THE ROLE OF SCHOOL AND EDUCATOR VARIABLES IN SELECTED LEARNER OUTCOMES

by

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Declaration

I declare that this thesis hereby submitted by me for the degree Philosophiae Doctor at the University of the Free State is my own independent work and has not previously been submitted by me at another university/faculty. I furthermore cede copyright of the thesis in favour of the University of the Free State.

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Lori-Ann van der Linde
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“Education is the most powerful weapon which you can use to change the world.”

Nelson Mandela

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Glossary of Acronyms and Abbreviations

C2005	Curriculum 2005
DBE	The Department of Basic Education
DoE	Department of Education
DP	Depersonalisation
EE	Emotional Exhaustion
HA	Highly Autonomy Supportive
HC	Highly Controlling
ICT	Information and Communication Technology
JD-R	Job Demands-Resources Model
MA	Moderately Autonomy Supportive
MBI	Maslach Burnout Inventory
MC	Moderately Controlling
MITB	Model for Interpersonal Teacher Behaviour
NCS	National Curriculum Statement
NQF	National Qualifications Framework
NSC	National Senior Certificate
OBE	Outcomes-Based Education
PIRLS	Progress in International Reading Literacy Study
PIS	Problems in School Questionnaire
QTI	Questionnaire on Teacher Interaction
RAI	Resultant Autonomy Index
RIA	Relative Intrinsic Aspirations
RPA	Reduced Personal Accomplishment
SAQA	South African Qualifications Authority
SAQMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SASA	South African Schools Act
SDT	Self-Determination Theory
SEM	Structural Equation Modelling
SES	Socioeconomic Status
SGB	School Governing Body
SLEQ	School-Level Environment Questionnaire
TIMSS	Trends in International Mathematics and Science Study

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Introduction

Background and Problem Statement

Education is a major driving force behind any strong economy and is a precondition for social and economic growth (Govender & Gruzd, 2004). Education has been earmarked as a powerful tool for reducing poverty and inequality, with secondary education in particular being recognised as pivotal to the social, economic and human capital development of countries around the world (World Bank, 2010). It is thus understandable why education holds such a prominent role in South Africa, with its history of segregation and current levels of poverty and unemployment.

In South Africa, education has been hailed as the key to national prosperity and upliftment (Allais, 2007a; Asmal & James, 2001). The education system has undergone significant transformations over the past 18 years since the end of Apartheid. Although much progress has been made, particularly with improved access to education for all, the quality of education in South Africa, particularly in predominantly Black schools, remains a major concern (Taylor & Yu, 2009; van der Berg, 2005).

Purpose and Necessity of the Study

International studies have shown that the cognitive skills of the population, rather than mere school attainment, are strongly related to national economic growth and prosperity (Hanushek & Wößmann, 2010). Thus, although access to education is important, it is the *quality* of education received by learners which is critical to improving the quality of the labour force and associated national economic growth and development which the current government seeks. The Department of Basic Education (DBE; 2011a) recognises that "South Africa's performance when it comes to the quality of learning outcomes is among the lowest of middle income countries" (p. 13) and a key aim of the 2011-2014 Strategic Plan is to improve the quality of teaching and learning. In addition to improving learner performance, educators' well-being has received attention, with one of the DBE's (2011b) goals from the

Action Plan to 2014 being to work towards "a teacher workforce that is healthy and enjoys a sense of job satisfaction" (p. 4).

In line with the DBE's (2011a, 2011b) aims, a goal of this study is to investigate individual and contextual factors relevant to educational effectiveness at multiple levels. The school contextual variables of interest are school type, school environment, and classroom environment. The individual level variables under study are educator burnout and motivating style, and learners' achievement and motivational aspirations. These variables are briefly described later in this chapter (see Table 1) and are explored in depth in subsequent chapters. The main outcome variable in this study is learner achievement and a secondary outcome variable of interest is educator burnout. Educator burnout thus represents both a predictor of learners' achievement and an outcome of school environment in this study.

Research has shown that the learning environment is important for both educator and learner outcomes (Dorman, 2003; Fraser, 1998). Whereas there have been several international studies on the role of the school and classroom environment in learner outcomes (e.g., motivation, well-being and achievement), a review of the literature shows that few learning environment studies have been conducted in South Africa. Aldridge, Fraser, and Laugksch (2011, p. 129) confirm that there have been "very limited" studies in this regard and the present study aims to contribute to filling the hiatus in South African learning environment research. Both school and classroom environment were included in this study, based on the suggestion by Van Petegem, Aelterman, Rosseel, and Creemers (2007) that they should not be researched in isolation. Regarding educator burnout, Dorman (2003) highlights that further research is required on the role of the school environment in educator burnout. Van Tonder and Williams (2009) argue that the reasons for burnout among educators in South Africa have not been sufficiently explored, and an aim of this study is thus to investigate the relationship between school contextual variables and educator burnout. The

main focus of this study, however, is on learner outcomes, particularly achievement. There is international evidence that school contextual variables (Fraser, 2007; Webster & Fisher, 2003) as well as educator burnout (Maslach, Jackson, & Leiter, 1996) and motivating style (Reeve, Bolt, & Cai, 1999) are related to learner outcomes, and this needs to be researched in the South African context. Finally, the type of schools which learners attend (e.g., advantaged versus disadvantaged) has been shown to relate to their achievement (Bhorat & Oosthuizen 2009; Gilmour & Soudien 2009; Howie, Scherman, & Venter, 2008; van der Berg & Burger, 2003). Van der Berg (2005) has highlighted that educational resources alone cannot explain the variation in achievement, particularly in Black schools, and a major aim of this study is thus to investigate differences in the selected school, classroom, educator, and learner variables across four different school types to understand which factors are important for learner achievement.

In summary, it is pertinent that factors which relate to scholastic achievement and educator burnout be studied in order to aid the critical process of improving the standard of education and the well-being of educators and learners in South Africa. Information from this study can be used to inform education policy development and areas identified as important for learner achievement can be targeted for improvement. Knowledge of the factors that are related to educator burnout can be utilised to develop programmes to both prevent and remediate burnout. This information could also be included in educator training programmes in order to prepare new educators for the demands which they are likely to face in the South African education system.

Conceptual Framework and Description of Variables

Education, as a process and an outcome, is a function of numerous variables at multiple levels. A meta-theoretical framework from a self-determination theory (SDT) and Lewinian background was adopted to conceptualise the variables included in the present

study. This meta-theory was selected because it brings together the variables of interest elegantly, in a meaningful way. This section provides an overview of the conceptual model utilised as well as a brief description of the variables included in the study in Table 1.

An Organismic-Dialectical/ Lewinian Framework

SDT is a macrotheory of human development, motivation, and wellness with a strong empirical basis (Deci & Ryan, 2008). SDT is based on an organismic-dialectical metatheory, with a basic tenet that "humans are active, growth-oriented organisms who are naturally inclined toward integration of their psychic elements into a unified sense of self and integration of themselves into larger social structures" (Deci & Ryan, 2000, p. 229). Human beings, however, do not exist in a vacuum, and these natural growth and integrative tendencies are subject to influences from the environment. Instead of considering the person and the environment in isolation, SDT takes a dialectical view and highlights that the dynamic *interaction* between the active, integrating individual and the social environment is fundamental to human growth and development. It is argued that the social environment can either foster or impede the innate tendency towards growth and integration. When the social environment nurtures the natural growth tendency, the result is likely to be psychological health, wellness and integration. In contrast, when the social environment inhibits the inherent growth-orientation, the likely result is psychological distress, fragmentation and unhealthy behaviours. Thus, the outcome of psychological growth and integration is not accepted as a given, but is instead viewed as "a dynamic potential that requires proximal and distal conditions of nurturance" (Ryan & Deci, 2002, p. 6).

The organismic-dialectical view corresponds to Lewin's (1936) formula, $B = f(P, E)$, where behaviour (B) is seen as a function of the interaction between the person (P) and the environment (E). SDT proposes that psychological growth, development, wellness and motivation are a function of the interaction between the active organism (P) and the social

environment (E). In terms of education, it could be said that educational outcomes are a function of the interaction between educators (P) and learners (P), and the educational environment (E). At school, educators form an important part of the educational environment for learners, and vice versa.

Lens and de Jesus (1999) suggest that the educational environment (E) can be broken down into three levels, namely, the classroom level (e.g., teaching style, instructional materials), the school level (e.g., school environment, School Governing Bodies), and the national level (e.g., government policies, socioeconomic factors). For the purposes of this study, a further level was identified between the school and national level, namely, the community level (e.g., community characteristics, location of school).

Taking into account the two dimensions of person and environment, and the contextual levels identified, the variables included in this study can be conceptualised as displayed in Table 1, which also provides a brief description of each variable. As can be seen from Table 1, educators and learners represent the persons of interest in this study. Educators and learners possess an array of unique bio-psychosocial characteristics, and the variables to be investigated in this study are educator burnout and motivating style, and learner achievement and motivational aspirations. Regarding the educational environment, the classroom, school, and community contextual levels are of interest and the particular variables relating to these levels are classroom environment, school environment, and school type respectively. As mentioned, each of these person and contextual level variables will be discussed in depth in later chapters.

Table 1

An Organismic-Dialectical/ Lewinian Conceptualisation and a Description of the Research Variables

Dimensions and Contextual Levels	**Variables Included in the Study**	**Description of Variables**
The Person (P)		
Educators	Burnout	Work related emotional exhaustion, depersonalisation, and lack of personal accomplishment.
	Motivating Style	The degree to which educators are autonomy supportive versus controlling towards their learners.
Learners	Achievement	National matriculation examination results (i.e., final Grade 12 examination results).
	Motivational Aspirations	Learners' intrinsic and extrinsic life goals.
The Environment (E)		
Classroom Level	Classroom Environment	Educator-learner interactions. Educators' perceptions of their interpersonal behaviour in the classroom.
School Level	School Environment	Educators' perceptions of the psychosocial dimensions of their schools (e.g., relationships with colleagues and principals).
Community Level	School Type	Historico-political and socioeconomic school categories: • Advantaged Schools • Transitional Schools • Disadvantaged Black Schools • Disadvantaged Coloured Schools

General Research Questions

The following five broad research questions will be investigated:

1. What is the relationship between school, classroom and educator variables?
2. Does school environment predict educator burnout?
3. Do learners' motivational aspirations and average class size per school predict Grade 12 achievement?
4. Does school type predict learner achievement?
5. Do the four types of schools included in the study differ in their school, classroom, educator, and learner variables?

More specific research questions will be presented in Chapter 6 and 7.

Dissertation Structure

An overview of the dissertation structure is provided in Table 2. The first part of the dissertation is comprised of the literature survey, which covers Chapters 2 through 5. Chapter 2 provides an overview of past and present education in South Africa at the national level. Chapter 3 discusses the relevant school contextual variables at the community (school type), school (school environment), and classroom (classroom environment) levels. At the person level, Chapter 4 explores educator burnout and motivating style, and Chapter 5 considers learner achievement and motivational aspirations. Chapter 6 marks the beginning of the empirical part of the study and outlines the methodology employed, followed by the results and discussion in Chapters 7 and 8 respectively.

Table 2

Outline of Dissertation

Chapter	Topic	Level	Nature
1	Introduction	N/A	Theoretical
2	Past and present education in South Africa	National	Theoretical
3	School type, school environment, and classroom environment	Community, School, Classroom	Theoretical
4	Educator burnout and motivating style	Person	Theoretical
5	Learner achievement and motivational aspirations	Person	Theoretical
6	Methodology	N/A	Empirical
7	Results	N/A	Empirical
8	Discussion	N/A	Empirical

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An Overview of Past and Present Education in South Africa

South Africa is a country marked by socio-political upheaval at various points in its history. The domain of education did not escape political influence, and this chapter focuses on past and present education in South Africa at the *national* level to provide a broad contextual background to understanding the variables included in this study. The chapter begins with a description of education under Apartheid, followed by an overview of the current education system. Educational advances made over the past 18 years and the challenges which lie ahead are summarised in the concluding section.

Education under Apartheid

Apartheid is a dark stain which flecks the social and economic fabric of South Africa. To understand the current state of education, it is important to be aware of key features of the Apartheid system which shaped every aspect of South African society and altered the course of education for the majority of the population.

Racial segregation in South Africa started in colonial times and was formalised under Apartheid, officially introduced in 1948 by the National Party. The Apartheid regime consisted of discriminatory social, political, educational and economic policies and practices which favoured the White minority and marginalised other racial groups. The Population Registration Act of 1950 classified South Africans into four race groups, namely, Black, Coloured (mixed race), Indian, and White. Blacks were at the bottom of the imposed racial hierarchy, followed by Coloureds and then Indians, with Whites reigning supreme. Non-White groups were restricted in almost every way, with access to education and employment opportunities severely curtailed and living areas dictated by the Group Areas Act of 1950. This Act enabled the forcible removal of non-White persons from desirable urban areas designated for Whites, and their relocation to peripheral, under-developed areas.

The majority of urban Blacks had already been relegated to Black-only townships prior to Apartheid under the Urban Areas Act of 1923 and the associated ‘pass laws’, which

restricted their movements (Morris, 1998). This trend continued with greater force under Apartheid and, like everything else, the quantity and quality of infrastructure and services provided in urban neighbourhoods reflected the racial hierarchy. Consequently, Black townships had the most dismal of provisions, followed by Coloured areas, which were better equipped, but still inadequate (Morris, 1998; Steyn, 2003). Restrictions and directives around living areas have had a lasting impact on the structure of urban areas in South Africa today, with the majority of urban Blacks and Coloureds living in townships on the fringes of cities and towns.

White dominance was instigated and propagated through the racially segregated education system, with each of the four designated racial groups served by a separate education system, with a total of 15 independent departments. Government spending was lavished on White schools which received ten times the funding per learner compared to non-White schools at the height of Apartheid (Fiske & Ladd, 2005). White learners had access to higher quality education in schools with smaller class sizes, more highly qualified educators, and better resources (Felix, Dornbrack, & Scheckle, 2008).

In 1953 the Bantu Education Act was introduced. This act undercut the quality of Black education in line with the racist views that Blacks did not need to be educated to White standards because they did not have a place in Western society beyond that of providing menial work and labour (Mandela, 1994). Bantu Education purposefully omitted education in science and mathematics and was delivered in township and rural schools which tended to be overcrowded and under-resourced (Asmal & James, 2001; Felix et al., 2008; Vally, Dolombisa, & Porteus, 1999). Black educators' salaries in 1953 were poor and this led to a marked reduction in trainee educators, with the result that only one third of Black educators were qualified (Clark & Worger, 2004). Schools for Coloured learners were also under-resourced, but not to the same extent.

By the mid 1980s the strength of the Apartheid system had started to wane due to more effective mass protest and resistance in South Africa, as well as economic pressures and international sanctions (Vally et al., 1999). There was an increase in spending per learner between 1985 and 1992 in an endeavour to close racial gaps in funding, but by 1992, spending was still four times greater for White compared to Black learners (Chisholm, Vally, & Motala, 1998). Limited desegregation of White state schools began in 1990. When unrestricted formal desegregation was decreed in 1993, there were 60,000 non-White learners at Model C schools (i.e., White state aided schools; South African Institute of Race Relations, 1995).

The under investment in physical and human resources for non-White schools during the Apartheid era has left a legacy of poorly trained educators, large class sizes and inadequate school infrastructure, particularly affecting Black schools (Clark & Worger, 2004; Fleisch & Christie, 2004; Steyn, 2003; Zulu, Urbani, van der Merwe, & van der Walt, 2004; Butheleze, 2002).

Education in the New South Africa

When the first democratic Government came into power in May 1994, it inherited the pervasive inequalities created by Apartheid described in the previous section. So began the mammoth task of transforming the discriminatory social, economic and educational structures of a racist past into a modern democratic society which promotes equal rights for all its citizens. Just as segregated education was a cornerstone of Apartheid, so too would education in the "new South Africa" be a critical vehicle for promoting redress and equity. Key changes in the education system from 1994 are now briefly discussed to provide an understanding of the current context of education in South Africa.

Transformation and Legislation

The Constitution of the Republic of South Africa (1996) states that "everyone has the right to education, including adult basic education" and the revolution in education has been underpinned by the values of human dignity, equality, human rights and freedom, non-racism and non-sexism. An early achievement of the new Government was the integration of the 15 racially and geographically segregated Education Departments into one national ministry, the Department of Education (DoE), and nine provincial Education Departments. Since 1994, there has been a massive overhaul of education policy and legislation which has facilitated equal educational access and the redistribution of educational resources, with a focus on those previously disadvantaged. Selected focal policies and legislation are now described below.

The South African Schools Act (SASA; 1996) provides a uniform system for the organisation, governance and funding of schools and has been pivotal in creating non-discriminatory access to education for all learners. The act provides for two types of schools, namely independent and public schools, and makes schooling compulsory for children aged 7 to 14. It promotes decentralisation and advocates for democratic school governance, delivered via School Governing Bodies (SGBs), which has been implemented in all public schools. SASA indicates that SGBs must take all reasonable measures within their means to supplement the resources supplied by the government in order to improve the quality of education provided by the school. The act also prioritises economic redress and reduction in poverty by outlining the school funding norms which allow for the equitable redistribution of resources in the public schooling system. SASA allows for the implementation of a sliding scale for school fees, based on parents' income, providing for exemption for parents who cannot afford to pay and the declaration of schools in poverty-stricken areas as "no fee schools".

The South African Qualifications Authority (SAQA) Act (1995) introduced the concept of an integrated approach to education and training and laid the ground for the establishment of the National Qualifications Framework (NQF), given legislative effect by the National Qualifications Framework Act No 67 (2008). One of the main objectives of the NQF is to create an integrated national framework for learning achievements, represented by eight levels, outlined in Table 3 below. Level one refers to General Education and Training qualifications (Grades 1 to 9). Level two to four represent Further Education and Training qualifications (Grades 10 to 12). When learners successfully complete Grade 12, they receive the National Senior Certificate (NSC), which corresponds to a level four qualification. Finally, Higher Education and Training qualifications cover levels five to eight.

Table 3

The Levels of the National Qualifications Framework (Adapted from http://www.saqa.org.za)

NQF Level	Qualification Type	Band
8	• Post-doctoral research degrees • Doctorates • Masters degrees	Higher Education and Training
7	• Professional Qualifications • Honours degrees	
6	• National first degrees • Higher diplomas	
5	• National diplomas • National certificates	
4	**Further Education and Training Certificate**	Further Education and Training
3	• National certificates (NSC) • Grade 10 – 12	
2		
1	**General Education and Training Certificate** • National certificates • Grade 1 – 9	General Education and Training

The NQF aims to provide learners with clear learning pathways, to increase educational provision by providing clear learning outcomes against which new providers can offer programmes, and to improve quality by making it clear what the desired standards are. While this sounds good in theory, the amount of educational provision delivered against the new outcomes based qualifications and unit standards has been low (Allais, 2007b). A focus on outcomes rather than content has been a theme in education transformation, including curriculum reform.

Curriculum 2005 (C2005), introduced in by the DoE in 1997, represents a dramatic shift from Apartheid education and "embodies the vision for general education to move away from a racist, Apartheid, rote model of learning and teaching, to a liberating, nation-building, and learner-centred outcomes-based initiative" (DoE, 2009a, p. 12). C2005 is based on the model of Outcomes-Based Education (OBE), which shifts attention from the *content* of the curriculum to the *outcomes* that are important for learners to achieve. The National Curriculum Statement (NCS) indicates the minimum outcomes or standards that must be attained and these are intended to be aligned with the levels of the NQF. C2005 organises curriculum, instruction and assessment to ensure that the necessary learning takes place to enable learners to achieve the required outcomes (Botha, 2002).

Once again, in theory, the principles of OBE are laudable, but have been difficult to implement in South Africa - a developing country with a fledgling educational system and poor educational resourcing. The inadequate training of educators to deliver the OBE curriculum and lack of financial resources to provide the training was cited as a major problem in the C2005 Review Committee report (Chisholm et al., 2001).

OBE was met with great resistance from educators and communities when it was introduced (Botha, 2002). The Minister of Basic Education appointed a task team in July 2009 to investigate the difficulties faced with the implementation of the NCS, which has been

criticised for, among other things, causing educator overload, confusion and stress (DoE, 2009b). The task team's report highlighted various challenges to quality curriculum delivery and made recommendations, which the DoE reacted to swiftly, In a statement to parliament on 5 November 2009, the Minister of Basic Education announced the "death" of OBE to fervent applause (Motshekga, 2009). A five-year plan for curriculum improvement was constructed and initial measures were implemented in January 2010, with a focus on the relief of educators' administrative burden, increasing educator support, and improving literacy and numeracy.

Language in Education

Under Apartheid, English and Afrikaans were the only official languages and were compulsory for all Grade 12 learners residing in the four provinces of the Republic of South Africa and the Self Governing Territories. In 1994, the new government declared 11 national languages and SASA provides for the right to choice of language of instruction where reasonably practicable. English dominates the political economy and is perceived as the language of upward mobility and access. Consequently, English is the medium of instruction chosen by the majority of South African schools, despite the fact that most learners do not have the opportunity to develop the levels of English proficiency necessary for effective engagement with the curriculum (Probyn, 2009).

A common practice in disadvantaged schools is to teach in African languages from Grades 1 to 4, and then to change to English as a medium of instruction from Grade 5 onwards (Shindler & Fleisch, 2007). Changes in the medium of instruction have been linked to academic failure (Macdonald, 1990) and a recent report on the NCS (DoE, 2009b) has advised giving priority to English as a first additional language at lower grades.

Key Education Facts

In order to provide the reader with an insight into the current state of education in South Africa, selected facts are provided below.

Education budget. South Africa's investment in education has tripled since the end of Apartheid in 1994. As a percentage of total government spending, the country's education budget is among the highest in the world (International Marketing Council, 2008). The Education Budget for 2011 was set at R189 billion (21% of the total budget), an increase of R24 billion from 2010.

Access to education. A major achievement of the South African education system has been the increased access to education and the attainment of far higher enrolment rates than most developing countries. There are almost 12 million learners attending public schools, with gross enrolment ratios averaging over 100% for primary schools, and over 70% for secondary schools, suggesting that over 90% of potential learners are in school (International Marketing Council, 2008; Jansen and Taylor, 2003). In 2010, the national learner-to-educator ratio was reported as 30.3 and the learner-to-school ratio was 483 (DBE, 2010).

Matriculation pass rates. After 12 years of formal schooling, learners write the NSC examinations. These school leaving examinations are commonly referred to as *matriculation examinations.* The national matriculation pass rate is the main indicator of educational effectiveness in South Africa. These standardised examination results are a gauge of how well the education system is functioning and they attract a great deal of public interest.

Prior to 2008, a minimum of 720 marks out of a possible total of 2100 (for six subjects) was required to pass Grade 12, in addition to passing both the first language and second language subjects. Since 2008, learners are required to take seven subjects (Life

Orientation is now compulsory) and must pass one official language (at home language level) at 40%, two other subjects at 40%, and three subjects at 30% to pass Grade 12.

In 1990, a total of 360,452 candidates wrote the matriculation examinations, and this increased by over 70% to 620,168 candidates in 2009 (DoE, 2010a). From 1994, the national pass rate decreased by 10.6% to its lowest point of 47.4% in 1997 (DoE, 2003a). It stayed at a similar rate from 1997 (47.4%) to 1999 (48.9%) and then increased by 24.4% in 2003 to its highest rate of 79.3% (DoE, 2008). From 2003 the national pass rate decreased by 8.1% to 65.2% in 2007 (DoE, 2010b). In 2008, the first cohort of learners to have undergone 12 years of schooling under the new curriculum wrote matriculation examinations and the pass rate for this year was 62.5%. This dropped to 60.6% in 2009, amidst rising concerns about educational performance in South Africa (DoE, 2010a). In 2010, pass rates were better than expected, with 67.8% of learners passing, up 7.2% from 2009 (DoE, 2011a). Critics have pointed out that the number of part-time matriculation candidates, whose results are not included in the national pass rate calculation, increased substantially compared to 2009. In 2009, 1,229 part-time candidates wrote the matriculation exam, and this increased dramatically to 55,015 part-time candidates in 2010 (DoE, 2011b). The low pass barrier (explained earlier) is another contentious issue. Although pass rates appear to be improving on paper, the rates of university exemptions (i.e., minimum matriculation results necessary for admission to a bachelor's degree) remain low (e.g., 20.1% in 2008, 19.9% in 2009, and 23.5% in 2010; DoE, 2011c), which means that the majority of learners are leaving school with poor results which mean little to their futures.

Absenteeism and drop-out. According to a DoE commissioned report (Weideman, Goga, Lopez, Mayet, Macun, & Barry, 2007), the incidence of learner absenteeism in South African schools is between 5% and 15%. Various reasons were cited as contributing to absenteeism, including personal factors (e.g., illness and learning difficulties), socioeconomic

issues (e.g., lack of transport, food insecurity, lack of parental involvement, dysfunctional families, the impact of HIV and AIDS, drug abuse and teenage pregnancy), and school-based issues (e.g., boredom, punishment for late-coming, poor learner-educator relationships, bullying, violence, and poor school facilities). Partial absenteeism/truancy and late-coming were found to be a bigger problem than full day absenteeism in most schools in the study. In addition, the study revealed that many school, district and provincial officials (particularly in the North West province) reported that learner absenteeism was not as big a problem as *educator absenteeism*. Hoadley (2007) documented high levels of educator absenteeism and a DoE commissioned Educator Workload Report (Chisholm et al., 2005) showed that educators spend less than half their formal school time on teaching and learning, with as little as 10% of time spent on teaching at some schools. Zuma (2009) states that one of the major problems in the South African schooling system is that educators are regularly absent, arrive late, leave early, or occupy their days with activities other than teaching.

Regarding drop-out and grade advancement, the transition rate from primary to secondary school was reported as 94% from 2007 to 2008 (UNESCO, 2010). In secondary school, high drop-out rates prevail, for example, 48% of learners in the Western Cape were found to leave school before the completion of Grade 12 (Open Society Foundation for South Africa, 2007). It appears that drop-out increases in later grades, with very little drop-out before Grade 9, and a sharp increase thereafter, with almost 12% of both Grade 11 and 12 learners dropping out (DBE, 2011c). The highest drop-out rates occur from age 16 to 18, roughly corresponding to Grades 10 to 12 (Panday & Arends, 2008). The "revolving door syndrome", where learners circulate within the system and fail to progress to higher grades and attain their NSC (i.e., pass Grade 12), is a feature of secondary schools in South Africa (Panday & Arends, 2008), particularly disadvantaged Black schools (Lam, Ardington, & Leibbrandt, 2007). About 40% of learners do not reach Grade 12 (Crouch, 2005).

Progress Made and Remaining Difficulties in South African Education

Improvements in the Education System

There have been many advances in education since 1994. As described earlier, the major achievements of the democratic government include the creation of a unitary education system, increasing educational investment, and developing an impressive register of educational legislation and policies. Equity in educational access and spending has, to a large extent, been achieved (Gustafsson & Patel, 2008; Howie et al., 2008).

Additional achievements worth mentioning are the increased delivery of learning materials and the improved provision of basic services such as water, sanitation and electricity (Pillay, 2006). The recent responsiveness of the DoE to the report on the implementation of the NCS is encouraging and this is the kind of responsive proactivity that has the potential to drive education forward.

Remaining Challenges

While there have been successes and improvements over the past 18 years, many challenges still remain for the education system. The significant increase in education expenditure has not been converted into corresponding outcomes and there is both local and international evidence that increased spending on education alone does not lead to better education outcomes (Cohen, Raudenbush, & Ball, 2003; Hanushek, 2003; van der Berg, 2005, 2008). It appears that the potential beneficial effects of increased resources are conditional on the efficiency of classroom and school processes (van der Berg, 2008). There is evidence of low school efficiency in the form of poor educational management capacity, both at provincial (Pillay, 2006) and school level, particularly in disadvantaged schools (Van der Berg, 2005). A ministerial review of school governance (DoE, 2004) has indicated that in most cases, school management teams cannot satisfy the functions assigned to them. A further explanatory factor for poor conversion of resources into performance is that most of

the education budget is allocated to educator salaries, leaving only a fraction of investment for physical resources, such as learning materials and improving school infrastructure.

Another major area of concern is the quality of teaching, especially in disadvantaged schools. International research has shown that educator quality is important for learner achievement (Hanushek, 2007). The Norms and Standards for Educators (2000) provide outcomes against which educator performance can be measured, but the absence of an effective monitoring and evaluation system makes implementation difficult. In an effort to improve educator quality, the minimum qualification requirements for all new educators has been raised to REQV 14 (Grade 12 plus four years of study), but educators in the system who have a REQV 13 level will be considered qualified. In 2001, 18% of educators had less than a REQV 13 qualification (DoE, 2006a). The turnover of unqualified educators and infiltration of more highly qualified educators into the system will be a slow process. In addition to problems with under-qualification, poor motivation and discipline of educators in disadvantaged Black schools has been documented (Lethoko, Heystek, & Maree, 2001).

Learner outcomes in terms of educational achievement and progression are strongly related to educator quality and are a measure of the effectiveness of an education system. As illustrated above, matriculation pass rates remain poor and only a minority of learners are obtaining university exemptions. Problems with the quality of both primary and secondary education in South Africa are further highlighted by international comparisons, such as the 2003 Trends in International Mathematics and Science Study (TIMSS; Grade 8 mathematics and science, with 21 of 45 countries being developing countries) and the 2006 Progress in International Reading Literacy Study (PIRLS; Grade 5 reading, with 11 of 39 countries being developing countries), where South Africa came in below all other countries (Gustafsson & Patel, 2008).

The government has made positive strides in educational *equity* through non-discriminatory policies and equal spending, as well as educational *access* in terms of improved enrolment figures. Nonetheless, the goal of redress remains elusive because discrimination based on race has been replaced by economic Apartheid. The sliding scale system for school fees allows even the poorest children (the majority of whom are Black and Coloured) to attend school and there has been a redistribution of resources away from formerly White schools to disadvantaged schools to promote redress. This diversion of resources, however, has made it necessary for many former White schools to increase their school fees to supplement Government funding, in effect enabling only a certain socioeconomic class to gain access to these schools and the higher quality of education they offer. This, along with South Africa's demographic composition (80% of the population is Black) has posed an obstacle to integration. Black schools remain almost exclusively Black (Tihanyi, 2007).

Improving the quality of education will be difficult without transparent and accessible information on system and school performance, an area in which the current education system is lacking. As mentioned, the main publicly available indicator of school effectiveness is the matriculation pass rate, which is a crude measure. The DoE has recognised the need for a better system of monitoring and evaluating schools and has responded by launching the National Education Evaluation and Development Unit in March 2011. This is an essential step in the endeavour to improve the quality of education.

In summary, there are several future challenges facing education in South Africa, the most prominent being improving the quality of education. Equal access to education has been achieved, but the quality of the schools being accessed by learners from different socioeconomic backgrounds remains vastly unequal.

Summary and Conclusion

This chapter has provided an overview of past and present education in South Africa at the national level and key points are summarised below:

- Discriminatory Apartheid educational policies and procedures led to under investment in physical and human resources for non-White schools. Unequal Apartheid educational spending has left a legacy of poorly trained educators, large class sizes and inadequate school infrastructure particularly affecting Black schools.
- Since 1994, the democratic government has made several changes to the education system aimed at promoting redress and equity. Key changes include the unification of the 15 segregated Apartheid Education Departments into one national DoE and the introduction of new legislation such as the SASA (1996), SAQA (1995), and C2005.
- Much progress has been made since 1994 and equity in educational spending and access has been largely achieved.
- Despite the progress made, several problems still remain in South African education, for example unsatisfactory matriculation pass rates, absenteeism, drop-out, poorly qualified educators and inadequate school management mainly affecting disadvantaged schools. The quality of education across different school types remains unequal.

The importance of education in promoting social and economic equality and contributing to the prosperity of South Africa cannot be underestimated. The government has performed well in creating a catalogue of policies and legislation to promote educational development, but a gap remains between policy content and the realities of policy implementation. Improving the quality of education is a matter of urgency and a concern for which there is no simple solution. The following chapter moves on from the national level to explore school contextual factors at the community, school, and classroom levels.

3

The Role of School Contextual Variables in Educator and Learner Outcomes

Both learners and educators spend a considerable amount of time in the school setting. The educational environment has the potential to either foster or inhibit learners' and educators' inherent growth tendencies and can thus fuel both adaptive and maladaptive educational outcomes depending on its quality. Educators and learners interact with various physical and psychosocial aspects of the multi-level school context. Chapter 2 provided an overview of educational factors at the *national* level, and this chapter begins by discussing the *community* level variable of school type. The *school* level is explored next, bringing the psychosocial school environment into the spotlight. Finally, the *classroom* level is examined, with specific focus on the interaction between educators and learners in the classroom environment.

The Community Level: School Type

South Africa's education system remains in considerable reform under its fourth Minister of Education since 1994 (Howie et al., 2008). As discussed in Chapter 2, prejudicial Apartheid educational policies and practices led to segregation of learners by race and the unequal distribution of educational resources in terms of funding, learning materials and staffing in favour of White schools. While equity in access and, to a large extent, equal public spending across all learners has been achieved (Gustafsson & Patel, 2006; Howie et al., 2008), large disparities, particularly in educational outcomes, continue to exist between schools from different former education departments.

Apartheid's discriminatory racial and economic tracks are still visible on the educational landscape. Desegregation has removed formal barriers, and while there has been some diffusion of old boundaries, the process of transformation has been slow and distinct school types can still be identified along racial and economic lines. For the purposes of this study, four school types were identified:

1. **Advantaged schools** serve predominantly White learners and have a history of high government spending and excellent educational resources. Educators at these schools remain almost exclusively White and tend to have a better level of education and training (van der Berg, 2001). Higher school fees allow the SGBs to supplement public resource allocations, making more funds available for learning resources and educator salaries.
2. **Disadvantaged Black schools** were the most neglected under the Apartheid government and are located in rural areas and urban townships, serving Black learners from disadvantaged socioeconomic backgrounds. Infrastructure and resources at these schools tend to be poor and class sizes are large. Educators are exclusively Black and tend to have a lower level of education and training (Fiske & Ladd, 2005; Howie, 2003). The majority of Black learners in South Africa attend these schools, which account for 80% of enrolment and are thus pivotal to national educational progress (van der Berg, 2008).
3. **Disadvantaged Coloured (mixed race) schools** were also poorly resourced under the previous dispensation, but not to the same extent as Black schools. While these schools are better equipped than disadvantaged Black schools, they remain far under-resourced in comparison to advantaged schools. These schools consist of Coloured and Black educators and learners, with the majority being Coloured.
4. **Transitional schools** have evolved over time since desegregation and refer to previously advantaged White schools which now serve predominantly Black learners. These schools are located in the city rather than the townships and have a majority of White educators. The infrastructure, resources and quality of teaching are superior to disadvantaged schools (Lemon, 2004), but are not as advanced as the advantaged schools. School fees at Transitional schools tend to be higher than at the two

previously disadvantaged school types and learners who attend these schools may come from families with better socioeconomic backgrounds.

The Importance of School Type for Educational Outcomes

School type is seen as a key educational variable since it distinguishes, among other things, the racial composition of schools, the communities within which they operate, learner socioeconomic status (SES), the quality of teaching, and the infrastructure and educational resources available for teaching and learning (i.e., school SES).

Research has shown that school type has an impact on educational outcomes. A particularly relevant study by Grobler, Lens, and Lacante (2007) examined factors affecting successful transition from Grade 11 to Grade 12 in the Free State province. The researchers used the same categories of school type included in this study and found a significant association between school type and successful/unsuccessful grade transition. The number of unsuccessful transitions was considerably higher in previously disadvantaged Black and Coloured schools (greater than 35%) compared to advantaged schools, where less than 5% of learners did not progress to Grade 12.

An examination of school performance in South Africa by van der Berg (2005) using a production function approach revealed that the racial composition of a school (influenced by former school department), learner socioeconomic background (measured by school fees), and educator resources (i.e., quality, measured by educator salary) were major explanatory factors in determining matriculation pass rates. Analysis of matriculation results for 1999 and 2000 showed vast inequalities in school outcomes, with large differentials between the poorest schools (with an average pass rate of 44%) and the richest schools (97% pass rate), as well as between predominantly Black schools (43% pass rate) and White schools (97% pass rate). While performance in predominantly White and more wealthy schools was reasonably uniform (the vast majority attained pass rates of between 80% and 100%), there was

substantial variation in performance between poorer, predominantly Black schools. Black schools showed a range of pass rates from below 10% to 100%, with most falling into the 20% to 60% pass rate range.

An analysis of the 1999 TIMSS data by Martin et al. (2000) showed that better resourced schools tended to obtain higher average achievement scores. Another analysis of the TIMSS 1999 data by Howie et al. (2008) showed that the performance of South African learners (as a group) in science and mathematics was far below the international average. Advantaged learners (who tended to be White or Indian and have a higher SES) showed significantly higher performance than semi-advantaged (mainly Black and Coloured learners with higher SES than disadvantaged group) and disadvantaged learners (majority Black). The disadvantaged group demonstrated the lowest performance. SES was found to be a strong predictor of science scores for the advantaged and semi-advantaged groups, but not for the disadvantaged group, and the researchers suggested that this could be due to a bottom effect (very low scores were obtained by the disadvantaged group), or due to factors not included in the study.

The influence of school resources on academic performance was also confirmed by van der Berg and Burger (2003), who found the achievement of learners from poor schools in the Western Cape to be lower compared to learners from other SES and population groups. Also in the Western Cape, Gilmour and Soudien (2009) similarly found that Grade 6 learners in wealthier, largely White schools showed the best performance. Using the 2006 PIRLS data, Taylor and Yu (2009) showed that school SES was able to explain 42% of the variance in learners' reading scores.

Bhorat and Oosthuizen (2009) found that significant differences remained between former African schools and former White schools on a variety of school, educator, parent, and community characteristics based on datasets from 2000 to 2001. Matriculation pass rates

were lowest for former African schools, followed by former Coloured and Indian schools, and the highest pass rates (95%) were achieved by former White schools. The infrastructure in former African schools was the poorest, with two learners sharing a desk and chair, and poor access to libraries and computers when compared to all other school types. Former White schools had the best access to these resources.

In addition to the availability of resources and school racial composition, educator quality is another factor which seems to vary by school type. Van der Berg (2008) found that well-qualified educators were likely to prefer teaching in richer, urban schools. Under current education policy, schools are able to supplement public resources with school fees. Advantaged schools are able to charge higher fees and thus attract more highly qualified educators, resulting in an uneven concentration of better quality educators in these schools.

Regarding educators, a study by Schneider (2003) involving a large sample in the USA found that poor school conditions made it more difficult for educators to provide an adequate education to their learners, negatively affected educators' health, and tended to lead to higher educator turnover rates. Schneider concluded that school facilities have a direct influence on teaching and learning.

School type is clearly an important factor which affects educator and learner performance and school effectiveness. It acts as a broad categorising factor which groups schools into distinct types with common racial and economic features, born from past and present educational policies and gradual post-Apartheid social change. As a community level factor, school type influences the contexts within which individual schools function, filtering down to the school and classroom levels, discussed next.

The Learning Environment

Over the past 40 years, learning environment research has grown and diversified into a prominent field of international research. Significant progress has been made in the

conceptualization, assessment and investigation of the learning environments of classrooms and schools (Aldridge & Fraser, 2000; Fisher & Khine, 2006; Fraser, 2002, 2007; Khine & Fisher, 2003). For the purposes of this study, the learning environment refers specifically to the *psychosocial* dimensions of educational settings.

Learning environment research is rooted in Lewin's (1936) field theory and his formula $B = f(P, E)$. As described in Chapter 1, behaviour (B) is seen as a function of the interaction between the person (P) and environment (E). Murray (1938) built upon Lewin's work and developed his *needs-press* theory, which involves the concept that individual personal needs (including goals and drives) are either supported or impeded by the external environment, termed environmental press. Murray distinguished between *alpha* press (actual objectively observable press) and *beta* press (an individual's perceptual interpretation of the environment). According to Murray, beta press is what determines behaviour, and in the educational setting, refers to learners' and educators' *perceptions* of their learning environments.

Foundations in education behaviour research were laid by Hartsthorne and May (1928), and Newcomb (1929). This was later followed by Pace and Stern's (1958) research into aspects of social climate in institution-wide college and university settings and the development of the College Characteristics Index, followed by the College and University Environment Scale by Pace (1963). These studies were conducted at a broad level aiming to analyse entire institutions and laid the groundwork for future research with a more defined scope.

Contemporary research on learning environments started with the work of Walberg (1979) and Moose (1974) involving classroom environments as well as Cronbach and Snow's (1977) work on the interaction between learners' personality and the learning environment (termed aptitude-treatment interactions in education). These studies were followed by several

diverse learning environment research programs around the world (Fisher & Khine, 2006; Fraser, 1994, 1998; Goh & Khine, 2002). While varying methods, both quantitative and qualitative, have been employed, the use of self-report questionnaires to assess learners' and educators' perceptions of their learning environments (Murray's beta press) has been the predominant approach used in the field (Aldridge, Laugksch, & Fraser, 2006). Questionnaires have been used to measure educator and learner perceptions of their actual as well as preferred (ideal) learning environments.

Learning environment research extended from its foundation in America to Australia, then the Netherlands, and more recently to Asia. Researchers across four continents and over a dozen different countries have added to the body of research in the field, and interest continues to spread further afield to India (Koul & Fisher, 2005), Dubai (MacLeod, 2006), Peru (Matos, Lens, & Vansteenkiste, 2007) and South Africa (Aldridge et al., 2006).

