools was not employed for this study, the student questionnaires do provide some insight. In response to the question asking that students rank the general transport problems that influence their journey to school, a relatively low percentage of learners indicated that public transport does not operate near their homes. In School A, 16.9% of the learners surveyed listed the availability of transport near their home as the most significant problem. Similarly, in School B only 12.2% of the learners indicated that the availability of transport near their home was their biggest problem. Overall, then, the evidence indicates that the availability and accessibility of public transport is relatively similar for the learners in both schools.

#### *4.1.4 The condition of the roads*

A final factor that can be said to affect the access of learners to motorised public transport is the condition of the roads in the vicinity of the schools. All roads that serve the immediate area of each school are dirt and gravel. Additionally, the topography of Ndwedwe is characterised by steep hills; making roads slippery, rutted and dangerous when wet. Evidence from the interviews with school staff members has suggested that the state of the roads on rainy days plays a significant role in determining the availability of public transport in Ndwedwe. In light of this finding, it is important to the reliability of the present study to ensure that the condition of the immediate access roads to each school is not an endogenous influence affecting the transport of learners. In order to ensure that the condition of local roads affects each school equally, qualitative accounts of the impact of the roads have been summarised for each school.

The principal of School A cited the condition of the roads near the school as having an observable effect on the operation of the school. In particular, it was noted that rain can cause a deterioration of the road surface to the point that teachers may

not be able to reach the school (Interview with Principal A: November 22, 2005). The condition of the roads may become so bad, it was explained, that the school might be accessible only to vehicles with four-wheel drive systems (see Appendix 4). In an attempt to quantify the problem, the principal estimated that the school may be closed for up to ten days of each school year due to the deterioration of the roads (Interview with Principal A: November 22, 2005). All of the staff members agreed that the availability of busses and taxis in the area depends upon the roads being relatively dry (Interview with Principal A: November 22, 2005; Interviews with Teachers 1A and 2A: February 7, 2006). One teacher even described the roads, when wet and slippery, as “impassible” and a serious obstacle to the availability of public transport for learners (Interview with Teacher 1A: February 7, 2006).

An almost identical situation in School B is evident from the accounts of school staff members. The principal, while commenting on the transport problems specific to the school, relayed that,

...whenever we approach a taxi operator to ask for assistance with transportation of teachers from Verulam to the school, they always ask us about the condition of the road. Because if- I believe that if the road is well prepared, tarred and all that, they will ignore the problem of distance. (Interview with Principal B: December 5, 2005)

The impact of the condition of the roads surrounding School B also appears to be related to unavailable transport and the closing of the school. One teacher commented that, “...in weather like this when it’s raining, the roads are muddy and the few transport that is available is then sometimes not available in such weather” (Interview with Teacher 2B: February 6, 2006). Another teacher explained that, “Sometimes when it is raining, because the road is gravel, sometimes it is muddy and you can’t come to school. If it is raining we are sometimes afraid because... the road is slippery and we just turn back and go home because of the roads (Interview with Teacher 1B: February 6, 2006).

With respect to the condition of the roads surrounding School A and School B, it is evident that rain severely affects the availability of public transportation. Additionally, staff members from both schools report that the condition of the road surfaces may prevent teachers from reaching the schools and, thus, affect the normal operation of the school day.

## 4.2 Transport for School Staff Members

An analysis of the modes of transport used by the staff members in both schools is significant to the evaluation and the overall context of the transport intervention. Interviews with administrators and educators revealed, for example, that transport problems also affect school staff members, but that the learners are not always affected by the same processes associated with obtaining transport to school. In general, it is clear that the transport problems that affect school staff members are distinct in several ways from the dilemmas faced by learners.

Educators and administrators from both School A and School B are almost exclusively from Durban and its immediate surroundings (Umlazi, KwaMashu and Verulam). As such, their problems with transport to school revolve predominantly around finding reliable and affordable transport from Verulam to their respective schools. In contrast to the learners, then, the staff members of the two schools travel first from their homes and then from a common point (Verulam) to school each day. This sort of arrangement results in very long travel times and often requires educators to change taxis at least three times on the way to school (Interview with Teacher 1A: February 7, 2006; Interview with Teacher 1B: February 6, 2006). There is also a heavy financial burden associated with travelling great distances. One teacher described the situation as follows:

I leave my house at five o'clock. I take a taxi at half past five which leaves me in town. From town I take another taxi to Verulam. From Verulam I take public transport, they are using Toyota Ventures here, and then it takes us from Verulam to school. It is expensive, it costs us R350 per teacher [per month]... It is hard to get a post in other places- near our families. Very difficult. (Interview with Teacher 1B: February 6, 2006)

In addition to being both costly and time-consuming, transport to school for educators and administrators involves travelling the same roads as the learners once they get near the schools. Staff members rely on persuading taxi drivers to take them from Verulam to their respective schools. If the roads are wet, teachers may be unable to reach their schools or they may arrive very late (Interview with Principal A: November 22, 2005; Interview with Principal B: December 5, 2005). Safety is another concern for school staff members. One principal explained that he is sometimes forced to acquire the services of a private van operating as an informal taxi if he cannot arrange transport from Verulam. Such taxis are not safe and, as the

principal relayed, last year several staff members from the school were seriously injured in an accident caused by the driver that was transporting them to school (Interview with Principal B: December 5, 2005).

On the whole, then, transport for staff members, while rarely mentioned in the literature, is a serious problem for the employees of both schools. Travelling to school is costly, time-consuming and, at times, dangerous for the educators and administrators. These dilemmas, however, are different to those faced by the learners in the two schools. The problems faced by the school staff members are a direct result of the difficulties associated with travelling from Verulam to their respective schools using motorised public transportation: cost, time and the willingness of taxi operators to transport them on rainy days. The problems that learners face, in contrast, involve complex financial, multi-modal, spatial and safety-related choices.

### **4.3 Modes of Transport Selected by Learners**

In light of the evidence that learners in both School A and School B face similar challenges with respect to the distances they must travel, the availability of public transportation and the condition of the roads they use, an analysis of the different modes of transport selected by learners in each school is able to demonstrate a significant impact of School A's transport intervention. The objectives of this section are to describe the primary and secondary modes of transport used by learners in each school, comment on evidence of multi-modal travel by learners and evaluate the significance of the modes of transport selected by learners in the two schools.

#### *4.3.1 Primary modes of transport*

A broad analysis of the primary modes of transport used by learners in the two schools demonstrates that the learners from School A (treatment group) use motorised public transport in the form of busses and taxis more than their counterparts in School B (counterfactual group). According to the findings displayed in Table 4, a relatively low proportion (65.9%) of learners in School A reported that "walking" was the most important way in which they travel to school in comparison to School B.

**Table 4 Distribution of Travel Modes to School by Percentages of Learners**

Mode of travel	School A		School B	
	Primary	Secondary	Primary	Secondary
<b>Walk</b>	65.9	32.8	92.5	19.0
<b>Private car</b>	8.5	12.5	4.1	73.8
<b>Bus</b>	9.3	20.3	1.4	7.1
<b>Taxi</b>	10.1	28.1	1.4	---
<b>Bicycle</b>	3.1	1.6	.7	---
<b>N</b>	126	64	146	42
<i>Chi Square(df) for primary mode</i>		26.091(3)*		
<i>Cramer's V for primary mode</i>		.313*		
<i>Likelihood ratio</i>		27.727*		
<i>Chi Square(df) for secondary mode</i>		45.015(3)*		
<i>Cramer's V for secondary mode</i>		.652*		
<i>Likelihood ratio</i>		53.164*		

\*p=0.000; \*\*p<0.05

With respect to the use of public transport, the respondents from the school indicated that 9.3% use busses as their primary mode of transport and 10.1% use taxis. As a whole, public transport is used by 19.4% of the learners in School A as a primary mode of travel to school. While this is certainly not the majority of the students surveyed, it was anticipated that more students from this school would use public transport than the students from School B. Thus, while most learners still rely predominantly on walking to get to school, a significant percentage is able to make use of motorised public transport.

As the table illustrates, a different situation exists in School B with respect to the primary modes of transport used by learners. In this school, 92.5% of learners selected “walking” as their most important mode of travel to school. Motorised public transport was described by only 2.8% of learners in the school as their most important travel mode. Another important difference between the two schools is that the learners in School B indicated that travel by private car is the second most important primary mode of transport (4.1%). Drawing from this evidence, it becomes

clear that public transport is utilised as a primary transport mode by a much larger percentage of learners in School A.

Several statistical tests were conducted to determine the significance of the differences between the two schools and the distribution of travel modes. As the table indicates, an association between travel modes and respective school attendance is detectable using the statistical test Cramer's V. On the whole, this test suggests that, despite the small sample size, a moderate but significant association between attending School A and making use of public transportation is observable, while the difference between the schools is statistically significant according to the chi square calculation.