School versus Classroom Environment

The distinction between school-level and classroom-level environment research was first made by Stewart (1979). While the focus of classroom-level research is on the relationships between educators and their learners or among learners themselves, school-level research emphasises the relationship between educators, as well as administrators and heads of department. In addition, Rentoul and Fraser (1983) highlight that school-level research has been associated with the field of educational administration and that school environment can be considered more global than classroom environment.

School Environment

Together with curriculum, leadership, and resources, school environment or climate is widely acknowledged as a critical aspect of school effectiveness and organisational strength (Fisher & Fraser, 1990; Huang, 2001; Keefe, Schmitt, Kelly, & Miller, 1993). School climate has been referred to as the "heart and soul" as well as the "essence" of a school (Freiberg &

Stein, 1999, p. 11). It encompasses the quality of the school working environment and school characteristics which are considered important by educators, administrators, parents and policy makers. Freiberg and Stein highlight that the school climate can be either a resilience or risk factor to educators and learners, in keeping with an organismic-dialectical standpoint. From a goal theory perspective, school climate is also characterised by school goal structures i.e., performance versus mastery goal orientations (see Maehr and Midgley, 1996, for further reading on goal theory).

In the field of learning environment research, school environment refers specifically to educators' perceptions of the *psychosocial* dimensions of their schools (Fisher & Fraser, 1990). It concerns educators' relationships to other staff members, including other educators, school administrators, head-educators and members of the SGB. It also concerns educators' perceptions of their own personal development at work and the consistencies and changes in the school system (e.g., resource adequacy and work pressure).

The Field of School Environment Research

Studying the school environment is important for understanding educator and learner performance (Huang, 2001). Although school environment research has not been as prolific and longstanding as classroom environment research, there have been numerous studies to this effect over the last two decades. In the early 1980s, the initial focus on classroom environment was extended to include the systematic study of the broader school environment with the development of the School-Level Environment Questionnaire (SLEQ) in Australia. The SLEQ improved on earlier school environment questionnaires by ensuring relevance of items included and economy in administering the scale (Rentoul & Fraser, 1983). For the current study, the SLEQ (Fisher & Fraser, 1990) was selected to measure the psychosocial dimensions of the school environment from the educators' perspective. This version of the SLEQ consists of eight scales: Student Support, Affiliation, Professional Interest, Staff

Freedom, Participatory Decision Making, Innovation, Resource Adequacy, and Work Pressure (see Chapter 6 for a full description of the scales). Later adaptations of the SLEQ (Cresswell & Fisher, 1999) have involved renaming the Participatory Decision Making Scale as *Empowerment*, and replacing the Staff Freedom scale with a new scale designed to assess school strategic planning functions, named *Mission Consensus* (i.e., consensus exists among staff about the school goals).

The SLEQ has played a major role in school-level environment research and has been used for a variety of purposes, including school and college improvement (Anstine-Templeton, Johnson, Lee, & Wan, 2006), studying educators' willingness to embrace classroom changes (Blose & Fisher, 2003), comparing educators' and principals' perceptions of their actual and ideal school environments (Cresswell & Fisher, 1999), comparing school environments in Catholic and Government schools (Dorman, 1996), and investigating educators' perceptions of their work environments (Wahyundi & Fisher, 2006).

In South Africa, Aldridge et al. (2006) developed and validated a modified form of the SLEQ to investigate factors associated with a school's likelihood of successfully implementing OBE. The SLEQ-SA consists of seven scales, namely, Resource Adequacy, Work Pressure, Student Support, Collegiality, Innovation, OBE Familiarity, and Parental Involvement. The last two scales are unique additions and were considered to be relevant to the effective implementation of the OBE curriculum in South Africa. Analyses supported the seven-factor structure, with each of the seven scales showing a comparatively strong factor structure, internal consistency, reliability, and the ability to distinguish between the perceptions of educators from different schools. Results showed that educators would prefer significantly more parental involvement, OBE familiarity, resource adequacy, student support, collegiality, and innovation, and less work pressure than they were getting. This

study makes a valuable contribution to fledgling psychosocial learning environment research in South Africa and opens the door for further exploration in this area.

In addition to the many uses described above, the SLEQ has also been used to investigate the relationship between school environment and several educator and learner outcomes, as highlighted by relevant studies discussed below.

School Environment and Educator Outcomes

Educator morale. Young (2000) used a multi-level model to investigate the relationship between school environment (measured by the SLEQ) and educator morale in effective high schools in rural Australia. Findings revealed that educator morale varied between educators and between schools and that school environment was related to educator morale. Six of the eight SLEQ scales were significant: Affiliation, Professional Interest, Mission Consensus, Empowerment, Innovation and Work Pressure. These scales accounted for 80% of the school-level variation in educator morale and 45% of educator-level variance, with 54.4% of the total variance in educator morale explained by the SLEQ scales. When school environment was positive (i.e., lower scores on Work Pressure and high scores on all remaining SLEQ scales), educator morale was higher. Young concludes that improving school environment and educator morale are important to enhance the health of schools and suggests that school improvement should start with factors affecting educator stress.

Educator job satisfaction. Huang and Waxman (2009) investigated student educators' satisfaction with school experiences and teaching commitment. They found a positive relationship between perceived school environment (especially in the areas of professional interest and staff freedom) and job satisfaction.

Educator well-being. A Belgian study into educator well-being and school level factors found that 34.6% of the total variance in educator well-being could be explained by school factors (Aelterman, Engels, Petegem, & Verhaeghe, 2007). The researchers used a

specifically designed questionnaire to measure school culture and local managerial policy and reported that support by the principal, support for professional development, and support from colleagues were important for educator well-being.

Educator burnout. Research has shown that the school environment is related to educator burnout. Aspects such as time pressure, work pressure, supervisory support and support for innovation have shown significant relationships to the three dimensions of burnout (Goddard, O'Brien, & Goddard, 2006; Maslach et al., 1996; Skaalvik & Skaalvik, 2009). Chapter 4 explores the antecedents of educator burnout in greater detail.

School Environment and Learner Outcomes

Studies have reported simple correlations between learner skills and the school environment (Cresswell & Fisher, 1999; Fisher & Fraser, 1991). A more comprehensive study was conducted by Webster and Fisher (2003) investigating the direct and indirect influences of school-level environment and classroom-level instructional practices on student outcomes in mathematics using structural equation modelling (SEM). Results indicated that the way in which educators presented the curriculum was directly influenced by how they perceived the environment at the school-level (measured by the SLEQ), and instructional practices in turn influenced both cognitive (achievement) and affective (attitude) learner outcomes. The results suggest that the higher educators perceive affiliation, professional interest, empowerment and innovation, and the lower they perceive work pressure, the more likely they are to deliver the curriculum in a way that supports learner differences and promotes achievement and positive attitudes. Webster and Fisher conclude that school-level environment does influence learner achievement and suggest that changes at the school level will have a positive effect on both cognitive and affective learner outcomes.

A study with a similar focus, using a large sample of educators and learners, was conducted by Wilson, Abbott, Joireman, and Stroh (2002) who likewise used SEM to

examine the relationship between school and educator attributes and learner outcomes. This study used the Teacher Perspectives Questionnaire and the Constructivist Teaching Scale to assess school characteristics and teaching methods. Results were similar to those found by Webster and Fisher (2003), in that school-level attributes were found to have a meaningful impact on teaching methods and learner achievement. An interesting finding was that in addition to affecting student achievement indirectly through constructivist teaching, school environment had a direct pathway to student achievement.

It appears that school environment is important for both cognitive and affective learner outcomes and for educator morale, well-being, job satisfaction, and burnout. The following section moves from the broad school-level context to the more specific classroom-level context with a discussion of classroom environment.

Classroom Environment

The classroom environment has received considerable research attention over the past four decades (Dorman, 2009; Fisher & Khine, 2006; Fraser, 1994, 1998, 2007). While school environment is more global and refers to the relationship between educators and other staff, classroom environment reflects the relationship between educators and learners and between learners themselves. Classroom environment involves the shared perceptions of educators and learners within the classroom setting and can be assessed from both the learner and educator perspective. This study focuses on the *educator perspective* and classroom environment is thus defined as educators' perceptions of their interpersonal behaviours towards learners as a class (Fisher, Fraser, & Wubbels, 1993).

The Field of Classroom Environment Research

Research conducted in several different countries with tens of thousands of learners has consistently shown that the classroom environment has a powerful influence on learner outcomes (Fraser, 2007). Research on classroom environment has been prolific, as reported

in recent reviews by Fraser (2007) as well as edited books by Khine and Fisher (2003) and Fisher and Khine (2006). Studies have been mainly correlational in design and have included relationships between classroom environment and learner outcomes, evaluation of educational initiatives, differences between learners' and educators' perceptions of classrooms, contrasting actual and preferred (ideal) environments, determinants of classroom environment, educational productivity research, and using environment instruments to assist changes in classrooms (Dorman, 2009).

One of the key factors affecting classroom environment is the relationship between learners and educators, which is seen as important in the learning process (Khine & Lourdusamy, 2006). The nature of educator-learner interactions has been a major focus in learning environment research and has been studied using the *Model for Interpersonal Teacher Behaviour* (MITB; Wubbels, Créton, & Hooymayers, 1985).

The MITB is based on Leary's (1957) model for interpersonal diagnosis of personality, which is an established model for describing human interactions. Wubbels et al. (1985) adapted Leary's dimensions to the educational context and developed the Questionnaire on Teacher Interaction (QTI; Wubbels & Levy, 1993) to measure educator interpersonal behaviour along the two dimensions of *Influence* (Dominance, D – Submission, S) and *Proximity* (Opposition, O – Cooperation, C). The Influence dimension pertains to who is in control within the educator-learner relationship and involves the degree of dominance and control over communication demonstrated by the educator. The Proximity dimension concerns the extent to which there is closeness and cooperation between the educator and learners. These two dimensions can be used as coordinates to form eight behavioural sectors, as shown in Figure 1.

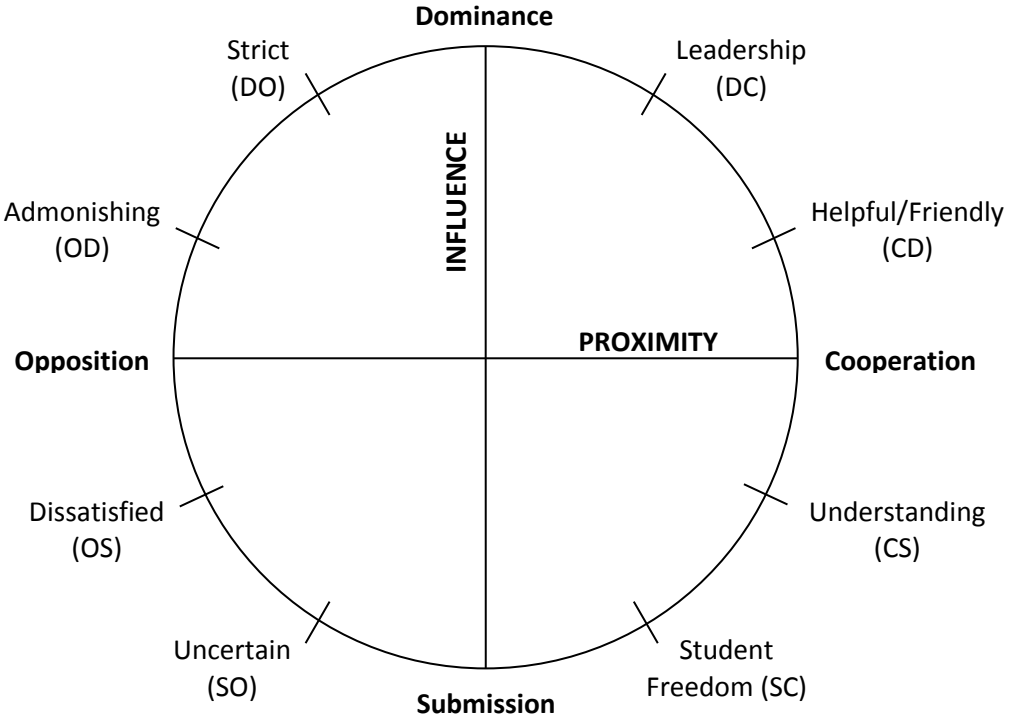

Figure 1. The Model for Interpersonal Teacher Behaviour (adapted from den Brok, Brekelmans, & Wubbels, 2004, p. 413).

As can be seen from Figure 1, the eight sectors of educator interpersonal behaviour are determined by their position on the Proximity and Influence axes. Sectors close to each other are more similar than those which are far from each other. For example, Leadership (DC) and Helpful/Friendly (CD) and are both characterized by Dominance and Cooperation, with different balances of the two behaviours. Leadership (DC) involves a high degree of Dominance and a lower level of Cooperation, while Helpful/Friendly (CD) involves more Cooperation than Dominance. Uncertain (SO), on the other hand, is characterised by Submission and Opposition and can thus be considered to be opposite from Leadership (DC).

Research has been conducted using the eight behavioural sectors as well as the two dimensions of Influence and Proximity. High scores on the Influence dimension mean that educators tend to display behaviours associated with the Dominance pole (i.e., Strict and Leadership) rather than the Submissive pole (i.e., Uncertain and Student Freedom). In the

same vein, high scores on the Proximity dimension involve Cooperative behaviours (i.e., Helpful/Friendly and Understanding), rather than Oppositional behaviours (i.e., Admonishing and Dissatisfied).

The QTI has been used widely to assess educator-learner interactions, with over 120 studies reported across more than 30 countries (Wubbels, Brekelmans, den Brok, & van Tartwijk, 2006). The QTI can be used to assess both learner and educator perceptions of the psychosocial dimensions of the classroom. In this study, the educator version of the QTI was selected to measure educators' perceptions of their interpersonal behaviour in the classroom. Chapter 6 presents further information on this measuring instrument.

Classroom Environment and Educational Outcomes

One of the strongest trends in classroom environment research has been to investigate the relationship between the psychosocial learning environment and learner outcomes (Fraser, 2007). Fraser's (1994) review of 40 science education studies showed a link between classroom environment perceptions and cognitive and affective learner outcomes across a variety of measuring instruments, classroom settings and learner samples. More recent studies have also provided evidence that the quality of the classroom environment is a significant determinant of learning (Fraser, 2007) and that educator interpersonal behaviour is related to both cognitive and affective learner outcomes (Brekelmans, Wubbels, & den Brok, 2002; den Brok, 2001).

Educator interpersonal behaviour and cognitive learner outcomes. Using the QTI, studies generally indicate a strong and positive association between the dimensions of Influence (i.e., Dominance: Strict and Leadership behaviours) and Proximity (i.e., Cooperation: Helpful/Friendly and Understanding behaviours) and cognitive learner outcomes (den Brok et al., 2004),

Brekelmans, Wubbels, and Creton. (1990) found that the higher an educator was perceived by learners on the Influence dimension, the higher learner outcomes were on a physics test. Educator influence was the most important variable at the classroom level. Other research has found positive correlations or regression coefficients for the Leadership scale and cognitive learner outcomes (Goh & Fraser, 2000; Henderson, 1995). In a review of three separate studies, Wubbels, Levy, and Brekelmans (1997) reported that higher educator dominance was related to better learner achievement. In terms of the behavioural segments, strict, leadership and Helpful/friendly behaviours were positively related to learner achievement, while student responsibility/freedom, uncertain, and dissatisfied behaviours were negatively associated with learners' achievement. Similar finding were reported by den Brok et al. (2004) who found that higher educator dominance related to higher cognitive outcomes in physics.

Research findings regarding the Proximity dimension (the degree of cooperation between the educator and learners) are less straightforward. Some researchers have found a positive relationship between Proximity and its related scales (Helpful/Friendly and Understanding) and cognitive outcomes (Goh & Fraser, 2000; Henderson, 1995; Koul & Fisher, 2006), whereas others have found no association between Proximity and achievement (den Brok et al., 2004). Koul and Fisher found that understanding behaviours were positively related to cognitive achievement, whereas the opposite was true for dissatisfied and admonishing behaviours. In further studies, rather than being linear, the relationship between proximity and cognitive outcomes was found to be curvilinear (den Brok, 2001; den Brok et al., 2004). Using report card grades as the outcome measure, Levy, Wubbels, and Brekelmans (1992) found no relationship between cognitive learner outcomes and educator interpersonal behaviour.

Educator interpersonal behaviour and affective learner outcomes. Research investigating the association between educator interpersonal behaviour and learner affective outcomes (e.g., subject specific motivation, pleasure, effort, and confidence) has yielded more consistent results. Most studies have found a positive relationship between both the Influence and Proximity dimensions of the QTI and affective outcomes, with the effects of educator proximity being somewhat stronger (den Brok et al., 2004). From their previously mentioned review, Wubbels et al. (1997) reported that the Cooperation scales of the QTI (i.e., Helpful/Friendly, Understanding, Leadership, and Student Responsibility/Freedom) are positively related to learner attitude, while the Opposition scales are negatively related.

Brekelmans et al. (1990) found a distinct positive relationship between educator proximity and learner motivation for physics. Den Brok et al. (2004) similarly showed that learners' pleasure was positively related to educators' proximity. Den Brok, Fisher, and Scott (2005) found a strong and positive relationship between both Proximity and Influence and learners' enjoyment of science lessons. Koul and Fisher (2006) found a strong positive association between the Leadership and Helpful/Friendly scales and a negative relationship between the Uncertain, Dissatisfied, and Admonishing scales and learners' attitude to science class. They reported that 15% of the variance in science attitude could be explained by educator-learner interactions. Similar results were reported by Kim, Fisher, and Fraser (2000), who found that the Leadership, Helpful/Friendly, Understanding, and Student Responsibility/Freedom scales were positively related to learners' attitude to science, while the opposite was true of the four remaining QTI scales.

In a study on exemplary educators, Waldrip and Fisher (2002) found that when using the QTI, learners were able to identify these exceptional educators as scoring high on the Leadership, Helpful/Friendly, and Understanding scales, and low on the Uncertain, Dissatisfied, and Admonishing scales. This corresponds to findings by Wubbels et al. (1997)

regarding learners' perceptions of their best and worst educators. Based on a review of the literature, Wubbels and Brekelmans (2005) propose that optimal educator-learner relationships are characterised by high levels of educator influence and proximity in the classroom.

Classroom environment and well-being. Regarding *learner well-being*, Van Petegem et al. (2007) found that learners who perceived their educator as leading and helpful/friendly (using the QTI) scored higher on well-being, while well-being decreased when an educator was perceived as strict and admonishing. The researchers also found that educator interpersonal behaviour was associated with *educator well-being*. A significant relationship was found between dominant-cooperating interpersonal behaviour and educator well-being. Educators who perceived themselves as leading and helpful/friendly had higher well-being scores, whereas educators who scored high on the submission-opposition scales had lower well-being scores. The researchers highlighted the need for additional investigations in this area.

Differences in Educator and Learner Perceptions of Classroom Environment

One of the advantages of the QTI is that it can be used to measure both educator and learner perceptions of the educator-learner relationship. Using the QTI, Rickards and Fisher (2000) compared educator and learner perceptions of classroom interactions. They found that educators thought they showed more leadership, helpful/friendly and understanding behaviour than did their learners. Learners perceived their educators as more uncertain, dissatisfied and admonishing than did their educators. To summarise, educators believed they were more cooperative and less oppositional in the classroom than did their learners. Khine and Lourdusamy (2006) also found that trainee educators inflated their level of cooperative behaviour, but in contrast to Rickards and Fisher, they found that trainee educators rated themselves as *more* admonishing and strict than their learners perceived them to be.

Regarding the reciprocal interrelation between educator and learner perceptions, SEM results have shown that educators' perceptions of their interactions with learners affected their learners' perceptions, which in turn affected educators' perceptions (Newby, Rickards, & Fisher, 2001).

Most studies involving the QTI have used learner perceptions of educator interpersonal behaviour, and den Brok et al. (2004) suggest that future research should investigate the link between *educator self-perceptions* and learner outcomes, which is what this study does by utilising the educator version of the QTI. The reciprocal nature of educator and learner perceptions is highlighted by Newby et al. (2001) above, and it is likely that any relationship between educator perceptions of their interpersonal behaviour and learner outcomes will be mediated by learner perceptions.

Factors Impacting Perceptions of Classroom Environment

Research on factors affecting perceptions of classroom environment using the QTI have focused on several different variables (see Fisher & Khine, 2006 for a review), including:

- **Educator culture.** Khine and Fisher (2004) found that educators from different cultural backgrounds created different types of interpersonal relationships with learners.
- **Educator gender.** Male educators were found to mention more dissatisfied and uncertain behaviour than their female colleagues (Van Petegem et al., 2007).
- **Learner ethnicity and gender.** These variables have been found to affect learner perceptions of educator behaviour, with females viewing educators as more dominant and positive, and learners from different ethnic backgrounds showing differences in perceptions (see Fisher et al., 2006, p. 55 for a review of findings).

- **Educator experience.** Learners perceive greater dominance, leadership and strictness when their educator has more experience (Levy et al., 1992), but perceive no increase in cooperation with experience (Brekelmans et al., 2002).
- **Class size.** There appears to be a negative association between class size and learners' perceptions of educator proximity (Levy, den Brok, Wubbels, & Brekelmans, 2003) and influence (Fisher, den Brok, & Rickards, 2006).

Links between School and Classroom Environment

A few past studies have brought together research on school-level environment (using educators' perceptions) and classroom-level environment (using learners' perspectives) to investigate whether associations exist between the two (Dorman, Fraser, & McRobbie, 1997; Fisher et al., 1993; Fraser & Rentoul, 1982; Idiris & Fraser, 1997). Results from each study seem to indicate that the school environment is not strongly related to the classroom environment. In South Africa, Aldridge et al. (2011) found weak correlations between school and classroom environment. Dorman et al. (1997) argue that individual classrooms are somewhat "insulated" from the school as a whole. In these studies, however, classroom environment was measured using *learner perceptions*. Fraser and Rentoul (1982) measured both school and classroom environment from the *educators' perspective* and found links between the two environments. Webster and Fisher's (2003) previously mentioned study found that educators' perceptions of the school environment (using the SLEQ) directly influenced their instructional practices in terms of the way in which they presented the curriculum, and this in turn affected learner achievement. In the present study, both school and classroom environment were assessed from the *educator perspective* and potential associations between the two environments will be investigated.

Summary and Conclusion

This chapter discussed the school variables at different levels included in this study, namely, school type (community level), school environment (school level), and classroom environment (classroom level). The literature reviewed indicates that each of these school contextual variables is related to educational effectiveness, and the key findings are summarised as follows:

- *School type* is related to learner achievement and educator instructional effectiveness, health and turnover.
- A more positive *school environment* is associated with:
    - higher educator morale, satisfaction and well-being; and
    - more effective instructional practices, which in turn are positively related to learner achievement and attitudes.
- *School environment* factors, such as level of support for innovation and high work pressure, are related to educator burnout.
- *Classroom environment*:
    - Educator interpersonal behaviour in the classroom is related to both cognitive and affective learner outcomes as well as to educator and learner well-being.
    - Learner cognitive outcomes tend to be more closely related to the Influence dimension of educator behaviour (i.e., the Dominance polarity of the QTI: Leadership and Strict scales).
    - When report card grades have been used as a learner outcome measure, no relationship has been found between educator interpersonal behaviour and learner achievement.

  - Learner affective outcomes (e.g., motivation and attitude) seem to be more closely related to the Proximity dimension of educator behaviour (i.e., the Cooperation polarity of the QTI: Helpful/Friendly and Understanding scales).
- Numerous factors have been shown to be related to classroom environment, including culture, gender, class size, and educator experience (years of service).
- The link between school-level and classroom-level environment is inconclusive.

Learning environment research in South Africa has been "very limited" (Aldridge et al., 2011, p. 129) and this study aims to contribute to the expansion of research in this field by investigating both school-level and classroom-level environment variables. It is hoped that this study will shed light on the potential relationship between school type and school environment, as well as between school and classroom environment. The latter may be facilitated by the fact that both school and classroom environment are considered from the educators' perspective.

Thus far, Chapter 2 and 3 have explored the multi-level educational context. The educational environment is critical to educational effectiveness in that it can either foster or impede educational development, but it is only one part (E) of Lewin's (1936) formula: $B = f(P, E)$. Organismic-dialectical theory proposes that human beings are active and growth oriented organisms and are thus not passive recipients of environmental influences (Deci & Ryan, 2000). Educational outcomes are a function of the *dynamic interaction* between educators (P), learners (P), and their educational environment (E), and neither can be considered in isolation. The following two chapters move from the educational *environment* to consider the educator and learner at the *person* level. Chapter 4 focuses on educator burnout and motivating style, and Chapter 5 discusses learner achievement and motivational aspirations.

4

Educator Burnout and Motivating Style

Educators comprise the largest single occupational group in South Africa (DoE, 2006b), totalling just over 418,000 in public schools (DBE, 2010). Educators are strategic in preparing successive generations of young South Africans intellectually, morally and culturally for their entry into higher education or the labour force and to take up their civic responsibilities as young adults.

The first part of this chapter considers educators as individuals within the school system and explores the phenomenon of *educator burnout*. After outlining the development of the burnout construct over time, attention is given to defining burnout both generally and with specific reference to educators. Relevant antecedents and consequences of burnout are then discussed. The second part of this chapter examines the *motivating styles* which educators employ to engage their learners in the classroom, starting with a brief overview of SDT (introduced in Chapter 1) to provide a theoretical background. After this, different educator motivating styles and their correlates and consequences for learners are discussed, followed by an overview of school and classroom antecedents of motivating style. Finally, the chapter concludes with an exploration of the links between motivating style and burnout. Both educator burnout (Maslach, Jackson, & Leiter, 1996) and motivating style (Reeve, Bolt, & Cai, 1999) have been shown to relate to learner outcomes in international research. These variables were selected to be included in this study because they are potentially important for educational outcomes and have not been sufficiently researched in the South African context.

Burnout

Historical Origins of the Burnout Concept

The term burnout has been in use since the 1960s and was popularised by the novel *A Burnt Out Case* (Greene, 1961). Burnout was noted as a social problem long before it was conceptualised and systematically studied by academic researchers. The pioneering phase of burnout research started in America in the 1970s, during which time the concept was

explored and defined more clearly. Initial articles by Freudenberger (1975) and Maslach (1976) involved qualitative approaches in care-giving and human service settings where job roles were characterised by relationships between service providers and recipients (Maslach, Schaufeli, & Leiter, 2001).

The empirical phase of burnout research started in the 1980s with the development of the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981). The MBI was originally designed for use with human service professionals. A second version for use with educators was soon developed. The initial view was that burnout was a syndrome confined to occupations that involved provision of services through person to person interchange, but in the 1990s this was extended to include occupations beyond this scope (e.g., clerical, information technology, and management). Enhanced statistical tools and empirical research have since led to a greater understanding of the burnout construct.

Defining Burnout

Freudenberger (1975) defined burnout as a condition of emotional and physical exhaustion which develops from work circumstances and characteristically leads to feelings of failure and being worn out. Maslach (2003, p. 189) defines burnout as "a prolonged response to chronic emotional and interpersonal stressors on the job". Rather than focusing solely on the individual stress response, Maslach and Jackson (1981, 1986) have developed a multi-dimensional model of burnout. This model takes into account the individual within the context of social relationships and involves the following three distinct but interrelated components:

- *Emotional exhaustion* (stress component) refers to a loss of energy which leaves the individual feeling emotionally drained, overextended and fatigued. It is the most obvious manifestation of burnout and is most widely reported and analysed (Maslach,

1999; Maslach et al., 2001). Exhaustion reflects the basic individual stress response (Maslach, 2003).

- *Depersonalisation* (other-evaluation component) refers to an aloof, detached, impersonal, negative or callous attitude or response to other people and various aspects of the work situation (Maslach et al., 2001). This dimension is related to a loss of passion or enthusiasm for the job (Leiter & Maslach, 2005). Depersonalisation is an attempt to put emotional and cognitive distance between self and work to cope with excessive demand (Maslach, 1999; Maslach et al., 2001).
- *Reduced personal accomplishment* (self-evaluation component) refers to feelings of inefficacy and diminished productivity and achievement at work (Maslach, 1999; Maslach et al., 2001). It is related to beliefs about personal effectiveness and can impact on self-confidence (Leiter & Maslach, 2005).

Regarding the inter-relation of the three burnout components, Leiter (1993) proposes that emotional exhaustion occurs first, followed sequentially by depersonalisation, and that feelings of inefficacy develop separately from the first two components. This model has generally been supported by research (Maslach et al., 2001).

Burnout can be distinguished from other related constructs in terms of both *time* and *domain*. Rather than being an immediate reactive response, burnout is a longer term-process which results from prolonged exposure to chronic job stressors. It is equivalent to the final exhaustion phase of the General Adaption Syndrome (Selye, 1976) rather than the initial alarm or resistance phase (Maslach, 1999) and can be thought of as the result of "unmediated" (i.e., persistent and unmitigated) stress (Friedman, 1995, p. 281). Not surprisingly, burnout and stress are closely related constructs, with higher levels of perceived stress being positively related to burnout (Lorenz, Benatti, & Sabino, 2010; Otero López, Castro, Santiago, & Villardefrancos, 2010; Polman, Borkoles, & Nicholls, 2010).

In terms of domain, burnout can be distinguished from the context-free nature of depression by its confinement to the social and organisational contexts of work settings (Maslach, 1999). As with stress, there is a link between depression and burnout, with individuals who are more prone to depression being more vulnerable to burnout (Maslach et al., 2001). One longitudinal study found that burnout predicted depression (Hakanen, Schaufeli, & Ahola, 2008).

Maslach and Schaufeli (1993) have identified five common elements which distinguish burnout from related conditions:

1. A prevalence of dysphoric symptoms such as mental or emotional exhaustion, fatigue and depression.
2. A greater emphasis on mental and behavioural symptoms than physical symptoms.
3. Burnout symptoms are work related.
4. The symptoms manifest in 'normal' individuals rather than arising from pre-existing psychopathology.
5. Diminished work performance and effectiveness occur due to negative attitudes and behaviours.

Educator Burnout

Teaching has been identified as an inherently stressful profession (de Heus & Diekstra, 1999; Grieva & Joekes, 2003; Kokkinos, 2007; Smylie, 1999; van Dick & Wagner, 2001) and educator stress and burnout have been highlighted as a widespread issue of global concern in recent years (Kyriacou, 2001; Otero et al., 2010; Rudow, 1999). Due to the interpersonal nature of teaching and the varying demands faced by educators on a daily basis, burnout is an important problem for the teaching profession (Antoniou, Polychroni, &

Vlachakis, 2006; Burke & Greenglass, 1996; de Heus & Diekstra, 1999; Jackson & Rothmann, 2005).

As in all occupational groups, educator burnout manifests through the three dimensions of burnout (Maslach et al., 1996):

1. *Emotional exhaustion* emerges as educators' emotional energies are depleted, and once this becomes chronic, educators may find that they are no longer able to invest as much of themselves in teaching as they once could.
2. *Depersonalisation* manifests when educators find their positive feelings towards their learners replaced by indifference, coldness and negativity. Depersonalisation could involve the educator ignoring the personal qualities of learners which make them unique and engaging and instead viewing them as impersonal objects, in order to cope with emotionally exhausting demands. This can affect educators' capacity to be involved with, and responsive to, the needs of learners.
3. Maslach et al. (1996) note that the final aspect of burnout, *reduced personal accomplishment*, is particularly critical for educators who tend to enter the profession with the aim of helping learners to grow and develop. When this ideal is disillusioned, educators are vulnerable to feelings of disappointment and apathy.

Do educators burn out more easily? One line of research has investigated whether burnout varies across different occupational sectors. For example, Schaufeli and Enzmann (1998) compared burnout profiles for five occupational sectors (teaching, social services, medicine, mental health, and law enforcement) across two countries (the USA and Holland). Differences were found between occupational sectors. Teaching showed the highest level of emotional exhaustion, with the remaining two dimensions being close to the national average.

The question of whether educators burn out more easily than other professionals was researched by de Heus and Diekstra (1999) using a sample of 13,555 social professionals in

Holland. Results indicated that educators had higher mean burnout scores than any other professional group. Both male and female educators showed higher scores for emotional exhaustion and reduced personal accomplishment, and male educators alone showed higher depersonalisation scores than any other professional group.

Antecedents and Correlates of Burnout

Burnout was initially thought to be a problem stemming from the personal deficiencies of the individual (Angerer, 2003). This was followed by a shift in focus to the work context as the cause of burnout (Burke & Greenglass, 2001). More contemporary approaches recognise the role of both personal and work variables in the emergence of burnout.

In line with Lewinian and organismic-dialectical thinking, the multi-dimensional model of burnout (Maslach & Jackson, 1981, 1986; Maslach et al., 2001) emphasises the interaction between person and environment. In Lewinian terms, the development of burnout can be considered a function of the dynamic interaction between the person (P) and his/her *work* environment (E). A theme throughout the burnout literature is the problematic relationship between the person and the work environment, which is often described in terms of poor person-environment fit. Maslach (2003) argues that studying burnout in terms of the interaction between person and environment is essential for gaining a better understanding of the phenomenon. Individual and contextual factors related to burnout will now be considered in turn.

Individual Factors Related to Burnout

People are active agents and bring unique personal qualities to their relationship with work (Deci & Ryan, 2000; Maslach et al., 2001). Several individual variables, discussed below, have been linked to burnout. Maslach (2003), however, has noted that the reported

relationships between personal variables and burnout have generally not been large in size and have sometimes varied from one study to another.

Demographic factors. *Age* is the demographic characteristic that has most consistently been related to burnout. Burnout levels are reported to be higher among younger employees than older employees (Maslach et al., 2001). In South Africa, Jackson and Rothmann (2005) found similar results regarding age. Educators in the age group of 45 to 50 experienced significantly less exhaustion and depersonalisation compared to younger educators (18 to 27). The researchers hypothesised that the higher burnout among younger educators may be due to their initial optimism being replaced by disillusionment when facing the challenging realities of the South African education system. These findings, however, need to be interpreted with caution due to survival bias. Individuals who burn out early in their careers are likely to leave their jobs, meaning that the remaining "survivors" tend to show lower levels of burnout as a group (Maslach et al., 2001).

Gender has not been found to have a strong relationship to burnout and studies have had mixed results. One small but consistent difference is that males tend to show slightly higher cynicism/ depersonalisation scores than females (Maslach et al., 2001, Maslach, 2003). Jackson and Rothman (2005) found no significant gender differences for the three burnout dimensions among South African educators. Regarding *marital status*, studies have shown that burnout tends to be higher for single people (especially men) compared to married people (Maslach et al., 2001).

Finally, in terms of *grade level taught*, evidence suggests that burnout is more prevalent among senior school than primary school educators (Jackson & Rothmann, 2005; van Horn, Schaufeli, & Enzmann, 1999). Rothmann (2005) showed that secondary school educators in South Africa comprised the third highest risk group in terms of poor work related well-being.

Personality variables. An array of personality traits have been researched in an attempt to ascertain what makes individuals vulnerable to burnout. Studies utilising the Big Five personality factors have consistently found that high scores on neuroticism (anxiety and emotional instability) are related to higher burnout scores in educators (Cano-Garcia, Padilla-Munoz, & Carrasco-Ortiz, 2005; Jenson, 2008; Kokkinos, 2007).

Higher levels of burnout have been linked with low levels of hardiness, an external locus of control, an avoidant coping style, and low self-esteem (Maslach et al., 2001; Maslach, 2003). In a study involving educators, Kokkinos (2007) found that emotional exhaustion and depersonalization were more strongly related to environmental stressors, whereas personal accomplishment was more related to personality variables.

Although the role of personal variables is acknowledged, most research suggests that *job environment* features are more strongly related to burnout than personality or demographic factors (Burke & Greenglass, 2001; Byrne, 1999; Lee & Ashforth, 1996; Maslach, 2003; Schaufeli & Enzmann, 1998). This could imply that "burnout is more of a social phenomenon than an individual one" (Maslach et al., 2001, p. 409). The following section considers the contextual and situational factors associated with burnout, which are of particular interest in the present study.

Contextual Factors Related to Burnout

Burnout is experienced by individuals specifically in the *work context*. For this reason, research in the field over the past 35 years has centred on the situational correlates of burnout.

The Job Demands – Resources Model. The job demands-resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) distinguishes between two broad categories of working conditions which differentially impact on employee well-being, namely, job demands and job resources. *Job demands* refer to those aspects of the job which

require sustained mental and/or physical effort and are associated with physical and psychological costs. *Job resources*, on the other hand, are those physical, psychological, social, and organisational aspects of the job which are instrumental to achieving work goals, reducing job demands, and stimulating personal growth and development (Demerouti et al., 2001).

The JD-R model proposes that job demands and resources are linked to both burnout and work engagement. Through an energetic process, excessive job demands are thought to drain energy and lead to exhaustion, while lack of resources leads to disengagement through a motivational process. The presence of sufficient resources is thought to increase work engagement. Results from several studies have lent support to the JD-R model (Bakker, Demerouti, & Verbeke, 2004; Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007; Demerouti et al., 2001; Hakanen et al., 2008; Jackson, Rothmann, & van de Vijver, 2006; Montgomery, Mostert, & Jackson, 2005; Rothmann & Essenko, 2007; Schaufeli & Bakker, 2004; Van den Broeck, De Cuyper, Luyckx, & De Witte, 2009).

Both the presence of job demands and the absence of job resources have been studied in relation to burnout. There is substantial evidence indicating and association between high job demands or lack of resources and higher levels of burnout, although the relationship between lack of resources and burnout is weaker (Hakanen et al., 2008; Maslach et al., 2001; Rothmann & Essenko, 2007; Schaufeli, Bakker, & van Rhenen, 2009).

Results from studies on *quantitative job demands* (e.g., high workload), utilising both self-report and objective measures, suggest that burnout is a reaction to overload. More specifically, experienced workload and time pressure are strongly and consistently related to burnout, in particular the exhaustion dimension (Maslach et al., 2001). A two-wave study (eight months between T1 and T2) with Spanish educators using hierarchical multiple regression analysis reported a predictor effect of quantitative overload on exhaustion, with

higher overload leading to greater exhaustion (Prieto, Soria, Martinez, & Schaufeli, 2008). Increased exhaustion related to high workload has been shown to mediate the relationship between workload and the other two burnout dimensions (Demerouti et al., 2001). A study on educator workload in South Africa (Chisholm et al., 2005) reported that "the vast majority of educators experience the multiple, complex and constantly changing requirements in teaching and learning contexts, marked on the whole by large class sizes with diverse teaching and learning needs, as an unbearable increase in workload" (p. 184).

Research on *qualitative job demands* has mainly focused on role conflict (having to meet conflicting job demands) and role ambiguity (lack of clarity regarding roles and responsibilities and having insufficient information to perform well). Studies have consistently shown a strong relationship between role conflict and burnout (Maslach et al., 1996; Maslach et al., 2001; Prieto et al., 2008), whereas results for role ambiguity have been less consistent, with some studies revealing a moderate positive association with burnout (Maslach & Leiter, 2008). In South Africa, educator role conflict may be fuelled by the complex nature of educator working conditions and the broad role which educators are expected to fulfil, as indicated by the *Norms and Standards for Educators* (2000), which require an educator to be the following:

- A specialist in a particular learning area, subject, or phase of study (e.g., Further Education and Training, Grade 10 - 12).
- A specialist in teaching and learning.
- A specialist in assessment.
- A curriculum developer.
- A leader, administrator and manager.
- A scholar and lifelong learner.
- A professional who plays a community, citizenship, and pastoral role.

Maslach and Leiter (2008) explain that quantitative and qualitative work overload makes it difficult for individuals to meet their job demands and leads to depletion of energy thus contributing to exhaustion. When overload is a chronic job condition and there is no respite time for individuals to recover, this makes burnout more likely.

Regarding *absence of resources*, social support has been most widely researched and there is strong evidence that lack of social support is linked to burnout (Dorman, 2003; Maslach, 1999; Maslach et al., 2001; Otero et al., 2010). While supervisor support is more closely related to exhaustion, co-worker support is more closely linked to the personal accomplishment dimension (Maslach & Leiter, 2008). Buunk and Schaufeli (1993) found that burnout is less likely to occur within a positive and supportive work environment. In the Free State province of South Africa, Pienaar and van Wyk (2006) found that educators who belonged to unions (which play an important social support role) exhibited lower burnout scores than those who did not have union membership.

Lack of information (insufficient feedback) and control (non-inclusion in decision making) have also been linked to higher burnout, and to a lesser degree, so has lack of autonomy (Maslach et al., 2001). In general, educators are granted minimal input into decisions which directly affect them, and over time, this could lead to increasing frustration, stress, and eventually burnout. Byrne (1999) found that lack of inclusion in decision making was a major indirect determinant of burnout in that it led to lower self-esteem and feelings of external control, which could later lead to increased job stress and reduced personal accomplishment. In a study on the buffering effects of job resources using moderated SEM analyses, Bakker et al. (2007) found that supervisor support, innovativeness, information, appreciation, and organizational climate were important job resources which helped educators to cope with learners' misbehaviour.