Considering the prevalence of walking in both schools, as described by school staff members, and its predominance as a primary travel mode, the statistical association might suggest that the ability to choose other forms of transport to reduce the distance travelled on foot is the most significant impact of the intervention on the choice of travel mode. This conclusion is supported by the fact that learners in School A have a high likelihood (27.727) of choosing alternatives to walking as a primary travel mode.

#### 4.3.2 *Multi-modal travel patterns*

Evidence of multi-modal trips to school is another important component of the evaluation. In addition to making greater use of public transportation, it was anticipated that learners from School A would be in a position to use more than one mode of transport to travel to school and that learners would have more travel options than their peers in School B. The approach of this section is to outline the secondary modes of travel used by learners and to determine the frequencies of multi-modal public transport utilisation in each school.

As Table 4 suggests, public transportation is also more prevalent in School A by those learners that reported using a secondary travel mode. According to the questionnaire data, 28.1% of these respondents indicated that taxis are the most important secondary way in which they travel to school. Similarly, 20.3% cited bus travel as their secondary travel mode. In School B, on the other hand, only 7.1% of learners that reported a secondary mode were able to make use of public transport

in the form of busses. An unanticipated finding, however, is that the private car plays an important role as a transport option for learners (73.8% of secondary modes) in this school. In general, though, it is clear from the data that public transport is more widely used by the learners in School A. The conclusion that this difference in public transport use as a secondary mode is significant is supported by an even higher chi square statistic (45.015) and a stronger statistical association (.652).

The final question of the student survey attempted to understand public transport options in the two schools. In this question, the learners were asked if they sometimes make use of more than one type of public transport while travelling to school. This simple question, it was anticipated, would indicate whether students in their respective schools have the ability to choose multiple public transport modes depending upon availability. As expected, the data demonstrated that, in School A, 32.6% of the learners that answered the question did, on occasion, use more than one type of public transport to get to school. Conversely, only 15.1% of respondents in School B indicated that they sometimes travel to school on more than one type of public transport. The evidence, in this regard, suggests that a greater number of learners from School A make multi-modal trips and enjoy increased options with regard to public transportation.

Staff members interviewed from the schools were relatively aware of the modes of transport used by learners. In both schools, interviewees explained that the learners mostly walk the entire distance from home to school; despite the long distances (Interview with Teacher 1A and 2A: February 7, 2006; Interview with Teacher 2B: February 6, 2006). The principal of School A elaborated that some of the learners do make use of the public transport available, but that these are mostly the students that live far from school or have relocated with their families farther from the school (Interview with Principal A: November 22, 2005). While the responses to the questionnaires do suggest a slightly different situation, it is important to note that the perceptions of staff members are that walking constitutes the largest component of the journey to school for most learners. With respect to the role of distance and its relationship to the choice of travel mode, the school questionnaires indicate that 17.1% of the learners that live more than 10 kilometres from School A use public transportation. In School B, on the other hand, all of the learners that live more than 10 kilometres from school either walk or ride in a private vehicle. Thus, public

transport does appear to benefit at least some of those learners that live farthest from School A but not those from School B.

#### 4.3.3 Controlling for distance

Another important consideration, as outlined in previous sections, is the potential relationship between the distances that learners travel and its association with the choice of travel mode. In Table 5, the same tests were conducted on a smaller sample of students (N=123); those who report travelling between 4-10 kilometres to school. As mentioned at the beginning of the chapter, a fairly similar percentage and number of students in both schools travel this distance. As such, the results listed in the table below control for the influence of distance on the choice of travel modes.

**Table 5 Distribution of Travel Modes to School by Percentages of Learners that Travel 4-10 Kilometres**

Mode of travel	School A		School B	
	Primary	Secondary	Primary	Secondary
<b>Walk</b>	64.2	48.0	91.2	21.1
<b>Private car</b>	9.4	8.0	1.5	73.7
<b>Bus</b>	11.3	12.0	2.9	5.3
<b>Taxi</b>	11.3	28.0	2.9	---
<b>Bicycle</b>	3.8	---	1.5	---
<b>N</b>	53	25	68	19
<i>Chi Square(df) for primary mode</i>		13.515(4)**		
<i>Cramer's V for primary mode</i>		.334**		
<i>Likelihood ratio</i>		13.859**		
<i>Chi Square(df) for secondary mode</i>		21.583(5)*		
<i>Cramer's V for secondary mode</i>		.700*		
<i>Likelihood ratio</i>		25.626*		

\*p=0.000; \*\*p<0.05

The significance of the results presented in this table is that, even with distance as a controlled variable, a positive association between the choices of travel modes and schools is observable. Most importantly, a greater association between the school of attendance and secondary travel mode confirms that the students that travel similar distances in the two schools make distinctly different travel choices and that learners in School A are 25 times more likely to make different modal choices at this distance.

On the whole, the statistical tests conducted on the data describing learner travel modal splits suggest that the differences detected in the respective frequencies of learner responses are significant. In particular, a statistical association can be observed between the mode of secondary travel used by learners and the school of attendance. Most importantly, the same association and significant difference is observed when the tests are controlled for the variable of distance as reported in the questionnaires.

#### **4.4 Conclusion**

An analysis of the physical access that learners have to public transportation in School A and School B has indicated that, all things being equal, learners from the two schools are equally likely to benefit from the use of transport in the form of busses and taxis. The control of physical access to transport as an endogenous variable has, thus, confirmed the use of School B as an appropriate counterfactual group. As such, this analysis has increased the likelihood that the use of public transport in School A is attributable to the intervention in question. The statistically significant difference in the use of public transport as both a primary and secondary mode of transport by learners from the beneficiary school has demonstrated the first observable impact of the intervention on learner travel patterns. Furthermore, this increased use of public transport by learners from this school confirms the hypothesis formed prior to the collection of data.

Two limitations of this analysis of modal splits are important to mention at this point. First, the data is unable to establish a causal relationship between the school of attendance and the use of public transport. In part, this is due to the potential existence of unobservable influences on the learners in the study. While every effort was made to control for the impact of observable factors, the control for unobservable influences is a limitation of a study of this size. However, in light of the statistically significant differences in travel modes between the two schools, the next

chapter will now evaluate the impact of the intervention on such quality components of travel such as time, cost, and safety as well as the effect of transport on learner perceptions and behaviour.

## **Chapter 5 : Impact of the Intervention on Learner Perceptions and Travel Behaviour**

Given the observable differences between School A and School B in terms of the choice of travel mode by learners in each school, and the likelihood that these differences can be partially attributed to the intervention taking place in School A, an analysis of the effects of the intervention on several quality components of learner travel is now appropriate. This chapter will first discuss the possible impact of the intervention on the time spent travelling to school and on the cost of transport for learners. Second, the chapter will evaluate the intervention in terms of its effect on learner perceptions of safety, reported problems associated with travel to school, and the impact of transport problems on school attendance and participation. Throughout the following analysis, the effect of the reported distances travelled and the mode of travel used by learners will be evaluated separately to clearly outline the direct impact of the intervention wherever relevant.

### **5.1 Time Spent Travelling to School**

A reduction in the amount of time spent travelling to school was anticipated to be one of the most important outcomes of the transport intervention prior to the collection of data. In particular, it was expected that the learners that are able to make use of public transportation in the form of busses and taxis for some portion of the journey to school would report shorter travel times than those that walk the entire distance. Once again, however, controlling for distance and modal split is critical to an accurate comparison between the learners from School A and School B.

To begin with, an analysis of reported travel times demonstrates the overall distribution of travel time to each school. As Table 6 indicates, the learners from School B, on the whole, report shorter travel times than those of their counterparts in School A.

**Table 6 Reported Travel Times to School by Percentages of Learners**

<b>Reported Travel Time to School</b>	<b>School A</b>	<b>School B</b>
<b>Under 30 minutes</b>	17.8	38.1
<b>30 minutes- 1 hour</b>	45	41
<b>1-2 hours</b>	20.9	15.1
<b>2-3 hours</b>	10.9	3.6
<b>Over 3 hours</b>	5.4	2.2
<b>N</b>	129	139

Given the fairly normal distribution of responses, a t-test was calculated and revealed a value of 4.118 ( $p=.000$ ) for the variance in travel time presented in the table. This value and its significance indicate a statistically different distribution of travel times between the two groups of learners. While the findings presented in the table may be somewhat surprising, it must be realised that the time spent travelling to school is not only dependent on the mode of transport, but is also a direct function of the distances that learners travel and the type of terrain that they must negotiate. Of particular interest in the above table is the finding that the largest percentages of all learners surveyed in both schools spend between 30 minutes and one hour travelling to school.

When the distances that learners travel to school are considered, a slightly different situation can be observed with respect to travel time. As the intervention appears to most directly benefit learners that travel 10 kilometres or more to school, Table 7 displays the respective distributions of travel times of learners from both schools that report travelling this distance.