Hakanen et al. (2008) conducted a three year longitudinal study of the JD-R model with a large sample of Finnish dentists. Results showed that job resources influenced future work engagement, whereas job demands predicted burnout over time. In addition, job resources had a weak negative impact on burnout. In another longitudinal study of the JD-R model involving telecoms managers by Schaufeli et al. (2009), results of SEM analyses showed that increases in job demands (i.e., overload, emotional demands, and work-home interference) and decreases in job resources (i.e., social support, autonomy, opportunities to learn, and feedback) predicted burnout, and that increases in job resources predicted work engagement.

In South Africa, Jackson et al. (2006) found similar results to the above two studies using a structural model with educators. Results showed that job demands (pace and amount of work, mental load, and emotional load) lead to burnout and that job resources (organisational support, growth opportunities, and advancement) lead to work engagement. Also in South Africa, Montgomery et al., (2005) found an excellent fit for a structural model in which job characteristics (job demands and job resources) predicted burnout in educators. Higher job demands and lack of resources were related to higher levels of burnout. It was concluded that "high job demands and a lack of resources to deal with these demands could lead to educators becoming exhausted, incapable of performing (because all their energy has been drained), developing an increased intolerance of any effort and an unwillingness to perform" (p. 270).

Maslach (2003) has pointed out that the three dimensions of burnout are related to workplace variables in varying ways. Generally, exhaustion and depersonalisation tend to emerge from the presence of work overload or social conflict, while reduced personal accomplishment arises more clearly from a lack of resources to get the job done (e.g., insufficient time, lack of essential information, and lack of instrumental resources).

School Variables and Burnout. Educators are subject to stressors at the national level (e.g., changes in curriculum), community level (e.g., lack of resources), school level (e.g., work pressure) and the classroom level (e.g., disruptive learners). Whereas all educators in South Africa are subject to the same stressors at the most global national level, it is likely that educators in different school types (i.e., advantaged, transitional, disadvantaged Black, and disadvantaged Coloured schools; see Chapter 3) are subject to different challenges at the *community level*. For instance, disadvantaged schools are characterised by a lack of resources, large class sizes, and a greater degree of violence compared to transitional and advantaged schools. In transitional schools, a unique set of stressors may arise from the cultural and socioeconomic gap which exists between educators and learners at these schools. In advantaged schools, there may be greater performance pressure due to the school cultures which prevail. No studies directly examining the relationship between school type and educator burnout could be found in the literature and this study will explore whether differences exist in educator burnout across the four school types. There is international and South African evidence that factors associated with disadvantaged schools, such as school violence (Buck, 2006), lack of resources (Kaufhold, Alverez, & Arnold, 2006; van Tonder & Williams 2009), and large class sizes (van Tonder & Williams 2009) are related to burnout.

At the *school level*, studies have reported relationships between burnout and school contextual variables. Skaalvik and Skaalvik (2009) used SEM to examine the relationship between educator burnout and school context. Four aspects of educators' perception of the school context (supervisory support, time pressure, relations to parents, and autonomy) and the three MBI dimensions of educator burnout were measured. Results showed that the three dimensions of burnout were differently related to the school context variables. Emotional exhaustion was most strongly related to time pressure whereas depersonalization and reduced personal accomplishment were most strongly related to educators' relations with parents. A

study by Goddard et al. (2006) using a modified form of the Work Environment Scale (Moose, 1994) and the MBI found that beginning teacher burnout was related to how much the working environment supported innovation in working practices. Lower support for innovation was significantly related to higher burnout levels. Goddard et al. (2006) noted that their findings may not be generalisable to other groups of beginning teachers due to sampling methods employed, but that their findings do correspond to those of other researchers (e.g., Burke & Greenglass, 1995). One aspect of the environment that has consistently been found to be a reliable predictor of the emotional exhaustion component of burnout is that of work pressure (Maslach et al., 1996).

At the *classroom level*, factors affecting classroom environment, such as learner discipline, have been linked to burnout in several studies (van Tonder & Williams, 2009). In a longitudinal study (1 year interval), Burke, Greenglass, and Schwarzer (1996) found that dealing with disruptive students was an important predictor of educator burnout. Byrne (1994) used SEM with a large sample of Canadian educators to investigate the nomological network of educator burnout variables identified in international literature. Findings showed that, in addition to the organisational variables of role conflict, work overload, and decision making, classroom environment was a critical determinant of burnout for educators regardless of grade taught. The uni-dimensional Classroom Environment Scale (Bacharach, Bauer, & Conley, 1986) was used to measure classroom climate and this instrument is comprised of items that tap classroom size, learner ability and interest, and various types of disruptive learner behaviour. Classroom climate was found to have a strong impact on emotional exhaustion and depersonalisation. Byrne (1994, 1999) suggests that as the social environment of the classroom deteriorates, educators become emotionally exhausted and develop progressively more negative attitudes towards learners and the teaching profession in general.

Although aspects of the school and classroom environment have been studied in relation to burnout, Dorman (2003) has highlighted that most studies have utilised uni-dimensional scales to assess the learning environment. The modern era of learning environment research has shown that these environments are multi-dimensional and it is recommended that measuring instruments reflect this (Fraser, 1998; Dorman, 2003). Dorman has indicated that studies utilising multi-level measures of the psychosocial environments of schools and classrooms (as included in the present study) as antecedents of educator burnout are scarce. A review of the literature confirms his statement. The identification of school and classroom environments as possible predictors of burnout is consistent with Lens and de Jesus' (1999) psychosocial interpretation of teacher stress and burnout and these researchers also emphasize the multi-level nature of the educational social environment, as described in Chapter 1.

Dorman (2003) investigated the relationship between school and classroom environment and educator burnout using SEM. The SLEQ and combined scales from two contemporary classroom environment questionnaires were used to measure educators' perceptions of their learning environment and the MBI was used to assess burnout. Results showed that three school environment and four classroom environment dimensions were associated with educator burnout. At the school level, results revealed the importance of mission consensus, affiliation, and work pressure for burnout:

- Mission consensus had a statistically significant negative relationship with depersonalisation and a statistically significant positive relationship with personal accomplishment, meaning that educators who perceive a high level of agreement on the overall school goals tend to have reduced levels of burnout.

- Affiliation among teachers was a significant negative predictor of emotional exhaustion, in line with evidence regarding lack of social support as an important antecedent to burnout (Maslach, 1999; Maslach et al., 2001).
- Work pressure had a strong positive relationship with emotional exhaustion, corresponding to results from numerous other studies (Maslach et al., 2001).

Results for classroom environment dimensions as predictors of burnout dimensions were as follows:

- Teacher–student interactions and task-orientation had significant negative relationships with personal accomplishment.
- Co-operation among students was related negatively with depersonalisation and positively with personal accomplishment.
- Order and organisation in the classroom was negatively related to emotional exhaustion.

Dorman (2003) concluded that the school and classroom environment are predictive of burnout and that efforts should be made to foster positive learning environments not just for improved learner outcomes (Fraser, 1998), but for improved educator well-being.

Contextual Sources of Educator Stress and Burnout in South Africa

Numerous studies have investigated the demands faced by educators in the South African context. In an exploratory study with secondary school educators across all provinces and racial groups in South Africa, Schulze and Steyn (2007) reported that uninvolved parents, poor learner discipline, lack of learner motivation, learners' negative attitudes, numerous changes within and outside the school, and lack of self-esteem were significant stressors. Similar results have been reported by other South African studies which have additionally identified redeployment and retrenchment, large class sizes, new curriculum approaches (Saptoe, 2000), low salaries (Olivier & Venter, 2003), and politically driven changes in

education (Ngidi & Sibanya, 2002) as sources of educator stress. A national study on potential educator attrition involving 20,626 educators (Hall, Altman, Nkomo, Peltzer, & Zuma, 2005) revealed that more than half of South African educators in the study stated that they had the intention of leaving education voluntarily. The reasons cited were increased workload, inadequate remuneration, lack of career development and professional recognition, dissatisfaction with work policies, job insecurity and lack of choice regarding where to work.

A recent study by van Tonder and Williams (2009) explored the origins of burnout among secondary educators in the Gauteng province of South Africa using a mixed quantitative and qualitative design. Their results were consistent with international findings and pointed to the following stressors as contributing factors:

- *Learner profile* (attitude and conduct, particularly lack of discipline and respect) was the most prominent stressor identified. This corresponds to international findings (Griva & Joekes, 2003).
- *Workload* was the second major stressor to emerge, with large class sizes and changes in educational policy and practices cited as prominent factors contributing to heavy workload.
- *Lack of control* surfaced as a theme, with educators indicating that lack of control over learner discipline was a major issue partly due to the abolishment of corporal punishment and no effective replacement for dealing with unacceptable behaviour in classrooms.
- *Poor support from the Department of Education and parents* was highlighted, with educators stating that their contributions are under-appreciated and unrecognised.
- *Poor remuneration* levels which could lead to perceptions of unfair treatment (Maslach et al., 2001) and *lack of school resources*, which affects educator empowerment, were significant sources of stress.

- Finally, *poor commitment from colleagues* was identified as a stressor, corresponding with findings by Griva and Joekes (2003), where poor relationships with colleagues and superiors was found to be a pronounced source of stress for educators.

It is clear that the South African educational context is rife with several stressors related to burnout at different levels, ranging from learner discipline problems at the classroom level, to lack of commitment from colleagues at the school level, lack of resources and poor parental support at the community level, and finally, poor salaries, continual policy changes and lack of support from the DoE at the national level.

Advancing the Theoretical Framework: The Person in Context

In order to integrate individual and contextual factors, Maslach and Leiter (1997) have developed a model based on a job-person fit conceptualisation. The model concentrates on the degree of match or mismatch between the individual and six key areas of the work environment, which are considered to be risk factors in the development of burnout. It is proposed that the greater the degree of mismatch between individuals and their jobs, the greater the likelihood that burnout will emerge. Conversely, a good match is thought to relate to work engagement. The six key domains are as follows (Maslach & Leiter, 1997, 2008; Maslach et al. 2001):

1. *Workload* refers to the nature and intensity of work and a mismatch on this domain is most directly related to the exhaustion component of burnout (Maslach et al., 2001). The mismatch can be due to excessive work overload and/or a mismatch concerning the type of work (e.g., not having the required skills). Emotional work, such as teaching, is known to be particularly taxing. Causes of work overload for educators include excessive paperwork, large class sizes, students with varying ability levels in the same class (Byrne, 1994) as well as changes in educational policy and practices (van Tonder & Williams, 2009).

2. *Control* involves the degree of autonomy and control that people have over critical dimensions of their work. A mismatch in control could mean that individuals do not have access to sufficient resources or have insufficient authority to work effectively and solve problems they identify. A mismatch in this domain is related to the reduced personal accomplishment (inefficacy) aspect of burnout. Issues of responsibility outweighing authority are common in the teaching profession as teachers are often excluded from contributing to decisions which directly affect them (Smylie, 1999). Teachers have to follow regulations set out by education departments and have to adjust to policy and curriculum changes outside their control. Van Tonder and Williams (2009) identified lack of control over learner discipline as a major stressor for educators in South Africa.
3. *Reward* mismatches, such as insufficient financial remuneration or social recognition for work done, can lead to feelings of inefficacy and loss of motivation. Several previously mentioned South African studies have identified low educator salaries, as well as lack of recognition from parents and the DoE, as critical issues.
4. *Community* refers to a sense of positive connection and group membership with others in the workplace where shared values and social support are present. A mismatch here could take the form of isolation or conflict with associated negative feelings such as frustration or hostility. Research on educator burnout confirms the relationship between poor relationships with colleagues and burnout (Griva & Joekes, 2003; van Tonder & Williams, 2009).
5. *Fairness* refers to the presence of trust, honesty and respect in the workplace. Mismatches here occur when there is unfairness, such as inequity in workload or salaries, discrepancies in evaluations and promotions, cheating, and ineffective or

absent grievance procedures. Unfairness contributes to burnout since unjust treatment is upsetting and emotionally exhausting and can lead to a sense of cynicism.

6. *Values* are central to work life and represent the cognitive-emotional power of job goals and expectations. Mismatches can occur between stated organisational values and actual practices, or between the individual's personal values and those of the organisation, both of which can cause distress and cynicism. Due to the nature of the South African education system, stated values and policy objectives are often not implemented in reality (Chisholm et al., 2005). Values also represent the original motivations of educators for entering the profession and a mismatch between their initial ideals of making a difference in young people's lives and the realities of the teaching job may be part of the reason why younger educators are more susceptible to burnout (Jackson & Rothmann, 2005).

Research on these six domains suggests that the area of values may play a mediating role for the other areas and a structural model of burnout suggests that values may play a key role in predicting levels of burnout (Leiter & Maslach, 2005). In a recent longitudinal study, Leiter and Maslach (2008) found a positive relationship between mismatches in the six areas of worklife and burnout. They concluded that workplace incongruity is a potential 'tipping point' towards burnout for those already displaying early warning signs (exclusive presence of either exhaustion or cynicism), particularly in the area of fairness (p. 507). They hypothesised that fairness may be a critical factor in employees' judgement of the workplace as a favourable or unfavourable place to be, but also pointed out that the current state of work conditions due to policies, practices or problems may influence which area is most critical in acting as a tipping point at the time.

The Outcomes of Burnout

Burnout has serious implications for educator well-being and performance (Jackson et al., 2006) as well as learner outcomes (Maslach, 1999; Maslach & Leiter, 1999). In terms of educator health and well-being, there is an established link between burnout and ill health (Hakanen et al., 2008; Jackson et al., 2006; Maslach & Leiter, 1999, Maslach et al., 2001) and structural (Montgomery et al., 2005) as well as longitudinal (Hakanen et al., 2008) models have shown that burnout mediates the relationship between job characteristics and physical and psychological ill health. Burnout symptoms can be classified into five categories (Schaufeli & Buunk, 2003):

1. *Affective:* e.g., low mood, irritability, aggression and anxiety.
2. *Cognitive:* e.g., concentration and memory difficulties, perceptions of helplessness, a sense of failure, pessimism, lowered job-related self-esteem, and a critical or mistrustful attitude to others at work.
3. *Behavioural:* e.g., absenteeism, staff turnover, poor work performance, and substance abuse.
4. *Motivational:* e.g., deterioration or loss of enthusiasm, interest or idealism, disappointment, disillusionment, passivity, resignation and withdrawal, and reduced job satisfaction.
5. *Physical:* a range of physical symptoms and somatic complaints related to prolonged stress, e.g., low energy and fatigue, dizziness, nausea and digestive problems, insomnia, recurrent cold and flu symptoms, raised cortisol levels and coronary heart disease.

The deleterious impact of burnout extends well beyond the individual level of educator health and well-being into the realm of educational effectiveness. Burnout has been linked to reduced performance, low organisational commitment, lower productivity and

effectiveness, absenteeism, intention to leave, and turnover (Ingersoll & Smith, 2003; Maslach & Leiter, 1997, 1999, 2008; Maslach et al., 2001; Rudow, 1999). A longitudinal study by Schaufeli et al. (2009) showed that burnout predicted registered sickness duration among telecoms managers.

For educators specifically, the following consequences of burnout have been identified (Chisholm et al., 2005; Rudow, 1999):

- Under performing, consequently compromising the quality of teaching delivered to learners.
- Resorting to drugs and alcohol in an attempt to cope with burnout.
- Leaving the profession altogether/ resigning, particularly among young educators.

These outcomes of burnout can have serious consequences for education is South Africa. Jackson and Rothmann (2005) have found a correlation between South African educator burnout and intention to leave the profession. Shortages of educators has been identified as a major problem (Crouch & Perry, 2003) and, as mentioned previously, the national study by Hall et al. (2005) confirmed that more than half of South African educators in the study had seriously considered leaving the profession. The education system cannot afford the reduction in teaching quality and the turnover of educators associated with burnout.

Burnout and associated ill health can lead to an incapability and unwillingness of educators to perform (Jackson et al., 2006). Teaching is by its very nature a social process and the ability to form effective working relationships in the school environment is critical to educators' effectiveness. Burnout interferes with educators' relationships with colleagues, parents and learners through the process of depersonalisation which changes educators' social behaviour. Educators experiencing burnout can show a lack of warmth, engagement and commitment, and are more likely to be critical of learners. They are also less likely to prepare

thoroughly for lessons and may be less involved in classroom activities (Maslach & Leiter, 1999). Over time, the deterioration in educator performance associated with burnout can have serious consequences for learners by negatively impacting their learning (e.g., depth of learning and initiative) and performance, as well as self-efficacy and intrinsic motivation (Huberman & Vandenberghe, 1999; Maslach & Leiter, 1999).

It is clear that burnout is an important problem for education. Burnout can affect educators' health and well-being, their job performance, the quality of teaching they provide, and eventually learner outcomes. Another educator variable which has been linked to learner outcomes is that of *motivating style*, discussed in the following section.

Educators' Orientations towards Motivating Their Learners

Motivation is widely accepted as a critical determinant of performance. Educators employ a variety of instructional styles to motivate their learners, not all of which are equally effective. This section focuses on educator motivating style from an SDT perspective, starting with an overview of the theory. This is followed by a definition of motivating style and discussion of its correlates and possible consequences for learners. Next, the antecedents of motivating style are addressed, with a specific focus on school and classroom environment. Finally, the chapter concludes with a brief overview of the connection between burnout and motivating style.

Self-Determination Theory

SDT (Deci & Ryan, 1985), introduced in Chapter 1, is an empirically based macro-theory of human motivation and development, refined by 25 years of research. SDT has been applied in diverse cultures and in various life domains, including parenting, health-care, sport, work, and education. As discussed in Chapter 1, SDT is based on an organismic-dialectical view which highlights the interaction between "an active, integrating human

nature and social contexts that either nurture or impede the organism's active nature" (Ryan & Deci, 2002, p. 6).

The theory focuses on types or quality, rather than simply amount or strength, of motivation. Moving beyond the initial focus on intrinsic versus extrinsic motivation, SDT distinguishes between autonomous and controlled motivation. *Autonomous motivation* involves acting with a sense of volition, choice and self-determination, whereas *controlled motivation* involves behaving out of a sense of internal or external pressure or demand (Deci & Ryan, 2008). Research across cultures, including South Africa (Müller & Louw, 2004), has shown that in comparison to controlled motivation, autonomous motivation has more advantageous outcomes (Deci & Ryan, 2008). Autonomous motivation is related to higher quality learning (Grolnick & Ryan, 1987); deeper information processing, maintained persistence and higher performance (Simons, Dewitte, & Lens, 2004; Soenens & Vansteenkiste, 2005; Vansteenkiste, Zhou, Lens, & Soenens, 2005); better grades (Black & Deci, 2000); higher levels of well-being (Chirkov, Ryan, Kim, & Kaplan, 2003; Chirkov, Ryan, & Willness, 2005; Sheldon, Ryan, Deci, & Kasser, 2004); and lower educator burnout (Roth, Assor, Kanat-Maymon, & Kaplan, 2007).

Self-determination theory proposes that varying types of motivation and regulation can be identified along a continuum of self-determination, as shown in Figure 2 below.

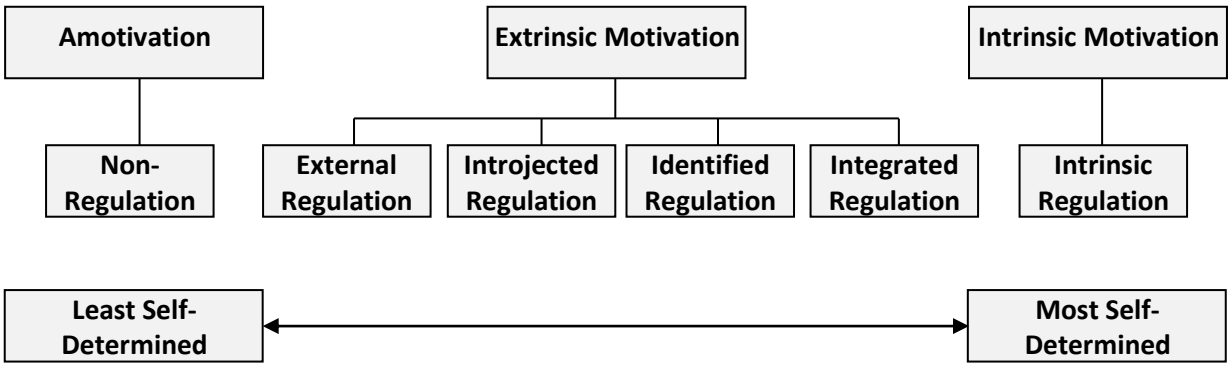

Figure 2. The types of motivation and regulation within self-determination theory, along with their placement along the continuum of relative self-determination (taken from: Deci & Ryan, 2008, p. 17).

As can be seen from Figure 2, amotivation (lacking the intention to act) is the least self-determined form of regulation, while intrinsic motivation (acting out of pure enjoyment or interest) is the most self-determined form of regulation (Deci & Ryan, 2008). An interesting development in the theory has been the differentiation of extrinsic motivation into four subtypes which differ in their relative self-determination. *External regulation* is the least autonomous type of extrinsic motivation and involves taking action to obtain rewards or avoid punishment (Deci & Ryan, 2002). *Introjected regulation* comes about when individuals take in an external contingency or regulation without feeling a sense of ownership of it. Here, behaviour may be spurred on by a desire to avoid guilt or to protect self-esteem and there is an associated sense of pressure. With *identified regulation*, individuals recognise the importance of the behaviour for themselves and act with a greater sense of autonomy and ownership. Finally, *integrated regulation* is the most autonomous form of extrinsic motivation and represents the most complete type of internalisation. Individuals integrate extrinsic contingencies into their sense of self and extrinsically motivated behaviours become fully autonomous (Deci & Ryan, 2008). Thus, SDT recognises that various forms of extrinsic motivation can be self-determined. Identified, integrated and intrinsic regulations represent varying degrees of autonomous motivation, whereas external and introjected regulations are forms of controlled motivation.

Basic Psychological Needs and the Social Environment

A central tenet of SDT is the concept of innate and universal *basic psychological needs.* The three identified needs (i.e., the need for autonomy, competence, and relatedness) are thought of as "nutriments" necessary for optimal human growth and development (Ryan & Deci, 2002, p. 7). *Autonomy* refers to the experience of volition, choice and ownership of behaviour, which is perceived as emanating from the self. *Competence* refers to feeling effective and confident in navigating the social environment and pursuing personal goals.

Finally, *relatedness* involves a sense of reciprocal care, belongingness and connectedness to others and the community (Deci & Ryan, 2000; Ryan & Deci, 2002).

The concept of basic psychological needs is fundamental to the organismic-dialectical metatheory on which SDT is based. As mentioned previously, psychological growth, development, wellness and motivation are seen as a function of the interaction between the active individual and the social environment, which can either promote or hinder healthy development (Deci & Ryan, 2008). More specifically, the social environment plays a critical role in growth and integration by either fostering or impeding the satisfaction of the *basic psychological needs* (Ryan & Deci, 2000). Thus, to the extent that the social environment allows for the experience of autonomy, competence and relatedness, motivation for a given task will be optimal (Vallerand, Pelletier, & Koestner, 2008). Social contexts which support the satisfaction of the basic needs facilitate natural growth processes, including intrinsically motivated behaviour and the integration of extrinsic motivations (i.e., autonomous regulation), whereas those which hinder need satisfaction are related to poorer motivation, performance, and well-being (Deci & Ryan, 2000).

Given the beneficial outcomes associated with autonomous motivation, SDT research has focused on the social conditions which facilitate versus thwart internalisation, integration and autonomous action. As described above, it is proposed that conditions which support basic need satisfaction will facilitate the development of autonomous motivation (Deci & Ryan, 2008). In particular, the role of significant others (e.g., parents, educators, and managers) in creating social environments conducive or detrimental to need satisfaction has been explored. The educational setting has received considerable SDT research attention, with over 200 extant empirical educational studies (Guay, Ratelle, & Chanal, 2008). One of the main research trends has been to investigate educators' approaches to motivating their learners.

Educator Motivating Style

Educators occupy a position of authority in the school setting. An important aspect of their role is to motivate learners to engage in class and to achieve their academic potential. According to SDT, educators tend to have relatively stable individual orientations to motivating learners (i.e., motivating styles), which can be conceptualized along a continuum ranging from highly controlling to highly autonomy supportive (Deci & Ryan, 2008; Deci, Schwartz, Sheinman, & Ryan, 1981).

Autonomy support involves acknowledging learners' perspectives, providing a sense of choice, promoting initiative, and being responsive to questions (Deci & Ryan, 2008). Autonomy supportive educators aim to nurture and develop learners' inner motivational resources (Jang, Reeve, & Deci, 2010; Reeve, 2009). In contrast, *controlling* educators tend to prioritise their own agendas and use instructional styles which pressure learners into thinking, feeling or behaving in a specific way. Controlling educators rely on external sources of motivation (e.g., rewards and punishment) and make use of pressurising language (Reeve, 2009).

Sierens (2010, p. 6) provides a useful exposition of the overt instructional behaviours differentiating autonomy supportive versus controlling teaching, displayed in Table 4.

Table 4

Autonomy Supportive Versus Controlling Teaching Behaviours (Sierens, 2010, p. 6)

Autonomy Support	**Control**
Use informational, flexible, non-controlling language	Use directives, should-, must-, and have to-type statements, controlling, coercive language
Allow criticism and encourage independent thinking	Restrain criticism and independent opinions
Respect and value students' feelings, thoughts, and behaviours	Make criticisms and use threats and rigid coercion
Be open to complaints to imposed demands, uninteresting activities, and structures	Counter negative emotions
Have an empathic listening attitude	

...Table 4 continued

Autonomy Support	Control
Nurture intrinsic motivational resources ("I want to do this") by providing challenges and choices, taking into account students‟ preferences and interests, stimulating curiosity, identifying students‟ interests	Rely on extrinsic motivational resources, external influences and controls by referring to strict deadlines, evaluation, and consequences (i.e., rewards and punishments) and seeking compliance
Help students to grasp the contribution of schoolwork to the attainment of personal goals or articulate the usefulness of teacher's requests (relevance-clarifying actions) Offer interesting and relevant activities	Force meaningless and uninteresting activities, neglect value and importance of tasks and lessons
Allow students time to work independently and in their own way. Give students the opportunity to be self-managers, take initiative during learning activities	Display impatience and push students toward specific, predetermined solutions, behaviours, and answers. Display strict supervision and management and "my way or the highway" attitude

Which Motivating Style is More Helpful?

A large body of empirical research shows that learners with autonomy supportive educators, as compared to those with controlling educators, display an array of positive educational outcomes (Reeve, 2009), including:

- Enhanced classroom engagement (Assor, Kaplan, & Roth, 2005; Jang et al., 2010; Reeve, Jang, Carrell, Jeon, & Barch, 2004).
- Better academic adjustment (improved concentration in class and use of deep-level cognitive strategies) and social adjustment (less behavioural disorders and absenteeism; Sierens, Vansteenkiste, Goossens, Soenens, & Dochy, 2010).
- Improved intrinsic motivation (Deci et al., 1981), self-determined motivation, perceived competence (Black & Deci, 2000; Handre & Reeve, 2003) and autonomy (Reeve & Jang, 2006).
- Lower incidence of drop-out (Handre & Reeve, 2003).

- Improved learning i.e., conceptual understanding and deep processing (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005).
- Better performance in terms of grades (Black & Deci, 2000; Vansteenkiste, Simons, Lens, Sheldon, et al., 2004).
- Reduced anxiety (Black & Deci, 2000) and improved self-esteem (Deci et al., 1981).
- Better psychological well-being (Black & Deci, 2000).

Using an experimental design, Reeve et al. (2004) found that (a) veteran educators could be taught to be more autonomy supportive, and (b) that their learners showed greater engagement in response to increased autonomy support. Filak and Sheldon (2008) tested a sequential path model incorporating various motivational variables. Using SEM, they found a best-fitting model in which educator autonomy support predicted more self-determined learner motivation, which along with educator autonomy support, predicted greater learner psychological need satisfaction. Greater need satisfaction in turn led to higher predicted course grades.

Black and Deci (2000) investigated the effects of instructors' autonomy support on learning organic chemistry over a four month semester period. Results showed that for all students, perceptions of their instructors' autonomy support predicted increases in autonomous self-regulation, perceived competence, and interest/enjoyment, as well as decreases in anxiety over the semester. The changes in autonomous self-regulation in turn predicted students' performance on the course. Further, for students initially low in autonomous self-regulation, instructor autonomy support also predicted course performance directly, even after controlling for the effects of course grades. This is an interesting finding and could mean that autonomy-support is especially important for improving the performance of learners with poor autonomous motivation.

In the only identified study involving autonomy-support in South Africa, Müller and Louw (2004) investigated the relationship between university students' motivation and their learning environment. In line with international research, they found that first-year university students' perceptions of autonomy support were associated with self-determined motivation.

In contrast to autonomy support, studies have shown that controlling teaching has a negative relationship to self-regulated learning (i.e., use of deep level cognitive and meta-cognitive strategies), task performance (Flink, Boggiano, & Barrett, 1990) and academic achievement (Soenens, Sierens, Vansteenkiste, Dochy, & Goossens, in press).

Given the benefits of autonomy-support and the costs of controlling teaching, it might be natural to assume that educators tend to exhibit more autonomy-supportive behaviours and tend to minimise controlling behaviours. This, unfortunately, does not seem to be the case (Reeve, 2009; Reeve et al., 2004).

Why do Educators Adopt a Controlling Style?

Due to the importance of motivating style for learner outcomes, researchers have explored factors which encourage controlling teaching. Based on previous studies, Reeve (2009) has identified seven reasons why educators adopt a controlling motivating style towards learners. These reasons are divided into a useful framework, covering:

- *"Pressure from above"* - external pressures from the school environment.
- *"Pressure from below"* - pressures arising from classroom dynamics.
- *"Pressure from within"* - internal pressures stemming from educators' personal beliefs, values and motivation.

The seven reasons why educators use a controlling style (Reeve, 2009) are presented in Table 5.

Table 5

Seven Reasons Why Educators Adopt a Controlling Motivating Style Towards Learners (adapted from Reeve, 2009, p. 164)

Pressure from above
1. Educators occupy an inherently powerful social role, which may encourage a take-charge controlling style.
2. Educators carry the dual burdens of responsibility and accountability for learner behaviours and outcomes.
3. Educators are aware that controlling is culturally valued.
4. Educators sometimes equate control with structure. Autonomy-supportive styles are often wrongly equated with chaotic or laissez-faire approaches. In fact, autonomy supportive educators tend to provide helpful structure to learners and several studies have found that autonomy-support and structure are positively related (e.g., Jang et al., 2010; Sierens et al., 2010).
Pressure from below
5. Educators' style is influenced by learner behaviour and motivation – i.e., the relationship is bi-directional (Skinner & Belmont, 1993). Unmotivated or disengaged learners tend to draw a controlling style out of educators.
Pressure from within
6. Educators tend to endorse the maximal-operant principle of motivation. This means that extrinsic motivators (e.g., rewards) are seen as most effective and are given priority, while learners' capacity for autonomous self-regulated learning is overlooked.
7. Educators may be motivationally or dispositionally oriented toward a controlling style.

The contextual dimensions regarding why educators adopt a controlling style are of particular interest in this study, i.e., pressure from above (school level), and pressure from below (classroom level). Earlier in this chapter, several sources of educator stress and burnout in South Africa were identified. These sources of pressure can be classified into the two contextual categories as follows:

Pressure from above

- High workload
- Lack of control
- Poor support from the Department of Education and parents
- Lack of professional recognition
- Poor remuneration levels
- Lack of school resources
- Poor commitment from colleagues
- Numerous politically driven changes within and outside of the school
- Lack of career development
- Dissatisfaction with work policies
- Lack of choice regarding where to work
- Job insecurity

Pressure from below

- Poor learner discipline
- Lack of learner motivation
- Learners' negative attitudes
- Large class sizes

School and Classroom Environment as Antecedents of Educator Motivating Style

Based on SDT, it can be assumed that the extent to which the school environment fosters the satisfaction of educators' basic needs for autonomy, competence, and relatedness will relate to their level of autonomous motivation and degree of autonomy support. A review of the literature indicates that school and classroom environment variables related to educator motivating style have not yet been extensively researched. Two aspects which have received limited attention are:

- perceived work pressure (i.e., pressure from above - relevant to school environment), and
- perceived learner motivation (i.e., pressure from below - relevant to both school and classroom environment).

Pelletier, Séguin-Lévesque and Legault (2002) examined socio-contextual variables that affect educators' motivating styles. Using SEM, they found that the more educators perceived pressure from above (pressure from colleagues, performance standards, and having to comply with a curriculum) and pressure from below (poorly self-determined learners), the less they were self-determined towards teaching. Furthermore, the less educators were self-determined towards teaching, the more controlling they were towards learners. Leroy, Bressoux, Sarrazin and Trouilloud (2007) found similar results to Pelletier et al. in that perceived work pressure (from learners, parents, colleagues, and administrators) had a negative impact on autonomy support. The more pressure educators perceived and the more constraining and restrictive they found their working environments, the more they tended to be controlling of their learners. The authors concluded that educators are more likely to create classroom environments conducive to learning when they perceive their working environments as supportive. A further study by Taylor, Ntoumanis, and Standage (2008) confirmed the results of the two previously mentioned studies. This study extended previous findings by revealing that perceived job pressure (time constraints, mandates from school authorities, and responsibility for learner performance) and perceptions of learner self-determination influenced educator self-determination indirectly through *basic need satisfaction*. Educators' self-determination then influenced their level of autonomy support. These results suggest that the school system plays an important role in educator self-determination and motivating style.

In a recent study, Jang et al. (2010) recognised the link between educator motivating style and *classroom environment* (educator interpersonal behaviour) as studied by learning environment researchers, described in Chapter 3 (Fraser, 1994; Wubbels et al., 1985; Wubbels & Levy, 1993). In Chapter 3, the MITB (Wubbels et al., 1985) was described, with its two dimensions of Influence and Proximity and eight behavioural sectors (Leadership, Helpful/Friendly, Understanding, Student Responsibility/Freedom, Uncertain, Dissatisfied, Admonishing, and Strict). Jang et al. propose that the category of educator behaviour which most closely corresponds to autonomy support is *understanding* behaviour. Based on the descriptions of autonomy supportive behaviour in Table 4, it can be argued that, in addition to understanding behaviour, autonomy support is also related to *helpful/friendly* behaviour. Because autonomy support has been shown to relate positively to structure (Jang et al., 2010; Sierens et al., 2010), it is possible that it will also relate to *leadership*. The three behavioural sectors are described below (adapted from Newby et al., 2001, p. 4):

- *Understanding:* The extent to which the educator listens with interest, empathizes, shows confidence and understanding, and is open with learners.
- *Helpful/Friendly:* The extent to which the educator shows interest, behaves in a friendly or considerate manner, and inspires confidence and trust.
- *Leadership:* The extent to which the educator leads and provides structure in the classroom.

It will be interesting to explore whether the three behavioural sectors mentioned above are related to educator autonomy support. Research based on the MITB shows that learners' classroom effort and enjoyment (i.e., "engagement"; Jang et al., 2010, p. 597) is highest when educators show high levels of leadership, understanding and helpful/friendly behaviours. Engagement tends to be lowest when teachers show high levels of admonishing, dissatisfied, and strict behaviours (den Brok et al., 2004; Goh & Fraser, 1996).

Educator Motivating Style and Burnout

In a study on psychologically controlling teaching, Soenens, et al. (in press) found that pressure from above (e.g., pressuring school administration) was related to psychologically controlling teaching, and that this was mediated by the *depersonalisation* component of burnout. This makes sense in light of the fact that (a) burnout is related to work pressure, and (b) the depersonalisation component involves objectifying and disengaging from learners and showing indifference to their needs (Maslach et al., 1996).

The role of basic psychological needs in the development of burnout and engagement was investigated by Van den Broeck, Vansteenkiste, De Witte, and Lens (2008) from a Job Demands-Resources perspective. Structural equation modelling results showed that basic psychological need satisfaction partially explained the relationship between job demands and emotional exhaustion and between job resources and vigour. It fully accounted for the relationship between poor job resources and exhaustion. Thus, working environments characterised by adequate resources and manageable demands are more likely to support the satisfaction of employees basic psychological needs. Need satisfaction, in turn, relates to higher engagement and lower burnout.

In a similar study using a large sample of educators, Houlfort and Sauve (2010) investigated the role of basic psychological need satisfaction in the relationship between occupational stress factors and burnout. SEM results suggested that the relationship between occupational stressors (workload and learners' behaviours) and burnout was partially mediated by the degree to which autonomy and competence needs were satisfied. The impact of poor relationships with superiors and colleagues on burnout was fully mediated by the level of satisfaction of the three basic needs. It seems that basic psychological need satisfaction has a buffering effect on the experience of stress and burnout.

From the studies reviewed above, it appears that social environments characterised by high levels of pressure from above and below are detrimental to basic need satisfaction. Poor basic need satisfaction in turn seems to increase the likelihood of burnout as well as controlling teaching. It appears that burnout and controlling teaching may have similar contextual antecedents. At least one study suggests that the depersonalisation component of burnout mediates the relationship between need satisfaction and a controlling teaching style (Soenens, et al., in press).

Summary and Conclusion

This chapter has explored the person level factors of educator burnout and motivating style. Regarding educator *burnout*, the reviewed research highlights the potential adverse personal and institutional consequences of burnout and the impact it can have on the quality of education. Several antecedents and correlates of burnout were identified and the most salient are summarised below:

- Burnout levels are reported to be higher among younger employees than older employees.
- Burnout is more prevalent among senior school than primary school educators.
- There is a positive association between high job demands and lack of resources and level of burnout.
- Workload is strongly and consistently positively related to burnout, in particular the exhaustion dimension.
- Lack of social support is strongly linked to higher burnout levels.
- Lack of information (insufficient feedback) and control (non-inclusion in decision making) are linked to higher burnout.
- School and classroom environment are related to burnout:

a. At the school level, mission consensus, affiliation and work pressure are important.
b. At the classroom level, teacher–student interactions, task orientation, co-operation among students, and order and organisation in the classroom are important.

- A plethora of stressors at multiple levels are present in the South African education system, and those recently identified as sources of burnout are:
    - learner profile, particularly lack of discipline;
    - workload;
    - lack of control;
    - poor support from the department of education and parents;
    - poor remuneration levels;
    - lack of school resources; and
    - poor commitment from colleagues.
- Educator burnout can negatively impact learners' self-efficacy, intrinsic motivation, learning (e.g. depth of learning and initiative) and performance.

Research on burnout is clearly important in the quest for improving the standard of education in South Africa. The contextual correlates of burnout at the community (i.e., school type) and school (i.e., school environment) level will be investigated in this study, as well as whether educator burnout is related to motivating style and, critically, to learner achievement.

According to SDT, the primary goal of good teaching should be to enhance learners' intrinsic motivation and to support the internalisation of external and introjected regulations (Filak & Sheldon, 2008). Promoting identified and integrated regulation can facilitate learners' self-determination in performing educational tasks that they do not intrinsically

enjoy. As demonstrated in this chapter, autonomy support is beneficial to learners because it facilitates their *autonomous motivation* by providing a sense of choice, the experience of volition, and by fostering their internal locus of causality (Reeve, 2009). In short, autonomy support is a critical component of good teaching.

The second part of this chapter explored the antecedents and outcomes of educators' *motivating styles* towards their learners. The research reviewed in this section highlights the following:

- Autonomy supportive teaching is associated with several positive learner outcomes, including:
    - improved classroom engagement and academic adjustment;
    - enhanced autonomous motivation;
    - improved learning and better performance; and
    - greater psychological well-being.
- Controlling teaching, in contrast, has shown a negative relationship to key learner outcomes (i.e., self-regulated learning, task performance, and academic achievement).
- Socio-contextual factors at the school and classroom level impact on which motivating style educators employ:
    - Perceptions of high work pressure (i.e., pressure from above) and poor learner self-determination (i.e., pressure from below) relate to a more controlling style.
- Burnout and controlling teaching seem to have similar contextual antecedents, and higher depersonalisation has been related to more controlling teaching.

Leroy et al. (2007) suggest that further research on the antecedents of educator motivating style is required. Taylor et al. (2008) specifically recommend that contexts which are conducive to autonomy supportive teaching should be studied further (e.g., educator perceptions of social support). Sierens, Soenens, Vansteenkiste, Goossens, and Dochy (2006)

suggest that further exploration into the educational contexts which give rise to controlling teaching is needed. Heeding these suggestions, one aim of this study is to investigate the relationship between school environment factors (as conceptualised by the scales of the SLEQ) and educator motivating style.

In terms of classroom environment, Jang et al. (2010) suggest that research based on perspectives beyond SDT (e.g., psychosocial learning environment research, see Chapter 3) could add to an enriched understanding of autonomy supportive teaching styles. The relationship between motivating style and educator interpersonal behaviour at the classroom level (conceptualised by the scales of the QTI) will thus be investigated in this study.

Finally, one study has pointed to an association between depersonalisation and controlling teaching (Soenens, et al., in press). The current study will explore whether a relationship does exist between educator motivating style and burnout.

The following chapter shifts focus from the providers to the recipients of educational services – the learners. Specifically, the focus is on their academic achievement and choice of life goals.

5

Learner Achievement and Motivational Aspirations

The South African public education system accommodates just under 12 million learners (DBE, 2010). The quality of education which learners receive has a major impact on their access to higher education, future job prospects, and social mobility. Learners represent the future human capital and leaders of the country. The quality of their education therefore has far reaching consequences for the sustained economic growth and development of South Africa and the country's ability to compete in a technologically advanced global economy (World Bank, 2010).