**Table 7 Travel Time by Percentages of Learners that Live More than 10 Kilometres from School**

<b>Reported Travel Time to School</b>	<b>School A</b>	<b>School B</b>
<b>Under 30 minutes</b>	4.8	22.2
<b>30 minutes- 1 hour</b>	45.2	33.3
<b>1-2 hours</b>	28.6	22.2
<b>2-3 hours</b>	14.3	5.6
<b>Over 3 hours</b>	7.1	16.7
<b>N</b>	42	18

Additionally, the fact that the learners that travel this distance are most likely to use public transport was discovered in the interview with the principal of School A and in the modal analysis reported in Chapter 4. Perhaps the most significant finding from the table above is the lower percentage of learners from the treatment school that travel more than 3 hours in order to attend school. In this regard, it seems likely that the intervention has contributed towards a reduction in the time spent travelling to school for the learners living farthest away.

The intervention may also be seen to positively affect the number of learners in School A that are able to reach the school in less than an hour. An unanticipated discovery from this analysis is the number of learners from School B that live more than 10 kilometres from school and still travel for less than 30 minutes. A cross-tabulation between travel modes and travel times revealed that the use of private cars as both a primary and secondary mode by learners in this category is the most likely explanation for the finding. Since this discovery does inform the overall evaluation of the intervention, it will be discussed in greater detail in several other sections of the chapter.

Another important descriptive analysis that contributes to the evaluation of the intervention's impact on travel time is the consideration of the direct effect of modal choice on travel time. Table 8 illustrates the comparison between the travel times of learners that live more than 5 kilometres from school and walk the entire distance with those of learners that use some form of motorised transport for at least some part of their journey over this same distance (either as a primary or secondary mode)<sup>4</sup>. As the table confirms, the use of motorised transport has a direct impact on the two extreme categories of travel time. A larger percentage of the learners from both schools that use motorised transport arrive at school in less than 30 minutes and fewer of these learners reported travelling more than 3 hours.

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<sup>4</sup> Motorised transport refers to taxis, busses and private cars. The limited use of taxis and busses by the learners from School B precluded a direct comparison between public transport use and travel time for both schools. However, in this section the category of "motorised transport" is comprised predominantly of taxis and busses for School A and private cars for School B.

**Table 8 Travel Time by Percentages of Learners that Live More than 5 Kilometres from School and Travel by Motorised Transport**

<b>Reported Travel Time to School</b>	<b>Learners that Walk to School</b>	<b>Learners in School A that Use Motorised Transport</b>	<b>Learners in School B that Use Motorised Transport</b>
<b>Under 30 minutes</b>	16.5	21	25
<b>30 minutes- 1 hour</b>	43.3	41.9	47.2
<b>1-2 hours</b>	23.7	22.6	19.4
<b>2-3 hours</b>	8.2	14.5	5.6
<b>Over 3 hours</b>	8.2	---	2.8
<b>N</b>	97	64	39

The perception of staff members regarding the amount of time spent by learners travelling to school supports this conclusion. One teacher, in particular, suggested that the students in School A generally do not have to walk for several hours to get to school (Interview with Teacher 2A: February 7, 2006). While the student questionnaires indicate that a small percentage of learners in the school do travel for this amount of time, the critical conclusion drawn from this analysis is that the students that are able to make use of private cars, busses and taxis generally do not travel for excessive amounts of time to get to school.

On the whole, then, this analysis supports the strong probability that the intervention has impacted on the travel times of learners that live farther away from School A. Specifically, those students that live more than 10 kilometres away and those that utilise public transport for some portion of their journey (either as a primary or secondary mode) demonstrate an observable reduction in the amount of time required to reach the school. Although a comparable reduction in the travel time to School B is observable for learners travelling in private cars, not enough is known about this particular mode of transport, at this point, to make an accurate comparison.

## **5.2 The Cost of Travel to School**

The financial burden of acquiring transport to school has largely been discussed in the context of learner travel in the urban areas of South Africa. In

general, however, the appropriate treatment of the monetary cost of transport as a component of school accessibility in rural and peri-urban areas is slightly ambiguous. In areas, for instance, where the majority of learners walk to school, the monetary cost of transport is obviously low. Conversely, the amount of time spent travelling to school in these areas might be relatively high, and the “cost” is then carried by the learners.

Survey data from primary and secondary school learners is not able to reliably uncover the individual cost-benefit analyses conducted by learners as they make their travel decisions. Conventional travel surveys distributed to learners are also not able to contribute towards the creation of quantitative indicators such as the percentage of household income spent on transport to school. Despite these obstacles, the impact of the intervention on the cost of transport to school is a relevant factor in the outcome of this study as one component of the intervention employed by School A is a reduction in taxi fares for learners. As such, the approach of this section is to provide a distributional analysis of the reported cost of travel to each school by travel mode and by distance travelled.

### 5.2.1 Cost of travel to school and the effect of modal choice

On the whole, the learners that attend School A spend a greater amount of money on travel to school. This finding is unsurprising because a modal analysis has already revealed that the learners in this school are able to make use of public transport to a much greater extent than their peers in School B.

**Table 9 Cost of Trip to School by Percentages of Learners in School A and School B**

<b>Cost of Travel to School</b>	<b>School A</b>	<b>School B</b>
<b>Less than R2</b>	34.6	36.1
<b>R2-R5</b>	41.0	61.1
<b>R6-R10</b>	14.1	---
<b>R11-R20</b>	3.8	---
<b>Over R20</b>	6.4	2.8
<b>N</b>	78	36
<b>T-test</b>	<b>1.941</b>	<b>p=.055</b>

As Table 9 shows, of the learners that reported paying some sort of fare for the trip to school, the majority from both schools pay R5 or less per trip. The variance in the distribution of reported travel costs between schools is not significant as demonstrated by the t-test (1.941). A cross-tabulation between travel mode and cost reveals that the majority of learners that travel to school in a private car report paying a fee of some sort. Of all the learners in the sample, 87% of those that travel in cars as a primary mode reported paying a fare, while 51% of those using the car as a secondary mode report paying a fare. This finding provides more insight into the analysis of this travel mode and suggests that it is some sort of profit-based service operating in the area, rather than a service provided by a family member.

An analysis comparing costs for those learners that make use of motorised transport for some part of their journey allows for a deeper understanding of the impact of School A's transport intervention. Table 10 displays the respective percentages of learners and the amount that they pay for motorised transport in each school. As the data suggest, the majority of the learners in the beneficiary school that choose to pay for transport are able to travel to school for less than R5 (median is between R2-R5).

**Table 10 Cost of Travel to School by Percentages of Learners that Use Motorised Transport**

<b>Cost of Travel to School</b>	<b>School A</b>	<b>School B</b>
<b>Nothing</b>	9.6	56.8
<b>Less than R2</b>	31.5	18.2
<b>R2-R5</b>	32.9	25
<b>R6-R10</b>	15.1	---
<b>R11-R20</b>	4.1	---
<b>Over R20</b>	6.8	4.3
<b>N</b>	73	44

Similarly, a very small percentage of bus and taxi users in the school reported paying more than R10 per journey. While a counterfactual analysis of public transport costs is not possible due to the extremely low utilisation of public transport by learners in School B, several conclusions can be drawn about the corresponding situation in this school.

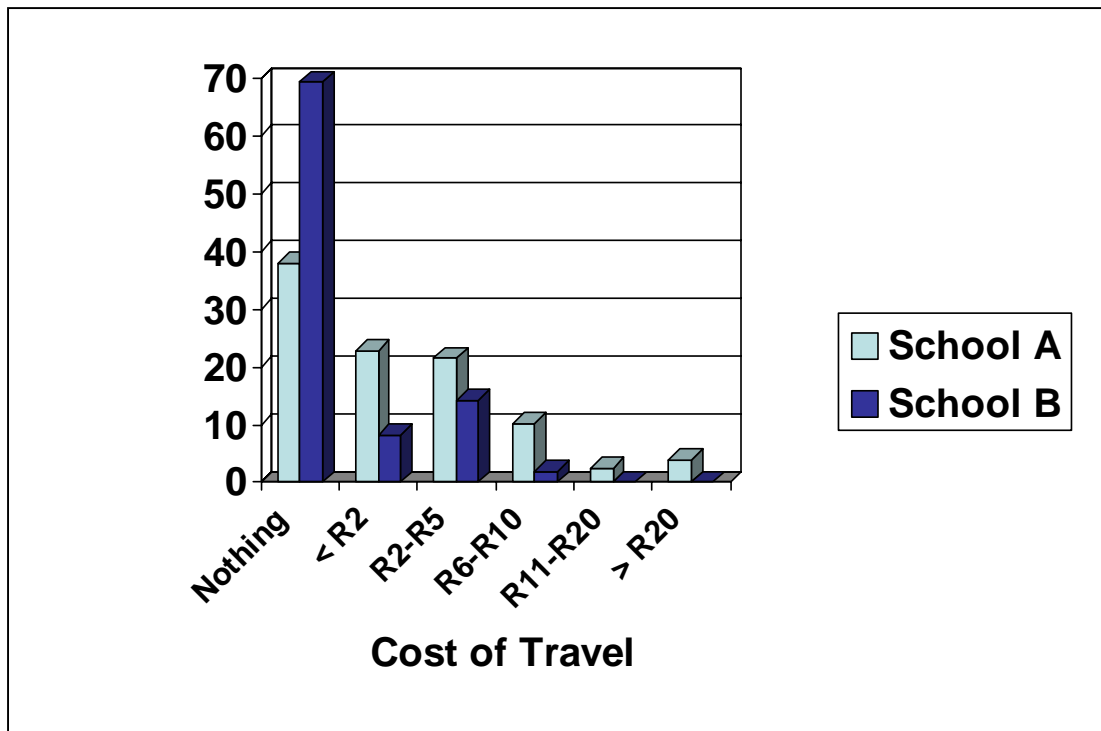
The first conclusion, drawn from the modal analysis in Chapter 4, is that the use of the private car is more common in School B and that, again, it is not always a free service provided by the friends and families of learners. Of those learners in the counterfactual school, for instance, that travel by car as a primary mode, 67% pay between R1 and R5 per trip. Similarly, of the learners in this school that use the private car as a secondary travel mode, approximately 40% pay this same amount for the service. Thus, within the modal category of “private car”, it is evident that more than one type of service is provided to learners. A second conclusion regarding the cost of transport to School B is that it is linked to the choice of travel mode. The principal of the school expressed that the use of private vans and cars is common because there are no other affordable options and that learners must either walk to school or make use of these private initiatives when possible (Interview with Principal B: December 5, 2005). An analysis of the safety aspects of this form of transport will be conducted later in the chapter.

On the whole, this section has demonstrated that the learners from School A spend slightly more on travel to school, but that the majority pay R5 or less per journey. The significance of these findings is that more students in School A choose to pay the fares for busses and taxis (rather than walk or travel in private cars) to get to school than their counterparts in School B. Most importantly, the analysis of motorised transport and travel costs has suggested that the private car is being used by learners from School B, in some cases, as a more affordable travel substitute for busses and taxis.

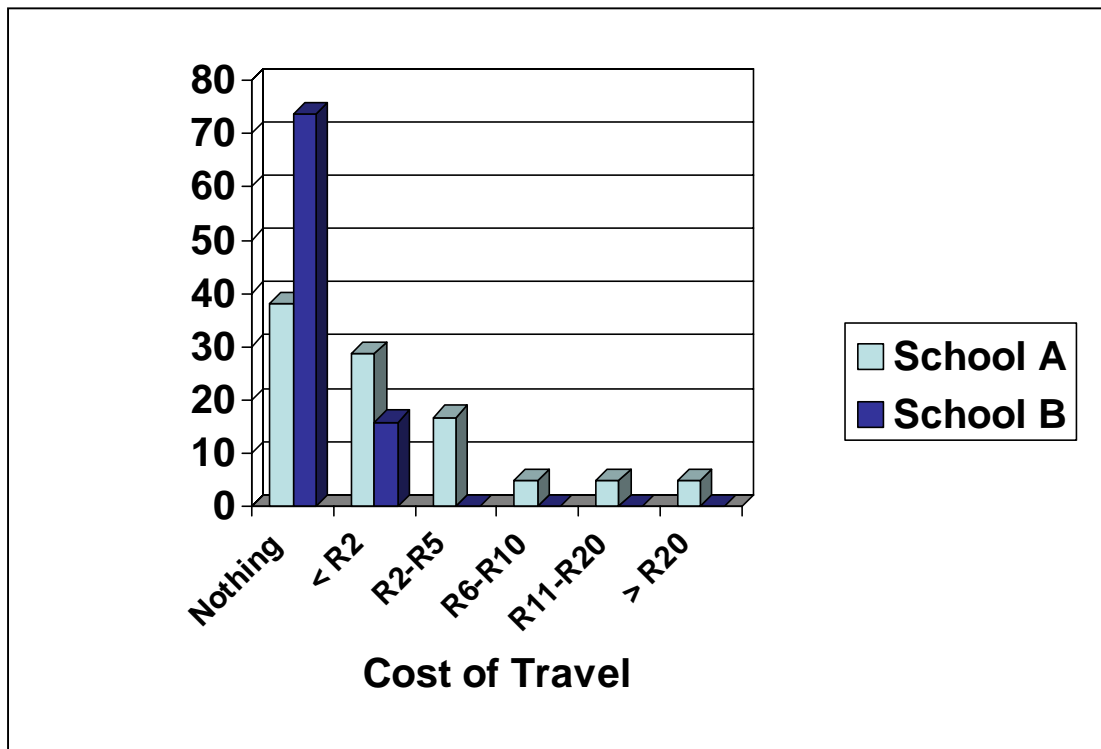
### *5.2.2 Cost of travel to school and distance*

The relationship between the distance travelled to school and the cost of transport was expected to be an important factor in the decision to use public transport by the learners in both schools. As such, this section will address the reported costs of travel to school by learners categorised according to the distances they live from school. Figure 4 illustrates the distribution of fares paid by learners that report living more than 5 kilometres from school. As the data suggest, a greater percentage of learners in School A are paying for transport at this distance.

**Figure 4 Cost of Travel for Percentages of Learners that Travel More than 5 Kilometres (N=128)**



**Figure 5 Cost of Travel for Percentages of Learners that Travel More than 10 Kilometres (N=61)**



Significantly, the majority of the learners in School A and all of the learners in School B pay less than R10 to travel this distance. Figure 5 makes the same calculation with the number of students that report living more than 10 kilometres from their school. Once again, the evidence describing the cost of transport to learners supports the conclusion that public transport is utilised by a greater number and percentage of learners in School A. The main assumption underlying this analysis is that these learners (and their parents) make individual cost-benefit analyses and elect to spend the amounts of money displayed above instead of walking the entire distance to school.

While causality cannot easily be determined in a study of this size, it is relatively safe to argue that the fact that the majority of students in School A living far from school spend R5 or less on transport influences the decision of those learners to use public transport. Conversely, it may be assumed that the decision by all of the learners in School B that live more than 10 kilometres from the school to either walk or pay to ride in a private car is an indication of the lack of affordability of public transport for learners in that school.

One other plausible explanation is that the intervention increases the catchment area of School A and encourages learners from farther away to attend the school. Similarly, this analysis suggests that the intervention effectively reduces the cost per kilometre for travel to School A and motivates learners and their families to make use of public transport. Thus, public transport in the form of busses and taxis becomes an affordable option for a greater number of learners. This claim, then, intuitively leads to an interest in other potential benefits of public transport use.

### **5.3 The Safety of the Trip to School**

Another important factor in the evaluation of School A's transport intervention is the impact that it has on the safety of a learner's journey to school. While the previous section examined the trade-off between the cost of transport and the time spent travelling to school that learners and their families are often required to consider, this section will discuss the relationship between distance, mode and trip safety in the context of the intervention. At the outset, it must be explained that safety in this study is defined almost entirely by learners' perceptions. Prior to the collection of data, it was anticipated that an unsafe journey to school might feature the following characteristics: vulnerability to robbery or physical attack and rape, likelihood of

becoming involved in an accident of some type, or exposure to weather related dangers. While the scope of this research project does not permit a fuller understanding of the safety issues surrounding the various travel options available to the learners in these two schools, this section does outline the general perceptions of safety held by the learners and educators participating in this study.

### 5.3.1 Learner perceptions of safety

An overall look at learner perceptions of safety reveals that the learners from School B feel that their trips to school are generally safer than do the learners from School A. In School B, 44.5% of the learners felt that their primary mode of transport was safe and 52.1% described their secondary travel modes as safe. The data provided by learners from School A, on the other hand, show that only 38.8% rate their primary travel modes as safe and 32.6% feel that their secondary modes are safe. Disaggregating the learner responses by travel mode, however, reveals a different situation. Table 11 displays learner ratings of the different modes of primary travel listed in the survey.

**Table 11 Percentage of Modal User Groups that Perceive Their Primary Travel Mode as "Safe" (N=275)**

User Groups by Mode of Travel	School A	School B
Walkers	29.4	41.4
Car passengers	50	83.3
Bus passengers	58.3	100*
Taxi passengers	75	100*
<b>Chi-square(df)</b>	<b>17.185(5)</b>	<b>p=.004</b>

\*A very low number of individual cases in this group

The most significant finding from the table is that a higher percentage of bus and taxi users rate their choice of travel mode as safe. The chi-square statistic presented above suggests that a significant difference does exist between travel mode and safety between the schools. A similar analysis of user groups by secondary mode results in a comparable outcome. One key difference in the safety perceptions of secondary user groups, however, is the fact that only 46.4% of private car users in School B rate trips to school by car as safe. It is also evident that a relatively small percentage of learners that walk in both schools feel that this is a safe way to travel.