Regarding educational effectiveness, academic achievement has been the main outcome of interest in South Africa, with matriculation results in the spotlight. In addition to achievement, Mouratidis, Vansteenkiste, Sideridis, and Lens (2011) argue that learners' motivation and interest in school are further indicators of high-quality education. This chapter explores factors related to learner achievement and motivational aspirations against the backdrop of the other research variables discussed thus far. Numerous factors related to academic achievement and learner aspirations have been investigated by researchers and this chapter will review only those variables pertinent to the empirical part of the present study.

Learner Achievement in South Africa

Despite improvements in the South African education system since 1994, such as the attainment of equal access to education and redressive resource shifts, massive disparities in academic achievement persist. Historically White and Indian schools continue to outperform Black and Coloured schools in the matriculation examinations (van der Berg, 2008). Data from international comparisons such as the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), PIRLS, and TIMSS show that South African learners as a group perform dismally, even when compared to poorer developing countries (Howie & Plomp, 2003; Howie et al., 2008; Taylor & Yu, 2009; van der Berg, 2008).

Matriculation results have been the main indicator of the health of the education system in South Africa (see Chapter 2 for a summary of trends in matriculation pass rates from 1994 to 2010). The DoE (2011a) has declared that matriculation pass rates are low by international standards and need to be improved. For this to happen, knowledge of the factors influencing learner achievement in South Africa needs to be expanded and refined.

Variables Associated with Scholastic Performance

In the search for the determinants of learner performance, researchers have focused on an array of variables, ranging from learner variables such as cognitive ability, to features of the classroom and school setting, to the broader influences of education policy. At the *school level*, findings have indicated that school type, school environment, and classroom environment are related to learner achievement (see Chapter 3). Regarding school type, several studies have confirmed that learners in disadvantaged schools perform poorly in comparison to those in advantaged schools (Bhorat & Oosthuizen 2009; Gilmour & Soudien 2009; Howie et al., 2008; van der Berg & Burger, 2003). School environment has been shown to influence learner achievement indirectly through educator instructional practices (Webster & Fisher, 2003) as well as directly (Wilson et al., 2002). Studies on classroom environment using the QTI generally point to a strong and positive relationship between perceptions of educator influence (i.e., leadership and strict behaviours) and proximity (i.e., helpful/friendly and understanding actions) and cognitive learner outcomes (den Brok et al., 2004), although no relationship was found between report card grades and interpersonal educator behaviour (Levy et al., 1992).

Concerning relevant *educator variables* (see Chapter 4), not much information is available on the direct link between educator *burnout* and learner achievement. There is evidence that burnout leads to educator underperformance and thus detracts from the quality of teaching that learners receive (Chisholm et al., 2005; Rudow, 1999). Over time, educator

burnout can thus have a negative impact on learners' learning (e.g., depth of learning and initiative) and performance (Huberman & Vandenberghe, 1999, Maslach & Leiter, 1999). Research on educator *motivating style* is more conclusive and indicates that an autonomy supportive style is related to improved learning (conceptual understanding and deep processing; Vansteenkiste, Simons, et al., 2005) and better performance in terms of grades (Black & Deci, 2000; Vansteenkiste, Simons, Lens, Sheldon, et al., 2004).

At the *learner level*, several variables have been shown to relate to scholastic performance. From a review of the South African literature, the following learner variables, relevant to the current study, have been identified as important for achievement:

- *SES* has been consistently related to learner achievement both in South Africa and internationally. Learners from poor SES backgrounds tend to underperform compared to their peers from more affluent backgrounds (Branson & Lam, 2010; Howie et al., 2008; Hungi & Thuku, 2010; van der Berg & Burger, 2003). Taylor and Yu (2009), however, found that school SES (i.e., school financial and physical educational resources) is more important for achievement than learner SES (i.e., learners' household resources). They found that school SES was able to explain 42% of the variance in reading scores, compared to 22% explained by learner SES.
- Higher levels of *parental education and involvement* are linked to higher learner performance, and vice versa. These factors tend to be related to SES, with parents from poor SES backgrounds having lower levels of education and showing less engagement in their children's education (Bhorat & Oosthuizen, 2009; Branson & Lam, 2010; Fiske & Ladd, 2005; Hungi & Thuku, 2010).
- *Language* has an impact on educational success. English language proficiency (Howie & Plomp, 2003), speaking the language of instruction at home (Howie, 2005; Hungi & Thuku, 2010), and attending an English or Afrikaans/English dual medium school

are all factors which have been shown to relate to better academic performance (Gilmour & Soudien, 2009).

- *Racial gaps* in education have reduced somewhat, but remain significant, with White learners outperforming Black and Coloured learners (van der Berg, 2005, 2008; van der Linde, 2006), and Coloured learners tending to outperform Black learners (Bhorat & Oosthuizen, 2009, van der Linde, 2006). Black and Coloured learners tend to show higher rates of grade failure and grade repetition (Branson & Lam, 2010). It should be noted that SES is distributed racially in South Africa and it is difficult to separate these two factors (Taylor & Yu, 2009).
- Class size (i.e., the number of learners per class taught by an educator) has been afforded historical importance as a predictor of achievement, with smaller class sizes predicting higher learner performance (Finn & Achilles, 1999; Jepsen & Rivkin, 2009). In South Africa, disadvantaged Black and Coloured schools tend to have larger class sizes than transitional and advantaged schools (Phurutse, 2005). Gustafsson and Morduchowicz (2008) suggest that the relatively high teacher salaries (relative to the GDP per capita) in South Africa contribute to the high educator-learner ratios. They also propose that the inequalities in class sizes across different school types is due to inefficient allocation of teacher time in certain schools as well as problems with between-school educator distribution. For example, wealthier schools are able to use funds raised through their SGBs to employ additional educators if necessary. The findings on class size are mixed, with several researchers indicating that this factor is not as good a predictor of achievement as previously thought (Bhorat & Oosthuizen, 2009; van der Berg, 2008; van der Berg & Burger, 2003;). Gustafsson and Morduchowicz, however, suggest that the results of these studies may be diluted due to problems with specification of class size in the models and they highlight that very

large class sizes may in fact be detrimental to learner performance. In South Africa, it is estimated that 10% of learners are in classes consisting of more than 65 learners (Gustafsson & Morduchowicz, 2008). Large class sizes may result in different interpersonal dynamics in the classroom and could make maintaining discipline difficult. In large classes, educators are less able to provide individual attention to learners and may allocate their time differently to those in smaller classes. They might also adjust their teaching methods and methods of assessment and feedback, all of which have the potential to impact on learning (Ehrenberg, Brewer, Gamoran, & Wilms, 2001). It seems that class size affects learner performance through the different instructional practices employed by educators in different class sizes, and also because certain instructional practices simply work better in smaller classes (Ehrenberg et al., 2001). It should be borne in mind that class size, educator quality and school type are likely to be related in South Africa. Less qualified educators tend to be concentrated in disadvantaged Black and Coloured schools, which also have larger class sizes. Class size can thus be thought of as a proxy for educator quality and school type. Class size will be investigated as a potential predictor of Grade 12 achievement in the current study.

Three recent studies that have specifically investigated the determinants of Grade 12 pass rates were identified in the literature. The first of these studies utilised a qualitative design to explore the causes of poor Grade 12 pass rates (Legotlo et al., 2002). Relevant stakeholders (i.e., principals, educators, learners, parents, and SGB representatives) from nine secondary schools were interviewed. The main identified reasons for poor matriculation pass rates were (a) inadequate physical and human resources; (b) poor learner discipline and commitment; (c) insufficient educator discipline, commitment and morale; (d) poor

organisational structure and ineffective policies at school level; (e) difficulties implementing government policies; and (f) insufficient parental involvement.

In the second identified study, van der Berg (2005) investigated factors explaining Grade 12 performance as part of a study on the educational inequalities remaining after Apartheid. Regression results showed that matriculation pass rates were related to (a) school fees, (b) teaching resources, (c) provincial location, and (d) race. A second set of regression analyses were performed on Black schools as a group versus other schools. Findings were similar to the initial results, but the model could account for considerably less of the variance in the achievement for Black schools (9%) compared to non-Black schools (42%). Van der Berg argues that the quality of the management systems in Black schools is a major determinant of the poor Grade 12 performance in these schools as they are unable to convert educational inputs (i.e., resources) into outputs (i.e., learner performance).

Finally, Bhorat and Oosthuizen (2009) investigated the impact of a range of school and household features on Grade 12 pass rates. Quantile regression results revealed that (a) administrative efficiency and adequate knowledge infrastructure (e.g., photocopiers, computers, and libraries) were positively related to Grade 12 performance; (b) incidence of crime at school was negatively related to performance; (c) availability of staff accommodation (proxy for educator quality) was positively related to achievement; (d) parental education was a significant positive predictor of achievement, with parents from African school areas having a mean of 6.62 years of schooling compared to 9.26 and 10.85 years for parents in Coloured/Indian and White school areas respectively; and (e) former Apartheid school classification (i.e., school type) was an important predictor, with former White, Coloured, Indian, and new schools (established after 1994) all performing better than Black schools. An interesting finding was that household vulnerability in terms of asset or service deprivation was found to be a weak negative predictor of performance. This

corresponds to Taylor and Yu's (2009) finding that learner SES is less important than school SES.

At the learner level, a variable of particular interest in the current study is that of *motivational aspirations*. Along with class size, this variable will be investigated in relation to learner achievement. The following section provides an overview of the concept of motivational aspirations, as grounded in self-determination theory, and a review of pertinent research regarding outcomes and correlates of motivational aspirations.

Learners' Motivational Aspirations from a Self-Determination Theory Perspective

As discussed in Chapter 4, SDT identifies different types of motivation, namely autonomous and controlled regulation (i.e., the *process* or "why" of goal pursuits). Furthermore, SDT distinguishes between different types of goals based on their *content* (i.e., the "what" of goal pursuits; Deci & Ryan, 2000). Kasser and Ryan (1993, 1996) have identified two categories of life goals (also referred to as aspirations or values), namely, (a) *intrinsic aspirations*, such as personal growth and development, building meaningful relationships, and contributing to the community; and (b) *extrinsic aspirations*, such as acquiring wealth, being popular or famous, and having an attractive image. Intrinsic aspirations are harmonious with individuals' innate growth tendencies and are thus more likely to lead to satisfaction of the basic psychological needs for autonomy, competence, and relatedness (Kasser, 2002). Extrinsic aspirations, on the other hand, involve an outward focus on attaining external rewards or praise and, as such, are less likely to provide direct need satisfaction and may even detract from it (Deci & Ryan, 2000; Kasser, 2002). Extrinsic goals can be described as "compensatory motives that do not really satisfy the thwarted basic needs but provide some collateral satisfaction" (Deci & Ryan, 2000, p. 249). There is evidence that the pursuit of intrinsic values tends to be more autonomous and self-determined than the pursuit of extrinsic values (Kasser & Ryan, 1993; Sheldon & Kasser, 1995, 1998).

Outcomes of Intrinsic Versus Extrinsic Goal Contents

Kasser and Ryan (1993, 1996) developed the Aspirations Index in the USA and pioneered SDT research on goal contents. The Aspirations Index assesses the importance of various intrinsic (viz., meaningful relationships, personal growth, and community contributions) and extrinsic (viz., wealth, fame, and image) life goals and can also be used to assess perceptions of the extent to which these goals have already been attained. For the purposes of the current study, the Aspirations Index was used to measure the importance which learners assign to intrinsic relative to extrinsic life goals (see Chapter 6 for more information on this instrument). It should be noted that studies on goal content generally do not consider intrinsic and extrinsic values in isolation, but examine the *relative* importance or attainment of intrinsic versus extrinsic goals or vice versa.

One of the strongest trends in aspirations research has been to investigate the relationship between the relative strength of intrinsic and extrinsic values and various indexes of well-being. Research by Kasser and Ryan (1993, 1996) showed that the relative strength of intrinsic aspirations was positively related to well-being, self-actualisation, and vitality, whereas the opposite was true when extrinsic aspirations were relatively stronger. More recent studies have supported these findings with high school learners and university students. Stronger relative extrinsic aspirations have been linked to (a) higher health risk behaviours (e.g., substance abuse) among high school learners (Williams, Cox, Hedberg, & Deci, 2000), and lower well-being among university students in the USA (Sheldon et al., 2004); (b) lower self-actualisation, vitality, and happiness, as well as greater anxiety, physical symptoms, and unhappiness among business students in Singapore (Kasser & Ahuvia, 2002); and (c) lower well-being and higher internal distress and substance abuse with business students in Belgium (Vansteenkiste, Duriez, Simons & Soenens, 2006). Similar results have

been found in Russia (Ryan, Chirkov, Little, Sheldon, Timoshina, & Deci, 1999), Germany (Schmuck, Kasser, & Ryan, 2000), and South-Korea (Kim, Kasser, & Lee, 2003).

In terms of well-being, it is important to note that extrinsic aspirations in themselves are not necessarily damaging - detrimental effects only result when these external goals take *precedence* over intrinsic goals (Vansteenkiste, 2005). A disproportionate focus on extrinsic values may interfere with basic need satisfaction because time spent pursuing extrinsic goals occurs at the expense of pursuing intrinsic goals (Vansteenkiste, Soenens, & Duriez, 2008).

Aspirations and Educational Outcomes

Goal content research pertaining to outcomes in the educational domain has been a fairly recent development (see Vansteenkiste, Lens, & Deci, 2006, for a review). Using the Aspirations Index, Timmermans, Vansteenkiste, and Lens (2004) assessed the importance of first-year college students' intrinsic relative to extrinsic aspirations. Results showed that the relative strength of extrinsic aspirations was related to signs of academic maladjustment. In the Free State province of South Africa, van der Linde (2006) found that motivational aspirations were able to explain a significant percentage of the variance in the achievement of Grade 11 and 12 learners, although effect sizes were small. Intrinsic aspirations were significantly positively related to achievement for learners in both advantaged and disadvantaged schools. Extrinsic aspirations were significantly negatively related to achievement for learners in advantaged schools and the relationship was not significant for those in Disadvantaged schools. Also in the Free State province, Guiney (2007) found that for Black Grade 12 learners in transitional schools, intrinsic aspirations were able to explain 20.44% of the variance in academic achievement and extrinsic aspirations were able to explain 10.70% of the variance. Two subscales were particularly important: (a) the intrinsic subscale of *community contribution* accounted for 7.25% of the variance in achievement, and (b) the extrinsic subscale of *fame* accounted for 6.71% of the variance in achievement. As

expected, fame was negatively related to achievement, but contrary to what would be expected based on SDT, community contribution was also negatively related to achievement. Guiney suggests that this result could be due to a clash between traditional African values which place a sense of community above individuality, and Western values which emphasise individual achievement.

Intrinsic versus extrinsic goal framing. Recently, a succession of experimental studies in the school setting has investigated learning contexts that differentially promote intrinsic versus extrinsic goals. This has been done by framing learning activities in terms of their utility to achieving future intrinsic versus extrinsic goals. In the first study of this kind, Vansteenkiste, Simons, Lens, Sheldon, et al. (2004) conducted three experimental studies (two with college students and one with high school learners). The learning of text material or physical activities was framed in terms of future intrinsic (personal growth, community contribution, health) or extrinsic (wealth, image) goal achievement. In all three studies, intrinsic goal framing led to better learning, higher performance, and greater free-choice persistence compared to extrinsic goal framing. These results were supported by those of Vansteenkiste, Simons, Lens, Soenens, et al. (2004) using female first year teaching students. Findings revealed that intrinsic goal framing lead to the most optimal performance and persistence, followed by double goal framing (intrinsic together with extrinsic). Extrinsic goal framing produced the poorest outcomes. The positive effects of intrinsic goal framing were found to be wholly mediated by mastery orientation (i.e., wanting to improve competence and gain new knowledge and skills, rather than wanting to prove competence in relation to others). The authors suggest that the different goal contents prompt learners to undertake learning tasks is qualitatively different ways, with intrinsic goal contents stimulating greater task-involvement.

The above results have been confirmed with obese early adolescents (Vansteenkiste, Simons, et al., 2005) as well as Grade 5 and 6 learners (Vansteenkiste, Timmermans, Lens, Soenens, & Van den Broeck, 2008). These researchers found that conceptual learning was enhanced by intrinsic goal framing, and that extrinsic goal framing undermined conceptual (but not rote) learning. An interesting finding was that extrinsic goal framing was either as effective, or more effective, than intrinsic goal framing at promoting superficial, rote learning. Although extrinsic goals may represent strong motivational forces, the associated learning strategies are qualitatively less effective and beneficial than those associated with intrinsic goals and therefore lead to less favourable learning outcomes (i.e., more superficial learning and less persistence at learning tasks). Vansteenkiste, Lens, et al. (2006) argue that extrinsic goal framing can harm learners' "adaptive learning and continued interest and persistence for learning" (p. 26).

What Causes the Undermining Effect of Extrinsic Goals?

Three micro-mediational mechanisms have been hypothesised (Vansteenkiste, Soenens, et al., 2008, p. 73) to account for the detrimental effects of extrinsic (relative to intrinsic) goals on outcomes such as learning and performance, by initiating the following:

1. An *attentional shift* away from the designated learning activity to focus on attaining external indicators of worth. Extrinsic goals thus seem to have a distracting effect (Vansteenkiste, Simons, Lens, Soenens, et al., 2004; Vansteenkiste, Soenens, et al., 2008).
2. An *interpersonal comparison* process where individuals compare their own extrinsic goal attainment to that of reference figures (Vansteenkiste, Soenens, et al., 2008). In the school setting, this means that learners may focus on outperforming others to verify their ability i.e., they may adopt an ego-focus/performance-approach

orientation rather than a task-focus/mastery orientation (Vansteenkiste, Matos, Lens, & Soenens, 2007).

3. A *conditional, rigid approach* to the learning task with a narrow focus and superficial task involvement at a minimum level necessary for attaining the desired extrinsic goal (e.g., aiming to pass a test rather than understand and integrate the material; Vansteenkiste et al., 2005; Vansteenkiste et al., 2007).

These micro-mediational processes interfere with basic need satisfaction and can set off a negative cycle which perpetuates the frustration of basic psychological needs (Vansteenkiste, Soenens, et al., 2008). Deci and Ryan (2000) suggest that extrinsic goals perpetuate the lack of need satisfaction by keeping individuals focused on need substitutes. The short-lived, outward focused, superficial, and rigid regulation associated with extrinsic goals is unfavourable compared to the higher quality of regulation associated with intrinsic goals.

Contextual Determinants of Intrinsic Versus Extrinsic Life Goals

Kasser, Ryan, Zax, and Sameroff (1995) propose that factors at multiple levels, such as the home and school environment, interact to determine an individual's values. Based on organismic-dialectical thinking, SDT purports that the social environment plays a role in regulating the goals an individual pursues. Kasser (2002) argues that when environmental conditions frustrate basic psychological need satisfaction, individuals will tend to gravitate towards extrinsic aspirations. Compared to research on the contextual antecedents of autonomous and controlled motivation, research on the contexts which foster intrinsic versus extrinsic goals has been less prolific. Nevertheless, there have been a handful of studies in different settings which support Kasser's (2002) contention.

The Home and Neighbourhood Environment

Williams et al. (2000) found that high school learners who perceived their parents as autonomy-supportive tended to hold stronger relative intrinsic values. The authors speculate that this is because autonomy-supportive parenting supports the satisfaction of learners' basic psychological needs. Kasser et al. (1995) showed that adolescents with less nurturing mothers tended to focus more strongly on the extrinsic value of financial success. Kasser et al. also found that materialistic adolescents were more likely to come from disadvantaged socioeconomic backgrounds. Kasser (2002) suggests that disadvantaged socioeconomic conditions hamper need satisfaction because "poverty and dangerous neighbourhoods can lead people to feel less secure, less trusting of others, and less able to express themselves" (p. 134). They may then look to wealth and other extrinsic values as a way to gain self-worth and a sense of security.

The School Setting

School and classroom contexts which facilitate the satisfaction of learners' basic psychological needs are more likely to foster the pursuit of intrinsic rather than extrinsic goals. One such facilitating condition is *educator autonomy support* (discussed in Chapter 4). Several studies from goal framing research (described earlier) have found that when educators are autonomy-supportive, their promotion of long-term intrinsic learning goals will have even more positive effects on learners' motivation, learning, persistence, and achievement than if they use a controlling motivating style (Vansteenkiste et al., 2005; Vansteenkiste, Lens, et al., 2006; Vansteenkiste, Simons, Lens, Sheldon et al., 2004).

The value systems within educational settings may also influence which values learners embrace more strongly. Vansteenkiste, Duriez, et al. (2006) used the Aspirations Index to examine the values held by education students versus business students. They found that business students placed greater value on extrinsic aspirations (particularly financial

success) and less value on intrinsic aspirations (especially community contribution) compared to education students. The authors noted that the value systems endorsed and promoted within the different departments (i.e., business and education) mirrored the differences in values exhibited by the respective students. Based on these findings, it could be hypothesised that the value orientations dominant in different school and classroom environments may influence which values learners in these environments more strongly endorse. No data linking school and classroom environment to learner aspirations could be found in the literature.

In terms of *school type,* van der Linde (2006) showed that learners in disadvantaged schools attached more importance to extrinsic aspirations than learners in advantaged schools. Van der Linde suggests that disadvantaged school environments are less conducive to learners' basic need satisfaction due to the lack of resources, overcrowding, and lower quality teaching present in these schools compared to advantaged schools. Basic need frustration may trigger an inclination towards extrinsic aspirations at the expense of intrinsic goals (Kasser, 2002). In the school setting, two identified contextual factors that make need satisfaction difficult are controlling teaching and disadvantaged school environments.

Summary and Conclusion

In this chapter, factors related to learner academic achievement were considered, and the concept of motivational aspirations was explored, thereby extending the discussion of self-determination theory from the "why" of goals pursuits to the "what" of goal pursuits.

It seems that *learner performance* is the function of a complex interplay of variables at multiple levels. In addition to school and educator variables (discussed in Chapter 3 and 4), interconnected variables at the *learner level* have been found to relate to achievement in South Africa, namely:

- learner SES,
- parental education and involvement,

- language,
- race,
- class size, and
- motivational aspirations.

Regarding *motivational aspirations*, research confirms that the content of the goals which learners value and pursue has important implications for their well-being and educational outcomes. The main findings from the aspirations research reviewed are as follows:

- Stronger intrinsic, relative to extrinsic, values are positively related to various indexes of well-being (e.g., vitality, self-actualisation, and happiness), whereas stronger relative extrinsic aspirations are negatively related to a range of well-being outcomes (e.g., higher health risk behaviours, greater anxiety, more physical symptoms, and greater unhappiness).
- Results from several experimental studies have indicated that intrinsic goal framing results in better learning, higher performance, and enhanced persistence compared to extrinsic goal framing.
- Holding stronger relative extrinsic aspirations has been related to academic maladjustment.
- Two South African studies have shown that learner motivational aspirations can explain a significant percentage of the variance in learner achievement, although effect sizes were small.
- Educator motivating style and school type are related to learner aspirations:
    - Controlling teaching is more likely to promote a focus on extrinsic aspirations, whereas the opposite is likely for autonomy supportive teaching.

- Learners in disadvantaged schools place greater value on extrinsic aspirations than learners from advantaged schools.

Few studies have examined the contextual correlates of intrinsic versus extrinsic aspirations in the school setting. In this study, the relationship between average class size and learner aspirations will be studied and differences in motivational aspirations across the four school types will also be investigated.

School type (i.e., school SES and racial composition) has consistently been found to relate to learner achievement, yet there is still speculation about what specific factors beyond resource adequacy (particularly in disadvantaged schools) relate to learner performance (van der Berg, 2005). Hence, potential differences in school environment, classroom environment, educator burnout, educator motivating style and learner aspirations will be investigated in comparison to differences in learner performance across the four school types in this study. Another area that will receive attention is whether learners' motivational aspirations and the average class size per school can predict learner achievement.

This brings the literature survey to an end and the remainder of this dissertation is comprised of the empirical part of the study. Chapter 6 details the methodology employed and Chapter 7 presents the results of the statistical analyses. The dissertation concludes with a discussion of the results in Chapter 8.

6

Methodology

The main aim of this study was to investigate factors which are important for Grade 12 learners' academic achievement in various school types in South Africa. Previous research indicates that learners from different school types differ in their academic achievement (Bhorat & Oosthuizen, 2009; Taylor & Yu, 2009; van der Berg, 2005) and an aim of this study was to replicate these research findings across four clearly defined school types (i.e., Advantaged, Transitional, Disadvantaged Black, and Disadvantaged Coloured). Van der Berg (2005) highlights that poor academic achievement, particularly in disadvantaged schools, is not adequately accounted for and that further research is needed in order to find underlying variables and processes in this regard. A further aim of this study was thus to investigate differences in educator, learner, classroom, and school variables across the four school types in an attempt to isolate factors which are relevant to learner achievement. The relationships between the educator, classroom and school variables of interest were also explored, as were the relationships between class size, learners' motivational aspirations, and learners' achievement.

In this chapter, the research methodology employed in this study is described. The research design is discussed first, followed by an outline of the sampling procedure and ethical considerations. Next, descriptive statistics are presented for the research participants and the variable of class size, followed by a detailed description of the measuring instruments utilised. Finally, the chapter concludes with a statement of the specific research questions and the statistical procedures selected to investigate them.

Research Design

A non-experimental, cross-sectional survey research design utilising self-report measures was selected to investigate factors which relate to learner achievement and educational effectiveness. Self-report survey designs are common in social and behavioural research due to time and cost efficiency in data collection as well as the ecological validity

they allow. This design was selected because it was practical and feasible for collecting information from a large sample of participants (N = 1040 learners and 106 educators). Of course, the benefits of self-report survey research are accompanied by costs, such as low control over extraneous variables and sources of error, such as common method biases (e.g., acquiescence and social desirability; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Bearing these issues in mind, self-report measures which have been shown to be reliable and valid were selected and efforts were made to increase comprehension by providing questionnaires in learners' home languages.

In terms of the scope of the study, variables were selected on the basis of previous research related to educational effectiveness in diverse research domains (e.g., learning environment research, self-determination theory research, burnout research). This study aims to integrate these variables in a coherent manner. Learner scholastic achievement was operationalised through the national matriculation examination marks (i.e., final Grade 12 marks). An indication of class size was obtained from the educator biographical questionnaire, and the remainder of the variables were operationalised through self-report questionnaires, which will be described further on.

This study formed part of a larger longitudinal study on the transition of learners from secondary school to higher education in South Africa. Because learner questionnaire booklets for the larger study were pre-designed and printed, and learner data was collected a few months before the educator data, it was not possible to obtain additional information about the individual classrooms to which learners belonged. Data analysis with the classroom as unit of analysis was thus not possible. Analysis at the individual and school level, however, was practicable.

Sample, Procedure, and Ethical Considerations

Nine schools were selected from a list of public schools in the Motheo district in Bloemfontein (Free State province) by means of the systematic random sampling method. All Grade 12 learners and Grade 12 educators in the nine randomly selected schools were approached to be included in the study. In total, 1,040 Grade 12 learners and 106 Grade 12 educators completed questionnaires. The sample of learners and educators was comprised of both genders, the three main racial groups (Black, White, and Coloured), and the four pre-defined school types (advantaged, transitional, disadvantaged Black, and disadvantaged Coloured). Educators from a variety of subject domains were included in the study.

Permission to conduct the study was obtained from the Free State Department of Education (see Appendix A) as well as the principals of the selected schools. Regarding the *learners*, the research aim and procedures were explained to them in order to obtain their informed consent to participate in the study. It was also explained that participation was voluntary and that they could withdraw at any stage without negative consequences. None of the learners declined to participate. As this research formed part of a larger longitudinal study, learners were asked to identify themselves on the questionnaires but were assured that all information would be treated as confidential. Questionnaires were administered by postgraduate psychology students and psychometrists during regular class hours.

For the *educators*, the secretaries at each of the nine selected schools served as contact persons. Each Grade 12 educator was provided with an envelope containing a cover letter, the biographical questionnaire, and four educator questionnaires. The cover letter explained the nature and aim of the research and assured educators that responses would be completely anonymous and confidential, and that participation was voluntary. Instructions for completing the various questionnaires were included and contact details were provided for educators to use if they needed further clarification (none made contact). Once the educators

had completed the questionnaires, they sealed them in the envelope provided and handed them back to their respective secretaries.

Participant Characteristics

Biographical information was collected from both learners and educators. This section provides an overview of the distribution of learners and educators according to gender, race, home language, and school type.

Distribution of Learners by Demographic Variables

Tables 6 through 8 present the distribution of learners according to the demographic variables previously mentioned.

Table 6

Number of Learners by School Type and Gender (row percentages are indicated in brackets)*

	School Type				
Gender	Advantaged	Transitional	Disadv. Blk.	Disadv. Col.	**Total**
Male	90 (20.1%)	172 (38.3%)	107 (23.8%)	80 (17.8%)	449 (100% / 43.2%)
Female	119 (20.2%)	245 (41.5%)	124 (21.0%)	102 (17.3%)	590 (100% / 56.8%)
Total	209 (20.1%)	417 (40.1%)	231 (22.2%)	182 (17.5%)	1039

Note. *One of the learners in the Disadvantaged Coloured group failed to report his or her gender.
$X^2(3, N=1039) = 1.61$, p = n.s.

From Table 6 it can be seen that the sample of learners was reasonably evenly distributed in terms of gender with slightly more females (56.8%) than males (43.2%) included. There was no significant association between gender and school type. The largest group of learners attended Transitional schools (40.1% of learners; 38.3% of males and 41.5% of females) while the remainder of learners were relatively evenly distributed across the other three school types.

Table 7

*Number of Learners by School Type and Home Language**

Home Lang.	**School type**				
	Advantaged	Transitional	Disadv. Blk.	Disadv. Col.	**Total**
English	33 (15.8%)	13 (3.1%)	0	1 (0.5%)	47 (4.5%)
Afrikaans	158 (54.5%)	13 (3.1%)	4 (1.7%)	132 (72.1%)	306 (29.5%)
Sotho	13 (6.2%)	194 (46.5%)	78 (33.9%)	27 (14.8%)	312 (30.1%)
Xhosa	0	61 (14.6%)	63 (27.4%)	8 (4.4%)	132 (12.7%)
Tswana	3 (1.4%)	114 (27.3%)	84 (36.5%)	14 (7.7%)	215 (20.7%)
Other	2 (1.0%)	22 (5.3%)	1 (0.4%)	1 (0.5%)	26 (2.5%)
Total	209 (100%)	417 (100%)	230 (100%)	183 (100%)	1039 (100%)

Note. *One of the learners from the Disadvantaged Black group did not report their home language.
$X^2(15, N=1039) = 778.57$, $p = .000$

Table 7 indicates that most learners spoke either Afrikaans (29.5%) or Sotho (30.1%) at home, followed by Tswana (20.7%). There was a significant association between school type and home language. In the Advantaged group, more than 50% of the learners spoke Afrikaans at home and almost 16% spoke English, whereas very few learners in the Transitional and Disadvantaged Black groups used these languages at home. Learners from the latter two groups spoke Sotho, Xhosa or Tswana at home. In the Disadvantaged Coloured group, more than 70% of learners spoke Afrikaans at home.

Table 8

*Number of Learners by School Type and Race**

	School type				
Race	Advantaged	Transitional	Disadv. Blk.	Disadv. Col.	**Total**
Black	17	382	226	60	685 (65.9%)
White	183	4	0	0	187 (18.0%)
Coloured	7	16	5	123	151 (14.5%)
Asian	1	12	0	0	13 (1.3%)
Indian	1	2	0	0	3 (0.3%)
Total	209 (20.1%)	416 (40.0%)	231 (22.2%)	183 (17.6%)	1039 (100.0%)

Note. *One of the learners from the Transitional group did not report race.

From Table 8 it can be seen that 66% of learners in the sample were Black, 18% were White and 14.5% were Coloured. In the case of school type and race, the chi-square test could not be calculated because too many cells (7/20) had an expected frequency lower than 5. It is, however, very clear from Table 8 that a significant association exists between race and school type. The majority of learners in the Advantaged group were White and almost all learners in the Transitional and Disadvantaged Black groups were Black. In Disadvantaged Coloured group, one third of learners were Black and two thirds were Coloured.

In summary, the sample of learners was reasonably evenly distributed in terms of gender; Afrikaans (29.5%) and Sotho (30.1%) were the most commonly spoken home languages; the majority of learners were Black (66%), followed by White (18%) and Coloured (14.5%); and for school type, the largest learner group was from Transitional schools (40%) with the remainder of learners fairly evenly distributed between the other three school types. There was a significant association between language and school type, with learners in Advantaged schools mostly speaking Afrikaans at home and learners from Transitional and Disadvantaged Black schools mostly speaking Sotho, Xhosa or Tswana at home. There also seemed to be an association between race and school type, corresponding to

the definitions of the four school types included in the study (see Chapter 3) in terms of learner race. Learners from Advantaged schools were mainly White, those from Transitional and Disadvantaged Black schools were mostly Black, and those from Disadvantaged Coloured schools were mainly Coloured.

Distribution of Educators by Demographic Variables

The distribution of the sample of educators in terms of demographic variables is set out in Tables 9 through 11.

Table 9

Number of Male and Female Educators in Each of the Four School Types (column percentages are indicated in brackets)*

	School type				
Gender	Advantaged	Transitional	Disadv. Blk.	Disadv. Col.	**Total**
Male	12	8	13	5	38
	(27.9%)	(27.6%)	(72.2%)	(33.3%)	(36.2%)
Female	31	21	5	10	67
	(72.1%)	(72.4%)	(27.8%)	(66.7%)	(63.8%)
Total	43	29	18	15	105
Column %	(100.0%)	(100.0%)	(100.0%)	(100.0%)	(100.0%)
Row %	(41.0%)	(27.6%)	(17.1%)	(14.3%)	(100.0%)

Note. * One of the 43 educators in the Advantaged group failed to report his or her gender.
$X^2(3, N=105) = 12.38$, $p = .006$

From Table 9 it can be seen that the majority of participating educators were female (63.8%). Most educators who responded to the survey were from Advantaged schools (41%), followed by Transitional schools (27.6%) and Disadvantaged Black schools (17.1%), with a minority being from Disadvantaged Coloured schools (14.3%). There was a significant association between gender and school type. Female educators were relatively overrepresented in the Advantaged and Transitional schools, and male educators were relatively overrepresented in Disadvantaged Black schools.

Table 10

Number of Educators by School Type and Home Language

Home Lang.	**School type**				
	Advantaged	Transitional	Disadv. Blk.	Disadv. Col.	**Total**
English	4	6	0	2	12 (11.4%)
Afrikaans	39	18	0	13	70 (66.7%)
Sotho	0	5	11	0	16 (15.2%)
Xhosa	0	0	2	0	2 (1.9%)
Tswana	0	0	5	0	5 (4.8%)
Total	43	29	18	15	105 (100%)

As can be seen from Table 10, the majority of educators reported Afrikaans as their home language (66.7%). Sotho was indicated as home language by 15.2% of educators, and only 11.4% of educators reported English as their home language. Too many expected frequencies were smaller than 5 to calculate the Chi-square test, but it is clear from Table 10 that Afrikaans was the main home language for educators in Advantaged, Transitional, and Disadvantaged Coloured schools, whereas Sotho was the main home language spoken by educators in Disadvantaged Black schools. In Disadvantaged Black schools, none of the educators reported English or Afrikaans as their home language and none of the educators from Advantaged schools (not even the one Black educator, see Table 11) indicated an African language as their home language.

Table 11

*Number of Educators by School Type and Race**

Race	**School type**				
	Advantaged	Transitional	Disadv. Blk.	Disadv. Col.	**Total**
Black	1	6	18	0	25 (23.8%)
White	42	20	0	4	66 (62.9%)
Coloured	0	1	0	11	12 (11.4%)
Indian	0	2	0	0	2 (1.9%)
Total	43	29	18	15	105 (100%)

Note. *One educator from the Advantaged group did not report race.

In terms of race, it can be seen from Table 11 that the majority of participating educators were White (62.9%), followed by Black educators (23.8%). It is quite evident from Table 11 that there was a strong association between race and school type. In the Advantaged group, almost all educators were White, while in the Disadvantaged Black group, all educators were Black. In the Transitional group, the majority of educators were White, and in the Disadvantaged Coloured group the majority were Coloured. Too many expected frequencies were smaller than five to calculate a Chi-square test.

In summary, more female (63.8%) than male (36.2%) educators participated and females were overrepresented in Advantaged and Transitional schools, whereas males were overrepresented in Disadvantaged Black schools; the majority of educators were White (62.9%), followed by Black (23.8%) and Coloured educators (11.4%); the majority of educators reported Afrikaans (66.7%) as their home language; and most participating educators were from Advantaged schools (41%), followed by Transitional schools (27.6%). There was an apparent interaction between race and school type, corresponding to the definitions of the four school types in terms of educator race provided in Chapter 3. Educators in Advantaged and Transitional schools were mainly White, those is Disadvantaged Black schools were predominantly Black, and those in Disadvantaged Coloured schools were mostly Coloured. In all groups except the Transitional group, learners were served by educators from the same race groups as themselves. In Transitional schools, however, predominantly Black learners and were served by mainly White educators.

Descriptive Statistics for Class Size

Information on the number of learners per class was obtained through the educator biographical questionnaire. These data were screened for outliers. The reported average class size data for four educators seemed implausible and were thus deleted. Table 12 shows the average class size per school type.

Table 12

Average Class Size per School Type

School Type	Average Class Size
Advantaged	34
Transitional	39
Disadvantaged Black	53
Disadvantaged Coloured	46

As can be seen from Table 12, according to educator report, Advantaged schools had the lowest mean class size (N=34), followed by Transitional schools (N=39), Disadvantaged Coloured schools (N=46), and finally, by Disadvantaged Black schools, who had the highest mean class size (N=53).

Descriptive Statistics and the Four School Types

The descriptive statistics presented for learners, educators and average class size correspond to the definitions of the four school types presented in Chapter 3. Advantaged schools were comprised of mainly White learners and educators and had the smallest average class sizes. Transitional schools consisted of predominantly Black learners who were served by mainly White educators. Disadvantaged Coloured schools had a majority of Coloured learners and educators, and Disadvantaged Black schools consisted of mainly Black learners and educators and had the largest average class sizes.

Measuring Instruments

The research variables were operationalised through self-report questionnaires, biographical questionnaires and the Grade 12 November final examination marks. The learner questionnaires are included in Appendix B, and the educator questionnaires are provided in Appendix C, except for the MBI due to copyright restrictions. The learner measures will be described next, followed by a description of the questionnaires administered to educators.

Learner Instruments

The *Aspirations Index* (Kasser & Ryan, 1996) was used to measure learners' motivational aspirations. The scale assesses three intrinsic life goals, i.e., meaningful relationships (e.g., *to have good friends that I can count on*), personal growth (e.g., *to grow and learn new things*) and community contributions (e.g., *to work for the betterment of society*); and three extrinsic life goals, i.e., wealth (e.g., *to be a very wealthy person*), fame (e.g., *to have my name known by many people*) and image (e.g., *to successfully hide the signs of aging*). Learners rated the extent to which they valued 30 aspirational items (15 intrinsic, 15 extrinsic) on a 7-point Likert-type scale, ranging from *Not At All Important* (1) to *Very Important* (7). The six aspirations subscale scores were calculated by summing and averaging the five scores per category. The three intrinsic subscale scores were then summed and averaged to compute the Intrinsic Aspirations score, and the same procedure was used with the extrinsic subscales to calculate the Extrinsic Aspirations score. A Relative Intrinsic Aspirations (RIA) score was calculated by subtracting the Extrinsic Aspirations score from the Intrinsic Aspirations score (range of possible scores is -6 to +6). Positive scores indicate greater importance of intrinsic relative to extrinsic aspirations. Negative scores indicate greater importance of extrinsic relative to intrinsic aspirations

Studies using the Aspirations Index have revealed satisfactory internal consistency. Kasser and Ryan (1996) reported Cronbach's alpha coefficients ranging from .59 to .87 and Williams et al. (2000), reported alpha's above .80 for all subscales. Higher order factor analysis has confirmed that the six aspirations fall into the two groups of intrinsic and extrinsic aspirations (Kasser & Ryan, 1996; Vansteenkiste, Duriez, et al., 2006; Williams et al., 2000). The reliability and cross-cultural validity of the Aspirations Index has been demonstrated across 15 cultures (Grouzet et al., 2005).

For the current study, various language versions of the Aspirations Index were used to cater for the languages spoken by learners in the different school types. The following language combinations were used: only Afrikaans, only English, English/Afrikaans, and English/Sotho. These language versions were initially used by van der Linde (2006) as part of a larger study. The Aspirations Index was translated into Afrikaans and Sotho using the back translation method, and alpha-coefficients were then calculated. Van der Linde reported that alpha coefficients for all language versions ranged from .80 to .92 across the two scales (Extrinsic Aspirations and Intrinsic Aspirations), showing satisfactory internal consistency. Guiney (2007) found acceptable internal consistency measures for all the subscales of the Aspirations Index for the English and English/Sotho versions of the scale used in her study. For the current study, alpha-coefficients were found to be satisfactory (ranging from .69 to .91) and are presented in Table 13.