Thus, the fact that the intervention is able to decrease the number of students that are forced to walk to school suggests that it is also able to improve the safety of its beneficiaries as well as reduce the amount of time spent travelling.

### *5.3.2 Educators' perceptions of learner travel safety*

Given the perceptions of learners in both schools that travel by bus and taxi are the safest modes of travel, an analysis of the perceptions of safety by educators is required in order to provide insight into the student responses. Several of the school staff members that were interviewed described potential dangers associated with walking and travel in private cars. A teacher in School B, for example, relayed that the fear of robbery during the walk to school sometimes results in learner absenteeism (Interview with Teacher 1B: February 6, 2006). Walking long distances on a daily basis, it is understood, increases the likelihood of attack and the exposure to crime. Additionally, it was explained during an interview that weather conditions can affect the safety of learners as rivers overflow and roads become muddy and dangerous. In one extreme case, a learner was killed by a storm while walking home in the afternoon (Interview with Principal A: November 22, 2005). These accounts suggest that the learners that walk the entire distance to school everyday are, indeed, exposing themselves to a greater risk. Intuitively, those learners that walk more than 10 kilometres to school are at an even greater risk due to the many potential dangers that exist along the way.

With respect to the safety of learners, the use of private cars and vans to transport learners has become a contentious subject in rural communities throughout KwaZulu-Natal. An article posted on the KZN transport department's website explains that the recently formed "Operation Shanela" is currently tasked with enforcing an immediate moratorium on transporting learners in bakkies and light delivery vehicles (LDV's) for profit. The article cites the statistic that 10,000 accidents involving bakkies occurred during the first half of 2004. An estimated 2,218 people, many of whom were school children, were injured in these accidents (KZN Department of Transport, 2006). The considerable protest aimed at the department's operation by parents, learners, educators and vehicle owners was also mentioned in the article. Based on the responses of participants in the present study, it would appear that learners in Ndwedwe are continuing to make use of private vans and bakkies to travel to school.

The principal of School B confirmed that these vehicles are still being used to travel to school because there is no other option for learners. In terms of safety, the principal was aware of the danger as staff members from his school were seriously injured in an accident involving a private vehicle last year. The principal, however, expressed his frustration at the lack of transport options for his learners and the unwillingness of the local community to become involved with the organisation of learner transport (Principal B: December 5, 2005). While it is was not specified in the school questionnaires which types of private cars were being used by learners, the fact that students indicated that a fare was paid in many cases suggests that private vehicles (e.g. bakkies, vans and LDV's) for profit are being used in both schools. Additionally, the poor safety rating given to this mode of transport by secondary users in School B increases the likelihood that this is the case.

Another safety issue surrounding the conveyance of learners in private vehicles is sexual predation or exploitation. A number of learners indicated in the school questionnaires that they do not pay a fare for transport in private cars and that they consider this to be an unsafe mode of transport. The principal of School B touched on this issue as he explained his concern with the arrival of female learners at his school in the private vehicles of older men. A possible explanation for this trend is sometimes referred to as the "sugar daddy syndrome." This phenomenon, as described in the literature, is generally characterised by relationships between men and women that feature significant "...age and economic asymmetries" (Luke, 2005: 7).

In describing the nature of these relationships, a recent paper notes that, "...young people in many countries are exploited or attempt to take advantage of such relationships to meet their basic needs, upscale their living standing and outlook among peers, and/or get money, clothes, school fees, gifts..." (Kuate-Defo, 2004: 14). With respect to the occurrence of this phenomenon in South Africa, the paper notes that schoolgirls in South Africa are sometimes attracted to older men as a result of their desire for material goods (Kuate-Defo, 2004: 16). The material goods most commonly associated with the sugar daddy syndrome are often termed the "4 C's" and consist of "...cell phones, cars, clothes and cash" (Kuate-Defo, 2004: 16). With respect to the journey to school, the Education Rights Project notes that the long distances that learners travel often encourage them to accept transport from adults; thereby exposing themselves to sexual violence (Taylor, 2002: 7).

While further research is needed to understand the full impact of sugar daddy relationships on adolescent girls, public health concerns seem a likely result of these relationships. In particular, the prevalence of unprotected sex, the spread of sexually transmitted diseases and exposure to sexual violence are purported to be the result of these types of unequal power relations between older men and schoolgirls (Kuate-Defo, 2004: 32). As such, the existence of these types of relationships in one or both of the schools participating in this study must be viewed as a dangerous trend.

Evidence supporting the existence of these relationships in School B is found in an analysis of travel modes and cost. Of all learners that travel in private cars as either a primary or secondary mode and pay no fare for the trip to school (N=55), 65% are female learners. Despite the high proportion of female learners using this mode of transport, an analysis of the perceptions of safety by gender indicates that there is no difference between the perceptions of male and female learners. This is not altogether surprising as the scope and size of the present study do not permit a deeper investigation of the effect of the sugar daddy syndrome on female learner travel patterns or perceptions of safety. At best, the qualitative account of the principal of School B and the observation that users of this transport mode are mostly female suggests that sexual exploitation is a potential safety issue for learners at this school.

Both the quantitative and qualitative data collected for this study indicate that the use of motorised public transport is the safest way to travel to school. While more research should be directed at the advantages and disadvantages of learner travel using the private car (and the types of services that fall under this category), this chapter has, thus far, demonstrated that the use of busses and taxis to transport learners as arranged for the students of School A is efficient in terms of time and cost and is perceived to be safer than walking or travelling in a private car by both learners and educators. The counterfactual analysis has further revealed that learners from School B are either walking to school or riding in private vehicles. While this latter mode is able to reduce the overall travel time to school, the safety of learners might well be sacrificed in many instances. The next two sections will now add to this analysis by describing learners' perceptions of their travel modes and options and discuss the effects of the intervention on learner behaviour and well-being.

#### 5.4 Reported Problems with Learner Travel

Learner experiences with travel to school form another key component of the evaluation of the intervention. In the school questionnaires, learners were asked to describe the main problem with the modes they use to get to school and to indicate the general problems associated with accessing transport to their respective schools. It was anticipated that these responses by the learners would provide insight into the situation of learner travel in the two schools and perhaps allow for an improved understanding of the modal decisions that learners make.

Table 12 lists the main problems that learners encounter on their journey to school. As the distribution of possible problems in the table demonstrates, the learners from the two schools describe different problems specific to accessing their respective school.

**Table 12 Reported Problems with the Journey to School by Percentages of Learners**

<b>Biggest Reported Problem with the Trip to School</b>	<b>School A</b>	<b>School B</b>
<b>Expensive</b>	7.8	8.2
<b>Unsafe</b>	21.7	42.5
<b>Takes too much time</b>	33.3	27.4
<b>Long wait</b>	7.8	6.2
<b>Unreliable</b>	3.9	.7
<b>Doesn't come near the learner's home</b>	17.8	6.8
<b>N</b>	129	146

The largest percentages of learners in both schools, however, reveal that safety and the amount of time spent travelling are their main concerns. While this information is of great interest to the overall understanding of School A's transport intervention, the analysis presented in Table 13 provides greater insight into the direct effect of primary travel modes on learner perceptions of their trip to school.

**Table 13 Reported Travel Problems by Percentage of Primary User Group in School A and B**

<b>Reported Problem</b>	<b>Walking</b>		<b>Car</b>		<b>Bus</b>		<b>Taxi</b>	
	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>
<b>Expensive</b>	9.2	8,9	9.1	---	8.3	---	8.3	---
<b>Unsafe</b>	18.4	45.5	18.2	50	41.7	---	25	---
<b>Time</b>	39.5	31.7	45.5	---	8.3	---	33.3	---
<b>Wait</b>	6.6	7.3	9.1	---	8.3	---	16.7	---
<b>Unreliable</b>	6.6	.8	---	---	---	---	---	---
<b>Far from Home</b>	19.7	5.7	18.2	50	33.3	---	16.7	---
<b>N</b>	85	135	11	6	12	2	13	2

The comparison between the two schools in this table suggests that the majority of learners that walk in each school cite safety and time as the two biggest problems with travel to school. Notably, the time taken to get to school is the biggest complaint by walkers in School A while safety is the main concern for the same group in School B. The findings presented in this table also support the conclusion that travelling in a private car to School B is not a safe travel mode. Another interesting finding is that the users of busses in School A described safety as the biggest problem with that mode of travel and the distance that the bus travels near their home as the second biggest complaint. This finding, however, might be explained by the relatively small number of bus users (N=12).

The users of taxis, on the other hand, indicated that a long travel time is the single biggest problem with that mode. Significantly, a very small percentage of public transport users in School A indicated that the trip to school is too expensive. While a direct comparison between bus and taxi users in the two schools is not possible, the learners have indicated that time and safety are the main concerns, overall, with their modes of travel to school. Although it is not possible to determine how the learners from School A would have responded prior to the intervention, it may be speculated, based on the perceptions of the learners in both schools, that the learners from the beneficiary school are choosing public transport (especially taxis)

instead of walking or riding in private cars because it is safer and relatively affordable. This conclusion is only speculation at this point, but it does indicate a viable direction for future research as the factors that contribute towards modal decision making are currently not known. .

A final analysis of learner perceptions of transport and travel to school categorised by the distances that they live from their respective school reveals the general travel problems that affect learners in the two schools. The data presented in the table below represent the frequencies of responses to the question asking students to rank the general transport problems affecting their trip to school (and the travel choices that they make). Those learners that live more than 10 kilometres from the two schools, for example, ranked problems with travel slightly differently.

**Table 14 Reported Travel Problems for Percentages of Learners that Live More than 10 Kilometres from School**

Highest Ranked Problems	School A	School B
<b>Expensive</b>	21.6	5.3
<b>Unsafe</b>	16.2	36.8
<b>Takes too much time</b>	37.8	31.6
<b>Long wait</b>	16.2	5.3
<b>Unreliable</b>	2.7	---
<b>Doesn't come near the learner's home</b>	5.4	15.8
<b>N</b>	42	19

Table 14 demonstrates that the students travelling the greatest distances to School A rank the time travelled as the most significant problem associated with travel to school. An explanation for the high number of students that selected this problem might come from the observation that 16.2% of the learners in this group expressed that the time spent waiting for transport is too long. The students living farthest from School B also ranked travel time as a significant problem, but the majority felt that safety is the largest problem associated with travel to this school.

A brief analysis of the perceptions of learners, then, has indicated that travel time and safety are the two biggest complaints about travel to both schools overall and across modal and distance groups. As such, the ability of the transport intervention in School A to reduce the travel time for students travelling long distances and the

relative safety of public transport over walking and travelling in a private car suggested by this study indicates the significant impact of the intervention on both learner travel patterns and on the perceptions of learners.

In light of the suggested associations between the use of public transport, the distances travelled to school and the perceived safety of the journey to school, an attempt has been made to model the relationships between the variables described in this report using a logistic regression. As Table 15 suggests, a significant model can be designed, but causality remains difficult to ascertain in a study of this size.

**Table 15 Logistic Regression Coefficients of the Effect of Selected Variables on the Perceived Safety of Travel to School**

Variable	B Coefficient	Wald	Ex(B)
School			
School A	-.462	2.270	.630
School B	#	#	#
Gender			
Male	-.796**	7.904	.451
Female	#	#	#
Distance to school	.049	1.171	1.050
Travel time	-.001	.119	.999
Travel Mode			
Walking	-.654**	4.986	.520
Private car	-.825	1.744	.438
Public transport	#	#	#
<b>-2 likelihood= 291.333</b>			
<b>Model Chi Square (df)= 66.331 (6); p= .000</b>			
<b>Nagelkerke R Square= .302</b>			

**\*p=0.00; \*\*p<0.05; \*\*\*p<0.10; # reference category**

The regression presented above lists the variables hypothesised to have an effect on the reported safety of the journey to school. In this simple model, an unsafe journey is represented by a “0” and a safe trip by a “1”. As the results of the regression demonstrate, there is no clear indication that the variance in safety as reported by the learners is explained by any of the independent variables listed in the model. Rather, the regression only shows that gender and travel mode are the only two significant

predictors in the model. In part, the limitations of the model can be explained by an unequal distribution of travel modes and the predominance of walking as a primary mode. Even though the model does little to explain the importance of the variables used in this study, it is suggested that a similar exercise would be extremely valuable in a larger evaluation. Thus, the findings from this section should provide further justification for the use of this methodology with a study of a much larger scale.

## **5.5 The Effects of the Intervention on School Participation**

This final section of the chapter attempts to associate the improved safety and reduced travel times attributed to the intervention with an impact on school participation. School participation in this study is defined in terms of reported rates of absenteeism and tardiness as well as the effects of the journey to school on the well-being of learners. Responses from both the learners and educators were used to inform the evaluation of the intervention in terms of school participation.

### *5.5.1 Absenteeism and tardiness*

The student responses in the travel questionnaires suggest that the intervention appears to have almost no impact on absenteeism or tardiness. Approximately 73% of the respondents in School A indicated that problems with the trip to school sometimes prevent them from coming to school. In School B, only 40% answered that they are forced to miss school at times because of travel problems. The same situation seems to apply to tardiness in the schools. Just over 80% of learners in School A said that problems with transport, weather or distance sometimes make them late for school. Only 56% of learners from School B felt that any of these problems might cause them to be late for school. When these same calculations are controlled for the distances travelled and cross-tabulated by travel mode, the same results are found. Thus, according to the data gathered directly from learners, the intervention has not positively affected the attendance of learners in School A.

A very different perspective on absenteeism is held by the educators from School A. During the interviews, educators explained that despite the long distances travelled and adverse weather conditions, the learners generally do come to school (Interview with Teacher 1A and 2A: February 7, 2006). Similarly, the principal of the school suggested that apart from about 10 very rainy days in a given year when the

school is closed, the learners do attend school and that they are mostly on time when they come to school (Interview with Principal A: November 22, 2005). While the educators agree with the principal that absenteeism is not a problem in the school, they do feel that tardiness is a problem. One teacher even suggested that the timing of the local bus plays a role in the tardiness of learners (Interview with Teacher 2A: February 7, 2006).

With respect to the situation in School B, the qualitative data gathered during the school staff interviews indicate that absenteeism and tardiness are both a problem at the school. The principal noted that tardiness to school is the main problem associated with learner travel to his school (Interview with Principal B: December 5, 2005). Both educators interviewed for the study agreed with this statement and added that absenteeism is also a problem and is related to the weather, the condition of the roads and the fear of robbery on the way to school. Thus, according to the qualitative accounts gathered, absenteeism (contrary to the results of the surveys) appears to be a bigger problem for School B while late-coming to school occurs in both schools as a result of problems encountered on the way to school. On the whole, then, while a quantifiable impact of the intervention on absenteeism and tardiness has not been reported by the learners themselves, the fact that improved safety and reduced travel time has been attributed to the intervention does lend support to the qualitative accounts provided by the educators and principals.

### 5.5.2 *The trip to school and learner well-being*

Another important component of school participation is the well-being of learners and their ability to concentrate once they arrive at school. As suggested in the HSRC's report, *Emerging Voices*, the long distances that are walked by primary and secondary school learners in rural areas often result in an impaired ability to concentrate during school hours (HSRC, 2005: 47). Thus, in addition to the high cost of travel to school in terms of time and money, a difficult journey to school also results in a reduced state of well-being for learners.

Evidence of these well documented effects of long travel times on learner well-being is also found in several interviews from the schools participating in this study. A teacher from School B, for instance, noted that the main problem with learner travel to the school is that the students are tired, hungry and sometimes wet

when they arrive in the mornings (Interview with Teacher 1B: February 6, 2006). Intuitively, such a state affects the ability of learners to make the most of the school day. A similar observation was reported by an educator from School A who noted that by the time learners arrive at school they are already tired from their journey (Interview with Teacher 1A: February 7, 2006). Again, the implication of these reports is that long travel times compromise the attainment of a quality education for learners that live far from their schools. Combined with the perception of learners that walking is not a safe way to travel to school, this discovery demonstrates that walking long distances adversely affects the well-being of learners at school. As such, the ability of the transport intervention to noticeably reduce travel times and provide alternatives to walking for some learners demonstrates another significant impact of the intervention.

### *5.5.3 Improvements in the provision of learner transport*

A final indication of the effectiveness of School A's intervention is found in the dynamic nature of learner transport in the school. The evidence in this regard shows that the learner transport situation is improving in School A while staying about the same or becoming worse for School B. This finding is based on the perceptions of the educators and administrators interviewed and suggests that the intervention has had a positive effect on the school overall.

The principal of School A explained that, since he began working at the school, the availability of taxis serving the area near the school has improved steadily. This improvement has resulted in increased access to taxis for the teachers and to taxis and busses for the learners (Interview with Principal A: November 22, 2005). Presumably, the arrangement between the school and the taxi associations and the school and the bus company has also contributed to an improvement in the effective use of public transport by learners and educators at the school. A teacher from the school confirmed this hypothesis by adding that learner transport has improved in the school because learners are now using taxis and busses instead of private vans as in the past (Interview with Teacher 2A: February 7, 2006). Thus, the educators at School A are able to report an improvement in the transport of learners to school as a result of the increased use of busses and taxis in place of private vehicles.