Table 13

Alpha-coefficients for the Aspirations Index

Scale	**α-Coefficient**	**N Items**
Wealth	.73	5
Fame	.85	5
Image	.72	5
Personal Growth	.69	5
Relationships	.69	5
Community Contribution	.84	5
Intrinsic Aspirations	.82	15
Extrinsic Aspirations	.91	15
Total Scale	.89	30

Scholastic achievement was operationalised by utilising learners' November 2006 final matriculation examination marks, which were obtained from the Free State Department of Education. Scholastic achievement was then computed by calculating an average score for the various subjects (usually six) written by learners, and was expressed as a percentage. As described in Chapter 2, to pass Grade 12 prior to 2008, a minimum of 720 marks out of a

possible total of 2100 (for six subjects) was required, in addition to passing both the first language and second language subjects.

The Grade 12 results were directly comparable because all learners completed the same standardised national examination papers, thereby precluding any problems regarding differences in academic standards between schools.

Educator Instruments

The educator biographical questionnaire was used to gather information on *class size* (i.e., number of learners per class/ educator-learner ratio). Educators were asked to report the average size of the classes they taught. The average class size per school was then computed by summing and averaging the reported average class sizes for each school.

The *School Level Environment Questionnaire (SLEQ), Actual Form* (Fisher & Fraser, 1990) was used to measure educators' perceptions of the psychosocial dimensions of the school environment. The SLEQ is based on Moos's Scheme (see Chapter 3), which is comprised of three dimensions, i.e., Relationships, Personal Development, and Systems Maintenance/Systems Change. The SLEQ consists of 56 items across eight scales (viz., Student Support, Affiliation, Professional Interest, Staff Freedom, Participatory Decision Making, Innovation, Resource Adequacy, and Work Pressure) with seven items per scale. Responses were scored on a five-point scale ranging from *Strongly Agree* (5) to *Strongly Disagree* (1) for the 29 positively worded (+) items. The 27 negatively worded (-) items were scored in the opposite direction. Scores for the eight subscales were calculated by summing and averaging the scores for the seven items per scale (minimum score of 1 and maximum score of 5 per subscale). Table 14 gives a description of the SLEQ scales and their classification on Moos's Scheme.

Table 14

Description of Scales in the SLEQ and Their Classification According to Moos's Scheme (Fisher & Fraser, 1990, p. 9)

Scale Name	Description of Scale	Sample Item	Moos's Category
Student Support	There is good rapport between teachers and students and students behave in a responsible self-disciplined manner.	There are many disruptive, difficult students in the school. (-)	Relationship
Affiliation	Teachers can obtain assistance, advice and encouragement and are made to feel accepted by colleagues.	I feel that I could rely on my colleagues for assistance if I should need it. (+)	
Professional Interest	Teachers discuss professional matters, show interest in their work and seek further professional development.	Teachers frequently discuss teaching methods and strategies with each other. (+)	Personal Development/ Goal Orientation
Staff Freedom	Teachers are free to set rules, guidelines and procedures, and of supervision to ensure rule compliance.	I am often supervised to ensure that I follow directions correctly. (-)	System maintenance and system change
Participatory Decision Making	Teachers have the opportunity to participate in decision making.	Teachers are frequently asked to participate in decisions concerning administrative policies and procedures. (+)	
Innovation	The school is in favour of planned change and experimentation, and fosters classroom openness and individualisation.	Teachers are encouraged to be innovative in this school (+)	
Resource Adequacy	Support personnel, facilities, finance, equipment and resources are suitable and adequate.	The supply of equipment and resources is inadequate. (-)	
Work Pressure	The extent to which work pressures dominates school environment.	Teachers have to work long hours to keep up with the workload. (+)	

Note. Items designated (+) are scored by allocating 5, 4, 3, 2, 1, for the responses Strongly Agree, Agree, Not Sure, Disagree, and Strongly Disagree respectively. Items designated (-) are reverse scored.

Fisher and Fraser (1990) reported satisfactory discriminant validity and internal consistency for the SLEQ (Cronbach's alpha-coefficients ranged from .64 to .91). They also reported that the SLEQ was able to discriminate between perceptions of educators in different schools. Subsequent studies have confirmed the validity and reliability of various versions of the SLEQ in several countries (Aldridge et al., 2011; Cresswell & Fisher, 1999; Johnson, Stevens, & Zvoch, 2007; Webster & Fisher, 2003).

For the current study, Table 17 shows that the internal consistency of the SLEQ as a total scale was found to be satisfactory (.83). Alpha-coefficients for five of the subscales were satisfactory (ranging from .63 to .84), but three subscales showed poor internal consistency, viz., Professional Interest (.58), Staff Freedom (.43), and Innovation (.56). The alpha-coefficients for Professional Interest and Innovation could be improved to .62 and .66 respectively by deleting two items from each scale. For Staff Freedom, the alpha-coefficient could not be improved significantly by deleting items.

The *Questionnaire on Teacher Interaction* (QTI; 48-item Australian educator version; Fisher et al., 1993) was used to measure educators' perceptions of their interpersonal behavior in the classroom (i.e., classroom environment). The QTI consists of eight scales (with six items each), namely, Leadership, Helpful/Friendly, Understanding, Student Responsibility/Freedom, Uncertain, Dissatisfied, Admonishing, and Strict. Table 15 provides a description of each scale as well as sample items.

Responses were given on a five-point scale ranging from *Never* (0) to *Always* (4). The eight subscale scores were calculated by summing and averaging scores for the six items per scale (minimum score of 0, maximum score of 4 per subscale).

Table 15

Description of QTI Scales and Sample Items per Scale (Adapted from Newby et al., 2001, p. 4)

Scale name	**Description of scale (The extent to which the teacher...)**	**Sample item**
Leadership	...leads, organises, gives orders, determines procedure and structures the classroom situation.	I talk enthusiastically about my subject.
Helpful/Friendly	...shows interest, behaves in a friendly or considerate manner and inspires confidence and trust.	I help students with their work.
Understanding	...listens with interest, empathises, shows confidence and understanding and is open with students.	I trust the students.
Student Responsibility/ Freedom	...gives opportunity for independent work, gives freedom and responsibility to students.	Students can decide some things in my class.
Uncertain	...behaves in an uncertain manner and keeps a low profile.	I seem uncertain.
Dissatisfied	...expresses dissatisfaction, looks unhappy, criticises and waits for silence.	I think that students cheat.
Admonishing	...gets angry, express irritation and anger, forbids and punishes.	I get angry unexpectedly.
Strict	...checks, maintains silence and strictly enforces the rules.	I am strict.

The reliability and validity of the QTI has been established in several countries and satisfactory internal consistency has been reported (den Brok et al., 2004; Fisher et al, 1993; Waldrip & Fisher, 2002; Wubbels et al., 2006). Alpha-coefficients for the QTI for the current study are presented in Table 17, where it can be seen that the total scale as well as the first seven subscales had satisfactory internal consistency, with alpha-coefficients ranging from .60 to .80. The alpha-coefficient for the Admonishing subscale was poor (.41) and it was possible to improve this to .63 by removing two items. The Strict scale had an alpha-coefficient of .31 which could only be improved to .56 after removing three items.

The *Maslach Burnout Inventory (MBI), Educator Survey* (Maslach, Jackson, & Schwab, 1996) was used to measure the three components of burnout, namely, Emotional Exhaustion (e.g., *I feel emotionally drained from my work*), Depersonalization (e.g., *I worry that this job is hardening me emotionally*), and Personal Accomplishment (e.g., *I feel I'm positively influencing people's lives through my work*). The MBI consists of 22-questions, nine for emotional exhaustion, five for depersonalization, and eight for personal accomplishment. Whereas emotional exhaustion and depersonalisation are positively related to burnout, personal accomplishment is negatively related to burnout.

A seven-point Likert response format ranging from *Never* (0) to *Every Day* (6) was used to score each item. Scores for each of the three subscales were calculated by summing and averaging the relevant item scores per subscale (minimum score of 0, maximum score of 6 per subscale).

The MBI is recognised as the leading measure of burnout and several studies over the past decade have shown its psychometric properties to be sound, with Maslach et al., (1996) reporting Cronbach's alpha coefficients ranging from .71 to .90, satisfactory convergent validity, discriminant validity, and test-re-test reliability (.60 to .82). The alpha-coefficients for the present study can be seen in Table 17. The total scale showed satisfactory internal consistency with an alpha-coefficient of .73, as did all three subscales, with alpha-coefficients ranging from .63 to .85.

The *Problems in School Questionnaire* (PIS; Deci et al., 1981) was used to assess educators' motivating style, i.e., whether they tend to be controlling versus autonomy supportive towards their learners (see Chapter 4 for a comprehensive definition). The language in the original American scale was adapted to the South African educational context, e.g., the word *students* was replaced by *learners*, *$* was changed to *R* (i.e., Rand),

and synonyms for certain words were provided in brackets to promote comprehension of questions.

The PIS is composed of eight short vignettes (see Appendix C) describing motivation related issues which learners may face at school. Each vignette is followed by four items which represent four different behavioural approaches educators can take when dealing with the problem that is posed. The four behavioural options range along a continuum from Highly Controlling at one end to Highly Autonomy Supportive at the other, forming four subscales, as displayed in Table 16.

Table 16

The Continuum of Motivating Styles and a Description of Behavioural Responses for Each Style

Motivating Style/ Subscale	Highly Controlling (HC)	Moderately Controlling (MC)	Moderately Autonomy Supportive (MA)	Highly Autonomy Supportive (HA)
Behavioural Responses (Reeve, 1998, p. 316)	The educator proposes a solution and uses an extrinsic motivator to gain the learner's collaboration	The educator proposes a solution and appeals to the learner's internalized controls (''do what you should'') to gain collaboration.	The educator encourages the learner to empathize with how his or her peers understand, diagnose, and cope with the same problem.	The educator supports the learner's efforts to diagnose the problem, generate its solution, and try that plan out for him- or herself.

For each of the eight vignettes, educators rated the degree of appropriateness of each of the four behavioural options (representing the fours subscales) on a seven-point scale ranging from *Very Inappropriate* (1) to *Very Appropriate* (7). The four subscale scores were computed by summing and averaging responses to the eight items per subscale (minimum score of 1 and maximum score of 7 per subscale). Using the subscale scores, an overall Resultant Autonomy Index (RAI) score was calculated as follows: +2(HA) + 1(MA) - 1(MC) - 2(HC). The RAI score can range from –18 to +18. High scores represent a preference for an autonomy-supportive style, whereas low scores signify a preference for a controlling style.

Deci et al. (1981) found that the PIS was temporally stable, externally valid, and that it had satisfactory internal consistency (Cronbach's alpha coefficients ranged from .63 to .76). The validity and reliability of the PIS has been further confirmed by Reeve (1998) and Cai, Reeve, and Robinson (2002). Reeve et al. (1999) confirmed the validity of the HA, MC, and HC scales, but not the MA scale. They found that instead of correlating with HA scores, MA scores correlated with HC and MC scores and with a control orientation. MA scores also decreased after autonomy supportive training. This means that the MA scale actually reflects a "slightly controlling" motivating style rather than a moderately autonomy supportive style (p. 540). The original PIS subscales, as confirmed by Deci et al. (1981), Reeve (1998), and Cai et al. (2002), will be utilized in the present study. The composite RAI will also be used.

Table 17 shows Cronbach's alpha-coefficients for the PIS. As can be seen, the internal consistency was satisfactory for the total scale (.84) as well as three of the four subscales (ranging from .68 to .76). The Highly Controlling scale had an alpha-coefficient of .51 which could be improved to .56 by deleting one item.

Watkins, McInerney, Lee, Akande, and Regmi (2002) refer to Nunnally (1970) who argues that alpha-coefficients of .50 and higher are acceptable for research purposes. Because the results from the scales in this study will be used for purely research purposes and not for decision making regarding participants, the findings concerning scales with low alpha-coefficients will be discussed in later sections, although interpretation of results based on these scales will be made with caution. It is not clear whether the poor internal consistency for the six identified subscales (i.e., Professional Interest, Staff Freedom, Innovation, Admonishing, Strict, and Highly Controlling) is due to unsuitability of the scales for use in the multi-cultural South African context and further research is needed in this regard. Future studies could aim to improve these scales for South African use through redesigning items.

Table 17

Alpha-coefficients for the Four Educator Questionnaires

Scale	α-Coefficient	N Items	Improved α-Coefficient
SLEQ	.83	56	
Student Support	.79	7	
Affiliation	.77	7	
Professional Interest	.58	7	.62[a]
Staff Freedom	.43	7	
Participatory Decision Making	.63	7	
Innovation	.56	7	.66[b]
Resource Adequacy	.84	7	
Work pressure	.66	7	
QTI	.70	48	
Leadership	.77	6	
Helpful/Friendly	.80	6	
Understanding	.65	6	
Student Responsibility/Freedom	.62	6	
Uncertain	.60	6	
Dissatisfied	.67	6	
Admonishing	.41	6	.63[c]
Strict	.31	6	.56[d]
MBI	.73	22	
Emotional Exhaustion	.85	9	
Depersonalization	.63	5	
Personal Accomplishment	.79	8	
PIS	.84	32	
Highly Controlling	.51	8	.56[e]
Moderately Controlling	.76	8	
Moderately Autonomy Supportive	.70	8	
Highly Autonomy Supportive	.68	8	

Note. [a] The α-coefficient for Professional Interest could be improved by removing items 27 and 35.
[b] The α-coefficient for Innovation could be improved by removing items 22 and 30.
[c] The α-coefficient for Admonishing could be improved by removing items 12 and 20.
[d] The α-coefficient for Strict could be improved by removing items 32, 36 and 44.
[e] The α-coefficient for Highly Controlling could be improved by removing item 10.

Research Questions and Statistical Analyses

As discussed in Chapter 1, five research questions will be investigated. The Statistical Package for the Social Sciences version 17.0 (SPSS Inc., 2008) and AMOS version 18.0 (Arbuckle, 2009) will be used for statistical analyses. Data were collected from both educators and learners, meaning that two data sets will be analysed. The educator data set contains the following variables to be included in analyses: School Type, School Environment, Classroom Environment, Burnout, Motivating Style, and Average Class Size. The learner data set contains the following variables: School Type, Motivational Aspirations, Learner Achievement, and Average Class Size per School. Table 18 clarifies which data sets will be used for each research question.

Table 18

Data Set Used per Research Question

Research Question	Data Set
One	Educator
Two	Educator
Three	Learner
Four	Learner
Five	Educator and learner

Conceptually, from an organismic-dialectical/Lewinian perspective, research questions one and two regard the interaction between *educators* (P) and the educational environment (E), and research questions three and four involve the interaction between *learners* (P) and the educational environment (E). Research question five brings together the educator and learner data by looking at differences in the constellations of educator, learner, classroom, and school variables across the four school types. Because the study design precluded the collection of information on learners' classroom membership, data analysis at the classroom level is not possible. Data analysis will thus take place at the individual

educator and learner level, as well as at the level of school type (N = 4), which is a variable which extends over both data sets. The sample of educators and learners was drawn from nine schools and is thus too small to conduct regression analyses using matched mean scores at the school level (N = 9). The relationships between the educator, school, and classroom variables (which were operationalised through educator questionnaires and thus belong to the same educator data set) will be investigated first. Next, using the learner data set, the relationships between the two learner variables (i.e., motivational aspirations and academic achievement) and average class size per school will be examined, followed by the relationship between school type and learner achievement. Finally, the differences in all the research variables by school type will be investigated. Differences per school type in learner achievement will be compared to differences in the remaining research variables per school type to get an understanding of which variables are important for learner achievement. The five specific research questions are presented below, along with the statistical analyses selected to investigate them.

Research Question One

Research question one concerns the relationships between school, classroom and educator variables and consists of a subset of five questions as follows:

A. *What is the relationship between school environment and classroom environment?*
B. *What is the relationship between educator burnout and classroom environment?*
C. *What is the relationship between educator burnout and motivating style?*
D. *Do aspects of classroom environment relate to an autonomy supportive motivating style?*
E. *What is the relationship between school environment and a controlling teaching style?*

To answer the above questions, Pearson's correlation coefficients will be computed by correlating the scales of the relevant questionnaires. More specific directional hypotheses will be presented in Chapter 7.

Research Question Two

Does school environment predict educator burnout?

The analysis of choice to investigate whether a set of variables can predict an outcome variable is multiple regression (Field, 2009). The predictor variables in this case are the scales of the SLEQ and the outcome variables are the three MBI scales (viz., Emotional Exhaustion, Depersonalisation, and Personal Accomplishment). Since only one outcome variable can be investigated at a time in multiple regression, three regression analyses will be undertaken, one for each of the MBI scales as the outcome variable. It is tempting to combine the three MBI scales into a total score for the purpose of regression, but Maslach et al. (2001) advise that burnout is a multi-dimensional construct and should be investigated as such.

Research Question Three

Do learners' motivational aspirations and average class size per school predict Grade 12 achievement?

Structural Equation Modelling (SEM) was selected to answer research question three because it can be used to investigate the direct and indirect relationships between independent and dependent variables simultaneously (Schumacker & Lomax, 2004). SEM has several benefits, including that it "incorporates the strengths of multiple regression analysis, factor analysis, and multivariate ANOVA (MANOVA) in a single model that can be evaluated statistically. Moreover, it permits directional predictions among a set of independent or a set of dependent variables and permits modelling of indirect effects" (Hoyle & Smith, 1994, p. 430). Another strength of SEM is that it explicitly takes measurement error into account (Schumacker & Lomax, 2004). A simple model will be specified and tested to answer research question three.

Research Question Four:

Does school type predict learner achievement?

This research question will be investigated by using multiple regression analysis with dummy variables for the four school types. The dummy coding employed is displayed in Table 19.

Table 19

Dummy Coding for the Four School Types

School Type	Dummy Variable 1	Dummy Variable 2	Dummy Variable 3	Dummy Variable 4
1. Advantaged	0	0	0	0
2. Transitional	0	1	0	0
3. Disadvantaged Black	0	0	1	0
4. Disadvantaged Coloured	0	0	0	1

Research Question Five:

Do different types of schools (i.e., Advantaged, Transitional, Disadvantaged Black, and Disadvantaged Coloured) differ in their school environments, classroom environments, level of educator burnout, educator motivating styles, learner motivational aspirations, and level of learner achievement?

Research question five concerns the differences between the four school types regarding the variables of interest in this study. If the results for research question four indicate that school type can indeed predict learner achievement as hypothesised, it is pertinent to investigate the characteristics of the four school types in comparison to each other and to the level of learner achievement per school type. This may shed light on which factors are important for learner performance in South Africa.

The differences between school types will be investigated by employing multivariate analysis of variance (MANOVA) when there is more than one dependent variable. Significant MANOVAs will be followed up with one-way analyses of variance (ANOVA) for

each dependent variable. When there is only one dependent variable, a one-way ANOVA will be computed. Further details of these analyses are provided in Chapter 7.

Summary

This chapter provided a description of the methodology employed in the present non-experimental cross-sectional survey study. The main aim of the study is to investigate factors which relate to Grade 12 learner achievement across four school types in South Africa, with a second aim being to explore the nature of the relationships between the selected educator, classroom and school variables. The sampling procedure and ethical considerations were discussed and the measuring instruments used were described in detail. The distribution of the sample of learners (N = 1040) and educators (N = 106) in terms of the demographic variables of gender, race, home language, and school type was discussed and summaries can be found at the end of each respective section. Descriptive statistics were provided for average class size per school type. Finally, the chapter concluded with a statement of the five interrelated research questions and the statistical analyses selected to answer them. The next chapter presents detailed results of the statistical analyses for each research question.

7

Results

This chapter deals with the quantitative analysis of the educator and learner data collected in order to answer the five research questions outlined in Chapter 6. After a brief discussion of the data cleaning and screening process, the chapter is divided into five sections, each corresponding to a specific research question. As mentioned in Chapter 6, SPSS version 17.0 (SPSS Inc., 2008) and AMOS version 18.0 (Arbuckle, 2009) were used for statistical analyses.

Data Cleaning and Screening

Prior to statistical analyses, the data from the educator and learner questionnaires were screened by examining relevant descriptive statistics. All values were within range and the means and standard deviations were plausible. The means and the 5% trimmed means for all subscales of the learner and educator questionnaires were very similar, indicating that no outliers were unduly influencing the data. For the learner data, no more than 3.3% of values were missing for any items of the Aspirations Index. Missing values were more prominent in the educator data. For the MBI, most items had 16% to 17% of values missing. It appears that certain educators did not turn over the questionnaire and only completed the example item on the instructions page. For the QTI, missing values were mostly below 5%, except for item 25, which was unanswered by 17% of educators. It seems that the wording of this item was faulty and not well understood. For this reason, item 25 of the QTI (from the Helpful/Friendly subscale) was deleted and the subscale score was re-calculated by summing and averaging the remaining five items. The alpha-coefficient of the revised Helpful/Friendly subscale remained satisfactory at .78 (the original alpha-coefficient was .80). For the SLEQ and the PIS, most items had 6% to 8% of values missing, with no discernible pattern. Missing values were managed by using the default settings per analysis in SPSS (i.e., pairwise for correlations, analysis-by-analysis for ANOVA, and listwise for regression) as recommended

by Field (2009). For SEM, AMOS applies maximum likelihood estimation in the presence of missing data (i.e., makes use of all available data).

To screen the continuous variables in this study for normality, subscale values for skewness and kurtosis were calculated and the shapes of the distributions were graphically examined through frequency histograms and quantile-quantile (Q-Q) plots. For large samples, significance tests for both skewness and kurtosis are highly sensitive (Field, 2009; Tabachnick & Fidell, 2007) and it was thus decided to screen for absolute values greater than one, which indicate severe departures from normality (Bonetti, 2006; Brown, 2011), in conjunction with visual representations of the distribution. According to Tabachnick and Fidell, the impact of departure from zero for skewness and kurtosis on underestimation of variance is diminished for large samples. For the *learner data*, Table 20 shows that the Relative Intrinsic Aspirations scores and the Extrinsic Aspirations scores (from the Aspirations Index) as well as the final Grade 12 examination marks had absolute values below 1 for skewness and kurtosis, indicating that these data were normally distributed. This was confirmed by visual inspection of the frequency histograms and Q-Q plots. Table 20 shows that the Intrinsic Aspirations scores, however, tended to be negatively skewed, with an overrepresentation of high scores, indicating that learners tended to rate the intrinsic life goals as highly important to them. The Intrinsic Aspirations scores also showed positive values for kurtosis (leptokurtic) and were thus not normally distributed.

Table 20

Values for Skewness and Kurtosis for the Aspirations Index and Grade 12 Marks

Subscale	**N**	***M***	***SD***	**Skewness**	**Kurtosis**
Relative Intrinsic Aspirations	938	1.13	1.13	0.43	0.33
Intrinsic Aspirations	964	6.06	0.77	-1.21	1.58
Extrinsic Aspirations	971	4.93	1.20	-.43	-.22
Grade 12 Final Marks	1011	48.74	12.79	0.53	0.03

Regarding the *educator data*, after examination of Q-Q plots, frequency histograms, and values of skewness and kurtosis, it appears that the subscales of all the educator questionnaires were normally distributed. All absolute values for skewness and kurtosis were smaller than one (most were below 0.5), with the exception of the Work Pressure subscale of the SLEQ, which had a positive kurtosis value of 1.2 (the Q-Q plot for this subscale, however, approximated a normal distribution).

Results of Statistical Analyses

Research Question One: Relationships between School, Classroom, and Educator Variables

Research question one consists of the following five sub-questions:

1A. *What is the relationship between school environment and classroom environment?*

- *Non-directional hypothesis:* Are the scales of the SLEQ related to the scales of the QTI?

1B. *What is the relationship between educator burnout and classroom environment?*

- *Directional hypothesis:* Burnout is positively related to submissive and oppositional educator behaviour, and negatively related to dominant and cooperative educator behaviour.
- Specifically, the Emotional Exhaustion (EE), Depersonalisation (DP), and Reduced Personal Accomplishment (RPA) scales of the MBI are negatively related to the Dominance (i.e., Strict, Leadership) and Cooperation (i.e., Helpful/Friendly, Understanding) scales of the QTI and are positively related to the Submissive (i.e., Uncertain, Student Responsibility/Freedom) and Opposition (i.e., Admonishing, Dissatisfied) scales.

1C. *What is the relationship between educator burnout and motivating style?*

- *Directional hypothesis:* Burnout is positively related to a controlling motivating style, and negatively related to an autonomy supportive style.
- Specifically, the EE, DP and RPA scales of the MBI are positively related to the HC and MC scales of the PIS and are negatively related to the HA and MA scales.

1D. Do aspects of classroom environment relate to an autonomy supportive motivating style?

- *Directional hypothesis:* Educators who perceive themselves as displaying Leadership, Helpful/Friendly and Understanding behaviours are more likely to be autonomy supportive towards learners.
- Specifically, the Leadership, Helpful/Friendly, and Understanding scales of the QTI are positively related to the MA and HA scales of the PIS.

1E. *What is the relationship between school environment and a controlling teaching style?*

- Directional Hypothesis: A more demanding and less supportive school environment is positively related to a more controlling teaching style.
- Specifically, the HC and MC scales of the PIS are positively related to the Work Pressure scale of the SLEQ and negatively related to the remaining seven SLEQ scales.

To answer the subset of research questions comprising research question one, Pearson's correlation coefficients (*r*) were be computed by correlating the subscales of the relevant questionnaires. For the MBI, the RPA scale was calculated by reverse scoring the original Personal Accomplishment scale. This was done in order to allow all three MBI scales to positively correlate with burnout (the original Personal Accomplishment scale is

negatively related to burnout) to simplify interpretation of potential correlations with other scales.

Research question 1A is non-directional and a two-tailed test of significance will thus be applied. The remaining four questions are refined into specific directional hypotheses and one-tailed tests of significance will therefore be used. Pearson's *r* is a measure of effect size and can be interpreted as follows (Cohen, 1988): ±.1 is a small effect; ± .3 is a medium effect; and ±.5 is a large effect. By squaring Pearson's *r*, the coefficient of determination, R^2 (a measure of the variability in one variable that is shared by the other), can be calculated (Field, 2009).

Research Question 1A: The relationship between school- and classroom environment

To answer research question 1A, the scales of the SLEQ and QTI were correlated and Pearson's *r*s are presented in Table 21. From Table 21 it can be seen that five out of the eight SLEQ scales showed a significant negative relationship to the QTI scale of Dissatisfied. When educators perceived their school environments as being high in Student Support, Affiliation, Professional Interest, Participatory Decision Making, and Innovation, they reported displaying less Dissatisfied behaviour towards their learners. There was also a significant negative relationship between the Affiliation scale of the SLEQ and the Uncertain scale of the QTI. This implies that when educators perceived greater Affiliation with colleagues, they tended to report displaying less Uncertain behaviour in the classroom. Effects were small to medium and R^2 ranged from .05 to .13.

Table 21

Pearson Correlation Coefficients for the Relationship between the SLEQ and QTI Scales

	SLEQ Scales								
QTI Scales	**Student Support**	**Affilia-tion**	**Prof. Interest**	**Staff Freedom**	**Decision Making**	**Innova-tion**	**Resource Ad.**	**Work Pressure**	***M (SD)***
Leadership	-.044	.070	.076	-.058	.168	.148	-.199	-.149	3.33 (0.44)
Helpful/Fr.	.042	.116	.027	-.105	.065	.075	-.153	.037	3.43 (0.53)
Understand.	.084	.190	.181	-.139	.082	.187	-.091	-.002	3.29 (0.46)
Student Resp.	.117	-.164	-.163	.099	-.004	-.171	-.161	-.078	1.71 (0.60)
Uncertain	.079	-.220*	-.027	.016	-.122	-.139	.067	-.127	0.97 (0.62)
Dissatisfied	-.309**	-.367**	-.263**	.083	-.243*	-.242*	-.108	-.052	1.41 (0.64)
Admonishing	-.173	-.186	-.009	.135	-.138	-.117	.178	.040	1.32 (0.69)
Strict	-.097	-.166	-.054	-.059	.005	-.051	.020	-.118	2.57 (0.66)
M (SD)	3.26 (0.74)	3.90 (0.63)	3.71 (0.63)	2.66 (0.55)	2.92 (0.62)	3.41 (0.70)	2.88 (0.93)	3.94 (0.63)	

Note. *$p < .05$ (two-tailed). **$p < .01$ (two-tailed).

Research Question 1B: The relationship between educator burnout and classroom environment

For Research Question 1B, the three scales of the MBI were correlated with the relevant QTI scales to test the directional hypothesis that burnout is positively related to submissive and oppositional educator behaviour, and negatively to dominant and cooperative educator behaviour. Pearson's *r*s are presented in Table 22.

Table 22

Pearson Correlation Coefficients for the Relationship between the MBI and QTI Scales

	QTI Scales								
MBI	**Lead.**	**Helpful**	**Under.**	**Std. Res.**	**Uncertain**	**Dissatis.**	**Admon.**	**Strict**	***M (SD)***
EE	-.243*	-.104	-.123	.130	.243*	.321**	.218*	-.069	2.67 (1.17)
DP	-.269**	-.191*	-.337**	.079	.195*	.390**	.375**	.124	1.63 (1.02)
RPA	-.315**	-.275**	-.293**	.068	.375**	.398**	.307**	-.102	1.80 (1.00)
M (SD)	3.33 (0.44)	3.43 (0.53)	3.29 (0.46)	1.71 (0.60)	0.97 (0.62)	1.41 (0.64)	1.32 (0.69)	2.57 (0.66)	

Note. EE = Emotional Exhaustion; DP = Depersonalisation; RPA = Reduced Personal Accomplishment
*$p < .05$ (one-tailed). **$p < .01$ (one-tailed).

From Table 22 it is clear that the directions of all relationships are in line with those hypothesized, barring the correlation between Depersonalisation and Strict, which was positive (but not significant) rather than negative. All correlations between the three MBI scales and the two Opposition scales (i.e., Admonishing and Dissatisfied) were significant and positive, as predicted. This implies that educators experiencing higher levels of burnout tended to display more Oppositional behaviours towards their learners. For the Submissive scales, there was a significant positive relationship between all three MBI scales and the Uncertain scale (as predicted), indicating that greater burnout was related to more Uncertain educator behaviour. The relationship between the MBI scales and Student Responsibility/Freedom was in the predicted direction, but was not significant. There was a predicted significant negative relationship between Depersonalisation and Reduced Personal Accomplishment and the two Cooperation scales (i.e., Helpful/Friendly and Understanding). For Emotional Exhaustion the negative correlation was not significant. This suggests that educators experiencing Depersonalisation and Reduced Personal Accomplishment were less likely to be Helpful and Understanding towards their learners. Finally, for the Dominance scales (i.e., Strict and Leadership), there was a significant negative relationship between all three MBI scales and Leadership as predicted, implying that educators with higher levels of burnout tended to show less Leadership in the classroom. Results for the Strict scale were not significant. Effect sizes were small to medium and R^2 ranged from .04 to .16.

Research Question 1C: The relationship between educator burnout and motivating style.

To test whether burnout was positively related to a controlling motivating style and negatively related to an autonomy supportive style, the scales of the MBI and PIS were correlated and the Pearson's *r*s are displayed in Table 23. As can be seen from Table 23, none of the correlations were significant (all *p*s > .05, one-tailed), indicating that burnout and motivating style are not related.

Table 23

Pearson Correlation Coefficients for the Relationship between the MBI and PIS Scales

	PIS Scales				
MBI	**HC**	**MC**	**MA**	**HA**	***M (SD)***
EE	-.026	-.116	.057	.024	2.67 (1.17)
DP	.033	-.058	.046	.120	1.63 (1.02)
RPA	.112	-.162	.017	-.002	1.80 (1.00)
M (SD)	3.90 (0.91)	4.90 (1.01)	4.71 (0.94)	5.37 (0.81)	

Note. HC = Highly Controlling; MC = Moderately Controlling; MA = Moderately Autonomy Supportive; HA = Highly Autonomy Supportive.

Research Question 1D: The relationship between classroom environment and autonomy support

The Leadership, Helpful/Friendly, and Understanding scales of the QTI were hypothesised to be positively related to the two Autonomy Supportive (Moderately Autonomy Supportive and Highly Autonomy Supportive) scales of the PIS and these scales were correlated to test this hypothesis. Pearson's *r*s are presented in Table 24.

Table 24

Pearson Correlation Coefficients for the Relationship between Selected QTI and PIS Scales

	QTI Scales			
PIS Scales	**Leadership**	**Helpful/Friendly**	**Understanding**	***M (SD)***
MA	.207*	.247**	.099	4.71 (0.94)
HA	.011	.006	.024	5.37 (0.81)
M (SD)	3.33 (0.44)	3.43 (0.53)	3.29 (0.46)	

Note. *$p < .05$ (one-tailed). **$p < .01$ (one-tailed).

From Table 24 it can be seen that all relationships were in the hypothesised direction (positive). The only significant relationships were between the Moderately Autonomy Supportive scale and the Leadership scale and Helpful/Friendly scale (medium effects, R^2 = .04 and .06 respectively). This implies that the more educators perceived themselves as moderately autonomy supportive, the more likely they were to display Leadership and

Helpful/Friendly behaviours in the classroom. The Understanding scale showed no significant correlations with the two PIS scales.

Research Question 1E: The relationship between school environment and a controlling teaching style

To investigate whether a positive relationship exists between a non-optimal (i.e., more demanding and less supportive) school environment and a more controlling teaching style, the scales of the SLEQ were correlated with the two Controlling (Moderately Controlling and Highly Controlling) scales of the PIS. Pearson's *r*s are shown in Table 25. A non-optimal school environment is represented by high scores on the Work Pressure scale and low scores on all remaining SLEQ scales.

Table 25

Pearson Correlation Coefficients for the Relationship between the SLEQ scales and Selected PIS Scales

	SLEQ Scales								
PIS Scales	**Student Support**	**Affilia-tion**	**Prof. Interest**	**Staff Freedom**	**Decision Making**	**Innova-tion**	**Resource Ad.**	**Work Press.**	***M (SD)***
MC	-.197*	-.048	-.017	-.154	-.112	.017	-.097	-.169	4.90 (1.01)
HC	-.333**	-.145	-.072	-.103	-.073	-.185*	-.088	-.223*	3.90 (0.91)
M (SD)	3.26 (0.74)	3.90 (0.63)	3.71 (0.63)	2.66 (0.55)	2.92 (0.62)	3.41 (0.70)	2.88 (0.93)	3.94 (0.63)	

Note. *$p < .05$ (one-tailed). **$p < .01$ (one-tailed).

Table 25 shows that, counter to predictions, the relationship between Work Pressure and the two Controlling scales was negative rather than positive. There was a significant negative relationship between Work Pressure and Highly Controlling, (small/medium effect, $R^2 = .05$), meaning that the more Work Pressure educators perceived, the less Highly Controlling they were with learners. For the remaining seven SLEQ scales, directions of the relationships with the two Controlling PIS scales were in the predicted direction, except for the relationship between Innovation and Moderately Controlling, which was positive (but very low) rather than negative. There were significant negative relationships between Student

Support and Moderately Controlling (small effect, R^2 = .04) and Highly Controlling (medium effect, R^2 = .11), implying that the lower educators perceived Student Support in their school environments, the more controlling they tended to be with learners. Innovation showed a significant negative relationship with Highly Controlling (small effect, R^2 = .03), indicating that the less educators perceived their school environments as supporting Innovation, the more likely they were to be Highly Controlling towards learners.

The directional hypothesis was thus confirmed for Student Support and partially confirmed for Innovation, but partially refuted for Work Pressure.

Summary of Results for Research Question One

The results for each sub-question of research question one are summarised below.

1A. *What is the relationship between school environment and classroom environment?*

Five SLEQ scales (viz., Student Support, Affiliation, Professional Interest, Participatory Decision Making, and Innovation) showed significant negative relationships with the QTI scale of Dissatisfied, and Affiliation was also negatively related to the Uncertain scale of the QTI.

1B. *What is the relationship between educator burnout and classroom environment?*

The hypothesis that burnout is positively related to submissive and oppositional educator behaviour, and negatively related to dominant and cooperative educator behaviour, was largely confirmed.

1C. *What is the relationship between educator burnout and motivating style?*

The hypothesis that burnout is positively related to a controlling motivating style and negatively related to an autonomy supportive motivating style was not supported. No correlations were significant.

1D.Do aspects of classroom environment relate to an autonomy supportive motivating style?

The directional hypothesis was partially supported in that Leadership and Helpful/Friendly were significantly positively related to Moderately Autonomy Supportive. No significant relationships were found for Highly Autonomy Supportive or the Understanding QTI scale, however.

1E. *What is the relationship between school environment and a controlling teaching style?*

The directional hypothesis that a more demanding and less supportive school environment is positively related to a more controlling teaching style was in part supported and in part refuted. As predicted, Student Support showed significant negative relationships to both Moderately Controlling and Highly Controlling, and Innovation showed a significant negative relationship to Highly Controlling. Contrary to predictions, however, Work Pressure was significantly negatively (rather than positively) correlated with Highly Controlling.

Research Question Two: School Environment as Predictor of Educator Burnout

To investigate whether school environment can predict educator burnout, three multiple regression analyses were conducted. In each regression analysis, one of the three MBI scales (viz., Emotional Exhaustion, Depersonalisation, and Personal Accomplishment) served as the outcome variable and the scales of the SLEQ were entered simultaneously (forced entry) as predictor variables. When results were significant, hierarchical regression was conducted with the significant SLEQ scales in step one and remaining SLEQ scales in step two to determine the percentage of variance accounted for by significant SLEQ scales.

For each multiple regression analysis, the assumption of independent errors was checked with the Durbin-Watson test statistic. All values were greater than one and smaller than three (i.e., they were close to two), indicating that there was no cause for concern (Field, 2009). To check for multicolinearity between predictors, the Variance Inflation Factor (VIF)

and tolerance statistic were examined. All VIF values were less than 10 and all tolerance values were above 0.1, indicating that multicolinearity was not a problem (Field, 2009).

Predicting Emotional Exhaustion

Results from the multiple regression analysis indicated that educators' Emotional Exhaustion was significantly predicted by the combined eight SLEQ scales (measuring school environment), which explained 40.7% of the variance, $R^2 = .407$, $F(8, 71) = 6.085$, $p = .000$. The contribution of the individual SLEQ scales to the regression model can be seen in Table 26.

Table 26

Regression Coefficients for the Eight SLEQ scales Predicting Emotional Exhaustion (N = 80)

	Unstandardized Coefficients		**Standardized Coefficients**		
SLEQ Scales	***B***	***SE***	**β**	***t***	***p***
Student Support	-.263	.168	-.161	-1.567	.122
Affiliation	-.072	.260	-.040	-.276	.783
Professional Interest	.251	.269	.127	.932	.354
Staff Freedom	.641	.217	.308	2.956	.004
Decision Making	-.394	.238	-.204	-1.658	.102
Innovation	-.522	.246	-.287	-2.119	.038
Resource Adequacy	-.036	.129	-.030	-.282	.779
Work Pressure	.708	.212	.370	3.336	.001

Table 26 shows that three of the eight SLEQ scales significantly contributed to predicting Emotional Exhaustion. Work Pressure had the highest β value (.370), followed by Staff Freedom (β = .308), and the relationship to Emotional Exhaustion was positive for both scales, indicating that higher Work Pressure and higher Staff Freedom were related to higher educator Emotional Exhaustion. For Innovation, the β was negative (-.287), indicating that lower support for Innovation in the school environment was related to higher Emotional Exhaustion.

To determine the combined contribution of the three significant SLEQ scales to predicting Emotional Exhaustion, a hierarchical regression analysis was conducted. The three significant scales were entered in step one, followed by the remaining five SLEQ scales in step two. Results indicated that Work Pressure, Staff Freedom and Innovation significantly predicted 33.9% of the variance in Emotional Exhaustion, R^2 = .339, F(3, 76) = 13.016, p = .000. The remaining five SLEQ scales predicted 6.7% of the variance in Emotional Exhaustion, but this change was not significant, ΔR^2 = .068, F(5, 71) = 1.612, p = n.s. To summarise, the eight SLEQ scales jointly predicted 40.7% of the variance in Emotional Exhaustion, and 33.9% of this variance was explained by Work Pressure, Staff Freedom, and Innovation.

Predicting Depersonalisation

The multiple regression analysis results showed that the eight SLEQ scales significantly predicted 23.5% of the variance in Depersonalisation, R^2 = .235, F(8, 69) = 2.644, p = .014. Regarding the contribution of the individual scales, Table 27 shows that Student Support (β = -.266) and Participatory Decision Making (β = -.294) significantly contributed to predicting Depersonalisation and that the relationships were negative. This suggests that when educators perceived their school environments as lower in Student Support and/or Participatory Decision Making, they tended to show higher levels of Depersonalisation.

Student Support and Participatory Decision Making were entered in the first step in hierarchical regression analysis, followed by the remaining six non-significant SLEQ scales as step two. Results revealed that step one accounted for 17.4% of the variance in Depersonalisation, R^2 = .174, F(2,75) = 7.873, p = .001, and step two explained 6.1% of the variance, but this was not a significant change from step one, ΔR^2 = .061, F(6, 69) = 0.918, p = n.s. In summary, the eight SLEQ scales predicted 23.5% of the variance in

Depersonalisation. Student Support and Participatory Decision Making were the most important predictors, jointly accounting for 17.4% of the variance in Depersonalisation.