Learner transport to School B, on the other hand, appears to be worsening overall. The principal of this school, however, estimated that the situation is staying the same, but qualified the remark by explaining that public transport remains practically “non-existent” for learners (Interview with Principal B: December 5, 2005). Both the participating teachers from the school agreed that the situation is definitely worsening. One teacher explained that the situation of learner transport is worsening and that it is becoming increasingly difficult for staff members to arrange transport from Verulam (Interview with Teacher 2B: February 6, 2006). Thus, the fact that “taxi wars” and disputes over routes have affected the ability of the community and the school to arrange transport for its staff and its learners provides a possible explanation for the steady decline of transport to the school. Most importantly, the perception of the educators in this school is that the transportation available to learners is not improving in any way.

## **5.6 Conclusion**

The findings reported in this chapter support the hypothesis that the transport intervention employed by School A has had an observable effect on several aspects of learner travel. Specifically, reduced travel times to school and improved safety on the journey to school may both be reliably attributed to the intervention. A counterfactual analysis has demonstrated that more learners from School A elect to pay transport fees rather than walk the entire distance to school (as do the great majority of learners from School B). An analysis of the fares paid suggests that the costs of obtaining transport to School A are not prohibitive to learners and that learners living the farthest from the school are the most likely to use taxis and busses.

Reported travel problems from learners in both schools suggest that safety and travel time are the biggest concerns overall. Additionally, a direct comparison between School A and School B shows that the improved safety of travel as reported by learners is perhaps the greatest detectable impact of the intervention. Supporting this conclusion is the fact that busses and taxis have the best safety rating by all learners participating in the study. Finally, while a quantifiable effect of the intervention on absenteeism and tardiness was not detected, qualitative evidence demonstrates that absenteeism, tardiness, fatigue, hunger and impaired concentration are all associated with walking long distances to school.

## **Chapter 6 : Conclusions and Recommendations**

The approach of the present study has demonstrated a potentially useful model for the identification and evaluation of transport interventions in South African schools. Moreover, the findings of the study are able to generate recommendations for the treatment of learner transport and contribute towards policy formulation. While it is important to consider that this is an indicative study, the aim of an impact evaluation is to generate information about the effects of policies or interventions that will directly inform policy changes or funding decisions. As such the objective of this final chapter is to demonstrate the way in which a rights based approach can be used to further interpret the present study and to underscore the way in which the approach might inform both policy considerations and future programme evaluations.

### **6.1 Embracing a Rights Based Approach to Programming, Monitoring and Evaluation**

In recognition of the fairly recent convergence of rights and development discourse and based on CARE International's (Maxwell and O'Brien, 2000: 4) understanding of the programming potential of human rights, the following "rights oriented" guidelines are recommended for the interpretation and analysis of the present study's findings:

- Discussion of learner transport should be done in a relational context in order to determine which individuals, groups and institutions are under obligation to protect/promote the rights of learners;
- Identification of possible solutions/policy changes/research designs that will affect the provision of learner transport should reflect the obligations discussed above;
- Analysis of the intervention's impact should aim to determine what more should be done in terms of facilitating the transport of low-income learners to school;
- Planning future evaluations should incorporate methodologies and approaches that are likely to understand both processes and outcomes with respect to the fulfilment of learners' rights to access schools, their right to a basic education and their rights as children to safety.

These guidelines should be used, then, to ensure that the present study is employed in a “rights” context and that the results of the study are used to gauge the existing rights of learners and to guide the recommendations of this report so that it might establish “what else can be done” to improve the “minimum conditions for living with dignity” for learners that walk long distances to school.

## **6.2 Implications for Policy**

Given the existing challenges to the reform of transport described at the beginning of the report and in recognition of the demands of the rights based approach discussed above, the policy implications of the present study’s findings should now be analysed. While the scope of the present study precludes an exhaustive review of specific policy recommendations, this section aims to demonstrate how an impact evaluation might be employed to inform policy and improve the rights of learners to access schools. This section will begin with a brief discussion of formal obligations towards learners and then review potential policy options for learner transport provision based on the findings presented in the last two chapters.

### *6.2.1 Positive or negative rights for learners?*

As outlined in previous sections, a rights based approach often attempts to understand a multi-dimensional fulfilment of human rights and to identify duty bearers with obligations to upholding these rights. In line with these objectives, the findings of the present study suggest that both provincial and national government departments have certain obligations to learners with respect to the provision of transport. As described in Chapter 1, learners in KwaZulu-Natal are protected by a series of negative rights, but do not benefit from a comprehensive network of positive rights.

The KZN transport department, in order to fulfil its requirement under the NLTTA, has implemented a learner transport strategy that is intended to protect learners from dangerous travel modes and, according to the transport department, satisfy its constitutional obligation to protect learners/children from harm (KZN Department of Transport, 2006). The department admits that, although taxis and busses are not currently serving the province’s learners, kombi taxis are willing to

transport learners and that it is the responsibility of parents to approach taxi associations (KZN Department of Transport, 2006).

An analysis of the findings of the present study reveals that the provincial transport department is not meeting its obligation to learners. Qualitative evidence has shown that school staff members from School B have already attempted to negotiate arrangements with the local taxi association on a number of occasions, but have failed due to disagreements over routes and fare structures. Additionally, nearly all the participants in the study have suggested that infrastructure requirements in the form of road maintenance are essential to the improvement of transport to the schools. The counterfactual situation has suggested that more needs to be done to promote the rights of learners to safely and efficiently access their schools. Thus, the overall conclusion from this realisation is that protecting soft rights in place of promoting full rights and ensuring appropriate access to schools is not fulfilling the rights of learners to a safe and efficient trip to school.

#### *6.2.2 Employing cost-benefit analyses*

In addition to identifying the duty bearers that have obligations towards learners, the methodology of the present study can critically inform the understanding of policy and programme outcomes. The assessment of outcomes, in turn, improves the policy recommendations that can be derived from an impact evaluation. With respect to the present study, the consideration of the time, cost and safety of travel to school affords an opportunity to evaluate the policy implications of the study's findings.

Perhaps the most important finding of the study is the possibility that the learners from School A choose public transport over walking or travelling in a private vehicle and that they make this choice because it is a safer way to travel to school. There are well documented safety concerns with both walking to school and travelling in various types of private vehicles. Qualitative accounts further suggest that the learners that walk the entire distance to school are tired, hungry and sometimes cold and wet when they arrive. As such, the present study has revealed that there is more to the intervention than just a reduction in the time and cost of the trip to school. In fact, it would appear that in some cases, the use of public transport is slightly more

expensive and results in longer travel times than other modes of travel (private vehicles).

Combining quantitative and qualitative data has supported the hypothesis that the superior safety and comfort of public transport has encouraged some learners from the treatment school to choose busses and taxis over walking or travel in a private vehicle. A similar study conducted on a larger scale would thus be able to conduct a statistically modelled cost-benefit analysis in order to understand the trade-off that learners make with respect to the variables of travel time, cost, safety, and personal well-being. Such an analysis would also be able to assess the multi-dimensional fulfilment of the rights of learners to access schools. This type of approach could ultimately be used to influence the formulation of policy by providing a fuller understanding of the impacts of interventions on learners and the determinants and predictors of learner travel patterns.

### *6.2.3 A case for targeted learner transport subsidies?*

The consideration of specific transport policies, while mostly beyond the scope of this report, is able to more clearly identify the duty bearers and potential solutions with respect to the provision of learner transport. Perhaps the most obvious policy implication of a study that finds public transport to have a significant impact on learner travel is subsidisation. The ability of the learners from School A to expand their choice of travel modes, improve their travel times and enhance their safety and well-being invokes an obvious interest in the formal subsidisation of learner transport by national or provincial government.

The extension of subsidised transport to learners, as currently done in Gauteng, is a somewhat contentious proposal. According to a calculation based on the results of the 1998 Rural Mobility Study, extending a R2 daily subsidy to each primary and secondary student in the province that currently uses some form of public transport, walks more than 3 kilometres each way or is not attending school (presumably as a result of poor accessibility) would nearly double the existing transport subsidy for KwaZulu-Natal (V3 Consulting, 1999: 43). A large scale impact evaluation would be well placed to conduct a cost-benefit analysis comparing this projected amount with an indicator quantifying the safety and well-being of learners.

Once the validity of such a subsidy has been considered, it could be divided amongst the national and provincial departments of education and transport. The existing subsidy structure in South Africa places the burden of learner transport on provincial education budgets (National Treasury, 2003: 150). Sharing the responsibility for meeting the needs of learners, it is suggested, might result in a more pragmatic approach to subsidisation. Alternative solutions to spending such a substantial amount of money on additional transport subsidies include: targeting the subsidies to the most vulnerable learners, subsidising the distribution of bicycles where appropriate (e.g. the government's Shova Kalula pilot programme), and coordinating interventions more carefully between future transport, housing and land use development strategies (V3 Consulting, 1999: 44).