Table 27

Regression Coefficients for the Eight SLEQ scales Predicting Depersonalisation (N = 78)

	Unstandardized Coefficients		Standardized Coefficients		
SLEQ Scales	***B***	***SE***	**β**	***t***	***p***
Student Support	-.382	.171	-.266	-2.230	.029
Affiliation	.089	.260	.056	.341	.734
Professional Interest	.028	.273	.017	.104	.918
Staff Freedom	.346	.228	.186	1.522	.133
Decision Making	-.504	.240	-.294	-2.100	.039
Innovation	-.196	.248	-.121	-.791	.432
Resource Adequacy	.141	.130	.132	1.085	.282
Work Pressure	.250	.212	.149	1.179	.242

Predicting Personal Accomplishment

For Personal Accomplishment, multiple regression results indicated that the eight SLEQ scales were not significant predictors, R^2 = .184, $F(8,71)$ = 1.996, p = n.s. In terms of individual SLEQ scales, the regression coefficient for Affiliation was significant, β = .364, p = .038. For this reason, a simple regression was run with Affiliation as predictor. Results showed that Affiliation accounted for 12.1% of the variance in Personal Accomplishment, R^2 = .121, $F(1, 79)$ = 10.868, p = .001. It seems that when educators perceive greater Affiliation with their colleagues, they experience higher Personal Accomplishment.

Summary of the Results for Research Question Two

Results of the regression analyses show that school environment, as measured by the scales of the SLEQ, was able to predict the three components of burnout to varying degrees. For Emotional Exhaustion, the SLEQ scales predicted 40.7% of the variance. Work Pressure, Staff Freedom and Innovation were the most important predictors, accounting for 33.9% of

the variance in Emotional Exhaustion. For Depersonalisation, the SLEQ scales predicted 23.5% of the variance and Student Support and Participatory Decision Making were the most powerful predictors, jointly explaining 17.4% of the variance. Finally, the eight SLEQ scales together did not significantly predict Personal Accomplishment, but the Affiliation scale alone was able to significantly predict 12.1% of the variance in Personal Accomplishment. From the regression results it appears that school environment is an important predictor for educator burnout.

Research Question Three: Predicting Learners' Achievement

Do learners' motivational aspirations and average class size per school predict Grade 12 achievement?

As mentioned in Chapter 6, SEM will be used to investigate research question three. SEM is useful for testing and modifying theoretical models because it is robust in analysing multiple relationships (Anderson & Gerbing, 1988). For this reason, it has become a popular statistical technique in the social sciences. SEM was selected to answer research question three because of its ability to examine both direct and indirect relationships between several observed (i.e., measured) and latent variables simultaneously (Streiner, 2006). This section begins with an overview of the procedural aspects involved in SEM, followed by the results of the SEM analyses conducted.

Five Fundamental Steps in Structural Equation Modelling

Schumacker and Lomax (2004) provide a useful breakdown of five sequential processes or steps which are the foundation of all SEM analyses.

Step 1: Model specification. This step involves using relevant research and theory to generate a theoretical model to be tested. This entails deciding which variables to include in the model and specifying which relationships are to be investigated.

Step 2: Model identification. A model must be statistically identified in order for its parameters to be estimated. This means that there must be enough available information in the sample variance-covariance matrix (*S*) to uniquely estimate the model parameters. Model identification relies on the allocation of parameters as either *free* (i.e., unknown and to be estimated), *fixed* to a specified value (usually 0 or 1), or *constrained* to equal one or more other parameters. The number of free parameters in the theoretical model must be less than or equal to the number of distinct values in the *S* matrix.

Step 3: Model estimation. This step involves estimating the parameters in the structural equation model (i.e., running the model using relevant software). Several estimation procedures are available, and Maximum Likelihood (ML) estimation was employed in the current study using Amos version 18 (Arbuckle, 2009). ML estimation assumes multivariate normality of the observed variable and has desirable asymptotic (i.e., large sample) properties such as unbiasedness and minimum variance.

Step 4: Model testing. Once the model parameters have been estimated, it is necessary to determine how well the estimated data fit the theoretical model. SEM has a large number of model goodness-of-fit indices, many of which are based on a comparison of the model-implied covariance matrix $\sum$ to the *S* matrix. If $\sum$ and *S* are similar, it can be assumed that the data fit the theoretical model. Commonly used goodness-of-fit indices are presented in Table 28 along with 'rules of thumb' for interpretation (Dorman, 2003; Hooper, Coughlan, & Mullen, 2008; Hox & Bechger, 1998; McDonald & Ho, 2002; O'Boyle & Williams, 2011; Schermelleh-Engel, Moosbrugger, & Müller, 2003). These goodness-of-fit indices will be reported for the current SEM analyses.

It should be noted that the X^2 measure for evaluating model fit is subject to problems because it is highly sensitive to sample size, meaning that for large samples (such as in the current study), the X^2 statistic almost always indicates rejection of the hypothesised model

(Hooper et al., 2008; Schermelleh-Engel et al., 2003; Streiner, 2006). It is recommended that a combination of goodness-of-fit indices be considered rather than relying on one index in isolation. While goodness-of-fit indices are useful, it is important to maintain a focus on substantive theory when evaluating a model rather than letting statistical model fit alone shape the research process (Hooper et al., 2008).

Table 28

Commonly Reported SEM Goodness-of-Fit Indices

Indicator	**Acceptable Value**	**Description**
Absolute Fit Indices *(test how well hypothesised model fits sample data)*		
Chi- Square (X^2)	$p > 0.05$	Tests the discrepancy between the *S* matrix and the $\sum$ matrix.
Root Mean Square Error of Approximation (RMSEA)	RMSEA < .08 is acceptable, RMSEA < .05 is excellent	Measures discrepancy per degree of freedom – favours parsimony.
90 % Confidence Interval (CI) for RMSEA	Lower boundary should be < .05 for a good fit.	Allows assessment of the precision of RMSEA
Relative Fit Indices *(compare X^2 to a baseline model)*		
Normed Fit Index (NFI)	NFI > .90 is acceptable NFI > .95 is excellent	Compares X^2 value of hypothesised model to X^2 value of null model. 0 (no fit) – 1 (perfect fit)
Comparative Fit Index (CFI)	CFI > .90 is acceptable CFI > .95 is excellent	Revised NFI which takes sample size into account. 0 (no fit) – 1 (perfect fit)

In addition to examining model goodness-of-fit indices, three main features of the individual model parameters need to be considered (Schumacker & Lomax, 2004, p. 70):

- Are the free parameters significantly different from zero?
- Do the signs of parameters agree with what is expected in the theoretical model?
- Do the parameter estimates make sense (e.g., no negative variances or correlations exceeding 1)?

Step 5: Model modification. If the model fit is unsatisfactory, the next step is to make theory-driven modifications and then to test the revised model. One method of improving model fit is to fix non-significant or weak paths to 0. In Amos, Modification Indices can be consulted to assist with model modification. Unfortunately, this function is not available when missing data is present, as is the case with the current data set. Therefore, in the current study, if any modifications need to be made to the initial model, they will be driven by an examination of the correlation matrix, the significance of paths, and values of R^2.

The Two-Step Approach to SEM

SEM can be thought of as a combination of Confirmatory Factor Analysis (CFA; i.e., the measurement model) and path analysis (i.e., the structural model; Streiner, 2006). In the two-step approach to SEM (Anderson & Gerbing, 1988), the measurement model is specified and tested first, followed by the specification and testing of the structural model. The *measurement model* involves using CFA to test a predefined factor structure to determine whether the number of factors (latent variables) and the loadings of measured variables onto factors are as expected (Kline, 2005). Measurement models can be improved through modification (e.g., by dropping measured variables with low factor loading) and thus promote convergent and discriminant validity of the measuring instrument. The *structural model* represents the specification of hypothesised predictive relationships between variables and can include both direct and indirect relationships.

For research question three, a simple model was specified and tested which contained one latent variable (i.e., an unobserved variable/factor, represented by an oval in path diagrammes), namely Relative Intrinsic Aspirations, and two observed (i.e., measured) variables (represented by rectangles in path diagrammes), namely Average Class Size and Grade 12 Final Marks.

The Measurement Model for Relative Intrinsic Aspirations

A one-factor measurement model for Relative Intrinsic Aspirations (the only latent variable in the hypothesised model) was specified and tested. As discussed in Chapter 6, a relative intrinsic aspirations score was calculated by subtracting the Extrinsic scale score from the Intrinsic scale score. To test the measurement model for learners' relative intrinsic aspirations, five intrinsic and five extrinsic item parcels were created, and then five relative intrinsic item parcels were created by subtracting the extrinsic parcels from the intrinsic parcels in chronological order (i.e., extrinsic parcel 1 was subtracted from intrinsic parcel 1 etc.). The five resulting relative intrinsic parcel items were used in the CFA to test the measurement model. The CFA output diagramme from Amos 18 is shown in Figure 3, with standardised path coefficients.

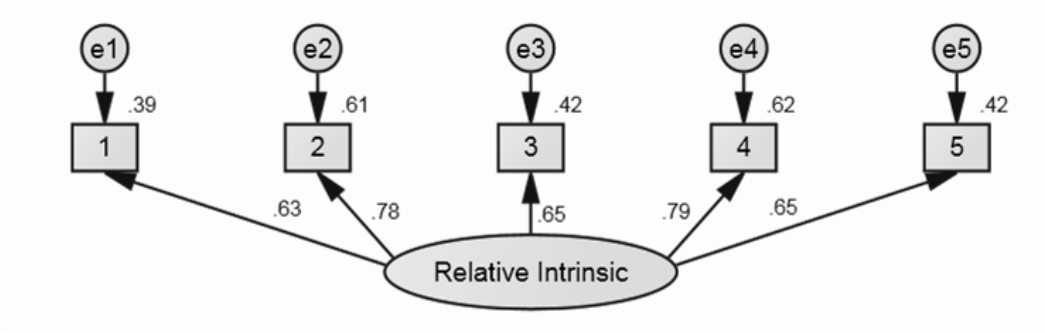

Figure 3. One-factor measurement model for Relative Intrinsic Aspirations, N = 1040 (standardised solution). *Note:* All coefficients are significant ($p < .001$).

Table 29 shows the fit indices for the measurement model, and as can be seen, X^2 was significant (as expected for large samples). When X^2 is significant, Streiner (2006) suggests that NFI and CFI should be above .95, which is the case for the current model, indicating an excellent fit. RMSEA indicated a good fit and the lower bound of the 90% confidence interval was below .05. Taking all indices into consideration, it was concluded that the measurement model had a satisfactory fit.

Table 29

Goodness-of-Fit Indices for the Measurement Model

Indicator	Value
X^2 (df = 5)	19.543, p = .002
RMSEA	.053
90% CI RMSEA	.030 – .079
NFI	.998
CFI	.991

The Structural Model for Predicting Learner Achievement

The hypothesised structural model is depicted in Figure 4.

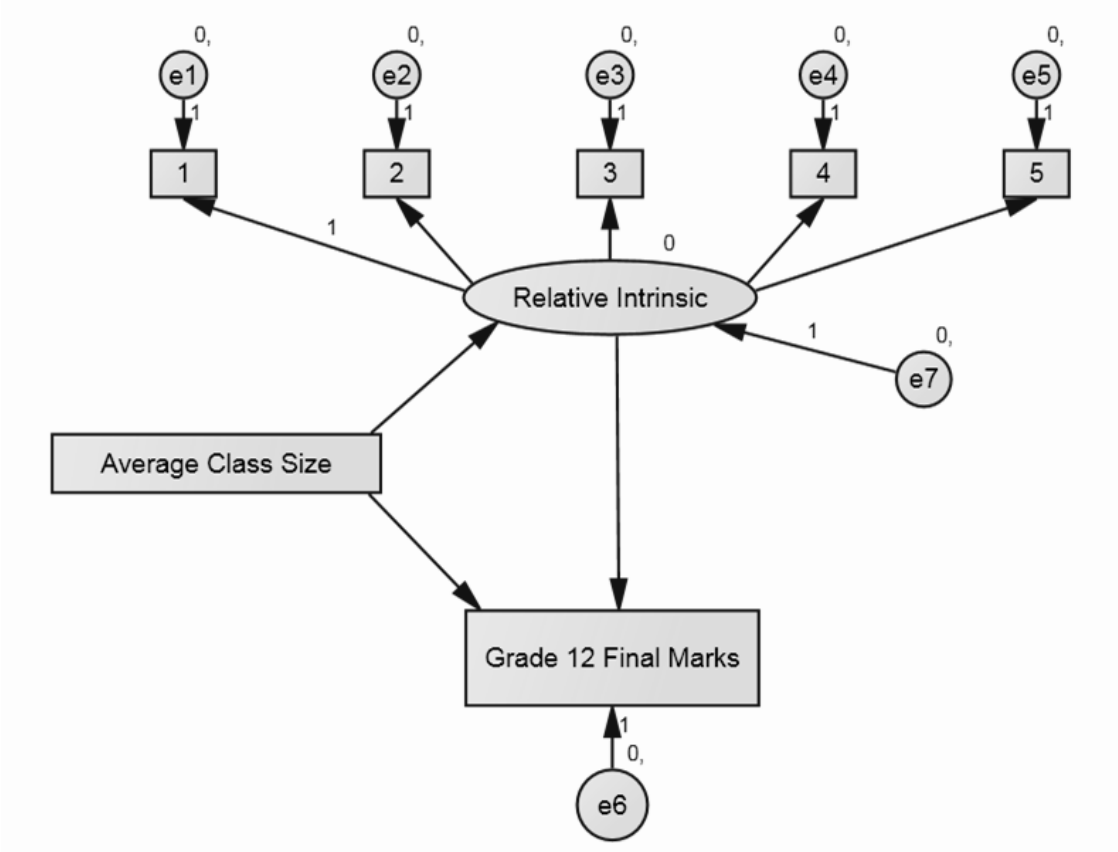

Figure 4. Hypothesised structural model for Relative Intrinsic Aspirations and Average Class size per school predicting Grade 12 learner achievement.

As can be seen from Figure 4, Relative Intrinsic Aspirations and Average Class Size per school were hypothesised to have direct predictive relationships with learner achievement (Grade 12 final examination marks). In addition, Average Class Size was hypothesised to

indirectly predict achievement through Relative Intrinsic Aspirations. The following directional hypotheses were formulated:

- Learners' relative intrinsic aspirations are positively related to their Grade 12 achievement.
- Average class size per school is negatively related to both learners' Grade 12 achievement and their relative intrinsic aspirations.

The correlation coefficients for the (measured) variables are shown in Table 30.

Table 30

Correlation Coefficients for the Three Measured Variables Included in the Model

	1	2	3	*M*	*SD*
1. November Marks	-	-	-	48.74	12.79
2. Relative Intrinsic As.	.281**	-	-	1.13	1.13
3. Average Class Size	-.543**	-.219**	-	43.56	8.75

***p* < .01 (two-tailed).

The hypothesised model was tested and goodness-of-fit indices are given in Table 31, where it can be seen that X^2 was significant. As mentioned previously, this is expectable with a large sample. The remainder of the fit indices in Table 31 suggest a good model fit.

Table 31

Goodness-of-Fit Indices for the Structural Model

Indicator	Value
X^2 (df =13)	59.108, p = .000
RMSEA	.058
90% CI RMSEA	.044 – .074
NFI	.973
CFI	.979

The results for the structural model can be seen in Figure 5. Regarding the hypotheses, Figure 5 shows that Relative Intrinsic Aspirations and Average Class Size were

able to predict 34% of the variance in learners' Grade 12 final examination marks (R^2 = .34). The directions of the relationships were also as hypothesised. Average Class Size was negatively related to Grade 12 Final Marks (β = -.51), meaning that as class sizes increased, learner marks decreased. Relative Intrinsic Aspirations were positively related to Grade 12 Final Marks (β = .19), indicating that the greater the importance learners assigned to intrinsic relative to extrinsic aspirations, the better marks they obtained. Average Class Size was able to predict 6% of the variance in Relative Intrinsic Aspirations (R^2 = .06), and the relationship was negative (β = -.25), as hypothesised. This means that learners from schools with larger average class sizes tended to place less relative importance on intrinsic versus extrinsic aspirations than those in schools with smaller average class sizes. As well as showing a direct relationship with Grade 12 Final Marks, Average Class Size also evidenced an indirect relationship to Grade 12 marks mediated by Relative Intrinsic Aspirations (β = -.05).

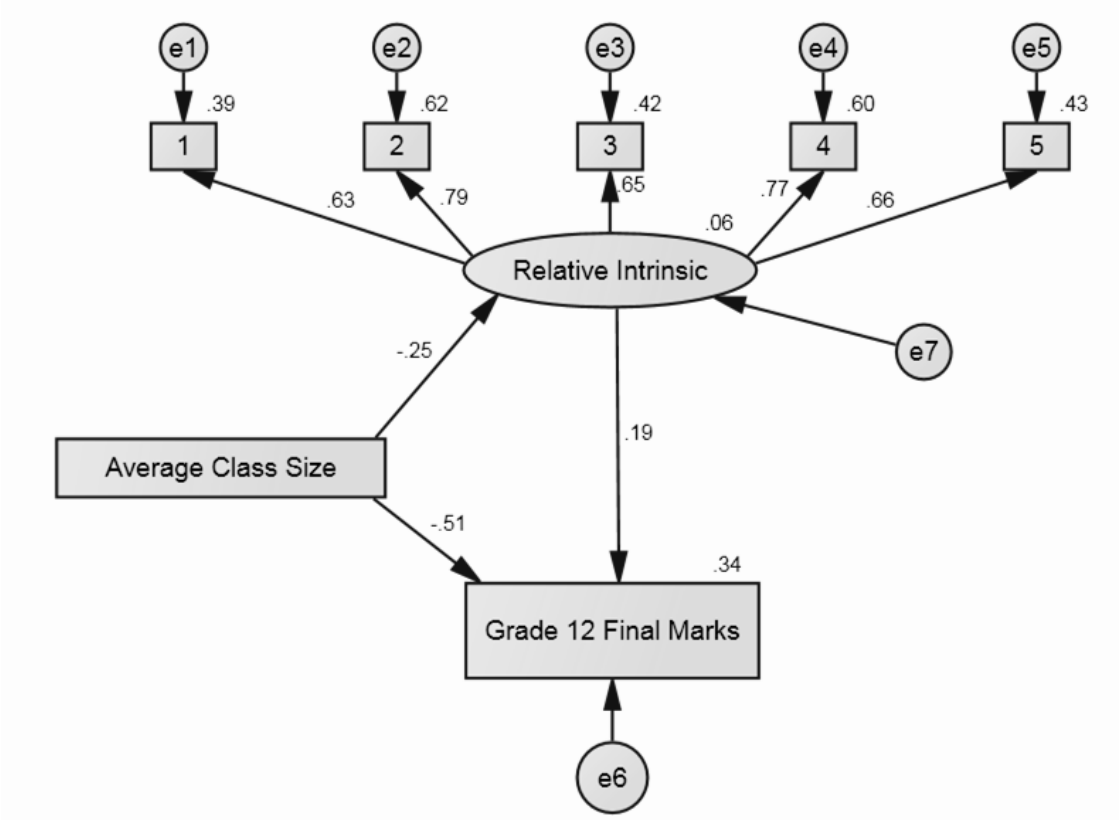

Figure 5. Maximum likelihood estimates for the structural model for learner achievement, N=1040 (standardised solution). *Note:* All coefficients are significant (p < .001).

Summary of Results for Research Question Three

The specified model for learner achievement evidenced a good fit and all the related hypotheses were confirmed. Learners' relative intrinsic aspirations and the average class size per school were able to predict 34% of the variance in learner achievement. Class size was negatively related to both relative intrinsic aspirations and achievement, whereas relative intrinsic aspirations were positively related to achievement.

Research Question Four: School Type as Predictor of Learner Achievement

Can school type predict learner achievement?

As discussed in Chapter 6, research question four was answered by conducting multiple regression analysis with dummy variables (see Table 19, p. 129). From Table 19 it can be seen that Advantaged schools were chosen as the reference group and results were interpreted accordingly. The means and standard deviations for Grade 12 examination marks by school type can be seen in Table 42 (p. 171).

Regression results indicated that school type was a significant predictor of achievement, $R^2 = .403$, $F(3, 1007) = 226.780$, $p = .000$. Table 32 shows that as school type moved from Advantaged to Transitional, Grade 12 examination marks decreased ($\beta = -.486$). The same was true when school type moved from Advantaged to Disadvantaged Coloured ($\beta = -.653$) and Disadvantaged Black ($\beta = -.711$) schools. The highest absolute value for β was evident for Disadvantaged Black schools, followed closely by Disadvantaged Coloured schools.

Table 32

Regression Coefficients for School Type Predicting Grade 12 Marks (N = 1011)

	Unstandardized Coefficients		Standardized Coefficients		
School Type	***B***	***SE***	**β**	***t***	***p***
Transitional	-12.655	.845	-.486	-14.975	.000
Disadvantaged Black	-22.220	.965	-.711	-23.033	.000
Disadvantaged Coloured	-21.829	1.010	-.653	-21.622	.000

The regression results showed that school type predicted 40.3% of the variance in Grade 12 learner final examination results. This suggests that that the type of school which learners attend is important for their achievement. Because school type seems to be a critical factor for learner achievement, investigating the manner in which schools from the four school types differ with regard to school, classroom, educator, and learner variables is equally important. This is the focus of the next research question.

Research Question Five: Differences by School Type

Do different types of schools (i.e., Advantaged, Transitional, Disadvantaged Black, and Disadvantaged Coloured) differ in their school environments, classroom environments, level of educator burnout, educator motivating styles, learner motivational aspirations, and level of learner achievement?

Results from research question four revealed that school type is a significant predictor of learner achievement. Research question five aims to supplement research question four with vital information about the characteristics of the four different school types. Figure 6 conceptually illustrates the approach to be taken. Differences in the school, classroom, educator, and learner variables (in the arrow in Figure 6) will be compared to differences in learner achievement per school type. In this way, differences in schools types with the best learner achievement can be compared to those with the poorest learner achievement. This will

allow the identification of variables that are important for Grade 12 learner achievement in South Africa.

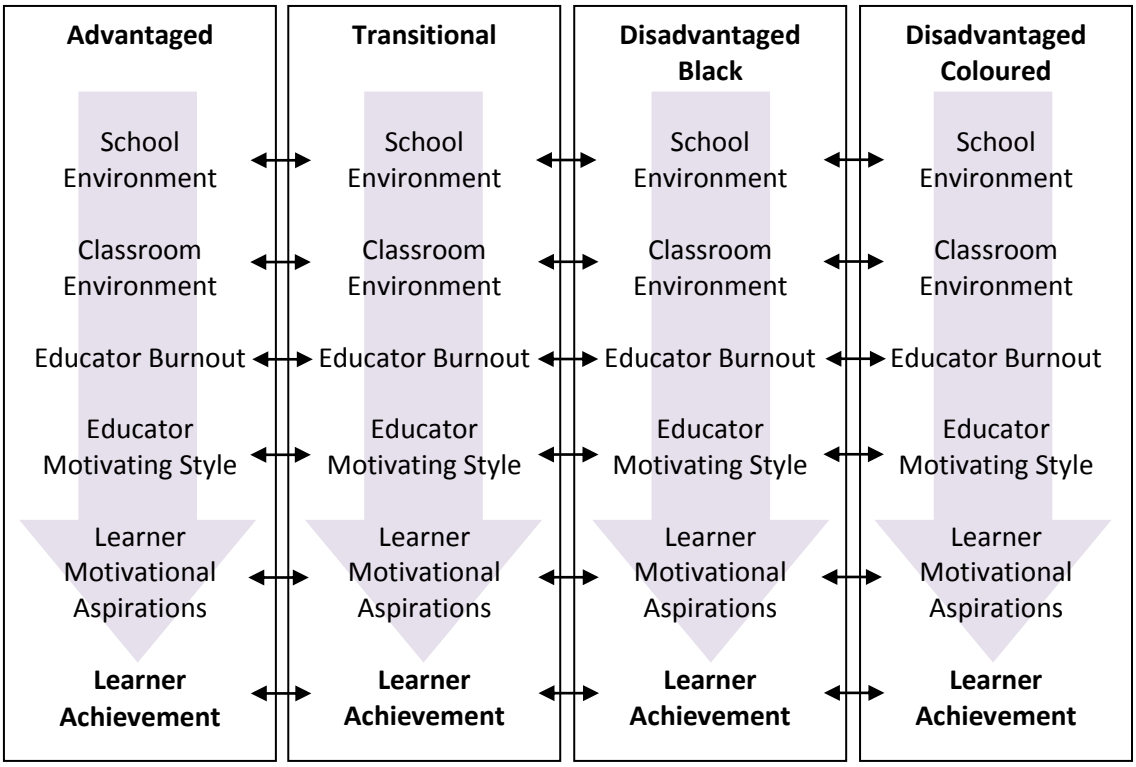

Figure 6. Conceptual overview of the approach to be taken for research question five.

As mentioned in Chapter 6, research question five will be answered by performing MANOVAs and ANOVAs. This research question refers to main effects of the variable "school type". Because a significant association was found between educators' gender and school type when exploring the distribution of educators by demographic variables (see Table 9 in Chapter 6), significant interaction effects of gender and school type will also be investigated for the *educator data*. This means that both gender and school type (which has four levels, i.e., Advantaged, Transitional, Disadvantaged Black, and Disadvantaged Coloured) will be included as independent variables (fixed factors) in order to investigate possible interactions between these two variables. The scales of the various educator questionnaires (i.e., SLEQ, QTI, MBI, and PIS) will serve as dependent variables.

MANOVAs will be performed using the scales of the SLEQ, QTI, and MBI as dependent variables, and a two-way ANOVA (with gender and school type as independent variables) will be conducted with the composite RAI score of the PIS. For the MANOVAs, if significant interaction effects are found, follow up two-way ANOVAs with gender and school type as independent variables will be conducted for each dependent variable. If no significant interactions are found, the MANOVAs will be followed by one-way ANOVAs for each dependent variable with school type as the sole independent variable.

For the *learner data*, school type alone will serve as the independent variable (no associations between learner gender and school type were found in Chapter 6). Two one-way ANOVAs will be preformed: one for the RIA scale of the Aspirations Index as the dependent variable, and one for the Grade 12 examination marks as the dependent variable.

Specific Statistics Considered in Analyses

Effect sizes will be estimated for significant results in order to provide an indication of practical significance. For the MANOVAs, partial eta squared (η_p^2) will be used as a measure of effect size and this statistic estimates "the proportion of variance that a variable explains that is not explained by other variables in the analysis" (Field, 2009, p. 415). It should be noted that, although unlikely, η_p^2can add up to greater than one (Tabachnick & Fidell, 2007). For the ANOVAs, eta squared (η^2), which is the ratio of explained variance to total variance (SS_M/SS_T), will serve as an estimation of effect size (for ANOVA, η^2 and $\eta_p^2$are equal). Omega squared (ω^2) could not be utilized because there were unequal numbers of learners and educators in each school type group (Field, 2009; Tabachnick & Fidell, 2007). For MANOVA, when sample sizes are larger than 50 (as in the current study), η_p^2 differs very little from η^2 (Stevens, 2009). The values for η^2 and η_p^2 can thus be interpreted as follows (Cohen, 1988):

η^2 = .01 represents a small effect

η^2 = .06 represents a medium effect

η^2 = .14 represents a large effect

For the MANOVAs, four different test statistics are available through SPSS output (i.e., Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root). As mentioned, the number of learners and educators per school type was unequal in the current study (see Chapter 6). *Pillai's Trace (V)* is the recommended test statistic when group sizes are unequal (Field, 2009) and this statistic will thus be utilized for decisions regarding the significance of MANOVA results. Box's test for the equality of covariance matrices will be considered for each MANOVA. If Box's test is significant, this indicates that the assumption of homogeneity of covariance matrices has been violated and Field (2009) suggests that if $p <$ .001, there is reason for concern.

For *post hoc comparisons*, Hochberg's GT2 test will be used due to the unequal number of educators and learners per school type (Field, 2009). For the ANOVAs, Levene's test for the equality of error variances will be inspected and if this test is significant (indicating violation of the assumption of homogeneity of variance), the Games-Howell procedure will be used for post hoc comparisons, as recommended by Field (2009). Furthermore, if Levene's test is significant, the Welch (F_W) and Brown-Forsythe (F_{BF}) test statistics will be computed because these statistics are robust to violations of the assumption of homogeneity of variance. Descriptive statistics (means and standard deviations) will be included for each analysis.

Differences in School Environment by School Type

A MANOVA was conducted with the eight scales of the SLEQ (measuring school environment) as dependent variables and school type and gender as the independent variables. Results indicated that the four school types differed significantly in their school

environments, V = 1.091, F(24, 252) = 6.002, p = .000, η_p^2 = .364, and the effect size was large. The interaction between school type and gender was not significant, V = 0.291, F(24, 252) = 1.127, p = n.s., η_p^2 = .097. Box's test was not significant, indicating that the assumption of equal covariance matrices was met. Because none of the interaction effects were significant, the MANOVA was followed up with one-way ANOVAs on the dependent variables (SLEQ scales) with school type as the independent variable. ANOVA results revealed significant differences for Student Support, Affiliation, Resource Adequacy, and Work Pressure, and effect sizes were medium to large, as can be seen in Table 33. The means and standard deviations for the SLEQ scales by school type can be seen in Table 34.

Table 33

Significant ANOVAs for the SLEQ Scales

Dependent Variable	***df***	***F***	***p***	η^2	**Effect Size**
Student Support	3, 95	13.447	.000	.298	Large
Affiliation	3, 95	2.977	.035	.086	Medium
Resource Adequacy	3, 95	26.101	.000	.451	Large
Work Pressure	3, 95	10.625	.000	.251	Large

For the ANOVAs, Levene's Test for the equality of error variances was significant for the Work Pressure scale (p = .036). For this reason, the Welch (F_W) and Brown-Forsythe (F_{BF}) test statistics were computed for Work Pressure. Both statistics indicated significant differences in Work Pressure across School Type, F_W(3, 40) = 17.022, p = .000, F_{BF}(3, 67) = 11.055, p = .000. Because there was doubt as to whether group variances for the Work Pressure scale were equal, the Games-Howell procedure was selected for post hoc comparisons for this scale (Field, 2009). Hochberg's GT2 test was used for post hoc comparisons for the remaining three scales.

In terms of *Student Support*, Hochberg's GT2 test results showed that educators in Advantaged schools (M = 3.67) scored significantly higher than those in Disadvantaged

Coloured (*M* = 3.04) and Transitional (*M* = 2.71) schools. Educators in Disadvantaged Black schools (*M* = 3.32) scored significantly higher than those in Transitional schools (all *p*s < .05). Educators in Advantaged schools showed the highest mean Student Support scores and those in Transitional schools showed the lowest mean scores.

Table 34

Means and Standard Deviations for the Eight SLEQ scales according to School Type

SLEQ Scale	**School type**	***M***	***SD***	**N**
Student Support	Advantaged	3.67 *a*	0.696	41
	Transitional	2.71 *b*	0.618	27
	Disadvantaged Black	3.32 *ac*	0.559	17
	Disadvantaged Coloured	3.04 *bc*	0.470	14
Affiliation	Advantaged	4.07 *a*	0.520	41
	Transitional	3.88 *ab*	0.672	27
	Disadvantaged Black	3.54 *b*	0.575	17
	Disadvantaged Coloured	3.88 *ab*	0.790	14
Professional Interest	Advantaged	3.79	0.557	41
	Transitional	3.78	0.575	27
	Disadvantaged Black	3.36	0.562	17
	Disadvantaged Coloured	3.74	0.906	14
Staff Freedom	Advantaged	2.63	0.453	41
	Transitional	2.63	0.517	27
	Disadvantaged Black	2.63	0.693	17
	Disadvantaged Coloured	2.85	0.696	14
Participatory Decision Making	Advantaged	2.84	0.617	40
	Transitional	2.75	0.557	27
	Disadvantaged Black	3.14	0.653	17
	Disadvantaged Coloured	3.17	0.604	14
Innovation	Advantaged	3.35	0.665	41
	Transitional	3.62	0.601	27
	Disadvantaged Black	3.33	0.671	17
	Disadvantaged Coloured	3.26	0.949	14
Resource Adequacy	Advantaged	3.40 *a*	0.686	41
	Transitional	3.11 *a*	0.800	27
	Disadvantaged Black	2.09 *b*	0.627	17
	Disadvantaged Coloured	1.84 *b*	0.619	14
Work Pressure	Advantaged	4.13 *a*	0.550	41
	Transitional	4.07 *a*	0.619	27
	Disadvantaged Black	3.26 *b*	0.392	17
	Disadvantaged Coloured	3.99 *a*	0.589	14

Note. Range of *M* scores is 1 to 5. Mean scores followed with the same letters are not significantly different.

For *Affiliation*, the highest scores were reported by educators in Advantaged schools (M = 4.07), who scored significantly higher (p = .013) than educators in Disadvantaged Black schools (M = 3.54), with the lowest Affiliation scores. The other differences were not significant. For *Resource Adequacy*, educators in Advantaged (M = 3.40) and Transitional (M = 3.11) schools scored significantly higher than those in Disadvantaged Black (M = 2.09) and Disadvantaged Coloured (M = 1.84) schools (all ps = .000). The other differences between groups were not significant. Finally, for *Work Pressure*, results from the Games-Howell procedure showed that educators in Disadvantaged Black schools reported significantly lower Work Pressure (M = 3.26) than educators in all other school types (all ps < .01), which did not significantly differ from each other. Figure 7 provides a graphical comparison of the mean SLEQ scales scores per school type.

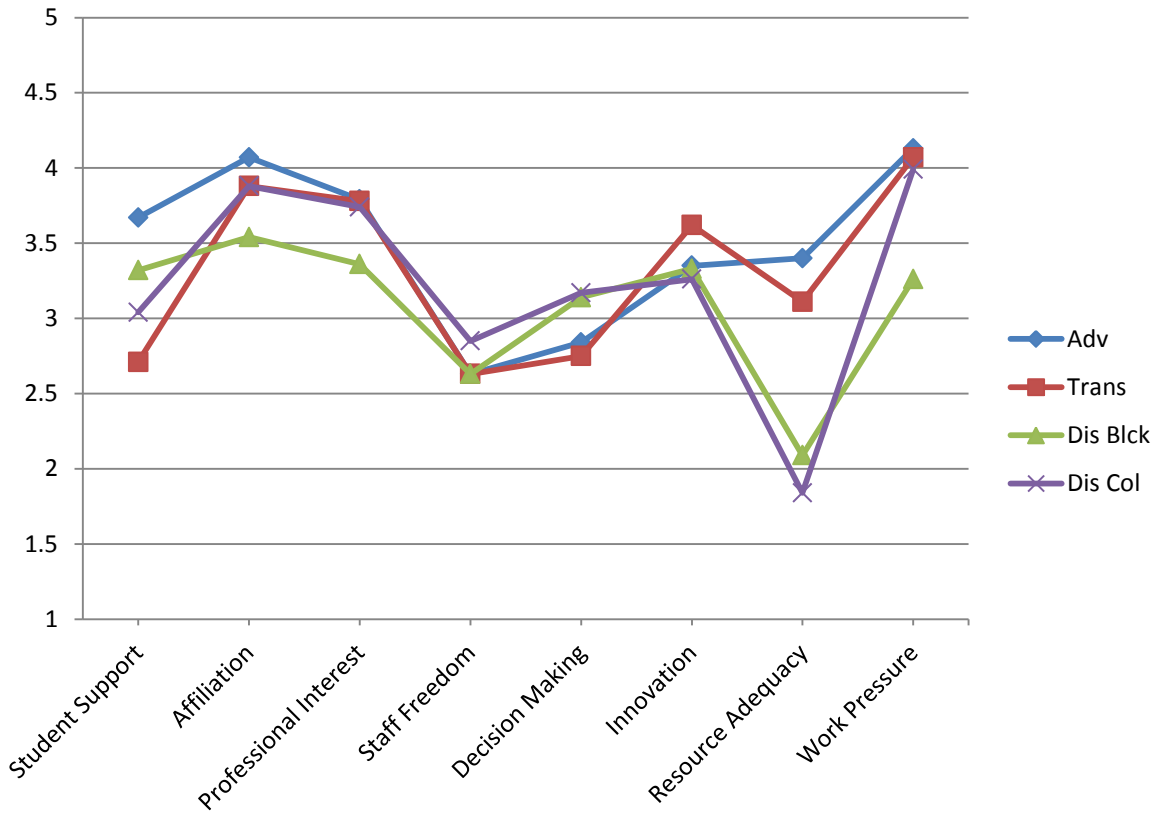

Figure 7. Graphical representation of mean SLEQ scale scores per school type.

Differences in Classroom Environment by School Type

MANOVA results (with school type and gender as independent variables) indicated that the four school types differed significantly in their classroom environments (as measured by the eight scales of the QTI), $V = 0.556$, $F(24, 234) = 2.217$, $p = .001$, $\eta_p^2 = .185$, and the effect size was large. The interaction between gender and school type was not significant, $V = 0.356$, $F(24, 234) = 1.311$, p = n.s., $\eta_p^2 = .119$. Box's Test was significant ($p = .023$), indicating that the assumption of equal covariance matrices was violated, but the threshold for concern was not reached (i.e., $p < .001$). As mentioned, interaction effects were not significant, and the MANOVA was thus followed up with univariate ANOVAs on the dependent variables with school type as independent variable. Results revealed significant differences for Leadership, Helpful/Friendly, and Admonishing, with medium effect sizes, as shown in Table 35.

Table 35

Significant ANOVAs for the QTI Scales

Dependent Variable	***df***	***F***	***p***	η^2	**Effect Size**
Leadership	3, 97	3.493	.019	.097	Medium
Helpful/Friendly	3, 100	4.108	.009	.110	Medium
Admonishing	3.98	3.011	.034	.084	Medium

Levene's Test indicated that the assumption of homogeneity of variance was violated for the Helpful/Friendly scale ($p = .025$), and the robust F_W and F_{BF} test statistics were thus computed, both of which confirmed statistically significant differences in the Helpful/Friendly scale across school types, $F_W(3, 46) = 9.548$, $p = .000$, $F_{BF}(3, 74) = 4.545$, $p = .006$. The Games-Howell procedure was used for post hoc comparisons for Helping/Friendly and Hochberg's GT2 was used for the remaining two scales.

Table 36 gives the means and standard deviations for the QTI scales by school type.

Table 36

Means and Standard Deviations for the Eight QTI scales according to School Type

QTI Scale	School type	*M*	*SD*	N
Leadership	Advantaged	3.21 *a*	0.428	43
	Transitional	3.32 *ab*	0.417	28
	Disadvantaged Black	3.46 *b*	0.482	15
	Disadvantaged Coloured	3.60 *b*	0.392	15
Helpful/Friendly	Advantaged	3.38 *a*	0.511	43
	Transitional	3.28 *a*	0.551	28
	Disadvantaged Black	3.43 *ab*	0.554	18
	Disadvantaged Coloured	3.83 *b*	0.260	15
Understanding	Advantaged	3.26	0.435	43
	Transitional	3.17	0.528	28
	Disadvantaged Black	3.37	0.431	17
	Disadvantaged Coloured	3.51	0.317	14
Student Responsibility	Advantaged	1.78	0.611	43
	Transitional	1.52	0.606	28
	Disadvantaged Black	1.87	0.716	17
	Disadvantaged Coloured	1.68	0.353	15
Uncertain	Advantaged	0.99	0.600	42
	Transitional	0.89	0.627	27
	Disadvantaged Black	1.17	0.570	15
	Disadvantaged Coloured	0.83	0.728	14
Dissatisfied	Advantaged	1.42	0.613	43
	Transitional	1.46	0.724	27
	Disadvantaged Black	1.52	0.590	16
	Disadvantaged Coloured	1.20	0.637	15
Admonishing	Advantaged	1.31 *ab*	0.633	43
	Transitional	1.61 *a*	0.699	28
	Disadvantaged Black	1.04 *b*	0.708	17
	Disadvantaged Coloured	1.14 *ab*	0.670	14
Strict	Advantaged	2.52	0.565	43
	Transitional	2.55	0.686	29
	Disadvantaged Black	2.67	0.779	16
	Disadvantaged Coloured	2.62	0.744	15

Note. Range of *M* scores is 0 to 4. Mean scores followed with the same letters are not significantly different.

For *Leadership*, educators in Disadvantaged Coloured schools scored the highest (*M* = 3.60), followed by those in Disadvantaged Black schools (*M* = 3.46). Post hoc comparisons

revealed that that educators in Advantaged schools (*M* = 3.21) scored significantly lower on Leadership (*p*s < .05) than those in both Disadvantaged Coloured and Black schools (these were the only significant differences). For *Helpful/Friendly*, educators in Disadvantaged Coloured schools (*M* = 3.83) once again showed the highest scores, and these were significantly higher (all *p*s = .000) than scores for educators in both Advantaged (*M* = 3.38) and Transitional schools (*M* = 3.28), but not those in Disadvantaged Black schools (*M* = 3.46), who scored second highest. No significant differences were found between Advantaged, Transitional or Disadvantaged Black schools for Helpful/Friendly. For *Admonishing*, Table 36 shows that educators in Transitional schools scored highest (*M* = 1.61) and those is Disadvantaged Black schools scored lowest (*M* = 1.04). The only significant difference in Admonishing was between these two school types (*p* = .05). Figure 8 shows a graphical comparison of the mean QTI scale scores per school type.