On the whole, the debate surrounding learner transport subsidisation suggests that both the relevant national and provincial government departments are the primary duty bearers with respect to the realisation of learners' rights. A recent critique of the current transport subsidy framework, for instance, has charged that existing transport subsidies encourage unhealthy competition between different modes. The paper goes on to suggest that altering the current subsidy structure will "...evoke high emotion and resistance" from operators and stakeholders and that a careful and thorough implementation will be necessary (Fourie and Pretorius, 2003: 7). Additionally, the authors contend that all transport subsidies must align with national transport objectives in order to ensure an integrated reform (Fourie and Pretorius, 2003: 7). These demands, coupled with the finding of the present study that infrastructure development and mini-bus taxi route regulation are required to better serve learners suggest that government intervention is required.

#### *6.2.4 Learner transport and the taxi recapitalisation process*

In light of the fact that the counterfactual school in the present study was unable to reach an agreement with the local taxi association and in recognition of the NDoT's current efforts to restructure the mini-bus taxi industry, the formalisation of learner transport routes as a policy option must be considered. In the context of attempting to understand what more can be done for learners and by whom, the findings of the present study suggest that the formalisation and regulation of the mini-

bus taxi industry has the potential to improve the mobility of learners that travel on poor roads and across terrain where busses cannot easily go.

The National Department of Transport's Taxi Recapitalisation Programme (TRP) demonstrates a willingness to improve the regulation of the taxi industry beyond the highly publicised "scrapping" of unsafe vehicles. According to the department, the eventual goal of the programme is to regulate taxi routes and facilities. In the words of the national transport minister, "...the days of the taxi industry regulating itself will soon become a thing of the past" (NDoT, 2005b). Fourie and Pretorius further contend that the present transport subsidy system has enforced the perception that bus and rail are formal services while mini-bus taxis can operate outside the formal transport network. The result has been a "disjointed and uncoordinated" public transport system in South Africa (Fourie and Pretorius, 2003: 6). As the present study has revealed several benefits attributed to the use of both busses and taxis to learners in Ndwedwe, the regulation, formalisation and subsidisation of the taxi industry appears to be a promising solution to existing transport problems for learners. In turn, a properly regulated restructuring of the taxi industry would potentially make previously underserved transport users such as learners more attractive to transport operators and stakeholders (Fourie and Pretorius, 2003: 9).

It has been argued in this section that both the relevant transport and education departments have obligations to learners as many of the existing issues with learner transport provision are cross-cutting across these departments. Additionally, it has been suggested that positive actions must be taken to improve the accessibility of schools and that several policy options are available that could improve the present ability of learners to access a quality basic education. Once again, however, a larger scale and more technical impact evaluation is required in order to adequately quantify the benefits of transport interventions and, thus, inform policy.

### **6.3 Designing Future Evaluations**

A rights based analysis can also provide recommendations and guidelines for the evaluation of transport interventions. As noted in earlier sections of the report, impact evaluations are currently gaining favour with international organisations and institutions as a robust and reliable way to gauge the effectiveness of interventions,

policies and projects. Combining this rigorous methodology with a rights based emphasis on understanding processes and encouraging participation, it is submitted, will result in a more robust evaluation. This section will provide insight into the design of future evaluations by first exploring the potential for large-scale evaluations and then discussing the role of methodology in conducting evaluations of learner transport interventions.

### *6.3.1 Randomisation and “scaling-up”*

Two obvious limitations of the present study are its lack of rigour in sampling procedures used to select the participating schools and the fact that it is, therefore, not in any way representative of learner travel patterns in Ndwedwe or KwaZulu-Natal. While the study did detect an observable impact of the intervention being evaluated, and while it does have implications for policy, future evaluations of this nature should attempt to be more “rigorous” if they are to influence policy at either the national or provincial level. To this end, randomised evaluations often result in the most straightforward and reliable studies because the sample bias is eliminated and the results are simple to interpret from a policy perspective (Baker, 2005: 2). Furthermore, the “scaling-up” of pilot projects can be implemented in several useful ways.

First, an intervention that is limited in scale (such as the one in the present study) can be identified and then randomly implemented on a large scale while proven interventions or successful pilot projects can be replicated at random. The advantage of this approach is that pilot projects/interventions can be randomly assigned and then tested in different contexts (Duflo, 2003: 9). Second, existing policies (e.g. scholar transport strategy of Gauteng) may be transferred to other provinces or expanded incrementally in a random order so that their effectiveness may be tested in more than one setting (Duflo, 2003: 9). In both types of “scaling-up,” randomisation ensures that the treatment group is not benefiting from the intervention because of an observable need for assistance or unobservable characteristics such as possessing superior negotiating skills or greater entrepreneurship.

Even with the application of rigorous sampling and evaluation techniques, several guidelines should be followed in order to ensure that the evaluation accurately describes complex processes that have an impact on both the implementation and the effectiveness of a given intervention. The use of participatory research methods in

conjunction with traditional quantitative and qualitative techniques, for example, is likely to enhance the evaluation process by uncovering complex relationships that are difficult to examine using other methods and may have a significant effect on the overall conclusions drawn about the intervention (Ezemenari *et al.*, 1999:21).

Moreover, participatory approaches to gathering data are able to capture the perspectives of beneficiaries and allow for a deeper analysis of an intervention's real impact. With respect to the evaluation of learner transport interventions, these approaches can complement data obtained from surveys and observations. In the present study, for example, information regarding the condition of the roads in Ndwedwe, the difficulties associated with mini-bus taxi routes and the dangers of travel in private vehicles was obtained through the perspectives of both stakeholders and beneficiaries. As such, a fuller understanding of the processes affecting learner transport provision and the relationships between stakeholders and institutions was obtained.

### 6.3.2 *Adapting the present study*

Finally, the research instruments employed in the present study provide valuable insight into the collection and analysis of learner transport data. The goal of the learner questionnaires was to introduce a balanced research instrument that was simple to understand for the learners yet capable of capturing important features of travel patterns, choices and perceptions. A larger evaluation designed to directly influence policy, however, would benefit from several refinements to the questionnaire used in this study.

The questionnaire, for example, has several limitations that preclude a more detailed analysis of the relationships between variables. A considered revision of the questionnaire should seek to expand and restructure several of the key questions in order to allow for the calculation of several outcome indicators. Questions seeking to understand learners' perceptions of trip safety, rates of absenteeism and the problems associated with travel to school were phrased as "yes" or "no" questions. It is suggested that a more useful approach would attempt to discern how safe learners feel while travelling to school and how much the trip to school affects absenteeism and tardiness. In light of the fact that the improved safety of the trip to school is the most significant outcome of the intervention, it is recommended that future research dissect

the determinants of a “safe” trip to school in order to understand more about the possible effectiveness of interventions in improving the safety of the journey to school.

Furthermore, a more expansive evaluation could establish outcome indicators that reflect the impact of transport provision on performance at school. Proxies for school performance might include drop-out rates, pass rates and subject marks. In addition, the collection of “supply-side” information would also improve the analysis. Examples of this might include the quality of the baseline information about the schools in terms of equipment and teacher qualifications, as well as information on the transportation services that are available. The overall objective of the revised questionnaire in the context of a larger scale evaluation would be to model the causal relationships between different variables and outcome indicators so that specific outcomes can be reliably attributed to the intervention being tested.

#### **6.4 Conclusion**

The reform of passenger transport in South Africa is taking place within the larger context of decentralised service delivery, expanding public-private partnerships and governance devolved to local levels. As a backdrop to these trends, South Africa has a progressive constitution that places a strong emphasis on promoting the rights of the most vulnerable members of society. The goal of this study was to analyse the impact of a specific learner transport intervention and assess its implications for policy solutions to the dilemmas in transport provision for learners in South Africa. Through a rigorous impact evaluation analysed within a rights based framework, the findings of the present study have highlighted a number of issues. In particular, the approach adopted by this study has focussed on identifying duty bearers and describing what more should be done for learners.

Through the evaluation of the transport intervention in the treatment school, the present study was able to further the contributions to understanding travel patterns made by the Rural Mobility Study and the NHTS by uncovering processes that currently limit learners from making use of public transportation. While the present study has corroborated the conclusion that the majority of learners in KwaZulu-Natal walk to school, an impact evaluation has demonstrated that walking to school and

riding in private vehicles are unsafe and have a negative impact on learners' well-being and their right to a quality basic education.

Most importantly, the evaluation has suggested that, if given the opportunity, learners will make use of busses and taxis in order to reduce their overall travel times and to improve the safety of their trip to school. The implication of these findings is that both provincial and national education and transportation departments must fulfil their constitutional obligations by ensuring that policies encourage the accessibility of public transport to the nation's learners. Access to the nation's schools by safe and efficient transport is critical to the accumulation of human capital by learners and is both a fundamental human right and an important component of sustainable poverty alleviation.

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# **Appendix 1**

## **Appendix 2**

## **Appendix 3**

## **Appendix 4**