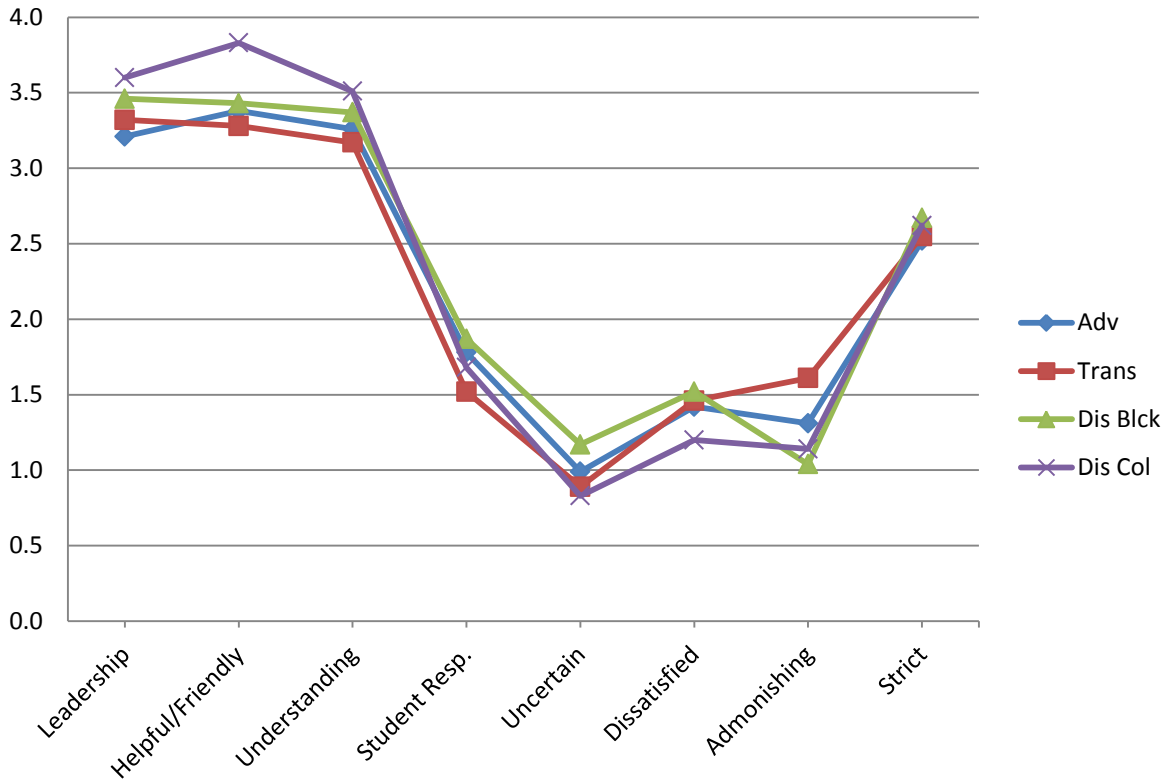

Figure 8. Graphical representation of the mean QTI scale scores per school type.

Differences in Educator Burnout and Motivating Style by School Type

For educator *burnout,* the MANOVA results (utilising the three scales of the MBI as dependent variables) indicated that there was no significant main effect for school type, V = 0.131, $F(9, 225) = 1.139$, p = n.s., $\eta_p^2 = .044$. It appears that no differences exist in burnout across the four school types. The interaction between gender and school type was also not significant, $V = 0.139$, $F(9, 225) = 1.215$, p = n.s., $\eta_p^2 = .046$. Means and standard deviations for the MBI scales across school type are presented in Table 37. Additionally, one-way ANOVAs for each of the three dependent measures showed no significant main effects of School Type. Although the differences are not significant, Table 37 shows that educators in the Advantaged and Transitional schools had less optimal scores for all three components of burnout than those from the two disadvantaged school types.

Table 37

Means and Standard Deviations for the Three MBI scales according to School Type

MBI Scales	**School type**	***M***	***SD***	**N**
Emotional Exhaustion	Advantaged	2.80	1.158	34
	Transitional	2.80	1.332	23
	Disadvantaged Black	2.58	1.012	14
	Disadvantaged Coloured	2.46	1.119	12
Depersonalisation	Advantaged	1.64	0.937	34
	Transitional	1.99	1.229	23
	Disadvantaged Black	1.44	0.793	14
	Disadvantaged Coloured	1.10	0.936	12
Personal Accomplishment	Advantaged	3.96	1.089	34
	Transitional	4.04	1.012	23
	Disadvantaged Black	4.44	0.702	14
	Disadvantaged Coloured	4.66	0.838	12

Note. Range of *M* scores is 0 to 6.

In terms of level of burnout, Maslach et al. (1996) provide norms (based on a sample from the U.S.A) for educators with mean scores per subscale as follows: Emotional Exhaustion: M = 3.54; Depersonalisation: M = 1.83; Personal Accomplishment: M = 5.59.

Based on the mean scores in Table 37, it appears that the educators in the current sample are slightly below the norm for Emotional Exhaustion, are roughly in line with the norm for Depersonalisation, and are somewhat below the norm for Personal Accomplishment. Table 38 shows the number of educators per school type who fell both above and below the burnout norms outlined above. Chi-square statistics could unfortunately not be calculated because too many cells had expected counts less than five, but from Table 38 it is clear that for Emotional Exhaustion and Depersonalisation, an association exists between school type and the number of educators who fell above the norms. As can be seen, the number of educators who fell above the norm for Emotional Exhaustion was highest in the Transitional schools (N = 8/24 or 33.3%) and was lowest in the Disadvantaged Coloured schools (N = 2/12 or 16.6%). For Depersonalisation, the relative number of educators scoring above the norm was highest for Advantaged schools (42.9%) followed by Transitional schools (37.5%) and Disadvantaged Black schools (28.6%), and was considerably lower for Disadvantaged Coloured schools (16.7%). For Personal Accomplishment, only 5 out of 87 educators fell above the norm, but even here the Disadvantaged schools scored more optimally in relative terms.

From Table 37 and 38 it appears that Disadvantaged Coloured educators seem to have the most ideal burnout profile (lowest Emotional Exhaustion and Depersonalisation, highest Personal Accomplishment) followed by those from Disadvantaged Black schools. Educators in Advantaged and Transitional schools seem to have the least ideal burnout profile, with those in Transitional schools having the highest Depersonalisation scores, and Advantaged schools having the highest number of educators scoring above the norms for Emotional Exhaustion and Depersonalisation.

Table 38

Number of Educators who Fall above and below the Burnout Norms per School Type

MBI Scale	School Type	Above Norm	Below Norm	Total
EE	Advantaged	9 (24.3%)	28	37
	Transitional	8 (33.3%)	16	24
	Disadvantaged Black	3 (20.0%)	12	15
	Disadvantaged Coloured	2 (16.6%)	10	12
	Total	22 (25%)	66	88
DP	Advantaged	15 (42.9%)	20	35
	Transitional	9 (37.5%)	15	24
	Disadvantaged Black	4 (28.6%)	10	14
	Disadvantaged Coloured	2 (16.7%)	10	12
	Total	30 (35.3%)	55	85
PA	Advantaged	2 (5.6%)	34	36
	Transitional	0 (0.0%)	24	24
	Disadvantaged Black	1(6.7%)	14	15
	Disadvantaged Coloured	2 (16.7%)	10	12
	Total	5 (5.7%)	82	87

Note. EE = Emotional Exhaustion; DP = Depersonalisation; PA = Personal Accomplishment

For *motivating style* (represented by the RAI: higher scores indicate greater autonomy support), the two-way ANOVA results were not significant for the main effect of school type, $F(3, 83) = 0.807$, p = n.s., $\eta^2 = .028$, or for the interaction between school type and gender, $F(3, 83) = 1.465$, p = n.s., $\eta^2 = .050$. The means per gender by school type can be seen in Table 39. Table 39 shows that for the total group of educators, the highest RAI score was found for educators in Advantaged schools, and the lowest score was evident for educators in Disadvantaged Black schools. This means that educators in Advantaged schools rated themselves as most autonomy supportive and those in Disadvantaged Black schools rated themselves least autonomy supportive. In terms of gender, female educators in Advantaged and Disadvantaged Coloured schools scored higher than men, whereas the opposite was true in Transitional and Disadvantaged Black schools. But none of these differences were statistically significant.

Table 39

Means and Standard Deviations for the RAI According to School Type and Gender

School type	Gender	*M*	*SD*	N
Advantaged	Male	2.65	1.546	10
	Female	3.76	2.438	28
	Total	3.47	2.272	38
Transitional	Male	3.00	2.113	7
	Female	1.80	2.821	20
	Total	2.11	2.671	27
Disadvantaged Black	Male	2.21	2.226	11
	Female	0.84		1
	Total	2.10	2.159	12
Disadvantaged Coloured	Male	1.76	3.314	5
	Female	3.54	2.157	9
	Total	2.90	2.649	14
Total	Male	2.45	2.146	33
	Female	2.10	2.653	58
	Total	2.78	2.483	91

Note. Range of *M* scores is -18 to +18.

Differences in Learners' Motivational Aspirations by School Type

For Relative Intrinsic Aspirations (RIA), the one-way ANOVA revealed significant differences across school types, $F(3, 934) = 33.331$, $p = .000$, $\eta^2 = .097$ (medium effect size). Levene's test indicated that the assumption of homogeneity of variance was violated and robust test were thus computed, which confirmed the ANOVA results, $F_W(3, 447) = 34.792$, $p = .000$, $F_{BF}(3, 787) = 34.920$, $p = .000$. The Games-Howell procedure was used for post hoc comparisons and results showed several significant differences in RIA. Means per school type are displayed in Table 40. Higher RIA scores indicate that greater importance was assigned to intrinsic aspirations relative to extrinsic aspirations. Learners in Advantaged schools showed the highest mean RIA scores ($M = 1.67$) and this differed significantly from all other school types (all ps = < .01). Learners in Transitional schools ($M = 1.08$) and Disadvantaged Coloured ($M = 1.25$) schools did not differ significantly in their RIA scores.

Learners in Disadvantaged Black schools had the lowest mean RIA scores (M = 0.59) and this differed significantly from all other school types (all ps = .000).

Table 40

Means and Standard Deviations for Relative Intrinsic Aspirations by School Type

AI Scale	School Type	*M*	*SD*	N
Relative Intrinsic Aspirations	Advantaged	1.67 a	1.206	193
	Transitional	1.08 b	1.130	385
	Disadvantaged Black	0.59 c	0.934	187
	Disadvantaged Coloured	1.25 b	0.932	173

Note. Range of *M* scores is -6 to +6. Mean scores followed with the same letters are not significantly different.

It can be seen from Table 40 that all mean RIA scores were positive, meaning that in general, learners attached more importance to intrinsic than to extrinsic goals. It was unclear whether differences in Relative Intrinsic Aspirations were due to differences in the Intrinsic Aspirations scale, the Extrinsic Aspirations scale, or both these scales across school types. For this reason, follow up analyses were performed. Because the data screening procedures described in the first section of this chapter indicated that the Intrinsic Aspirations scale was not normally distributed, it was decided to utilize the non-parametric Kruskall-Wallis test for this scale and to conduct a one-way ANOVA for the Extrinsic Aspirations scale. The Kruskall-Wallis test was not significant $H(3) = 7.342$, p = n.s., implying that no differences existed in Intrinsic Aspirations across school types. The means and standard deviations for the Intrinsic and Extrinsic scales of the Aspirations Index by school type are displayed in Table 41.

For Extrinsic Aspirations, the one-way ANOVA revealed significant differences across school types, $F(3, 967) = 30.554$, $p = .000$, $\eta^2 = .087$ (medium effect size). The assumption of homogeneity of variance was met and Hochberg's GT2 test was used for post hoc comparisons. Results showed several significant differences in Extrinsic Aspirations and means per school type are shown in Table 41. Learners in Advantaged schools evidenced the

lowest mean scores on Extrinsic Aspirations (M = 4.34) and this differed significantly from all other school types (all ps = .000). Learners in Transitional schools (M = 5.05) and Disadvantaged Coloured schools (M = 4.85) did not differ significantly in their Extrinsic Aspirations scores. Learners in Disadvantaged Black schools had the highest mean score on Extrinsic Aspirations (M = 5.37) and this differed significantly from all other school types (all ps < .05). It thus appears that differences in the RIA scores was due to differences in learners' extrinsic aspirations across school type.

Table 41

Means and Standard Deviations for Aspirations Index Scales by School Type

AI Scale	**School Type**	***M***	***SD***	**N**
Intrinsic Aspirations	Advantaged	6.01	0.753	193
	Transitional	6.13	0.716	385
	Disadvantaged Black	5.95	0.877	187
	Disadvantaged Coloured	6.10	0.687	173
	Total	6.06	0.755	938
Extrinsic Aspirations	Advantaged	4.34 *a*	1.165	193
	Transitional	5.05 *b*	1.156	385
	Disadvantaged Black	5.37 *c*	1.166	187
	Disadvantaged Coloured	4.85 *b*	1.104	173
	Total	4.93	1.199	938

Note. Range of *M* scores is 1 to 7.

Differences in Learners' Academic Achievement by School Type

A one-way ANOVA was computed with learners' Grade 12 final examination marks (expressed as a percentage) as the dependent variable and school type as the independent variable. ANOVA results showed significant differences in academic achievement across the four school types, $F(3, 1007) = 226.780$, $p = .000$, $\eta^2 = .403$, and the effect size was large. Levene's Test was significant, indicating that the assumption of homogeneity of variance had been violated. Robust tests of the equality of means confirmed the ANOVA results, $F_W(3, 474) = 205.186$, $p = .000$, $F_{BF}(3, 767) = 227.842$, $p = .000$. The means and standard

deviations per school type are presented in Table 42. For post hoc comparisons, Games-Howell results showed that learners' achievement differed significantly between Advantaged schools (*M* = 62.48%) and all other school types and between Transitional schools (*M* = 49.83%) and all other school types (all *p*s = .000). Disadvantaged Black (*M* = 40.26%) and Coloured (*M* = 40.66%) schools did not differ significantly in learner achievement but showed significantly lower learner achievement than both Advantaged and Transitional schools. From Table 42 it can be seen that learner achievement in Advantaged schools was the highest, followed by Transitional schools, with learners in Disadvantaged Black and Coloured schools showing the poorest academic achievement.

Table 42

Means and Standard Deviations for Academic Achievement by School Type

School Type	***M* (%)**	***SD***	**N**
Advantaged	62.48 a	12.034	206
Transitional	49.83 b	9.961	410
Disadvantaged Black	40.26 c	7.843	215
Disadvantaged Coloured	40.66 c	9.205	180

Note. Mean scores followed with the same letters are not significantly different.

Summary and Integration of Results for Research Question Five

The results of the ANOVAs for all the dependent variables are summarised in Table 43. For *school environment*, the four school types differed in Student Support (large effect), Affiliation (medium effect), Resource Adequacy (large effect), and Work Pressure (large effect). The highest mean scores in all four of these scales were obtained by educators in Advantaged schools. Educators in Disadvantaged Black schools scored lowest on both Affiliation and Work Pressure. Educators in Transitional schools scored lowest on Student Support and those in Disadvantaged Coloured schools scored lowest on Resource Adequacy, followed closely by educators in Disadvantaged Black schools (see Table 34).

For *classroom environment*, there were differences in the Leadership, Helpful/Friendly, and Admonishing scales by school type (all medium effects). Educators in Disadvantaged Coloured schools showed the highest Leadership and Helpful/Friendly scores and those in Transitional schools showed the highest Admonishing scores and the lowest Helpful/Friendly scores. Educators in Advantaged schools scored lowest on Leadership and those in Disadvantaged Black schools scored lowest on Admonishing. There were no statistically significant differences in *educator burnout* across school types. Examination of mean burnout scores per school type, however, indicated that by comparison, Disadvantaged Coloured educators had the most ideal burnout profile and Transitional (highest Depersonalisation) and Advantaged educators had the least ideal profiles.

Regarding educator *motivating style*, although the differences between educators from different school types were not significant, examination of mean scores showed that educators in Advantaged schools rated themselves as most autonomy supportive, and those in Disadvantaged Black schools rated themselves as least autonomy supportive.

For learner *motivational aspirations*, relative intrinsic aspirations differed according to school type (medium effect). Learners in Advantaged schools showed the highest relative intrinsic aspirations scores and those in Disadvantaged Black schools showed the lowest. Learners in Disadvantaged Black schools had the highest Extrinsic Aspirations scores and those in Advantaged schools has the lowest. Finally, learners' *academic achievement* differed by school type and the effect size was large. Learners in Advantaged schools performed the best, followed by those in Transitional schools. Learners in Disadvantaged Black and Coloured schools performed the worst.

The effect sizes for the significant ANOVA results were either medium or large, indicating that in addition to being statistically significant, the differences between schools from the four school types are also practically important.

Table 43

Summary of ANOVA Results for All Dependent Variables

Dependent Variable	Significant Differences	η^2	Effect Size	Highest *M*	Lowest *M*
School Environment (SLEQ)					
Student Support	Yes	.298	Large	A	T
Affiliation	Yes	.086	Medium	A	DB
Professional Interest	No				
Staff Freedom	No				
Participatory Decision Making	No				
Innovation	No				
Resource Adequacy	Yes	.451	Large	A	DC
Work Pressure	Yes	.251	Large	A	DB
Classroom Environment (QTI)					
Leadership	Yes	.097	Medium	DC	A
Helpful/Friendly	Yes	.110	Medium	DC	T
Understanding	No				
Student Responsibility	No				
Uncertain	No				
Dissatisfied	No				
Admonishing	Yes	.084	Medium	T	DB
Strict	No				
Educator Burnout (MBI)					
Emotional Exhaustion	No				
Depersonalisation	No				
Personal Accomplishment	No				
Educator Motivating Style (PIS)					
Resultant Autonomy Index	No				
Learner Motivational Aspirations (AI)					
Relative Intrinsic Aspirations	Yes	.097	Medium	A	DB
Intrinsic Aspirations	No				
Extrinsic Aspirations	Yes	.087	Medium	DB	A
Learner Academic Achievement					
Grade 12 Final Examination Marks	Yes	.403	Large	A	DB & DC

Note. A = Advantaged; T = Transitional; DB = Disadvantaged Black; DC = Disadvantaged Coloured

The four school types appear to be characterised by different levels of the dependent variables. Table 44 provides a summary of the features of the four different school types based on ANOVA results, comparisons of mean scores, as well as descriptive statistics from Chapter 6. From Table 44 the characteristics that differ between school types can be linked to the level of learner performance in each school type. As mentioned, Advantaged schools showed the highest Grade 12 learner achievement (M = 62%). ANOVA results indicated that in comparison to the other three school types, these schools are characterised by the highest levels of (educator) perceived student support, affiliation among staff members, and resource adequacy, all of which indicate a positive school environment. At the classroom level, educators in these schools perceived themselves as displaying the least leadership behaviour, which is an unanticipated result. Learners in these schools reported the highest relative intrinsic aspirations, which are expected to be related to higher academic achievement from an SDT perspective. In terms of descriptive statistics, these schools had the smallest average class sizes (N = 34), they are based in the city and are comprised of mainly White educators and learners. Compared to Disadvantaged Black and Coloured schools, educators in Advantaged schools showed less ideal burnout profiles. Educators in Advantaged schools rated themselves as most autonomy supportive (but this was not statistically significant).

Learners in Transitional schools performed the second best in their Grade 12 final examinations (M = 50%). As expected, ANOVA results showed that resource adequacy was perceived as second highest by educators in these schools compared to the other three school types. Educators in these schools perceived the lowest levels of student support and rated themselves as most admonishing and least helpful and friendly towards learners. Descriptively, these schools consist of mainly White educators serving mostly Black learners, they are based in the city and had an average class size of 48 learners. Educators in these schools had a less optimal burnout profile and showed the highest Depersonalisation scores

(but differences were not statistically significant). Compared to Advantaged schools, the features of Transitional schools are less ideal and this seems to be linked to comparatively lower learner achievement (i.e., 12% lower than Advantaged schools).

Disadvantaged Black and Coloured schools evidenced the poorest academic achievement (*M* = 40% and 41% respectively). ANOVA results highlighted that educators in these schools perceived the lowest resource adequacy, which was expectable. Educators in Disadvantaged Black schools perceived the lowest affiliation with other staff members and the lowest work pressure. They also perceived themselves to be least admonishing. It is interesting that even though educators in Disadvantaged Coloured schools perceived themselves as displaying the greatest amount of leadership, being the most helpful and friendly in the classroom, and having the most ideal burnout profile (descriptively), their learners showed poor academic performance. Learners in Disadvantaged Black schools showed the lowest relative intrinsic aspirations scores which is expectable from an SDT perspective in relation to their poor academic achievement. Descriptively, Disadvantaged Black and Disadvantaged Coloured schools were based in townships rather than the city, had large class sizes (N = 64 and 51) and were comprised of mainly Black and Coloured educators and learners respectively. Educators in Disadvantaged Black schools had the lowest mean relative autonomy support scores (descriptively), which links to their learners' comparatively low relative intrinsic aspirations. In addition to having poor learner achievement in common, other shared features of the two Disadvantaged schools are their location in townships, large class sizes and lowest perceived resource adequacy.

From the ANOVA results and descriptive information displayed in Table 44 an interesting picture emerges of the characteristics of schools from the four school types. These results as well as the results of the other four research questions will be discussed next in Chapter 8.

Table 44

Comparative Characteristics of the Four School Types

	Advantaged	Transitional	Disadvantaged Black	Disadvantaged Coloured
School Level	Highest mean : • Student Support • Affiliation • Resource Adequacy • Work Pressure	• Lowest mean Student Support • Second highest resource Adequacy and Work Pressure	• Second highest mean Student Support Lowest mean: • Affiliation • Work Pressure • Second lowest Resource Adequacy	• Lowest mean Resource Adequacy
	• Predominantly White educators and learners*	• Mainly White educators serving mainly Black learners*	• Majority of Black educators and learners*	• Mainly Coloured educators and learners*
	• Schools based in the city*	• Schools based in the city*	• Schools based in townships*	• Schools based in townships*
Classroom Level	• Lowest mean Leadership	• Highest mean Admonishing	• Lowest mean Admonishing Second Highest mean: • Leadership • Helpful/ Friendly	Highest mean: • Leadership • Helpful/ Friendly
	• Average class size = 34*	• Average class size =48*	• Average class size = 64*	• Average class size = 51*
Educator Level	• Less ideal burnout profile*	• Less ideal burnout profile*		• Most ideal burnout profile*
	• Highest mean Autonomy Support*		• Lowest mean Autonomy Support*	
Learner Level	• Highest Relative Intrinsic Aspirations		• Lowest Relative Intrinsic Aspirations	
	• Best Academic Achievement (*M* = 62.5%)	• Second best Academic Achievement (*M* =49.8%)	• Poorest Academic Achievement (*M* = 40.3%)	• Poorest Academic Achievement (*M* = 40.7%)

Note. * These characteristics are descriptive.

8

Discussion

The broad aim of this study was to investigate factors related to educational effectiveness in South Africa. From an organismic-dialectical/ Lewinian perspective, the interaction of educators and learners (at the person level) with their multi-level educational environments at the community, school, and classroom level was considered. The relationships between school contextual and educator variables were explored and the prediction of educator burnout by school environment was examined. The main indicator of educational effectiveness in South Africa is Grade 12 learners' achievement in the final matriculation examinations. With this in mind, factors related to Grade 12 learner achievement were investigated through SEM and regression analyses and differences in the selected research variables across school types were examined to determine how these relate to differences in learner achievement.

In this chapter, the research findings reported in Chapter 7 are discussed and interpreted in light of relevant theory and research (detailed in the literature survey, Chapters 2 through 5) and against the backdrop of the South African educational context. Findings for each of the five research questions are discussed in chronological order. Theoretical and practical implications of the results are considered and specific recommendations for future research are woven into the text. This is followed by an integrated conclusion, after which final recommendations for future research are given. Finally, the chapter concludes with a discussion of the limitations of the study.

Discussion of the Major Findings of the Study

Research Question One: Relationships between School, Classroom, and Educator Variables

The results for research question one largely confirmed the stated hypotheses. Results for each of the five sub-questions will be addressed in turn.

1A. What is the Relationship between School Environment and Classroom Environment?

In this study, both school environment and classroom environment were measured from the educators' perspective. A relationship was found between certain of the SLEQ scales and two of the QTI scales, namely Dissatisfied and Uncertain (small to medium effect sizes). This implies that educators' perceptions of their school environment were related to their perceptions of how they interacted with learners in the classroom. Specifically, when educators perceived their school environments as being high in student support, affiliation, professional interest, participatory decision making, and innovation (i.e., a more positive school environment), they reported displaying less dissatisfied behaviour towards their learners and vice versa. In addition, the more affiliation they perceived between staff members, the less uncertain behaviour they exhibited in the classroom. Fraser and Rentoul (1982) also found a relationship between school- and classroom environment when using educator perspectives to measure both environments. In contrast, the handful of studies that measured school environment from the educators' perspective and classroom environment from the learners' perspective indicated weak relationships (Aldridge et al., 2011; Dorman et al., 1997). Certain studies have found that educators rate their interpersonal behaviour in the classroom as more favourable compared to their learners' ratings, while others have found that educators are harsher in their ratings than their learners (Khine & Lourdusamy, 2006; Rickards & Fisher, 2000). Further research is thus needed in this regard and it would be interesting to use measures of classroom environment from both the educator and learner perspectives in the same study and compare potential differences in these and how they differentially correlate with school environment.

1B. What is the relationship between educator burnout and classroom environment?

In this study, classroom environment refers specifically to educators' interpersonal behaviour towards their learners in the classroom. The hypothesis that burnout is positively

related to submissive (i.e., uncertain and student responsibility/freedom) and oppositional (i.e., admonishing and dissatisfied) educator behaviour, and negatively related to dominant (i.e., strict and leadership) and cooperative (i.e., helpful/friendly and understanding) educator behaviour, was largely confirmed (small to medium effect sizes). This means that lower levels of educator burnout are related to higher quality educator-learner interactions and vice versa. This is in line with previous research in Australia by Dorman (2003) who found that higher quality classroom psychosocial environments were related to lower levels of educator burnout. These results make sense considering that the symptoms of burnout (e.g., fatigue, a distant attitude to learners, and feelings of inefficiency) are likely to interfere with educators' interpersonal relationships with learners (Maslach & Leiter, 1999). No studies could be found linking the QTI scales (measuring educator interpersonal behaviour) to burnout and these results therefore contribute to the literature in this regard.

1C. What is the relationship between educator burnout and motivating style?

Only one study could be found in the literature which linked burnout and motivating style (Soenens, et al., in press). Results showed that the depersonalisation component of burnout mediated the relationship between pressure from above and a controlling teaching style. In the current study, however, no correlations were significant. The hypothesis that burnout is positively related to a controlling motivating style, and negatively related to an autonomy supportive style, was thus not confirmed.

1D. Do aspects of classroom environment relate to an autonomy supportive motivating style?

This research question was formulated in response to a study by Jang et al. (2010) who recognised the potential value of studying the link between motivating style and educator interpersonal behaviour. Jang et al. suggested that the Understanding scale of the QTI would most closely resemble an autonomy supportive motivating style. The current

researcher further hypothesised that the Leadership and Helpful/Friendly QTI scales would be positively related to autonomy support. Results partially confirmed these hypotheses, in that Leadership and Helpful/Friendly were significantly positively related to the Moderately Autonomy Supportive scale of the PIS, although effect sizes were small. This suggests that educators who tend to display helpful/friendly and leadership behaviour in the classroom tend to be moderately autonomy supportive. No correlations were found between the Highly Autonomy Supportive PIS scale and the three QTI scales. There were no significant correlations for the Understanding scale, and Jang et al.'s contention could thus not be supported. These results are somewhat inconclusive and further research is also needed in this regard.

1E. What is the relationship between school environment and a controlling teaching style?

For this research question it was hypothesised that a more demanding and less supportive school environment is positively related to a more controlling teaching style. Results partly confirmed and partly refuted this hypothesis. As expected, student support (SLEQ) was negatively correlated with both the Highly Controlling (medium effect) and Moderately Controlling (small effect) subscales of the PIS. This implies that when educators perceived learners in their school environments as supportive, they tended to be less controlling in the classroom and vice versa. This corresponds to Reeve's (2009) suggestion that learners' motivation and behaviour influence educators' motivating style. Reeve contends that disruptive and disengaged learner behaviour may encourage educators to adopt a controlling style in response, and this has been supported by other studies (Leroy, 2007; Pelletier et al., 2002; Taylor et al., 2008). In addition to student support, support for innovation was negatively related to the highly controlling subscale (small effect), suggesting that when educators perceived their school environments as non-conducive to innovation, they were more likely to exhibit controlling motivating styles. This is in line with the findings

of Leroy et al. (2007) who showed that when educators experienced their working environments as constraining and restrictive, they were more controlling towards learners. An unexpected result was that work pressure was negatively related to the Highly Controlling PIS scale (small effect). In contrast to this finding, research has shown that when educators perceive greater work pressure, they tend to adopt controlling teaching styles (Leroy et al., 2007; Pelletier et al., 2002; Taylor et al., 2008). It is possible that an extraneous variable could be at work. One possible explanation is that when educators perceive higher work pressure, they tend to disengage from learners as a coping response (i.e., avoidant coping, Carver & Scheier, 1994) or invest less of themselves due to competing priorities, rather than trying to control learners. Further research is needed to clarify whether work pressure is related to controlling teaching in the South African context.

Possible Implications of Findings for Research Question One

Educators' perceptions of a more positive school environment are related to less dissatisfied behaviour towards their learners in the classroom and greater perceived affiliation is associated with less uncertain classroom behaviour. This indicates that what happens at the school level relates to how educators interact with learners in the classroom. Certain aspects of the school environment (i.e., perceptions of student support and innovation) were also related to educators adopting a controlling motivating style, which has been shown to relate negatively to learner achievement (Flink et al., 1990; Soenens et al., in press). Focusing on the creation of positive school environments could thus be a valuable undertaking and principals and heads of departments could use instruments such as the SLEQ to assess their school environments and use the information gained to plan and implement improvements. Even though the average levels of burnout exhibited in the current sample of educators was not problematic according to the American norms provided by Maslach et al. (1996), results showed that higher emotional exhaustion, depersonalisation and reduced personal

accomplishment were related to less adaptive interpersonal behaviour in the classroom. Burnout is thus another potential area for monitoring and remediation if necessary.

Research Question Two: School Environment as Predictor of Educator Burnout

Regression analyses results showed that school environment, as measured by the eight scales of the SLEQ, was able to predict the three components of burnout to varying degrees. From a Job Demands-Resources Model (JD-R) perspective (Demerouti et al., 2001), excessive job demands and a lack of job resources have been shown to relate to higher burnout. The scales of the SLEQ can be conceptualised as either job demands or resources: Work Pressure represents a job demand, and Student Support can be either a demand or resource, with high scores indicating good rapport with learners, and low scores indicating learner disruption and discipline problems. The remaining six scales most closely represent job resources.

For emotional exhaustion, regression results showed that the combined SLEQ scales predicted 40.7% of the variance. Three of the scales were particularly important and accounted for 33.9% of the variance, namely Work Pressure, Staff Freedom and Innovation. Work pressure was the most significant predictor and was positively related to emotional exhaustion, which is expected based on the literature reviewed and directly corresponds to Dorman's (2003) results using the SLEQ. Maslach et al. (2001) highlight that work pressure has consistently been shown to relate to burnout, particularly the emotional exhaustion component. This is in line with research using the JD-R model which suggests that excessive job demands are energy depleting, thus leading to emotional exhaustion (Bakker et al., 2004; Jackson et al., 2006). The South African literature also highlights heavy workload as a major contributor to educator stress and burnout (Hall et al., 2005; van Tonder and Williams, 2009)

Innovation was negatively related to emotional exhaustion, implying that when educators perceive their school environments as open to innovation, they tend to experience

less emotional exhaustion. This result is supported by international findings. Goddard et al. (2005) found that lower support for innovation was related to higher burnout among beginning educators. Bakker et al. (2007) found that innovativeness was an important resource for buffering the effects of job demands (i.e., disruptive learners). Hakanen et al. (2008) found that decreases in job resources, including autonomy, lead to higher burnout over a three year period. It seems that innovation is an important resource in the school environment for buffering emotional exhaustion. Perhaps support for innovation allows educators to use their initiative to solve problems and streamline working practices thereby reducing their job demands.

An unexpected result was that staff freedom was positively related to emotional exhaustion. The staff freedom scale of the SLEQ measures the extent to which educators are free to set rules and guidelines and are free of supervision. It is possible that high scores on staff freedom could indicate a lack of structure in the school environment, which is a demand rather than a resource, but further research is needed to confirm this. It is more likely that the Staff Freedom scale is not sound and does not measure what it is intended to measure (i.e., the extent to which staff are able to operate autonomously without supervision), as indicated by the poor alpha coefficient ($\alpha = .43$) which could not be improved by deleting items. These results therefore need to be interpreted circumspectly.

Regarding the Depersonalisation component, the SLEQ scales were able to predict 23.5% of the variance. Student Support and Participatory Decision Making were the most powerful predictors, jointly explaining 17.4% of the variance, and both scales were negatively related to Depersonalisation. For student support, the results suggest that when learners are cooperative and respectful, educators tend to experience less depersonalisation. In contrast, when learners are disruptive and difficult, educators tend to experience greater depersonalisation, possibly as a coping response to create distance between themselves and

learners. These findings are in line with those of van Tonder and Williams (2009) who reported that educators in South Africa cited negative, disrespectful and poorly disciplined learners as one of the top contributors to stress and burnout. Further South African (Montgomery et al., 2005; Schulze & Steyn, 2007) and international (Antoniou et al., 2006; Griva & Joekes, 2003) research supports these findings regarding disruptive and difficult learners as potential sources of educator stress and burnout.

For participatory decision making, results showed that when educators perceived that they were included in decision making, they tended to experience less depersonalisation and vice versa. Lack of control and non-involvement in decision making have been shown to relate to higher burnout in other studies (Byrne, 1999; Maslach et al., 2001). In the South African context, education policy changes, lack of control over learner discipline, and absence of choice regarding where to work have been cited as sources of educator stress (Hall et al., 2005; Ngidi & Sibanya, 2002; van Tonder & Williams, 2009). When educators feel frustrated and disempowered by lack of involvement in decision making, it is possible that they put cognitive and emotional distance between themselves and their job roles in order to cope with these negative feelings.

Finally, the Affiliation SLEQ scale alone was able to significantly predict 12.1% of the variance in Personal Accomplishment and the relationship was positive. This suggests that when educators feel accepted and supported by their colleagues, they are more likely to experience a sense of professional efficacy. This corresponds to findings in the literature which indicate that lack of social support is related to burnout (Maslach, 1999; Maslach et al., 2001; Otero et al., 2010). Furthermore, co-worker support has been linked specifically to the personal accomplishment dimension (Maslach & Leiter, 2008).

Possible Implications of Findings for Research Question Two

When educators experience burnout, they may become unwilling and unable to perform their teaching roles effectively. Burnout therefore has potentially negative consequences for the quality of teaching which learners receive as well as the wellbeing of educators. The results of research question two show that the school environment is an important predictor of burnout. It is thus pertinent that efforts be made to create positive work environments which buffer against the symptoms of burnout by balancing the daily demands educators face with necessary physical, psychological, social, and organisational resources. In particular, it may be useful to address excessive work pressure (e.g., by reducing unnecessary administrative burdens) to counter emotional exhaustion. Focusing on creating school environments characterised by well-disciplined and supportive learners, affiliation among staff members, openness to innovation and participatory decision making may help to prevent the emergence of burnout symptoms among educators in South Africa. Interventions could be enhanced by tailoring approaches to the unique demands-resources balances within each of the four school types.

Research Question Three: Predicting Learners' Achievement

Do learners' motivational aspirations and average class size per school predict Grade 12 achievement?

As described in Chapter 7, SEM results indicated a good fit for the specified model for learner achievement and all the related hypotheses were confirmed. Learners' relative intrinsic aspirations and the average class size per school were able to predict 34% of the variance in learner achievement. Learners' relative intrinsic aspirations (a person level variable) was positively related to their Grade 12 examination marks, indicating that the more they valued intrinsic goals compared to extrinsic goals, the better they performed academically. This finding is expected based on SDT and related research. Van der Linde

(2006) found that intrinsic aspirations tended to be positively related to achievement, while extrinsic aspirations were negatively related to achievement. Timmermans et al. (2004) found that stronger relative extrinsic aspirations were related to academic maladjustment and several experimental studies have shown that intrinsic versus extrinsic goal framing results in better learning, academic performance, and persistence (e.g., Vansteenkiste, Simons, Lens, Sheldon, et al., 2004; Vansteenkiste, Simons, Lens, Soenens, et al., 2004; Vansteenkiste, Timmermans, et al., 2008). Placing greater emphasis on intrinsic relative to extrinsic values is more likely to lead to the satisfaction of learners' basic psychological needs for autonomy, competence, and relatedness (Kasser, 2002) and may provide a greater sense of autonomy and self-determination (Kasser & Ryan, 1993; Sheldon & Kasser, 1995, 1998), which has also been linked to better performance (Black & Deci, 2000). In contrast, it has been argued that extrinsic goal framing can undermine learning and performance (Vansteenkiste, Lens, et al., 2006) through three micro-mediational processes: (a) shifting attention away from the learning task (Vansteenkiste, Soenens, et al., 2008; Vansteenkiste, Simons, Lens, Soenens, et al., 2004), (b) an interpersonal comparison process (Vansteenkiste, Soenens, et al., 2008), and (c) a rigid and superficial approach to the learning task (Vansteenkiste et al., 2005; Vansteenkiste et al., 2007).

Average class size (a contextual variable) was negatively related to achievement as expected and was a stronger predictor than relative intrinsic aspirations. A review of the literature indicated mixed results regarding class size, with certain authors finding class size to be predictive of achievement (Ehrenberg et al., 2001; Finn & Achilles, 1999; Jepsen & Rivkin, 2009) and others finding only weak relationships (Bhorat & Oosthuizen, 2009; van der Berg, 2008; van der Berg & Burger, 2003). Results for research question three correspond to those of the first mentioned group of researchers and support the contention that large class sizes may be detrimental to learner performance. As mentioned in Chapter 5, class size may

be a proxy for educator quality and school type in the South African context, because there is a greater concentration of poorly qualified educators in disadvantaged Black and Coloured schools, which have larger class sizes (see Table 12 in Chapter 6). Bearing this in mind and based on previous research (Ehrenberg et al., 2001), it can be hypothesised that a combination of factors associated with large class sizes relate to lower learner performance: (a) less individual learner attention, (b) greater difficulty maintaining discipline, (c) use of different instructional practices and lower efficacy of instructional practices which work in smaller classes, (d) less qualified and lower quality educators, (e) socioeconomically disadvantaged school contexts.

In addition to predicting achievement, average class size was able to predict 6% of the variance in relative intrinsic aspirations, and the relationship was negative, as hypothesised. This means that learners from schools with larger average class sizes tended to place less relative importance on intrinsic versus extrinsic aspirations than those in schools with smaller average class sizes. From Table 41 it can be seen that intrinsic aspirations did not differ across school types, but that extrinsic aspirations did. It can thus be hypothesised that large class sizes were associated with learners placing greater emphasis on extrinsic aspirations (rather than less emphasis on intrinsic aspirations). This corresponds to Kasser's (2002) proposal that contexts which thwart basic psychological need satisfaction (such as large class sizes, considering the features described earlier) foster an external focus and the endorsement of extrinsic values as compensatory goals.

Possible Implications of Findings for Research Question Three

One of the goals of the Department of Basic Education (2011a) is to improve learner performance. This study has shown that learners' motivational aspirations and the average size of the classes in which they are educated represent important predictors of their Grade 12 performance. Class size was the more important predictor and interventions in this area may

bear fruit. It is recognised that decreasing class size by employing more educators is an expensive endeavour which is not economically feasible, given that the education budget (the majority of which is devoted to educator salaries) is already high relative to total government spending (R189 billion for 2011, representing 21% of the total budget). Employing more educators, however, is not the only way to reduce class size. Gustafsson and Morduchowicz (2008) reported that poor within-school allocation of teacher time is a problem in South Africa, and this area can thus be targeted by policy makers to allow improvements in class sizes. In addition to reducing class sizes, educator training on the most effective instructional practices for large classes may be beneficial. Technology could additionally be utilised to assist instruction in large classes and to manage paperwork and time schedules. Of course, a necessary precondition is the provision of technology (e.g., computers, projectors and printers) and essential ICT training for educators. In 2003, only 26.5% of schools in South Africa had access to computers for teaching and learning (DoE, 2003b) and there is room for development in this area.

Improvements in learning contexts through reductions in class sizes, more effective educator time allocation and/or more effective and appropriate instructional practices are likely to promote greater satisfaction of learners' basic psychological needs. This, in turn, could encourage learners to adopt stronger intrinsic versus extrinsic life goals, which may promote better learning and performance.

Research Question Four: School Type as Predictor of Learner Achievement

Can school type predict learner achievement?

Distinct school types can be identified in South Africa along racial and economic lines, and specific definitions of the four school types (viz., Advantaged, Transitional, Disadvantaged Black, and Disadvantaged Coloured) included in this study are provided in Chapter 3.

A unique contribution of the current study was the refinement of the two commonly referenced school types (i.e., advantaged versus disadvantaged) into four more specific school types. The definition and inclusion of Transitional schools allowed for post-Apartheid social change to be taken into consideration and distinguishing between Disadvantaged Black and Disadvantaged Coloured schools allowed potential differences between them to be investigated. Descriptive statistics (see Chapter 6) on the racial composition of educators and learners in the different school types as well as the average class sizes corresponded to the definitions specified.

Regression results for research question four showed that school type predicted 40.3% of the variance in Grade 12 learners' final examination results, which represents both a statistically significant and practically important result. This means that the type of school that learners attend is strongly related to how well they will perform in their matriculation examinations and this has far reaching consequences for their futures (e.g., whether or not they can enrol for higher education). As explained in Chapter 7, dummy variables were used in the regression analysis and Advantaged schools were selected as the reference group. As school type moved from Advantaged, to Transitional, to Disadvantaged Coloured, and Black schools, learner achievement decreased. Correspondingly, mean Grade 12 examination results indicated that learners from Advantaged schools evidenced the highest academic achievement (62.5%), followed by those in Transitional schools (49.8%). Learners in Disadvantaged Coloured (40.7%) and Black (40.3%) schools did not differ significantly from each other in achievement (see research question five results) and performed the worst in the final Grade 12 examinations. These results confirm the findings of several other relevant South African studies (Bhorat & Oosthuizen, 2009; Gilmour & Soudien, 2009; Howie et al., 2008; Taylor & Yu, 2009; van der Berg, 2005; van der Berg and Burger, 2003), but refine them by showing that Transitional schools perform better than the two Disadvantaged school

types, but worse than Advantaged schools. To avoid repetition, the specific characteristics of the four schools types that may be relevant to learner achievement will be discussed in detail with the results of research question five, as will potential implications of the findings.

Research Question Five: Differences by School Type

Do different types of schools (i.e., Advantaged, Transitional, Disadvantaged Black, and Disadvantaged Coloured) differ in their school environments, classroom environments, level of educator burnout, educator motivating styles, learner motivational aspirations, and level of learner achievement?

As mentioned, Grade 12 learner achievement in the matriculation examinations is the primary gauge of how well the education system is performing in South Africa. The results for research questions three and four showed that learners' motivational aspirations, the average class size per school, and the type of school attended were significant predictors of Grade 12 final examination achievement. The results for research question five supplement this information by identifying differences between school types with different levels of learner achievement. Results revealed that the four school types differed in terms of the school contextual variables and learner variables included in the study. Differences in school environment, classroom environment, learners' motivational aspirations and learners' achievement were evident across school types. No significant differences, however, were found for the educator variables of burnout and motivating style, although further exploration of the burnout data using American norms did render some interesting findings. The results for research question five will be discussed per school type according to Table 44, which summarises the ANOVA results and supplements them with descriptive statistics in order to characterise each school type in comparison to the other school types. By comparing differences in learner achievement to differences in the remaining research variables, it is

hoped that a more comprehensive picture can be rendered of the factors that are important for Grade 12 learner achievement in South Africa.

Comparative Characteristics of Advantaged Schools

Learners in Advantaged schools showed the highest Grade 12 performance (*M* = 62.5%). This may be related to the characteristics which comparatively differed in these school types. For school environment, educators in Advantaged schools reported the highest student support, closely followed by those in Disadvantaged Black schools, with educators in Transitional and Disadvantaged Coloured schools reporting significantly less student support. Educators in Advantaged schools also reported the highest mean scores for affiliation between staff members and this was significantly higher than the levels of affiliation reported by educators in Disadvantaged Black schools It seems that Advantaged school environments are characterised by comparatively positive relationships between staff members themselves and also between educators and learners, which may be aided by a historically embedded culture of discipline and respect in these schools as well as educators and learners being from mostly the same racial (and associated cultural) backgrounds. Educators from Advantaged schools perceived the highest mean resource adequacy. This was expectable considering the legacy of greater Apartheid educational spending on these schools and the higher school fees charged by Advantaged schools to supplement current government spending.

For classroom environment, educators in Advantaged schools reported a similar degree of leadership to those in Transitional schools, but less leadership behaviour compared to Disadvantaged Black and Disadvantaged Coloured educators. The Leadership scale of the QTI measures the extent to which the educator "leads, organises, gives orders, determines procedure and structures the classroom situation" (Newby et al., 2001, p. 4). The reasons for the differences in perceptions of leadership behaviour are not clear, but two possible explanations can be hypothesised. Firstly, educators in Advantaged schools had the highest

mean burnout scores (although differences were not statistically significant) and the highest proportion of educators above the burnout norms. Results for research question 1B showed that educators with higher levels of burnout tended to exhibit less leadership in the classroom, possibly due to the symptoms of burnout interfering with educators' interpersonal behaviour. A second and possibly more likely explanation is that educators in Disadvantaged Black and Disadvantaged Coloured schools exhibit greater leadership in the classroom in response to their disadvantaged learners' greater need for structure and direction. A review of research on improving schools in disadvantaged areas by Muijs, Harris, Chapman, Stoll, and Russ (2004) indicated that learners from low SES backgrounds tend to need more structure, encouragement and instruction from educators.

In terms of educator burnout, no statistically significant differences were found between educators from the four school types. Using American norms provided by Maslach et al. (1996), it was determined that Advantaged schools had the highest percentage of educators scoring above the norms for Depersonalisation. Along with Transitional schools, educators in Advantaged schools showed the least ideal burnout profiles. Since burnout is a response to prolonged exposure to work stressors Maslach (2003), it is possible that educators in Advantaged and Transitional schools experience greater work demands. Perhaps these educators experience more demands on their time for extra-curricular activities (e.g., sport, arts and culture) and more pressure to perform due to more effective school management systems and performance monitoring. There were, however, no statistically significant differences in mean burnout dimension scores across school type, as mentioned.

There were also no statistically significant differences between school types for educators' motivating styles, but descriptively, educators in Advantaged schools had the highest mean scores for relative autonomy support. It is theoretically interesting to note that in accordance with SDT, educators in Advantaged schools rated themselves highest in terms

of supporting learners' needs for autonomy, and at the same time, Advantaged learners showed the strongest orientation towards relative intrinsic aspirations. In terms of learners' motivational aspirations, the finding that Advantaged learners showed the highest relative intrinsic aspirations makes sense considering that Advantaged school environments (characterised by comparatively higher student support, staff affiliation and resource adequacy) are more likely to provide opportunities for basic psychological need satisfaction. Basic need satisfaction, in turn, is likely to orient learners towards adopting stronger intrinsic versus extrinsic aspirations (Kasser, 2002). Future research could measure learners' perceptions of the school environment and then perform multiple regression analyses to determine whether school environment can predict learners' aspirations.

Comparative Characteristics of Transitional Schools

Transitional schools are the result of post-apartheid social change and these schools have the unique characteristic of mainly White educators serving mainly Black (and relatively disadvantaged) learners within a previously advantaged school setting. Transitional learners performed below Advantaged learners, but above Disadvantaged Black and Coloured learners in the Grade 12 final examinations (M = 49.8%). It is possible that the manner in which characteristics of these schools differed from the other school types relates to this differential learner achievement. Results showed that for school environment, educators in Transitional schools perceived the lowest student support. This is an interesting finding in light of the cultural differences between the White educators and Black learners in these schools. In South Africa, the White population is of mainly European descent and, similar to other Western cultures, tends to be individualistic (Eaton & Louw, 2000). Individualistic cultures emphasise personal needs and goals over group needs and goals, individual achievement, and personal responsibility and independence (Davila de Leon & Finkelstein, 2011; Triandis, McCusker, & Hui, 1990). In contrast, African cultures are

traditionally collectivistic (Eaton & Louw, 2000; Triandis et al., 1990). Collectivistic societies are characterised by cohesiveness, interdependence and strong group identification. Group needs and goals take precedence over individual needs and goals and behaviour is regulated by group norms and perceived duties and obligations (Davila de Leon & Finkelstein, 2011; Triandis et al., 1990). It is possible that these cultural differences present barriers to interpersonal interactions between educators and learners in Transitional schools. The mean perceived level of resource adequacy in Transitional schools was second highest, corresponding to the definitions of the four school types. Transitional schools were previously advantaged school settings under Apartheid and still benefit from the higher spending on infrastructure during that time. In addition, school fees at Transitional schools are higher than those at the Disadvantaged schools.

At the classroom level, educators in Transitional schools perceived themselves as most admonishing towards learners, particularly when compared to educators in Disadvantaged Black schools. The Admonishing scale of the QTI measures the extent to which the educator "gets angry, express[es] irritation and anger, forbids and punishes" (Newby et al., 2001, p. 4). It is possible that the lower student support perceived by educators in Transitional schools is related to their comparatively greater admonishing interpersonal behaviour in the classroom. Newby et al. (2001) suggest that educator and learner perceptions of the classroom environment are reciprocal, and in a similar manner, it is probable that educators' and learners' interpersonal behaviour is reciprocal. For example, on the one hand, poorly disciplined learners could trigger admonishing educator behaviour, and on the other hand, admonishing educators could stimulate uncooperative learner behaviour. Culture has been shown to relate to the nature of the classroom environments that educators create (Khine & Fisher, 2004) as well as the manner in which learners interpret and perceive educators' interpersonal behaviour (Fisher et al., 2006; Koul & Fisher, 2005). Further research on the

role of culture in teaching and learning in Transitional schools could thus prove beneficial. Another factor to consider is that average class sizes in Transitional schools (M = 48) were larger than those in Advantaged schools, and maintaining learner discipline could be more difficult in larger classes.

Along with educators in Advantaged schools, those in Transitional schools showed the least ideal burnout profile, evidenced the highest mean depersonalisation scores (although differences were not statistically significant). Transitional schools had the highest percentage of educators above the norm for Emotional Exhaustion (33%) and second highest for Depersonalisation (37.5%). The cultural differences between educators and learners, lower student support, greater admonishing behaviour in the classroom, and reasonably large class sizes experienced by Transitional educators represent demands which could contribute to their less ideal burnout profiles.

Comparative Characteristics of Disadvantaged Black Schools

As mentioned, Disadvantaged Black schools account for 80% of learner enrolment in South Africa and the quality of education received by learners in these schools is thus critical to national development (van der Berg, 2008). Along with Disadvantaged Coloured learners, Disadvantaged Black learners showed the poorest Grade 12 achievement (M = 40.3%). For school environment, educators in Disadvantaged Black schools perceived the second highest student support and levels were similar to those in Advantaged schools. Student support refers to the degree of rapport between educators and learners and the level of responsibility and discipline that learners show. In Disadvantaged Black schools, rapport could be promoted by the fact that both learners and educators come from similar collectivistic cultural backgrounds. In addition, maintaining learner discipline could be facilitated by the fact that more educators in these schools tend to be male (see Table 9 in Chapter 6), and African culture is traditionally patriarchic (Kabwila-Kapasula, 2009). An interesting finding was that

whereas levels of perceived student support in Disadvantaged Black schools were similar to those in Advantaged schools, the perceived affiliation between staff members was significantly lower in Disadvantaged Black schools, indicating that Disadvantaged Black educators may be less encouraging and accepting towards each other. One possible explanation for this is the relative overrepresentation of male educators in Disadvantaged Black schools – male educators have been shown to perceive less affiliation in the school environment than female educators (Huang, 2001). Compared to educators in all other school types, Disadvantaged Black educators perceived the lowest work pressure in their school environments. Two possible explanations can be put forward for this finding. Firstly, poor school management systems have been noted in Disadvantaged Black schools (Gustafsson, 2007; van der Berg, 2005), and this could mean that educators are not well monitored and thus experience less pressure to perform. Secondly, lower work pressure could be experienced due to a poor culture of teaching present in Disadvantaged Black schools. Problematic educator motivation and discipline has been documented in these schools (Lethoko et al., 2001), as well as frequent educator tardiness (Gustaffson, 2007). As expected, Disadvantaged Black educators perceived similarly low levels of resource adequacy to Disadvantaged Coloured educators. The Disadvantaged educators perceived significantly less resource adequacy than Advantaged and Transitional educators, indicating that the legacy of Apartheid is enduring in these schools despite redressive educational resource shifts. In addition to lack of resources, poor management of resources could also be a contributing factor (Hoadley, Christie, & Ward, 2009).

At the classroom level, along with Disadvantaged Coloured educators, Disadvantaged Black educators reported relatively high levels of leadership behaviour compared to Advantaged educators. Disadvantaged Black educators also reported the lowest admonishing scores and these were significantly lower than those for Transitional educators. It is possible

that because Disadvantaged Black educators perceived relatively high levels of student support, they perceived less need to be admonishing towards learners in the classroom. It is notable that even though average class sizes were the largest in Disadvantaged Black schools (*M* = 64), these educators perceived good rapport with learners and reported that they showed relatively high leadership behaviour and less admonishing behaviour in the classroom. This could potentially be explained by the collectivistic cultural propensity towards group harmony and cooperation (Davila de Leon & Finkelstein, 2011; Triandis et al., 1990) and educators accommodating for disadvantaged Black learners' greater needs for structure and support (Muijs et al., 2004).

Regarding educator motivating style, Disadvantaged Black educators had the lowest scores for relative autonomy support (but differences were not statistically significant). Once again, as a matter of purely theoretical interest, the lowest educator autonomy support corresponded to the lowest relative intrinsic learner aspirations in Disadvantaged Black schools. Learners in Disadvantaged Black schools attached the greatest importance to extrinsic aspirations compared to those in the other school types. This corresponds to van der Linde's (2006) findings and supports Kasser's (2002) proposition that contexts which frustrate basic need satisfaction, such as disadvantaged environments, may foster greater valuing of extrinsic goals.

Comparative Characteristics of Disadvantaged Coloured Schools

Similarly to Disadvantaged Black learners, Disadvantaged coloured learners showed poor Grade 12 achievement (*M* = 40.7%). Disadvantaged coloured educators perceived their school environments as collegial and reported similar levels of affiliation between staff members as educators in Transitional and Advantaged schools. They also reported similar levels of work pressure as educators in Advantaged and Transitional schools (which were significantly higher than in Disadvantaged Black schools). Compared to Advantaged and

Transitional schools, Disadvantaged Coloured educators perceived the lowest resource adequacy along with Disadvantaged Black schools, and this reflects the lingering inequalities instituted by the Apartheid regime.

In terms of classroom environment, Disadvantaged Coloured educators reported the highest mean leadership and helpful/friendly scores, which were similar to scores for Disadvantaged Black schools, possibly because both cultures tend to be collectivistic. The same argument as outlined previously may apply here regarding educators' compensatory responses to their disadvantaged learners' greater need for structure and encouragement. Another possibility is that Disadvantaged Black and Disadvantaged Coloured educators reported more favourable interpersonal behaviour in the classroom due to social desirability response biases, but no South African research could be found to support this.

Integrated Summary and Possible Implications of Findings for Research Question Five

By comparing differences in the characteristics of the best performing and worst performing schools, it has been possible to identify factors which may be important for Grade 12 Achievement in South Africa.

Learners in Advantaged schools performed better (M = 62.5%) than learners from all other school types. The characteristics which distinguished Advantaged schools from the other school types may thus be important for better learner achievement. To this end, it seems that schools based in cities rather than townships and school environments characterised by comparatively higher student support, affiliation between staff members, resource adequacy, and greater pressure to get work done are related to higher learner achievement. Similarly, at the classroom level, smaller average class sizes (M = 34) and moderately high levels of leadership (rather than very strong leadership) may relate to better achievement. Finally, higher relative intrinsic learner aspirations appear to be related to better achievement, corresponding to research question three results.

Learners in Transitional schools performed second best (M = 49.8%) in their final Grade 12 examinations. Compared to Advantaged schools, educators in Transitional schools perceived similar levels of resource adequacy and work pressure, evidenced similar burnout profiles, and schools were also located in the city rather than townships. These factors could relate to the higher performance in Transitional schools compared to the Disadvantaged schools (roughly 9% higher achievement on average). In contrast to Advantaged schools, Transitional schools had larger average class sizes, educators reported lower support from learners and higher admonishing behaviour towards learners in the classroom. These factors, along with the cultural differences between educators and learners, could relate to the lower achievement in Transitional schools compared to Advantaged schools (12.7% lower on average). Further research is needed to determine whether cultural differences in Transitional schools play a role in the less ideal educator-learner interactions reported in this study. If this is the case, cultural awareness interventions could be implemented to promote the creation of more positive school and classroom environments in these schools.

Compared to Advantaged schools, educators in Disadvantaged Black schools reported lower resource adequacy, poorer affiliation between staff members and lower work pressure and Disadvantaged Black learners had the lowest relative intrinsic aspirations. In addition, learners and educators were mainly Black, average class sizes were considerably larger than those in Advantaged schools, and schools were based in townships rather than cities. It seems that these factors may be related to the poorer academic achievement of Grade 12 Disadvantaged Black learners (22.2% lower than Advantaged learners). Even though educators in Disadvantaged Black schools reported relatively high student support, strong leadership in the classroom and lower admonishing behaviour, the learners in these schools still performed poorly. This could imply that even though educators in these schools make an effort to establish high quality psychosocial learning environments due to cultural values and

compensation for their learners' disadvantaged backgrounds, it is not having the expected positive effect on their learners' achievement. This could be due to overwhelming barriers, such as poverty, violence, and the impact of HIV/AIDS (Dass-Brailsford, 2005; Wood, 2009), which cannot be compensated for by educators' interpersonal behaviour alone.

Similarly to Disadvantaged Black learners, Disadvantaged Coloured learners showed poor Grade 12 achievement (M = 40.7%) and this was significantly worse than the achievement of Advantaged (21.5% lower) and Transitional (9.1% lower) learners. Besides having similar levels of Grade 12 learner achievement to Disadvantaged Black schools, Disadvantaged Coloured schools had several other characteristics in common with these schools: Educators reported the lowest resource adequacy, higher leadership behaviour and helpful/friendly behaviour than Advantaged and Transitional schools, and schools were based in the townships rather than in the city. Class sizes in Disadvantaged Coloured schools, however, were smaller than those in Disadvantaged Black schools and were similar to those in Transitional schools. Learners' motivational aspirations were also more similar to those in Transitional schools, with Disadvantaged Coloured learners showing stronger relative intrinsic aspirations that those in Disadvantaged Black schools. Despite this, Disadvantaged Coloured learners did not perform much better than Disadvantaged Black learners. This could mean that the low resource adequacy and location of schools in the townships have stronger relationships to achievement for these learners than classroom interpersonal dynamics.

The results from research question five indicate that interventions to improve psychosocial aspects of the school environment may be important not only for mitigating educator burnout (as indicated by research question two results), but also for learner achievement. In particular, the areas of student support, staff affiliation, resource adequacy, and work pressure may be important. Assessment of the school environment using instruments such as the SLEQ, which is economical to administer in terms of time and

resources, could be included in the DoE's school assessment protocols to identify areas in need of improvement. Tailored interventions could then be implemented by school management with assistance from local education departments. This could be especially important for Transitional schools, where cultural differences between educators and learners may present additional challenges to the creation of positive school environments. It may be beneficial to train school principals to recognise problems in the school environments and to take a more active role in shaping school environments which are conducive to better educator and learner performance.

Conclusion

There have been substantial advances in the South African education system since 1994. Almost universal access to education has been achieved and inequalities in educational spending have been largely redressed. Unfortunately, the quality of the schools which learners from different school types have access to remains disturbingly unequal (Taylor & Yu, 2009; van der Berg, 2005). Whereas the impact of school resources on learners' educational performance is well documented (Bhorat & Oosthuizen 2009; Gilmour & Soudien 2009; Howie et al., 2008; van der Berg & Burger, 2003), the specific variables related to learner achievement in different school types, particularly disadvantaged schools, are not fully accounted for (van der Berg, 2005). This study has contributed to broadening the knowledge about which factors are important for educational effectiveness in South Africa. As expected, results confirmed the critical role of school type in Grade 12 learners' achievement and showed that the type of schools which learners attended could account for 40.3% of their matriculation examination results. As expected, Advantaged schools performed the best and Disadvantaged Black and Disadvantaged Coloured schools performed the worst. This study added to the literature by showing that Transitional schools, which have emerged since the end of Apartheid, performed below Advantaged schools but above the two

Disadvantaged school types. In addition to school type, the average class size per school and the extent to which learners valued intrinsic rather than extrinsic life goals were also shown to be important predictors of achievement. By examining the differences between the four school types included in this study, certain aspects of the school environment were identified as important for learner achievement, namely, higher student support, greater staff affiliation, better resource adequacy and higher work pressure perceived by educators. Educators' perceptions of their school environments were related to their behaviour towards learners in the classroom and were able to predict the extent to which they experienced burnout symptoms. It therefore appears that the quality of the school environment is critical for both educator burnout and learners' achievement. Assessment, intervention and monitoring of the school-level environment could thus be beneficial to enhancing educational effectiveness. The school environment embodies the school as an organisation and is closely related to the administrative and managerial functionality of schools, as well as to school culture. Resource adequacy is only one aspect of the school environment, and improving the quality of the psychosocial environment in which educators and learners function is more a matter of cultural and attitudinal shift than of increased financial investment. This cultural shift, from complacency to action and excellence, needs to be modelled by the national and provincial education departments and communicated to School Governing Bodies and principals so that a true culture of teaching and learning can take root in South African schools. If this does not happen, the potential of education to foster social upliftment will not be realised.

Limitations of the Study

This study is subject to the limitations inherent in all cross-sectional, self-report research designs. Because cross-sectional designs do not allow for extraneous variables to be controlled and because the data were collected at one point in time, no causal inferences can be made from the results, which are correlational in nature. All data in this study were

collected via self-report questionnaires. Although an effort was made to select questionnaires which have been shown to be reliable and valid and to provide questionnaires in learners' home languages to enhance comprehension, this method of data collection is nevertheless susceptible to common method biases (Podsakoff et al., 2003) which threaten the validity of the measuring instruments. Certain scales showed low alpha-coefficients, most of which could be improved by deleting selected items, but this was not possible for the Staff Freedom scale of the SLEQ, and results regarding this scale can therefore need to be interpreted circumspectly.

Another limitation of this study was that information about the school environment and classroom environment was collected only from the educators' perspective. Learners' perspectives of these environments may have differed and it would have been useful to have data from both educator and learner perspectives for comparative purposes. Finally, the sample size in this study was not large enough for multi-level analyses, which would have been an ideal statistical technique to evaluate the multi-level educational data.

Final Recommendations for Future Research

In addition to the specific recommendations for further research given within the discussion of each research question, it is recommended that the interplay between the educational variables in this study be investigated further through multi-level analysis. This will involve obtaining a much larger sample of educators and learners and will require greater financial investment, but based on the current findings, this is likely to be worthwhile. In addition, measuring the school and classroom environment from both the educator and learner perspective is recommended so that these can be compared. It is also suggested that questionnaires be designed which are tailored to the unique multi-cultural South African context to allow for enhanced internal consistency. Finally, the role of school principals and School Governing Bodies in educators' and learners' perceptions of the school environment

is an important avenue for future research, as is the efficiency of school management at the school and provincial levels.

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Appendix A

Letter of Permission from the Free State

Department of Education

FREE STATE PROVINCE

Enquiries : Mr W B van Rooyen
Reference no. : 16/4/1/4-2005

Tel :(051) 404 8077
Fax :(051) 4048074

2005-02-15

Dr. A Grobler
P.O.Box 28318
Danhof
9310

Dear Dr. A Grobler

REGISTRATION OF RESEARCH PROJECT

1. This letter is in reply to your application for the registration of your research project.

2. Research topic:- **The transition from secondary education to university in South Africa: A longitudinal psycho-social analysis.**

3. Your research project has been registered with the Free State Education Department and you may conduct research in the Free State Department of Education under the following conditions:

   3.1 Educators and learners, participate voluntarily in the project.
   3.2 The names of all schools, educators, and learners involved remain confidential.
   3.3 The questionnaires are completed and the interviews are conducted outside normal tuition time.
   3.4 This letter is shown to all participating persons.
   3.5 Suggested changes are considered.

4. You are requested to donate a report on this study to the Free State Department of Education. It will be placed in the Education Library, Bloemfontein. It will be appreciated if you would also bring a summary of the report on a computer disc, so that it may be placed on the website of the Department.

5. Once your project is complete, you may be invited to present your findings to the relevant persons in the FS Department of Education. This will increase the possibility of implementing your findings wherever possible.

6. You are requested to confirm acceptance of the above conditions in writing to:

   The Head: Education, for attention: CES: IRRISS
   Room 1204, Provincial Government Building
   Private Bag X20565, BLOEMFONTEIN, 9301

We wish you every success with your research.

Yours sincerely

WB van Rooyen
CES: IRRISS

Appendix B

Questionnaires Administered to Learners

- Biographical Questionnaire
- Aspirations Index

BIOGRAPHICAL QUESTIONNAIRE

Dear Learner

Thank you for participating in this research study. Your cooperation is greatly appreciated. This study forms part of a larger, international research project which will take place over a three-year period. The aim of this study will be to investigate learners' transition from secondary to higher education. In order for us to follow up on your educational transition, we request that you provide your name and contact details in addition to other relevant biographical information in the following questionnaire. Please be assured that your name or identifying particulars will not be reported in the research findings and your participation will thus remain completely anonymous and confidential.

Please complete the following questionnaire by filling in the relevant details where space has been provided or by ENCIRCLING the appropriate code/number (e.g. 1, 2, 3 etc.) in the column next to the various given options.

					OFFICE USE
1.	**First name/s:**				1 *1*
2.	**Surname:**				*2* *3* *4* *5*
3.	**School:**	Brebner Secondary School	01		
		C & N Meisieskool Oranje	02		
		Commtech	03		
		Dr. Blok	04		
		Ikaelelo	05		
		Navalsig	06		
		Petunia	07		
		Sand Du Plesiss	08		
		St. Andrew's	09		
		St. Bernard's	10		*6-7*
4.	**Grade:**	Grade 11	1		
		Grade 12	2		*8*
5.	**Age in years, for example 17:**	1 7			*9-10*
6.	**Gender:**	Male	1		
		Female	2		*11*
7.	**Home Language: (i.e. language most frequently spoken at home – circle only one)**	English	1		
		Afrikaans	2		
		Sotho	3		
		Xhosa	4		
		Tswana	5		*12*
		Other (please specify): ----------	6		*13-14*
8.	**Ethnic Orientation:**	Black	1		
		White	2		
		Coloured	3		*15*

		Asian	4	
		Indian	5	
9.	**Home Address:**	---------- ---------- ---------- ---------- Postal Code:		
10.	**Telephone Number (Home):**	Code:		
11.	**Cell phone Number**			
12.	**Contact number of a close relative or friend:**	Code:		

Aspirations Index

Everyone has long-term goals or aspirations. These are the things that individuals hope to accomplish over the course of their lives. In this section, you will find a number of life goals, presented one at a time, and we ask you to answer this question: *How important is this goal to you?* Please use the following scale in answering how important each life goal is to you:

Not at all			Moderately			Very
1	2	3	4	5	6	7

Please answer the following questions by ENCIRCLING the appropriate number from 1 – 7.

	How important is this goal to you?	**Not at all**			**Moderately**			**Very**
1.	To be a very wealthy person.	1	2	3	4	5	6	7
2.	To grow and learn new things.	1	2	3	4	5	6	7
3.	To have my name known by many people.	1	2	3	4	5	6	7
4.	To have good friends that I can count on.	1	2	3	4	5	6	7
5.	To successfully hide the signs of aging.	1	2	3	4	5	6	7
6.	To work for the betterment of society.	1	2	3	4	5	6	7
7.	To have many expensive possessions.	1	2	3	4	5	6	7
8.	At the end of my life, to be able to look back on my life as meaningful and complete.	1	2	3	4	5	6	7
9.	To be admired by many people.	1	2	3	4	5	6	7
10.	To share my life with someone I love.	1	2	3	4	5	6	7
11.	To have people comment often about how attractive I look.	1	2	3	4	5	6	7
12.	To assist people who need it, asking nothing in return.	1	2	3	4	5	6	7
13.	To be financially successful.	1	2	3	4	5	6	7
14.	To choose what I do, instead of being pushed along by life.	1	2	3	4	5	6	7
15.	To be famous.	1	2	3	4	5	6	7
16.	To have committed, intimate relationships.	1	2	3	4	5	6	7
17.	To keep up with fashions in hair and clothing.	1	2	3	4	5	6	7
18.	To work to make the world a better place.	1	2	3	4	5	6	7
19.	To be rich.	1	2	3	4	5	6	7
20.	To know and accept who I really am.	1	2	3	4	5	6	7
21.	To have my name appear frequently in the media.	1	2	3	4	5	6	7
22.	To feel that there are people who really love me, and whom I love.	1	2	3	4	5	6	7
23.	To achieve the "look" I've been after.	1	2	3	4	5	6	7
24.	To help others improve their lives.	1	2	3	4	5	6	7
25.	To have enough money to buy everything I want.	1	2	3	4	5	6	7
26.	To gain increasing insight into why I do the things I do.	1	2	3	4	5	6	7
27.	To be admired by lots of different people.	1	2	3	4	5	6	7
28.	To have deep enduring relationships.	1	2	3	4	5	6	7
29.	To have an image that others find appealing.	1	2	3	4	5	6	7
30.	To help people in need.	1	2	3	4	5	6	7

Appendix C

Questionnaires Administered to Educators

- Biographical Questionnaire
- School-Level Environment Questionnaire
- Questionnaire on Teacher Interaction
- Problems in School Questionnaire

BIOGRAPHICAL QUESTIONNAIRE

Please complete the following questionnaire by filling in the relevant details where space has been provided or by ticking (✓) the appropriate block next to the various given options.

1.	**School:**	Brebner Secondary School	
		C & N Meisieskool Oranje	
		Commtech	
		Dr. Blok	
		Ikaelelo	
		Navalsig	
		Petunia	
		Sand Du Plesiss	
		St. Andrew's	
2.	**Age:**	----------	
3.	**Gender:**	Male	
		Female	
4.	**Home Language:** **(i.e. language most frequently spoken at home – mark only one)**	English	
		Afrikaans	
		Sotho	
		Xhosa	
		Tswana	
		Other (please specify): ----------	
5.	**Race:** **(For research purposes only)**	Black	
		White	
		Coloured	
		Asian	
		Indian	
6.	**Highest Qualification:**	---------- ---------- ----------	
7.	**How many years have you worked as a teacher?**	----------	
8.	**How many years have you worked at your present school?**	----------	
9.	**What position/s do you currently hold at your school?**	---------- ----------	

Please provide us with details about the subjects you teach by completing the table below:

10.	Subjects Taught	Grade (11 &/or 12)	Class Size	Year Taught (2005 &/or 2006)

School-Level Environment Questionnaire (SLEQ)
Actual Form

There are 56 items in this questionnaire. They are statements to be considered in the context of the school in which you work and your actual working environment.

Think about how well the statements describe your school environment.

Indicate your answer by circling:

SD if you *strongly disagree* with the statement;
D if you *disagree* with the statement;
N if you neither *agree* nor *disagree* with the statement or are not sure;
A if you *agree* with the statement;
SA if you *strongly agree* with the statement.

If you change your mind about a response, cross out the old answer and circle the new choice.

1.	There are many disruptive, difficult students in the school.	SD	D	N	A	SA
2.	I seldom receive encouragement from colleagues.	SD	D	N	A	SA
3.	Teachers frequently discuss teaching methods and strategies with each other.	SD	D	N	A	SA
4.	I am often supervised to ensure that I follow directions correctly.	SD	D	N	A	SA
5.	Decisions about the running of this school are usually made by the principal or a small group of teachers.	SD	D	N	A	SA
6.	It is very difficult to change anything in this school.	SD	D	N	A	SA
7.	The school or department library includes an adequate selection of books and periodicals	SD	D	N	A	SA
8.	There is constant pressure to keep working.	SD	D	N	A	SA
9.	Most students are helpful and cooperative to teachers.	SD	D	N	A	SA
10.	I feel accepted by other teachers.	SD	D	N	A	SA
11.	Teachers avoid talking with each other about teaching and learning.	SD	D	N	A	SA
12.	I am not expected to conform to a particular teaching style.	SD	D	N	A	SA
13.	I have to refer even small matters to a senior member of staff for a final answer.	SD	D	N	A	SA
14.	Teachers are encouraged to be innovative in this school.	SD	D	N	A	SA
15.	The supply of equipment and resources is inadequate.	SD	D	N	A	SA
16.	Teachers have to work long hours to complete all their work.	SD	D	N	A	SA

17.	Most students are pleasant and friendly to teachers.	SD	D	N	A	SA
18.	I am ignored by other teachers.	SD	D	N	A	SA
19.	Professional matters are seldom discussed during staff meetings.	SD	D	N	A	SA
20.	It is considered very important that I closely follow syllabuses and lesson plans.	SD	D	N	A	SA
21.	Action can usually be taken without gaining the approval of the subject department head or a senior member of staff.	SD	D	N	A	SA
22.	There is a great deal of resistance to proposals for curriculum change.	SD	D	N	A	SA
23.	Video equipment, tapes and films are readily available and accessible.	SD	D	N	A	SA
24.	Teachers don't have to work very hard in this school.	SD	D	N	A	SA
25.	There are many noisy, badly-behaved students.	SD	D	N	A	SA
26.	I feel that I could rely on my colleagues for assistance if I needed it.	SD	D	N	A	SA
27.	Many teachers attend inservice and other professional development courses.	SD	D	N	A	SA
28.	There are few rules and regulations that I am expected to follow.	SD	D	N	A	SA
29.	Teachers frequently are asked to participate in decisions concerning administrative policies and procedures.	SD	D	N	A	SA
30.	Most teachers like the idea of change.	SD	D	N	A	SA
31.	Adequate duplicate facilities and services are available to teachers.	SD	D	N	A	SA
32.	There is no time for teachers to relax.	SD	D	N	A	SA
33.	Students get along well with teachers.	SD	D	N	A	SA
34.	My colleagues seldom take notice of my professional views and opinions.	SD	D	N	A	SA
35.	Teachers show little interest in what is happening in other schools.	SD	D	N	A	SA
36.	I am allowed to do almost as I please in the classroom.	SD	D	N	A	SA
37.	I am encouraged to make decisions without reference to a senior member of staff.	SD	D	N	A	SA
38.	New courses or curriculum materials are seldom implemented in the school.	SD	D	N	A	SA
39.	Tape recorders and cassettes are seldom available when needed.	SD	D	N	A	SA
40.	You can take it easy and still get the work done.	SD	D	N	A	SA
41.	Most students are well-mannered and respectful to the school staff.	SD	D	N	A	SA

42.	I feel that I have many friends among my colleagues at this school.	SD	D	N	A	SA
43.	Teachers are keen to learn from their colleagues.	SD	D	N	A	SA
44.	My classes are expected to use prescribed textbooks and prescribed resource materials.	SD	D	N	A	SA
45.	I must ask my subject department head or senior member of staff before I do most things.	SD	D	N	A	SA
46.	There is much experimentation with different teaching approaches	SD	D	N	A	SA
47.	Facilities are inadequate for catering for a variety of classroom activities and learning groups of different sizes.	SD	D	N	A	SA
48.	Seldom are there deadlines to be met.	SD	D	N	A	SA
49.	Very strict discipline is needed to control many of the students.	SD	D	N	A	SA
50.	I feel lonely and left out of things in the staffroom.	SD	D	N	A	SA
51.	Teachers show considerable interest in the professional activities of their colleagues.	SD	D	N	A	SA
52.	I am expected to maintain very strict control in the classroom.	SD	D	N	A	SA
53.	I have very little say in the running of this school.	SD	D	N	A	SA
54.	New and different ideas are always being tried in this school.	SD	D	N	A	SA
55.	Projectors and filmstrips, transparencies and films are usually available when needed.	SD	D	N	A	SA
56.	It is hard to keep up with your workload.	SD	D	N	A	SA

Questionnaire on Teacher Interaction

This questionnaire has 48 sentences about your behaviour in class. For each sentence, circle the number corresponding to your response. For example:

	Never				Always
I express myself clearly.	0	1	2	3	4

If you think that you always express yourself clearly, circle the 4. If you think you never express yourself clearly, circle the 0. You also can choose the numbers 1, 2 and 3 which are in-between. If you want to change your answer, cross it out and circle a new number.

Thank you for your cooperation.

		Never				**Always**
1.	I talk enthusiastically about my subject.	0	1	2	3	4
2.	I trust the students.	0	1	2	3	4
3.	I seem uncertain.	0	1	2	3	4
4.	I get angry unexpectedly.	0	1	2	3	4
5.	I explain things clearly.	0	1	2	3	4
6.	If students don't agree with me, they can talk about it.	0	1	2	3	4
7.	I am hesitant.	0	1	2	3	4
8.	I get angry quickly.	0	1	2	3	4
9.	I hold the students' attention.	0	1	2	3	4
10.	I am willing to explain things again.	0	1	2	3	4
11.	I act as if I do not know what to do.	0	1	2	3	4
12.	I am too quick to correct students when they break a rule.	0	1	2	3	4
13.	I know everything that goes on in the classroom.	0	1	2	3	4
14.	If students have something to say, I will listen.	0	1	2	3	4
15.	I let the students take charge.	0	1	2	3	4
16.	I am impatient.	0	1	2	3	4
17.	I am a good leader.	0	1	2	3	4
18.	I realise when students don't understand.	0	1	2	3	4
19.	I am not sure what to do when students fool around.	0	1	2	3	4
20.	It is easy for students to have an argument with me.	0	1	2	3	4
21.	I act confidently.	0	1	2	3	4
22.	I am patient.	0	1	2	3	4
23.	It's easy to make me appear unsure.	0	1	2	3	4
24.	I make mocking remarks.	0	1	2	3	4
25.	I help us with their work.	0	1	2	3	4
26.	Students can decide some things in my class.	0	1	2	3	4
27.	I think that students cheat.	0	1	2	3	4
28.	I am strict.	0	1	2	3	4

		Never				Always
29.	I am friendly.	0	1	2	3	4
30.	Students can influence me.	0	1	2	3	4
31.	I think that students don't know anything.	0	1	2	3	4
32.	Students have to be silent in my class.	0	1	2	3	4
33.	I am someone students can depend on.	0	1	2	3	4
34.	I let students decide when they will do the work in class.	0	1	2	3	4
35.	I put students down.	0	1	2	3	4
36.	My tests are hard.	0	1	2	3	4
37.	I have a sense of humour.	0	1	2	3	4
38.	I let students get away with a lot in class.	0	1	2	3	4
39.	I think that students can't do things well.	0	1	2	3	4
40.	My standards are very high.	0	1	2	3	4
41.	I can take a joke.	0	1	2	3	4
42.	I give students a lot of free time in class.	0	1	2	3	4
43.	I seem dissatisfied.	0	1	2	3	4
44.	I am severe when marking papers.	0	1	2	3	4
45.	My class is pleasant.	0	1	2	3	4
46.	I am lenient.	0	1	2	3	4
47.	I am suspicious.	0	1	2	3	4
48.	Students are afraid of me.	0	1	2	3	4

The Problems in Schools Questionnaire (PIS)

On the following pages you will find a series of stories. Each one describes an incident and then lists four ways of responding to the situation. Please read each story and then consider each of the responses in turn. Think about each response option in terms of how appropriate you consider it to be as a means of dealing with the problem described in the story. You may consider the option to be "perfect," in other words, "very appropriate" in which case you would respond by writing the number 7 next to it. You might consider the response highly inappropriate, in which case would respond by writing the number 1 next to it. If you find the option reasonable you would select some number between 1 and 7 to write next to it. So think about each option and rate it on the scale shown below. Please rate **each** of the four options for **each** story. There are eight stories with four options for each.

There are no right or wrong ratings on these items. People's styles differ, and we are simply interested in what you consider appropriate given your own style.

Some of the stories ask what you would do as a teacher. Others ask you to respond as if you were giving advice to another teacher or to a parent. Some ask you to respond as if you were the parent. If you are not a parent, simply imagine what it would be like for you in that situation.

Please respond to each of the 32 items using the following scale and by writing a number from 1 to 7 next to each item on the line provided.

1	2	3	4	5	6	7
very **in**appropriate			moderately appropriate			very appropriate

A. Jim is an average learner. During the past two weeks he has appeared listless (tired) and has not been participating during class. The work he does is accurate but he has not been completing assignments. A phone conversation with his mother revealed no useful information. The most appropriate thing for Jim's teacher to do is:

1. She should convince him of the importance of finishing his assignments since he needs to learn this material for his own good. ____

2. Let him know that he doesn't have to finish all of his work now and see if she can help him work out the cause of the listlessness (tiredness). ____

3. Make him stay after school until that day's assignments are done. ____

4. Let him see how he compares with the other children in terms of his assignments and encourage him to catch up with the others. ____

B. At a parent conference last night, Mr. and Mrs. Greene were told that their daughter Sarah has made more progress than expected since the time of the last conference. All agree that they hope she continues to improve so that she does not have to repeat the grade (which the Greene's have been kind of expecting since the last report card). As a result of the conference, the Greene's decide to:

5. Increase her allowance and promise her a reward if she continues to improve. ____

6. Tell her that she's now doing as well as many of the other children in her class. ____

7. Tell her about the report, letting her know that they're aware of her increased independence in school and at home. ____

8. Continue to emphasize that she has to work hard to get better marks. ____

C. Donny loses his temper a lot and has a way of agitating (irritating) other learners. He doesn't respond well to what you tell him to do and you're concerned that he won't learn the social skills he needs. The best thing for you to do with him is:

9. Emphasize how important it is for him to "control himself" in order to succeed in school and in other situations. ____

10. Put him in a special class which has the structure and reward contingencies which he needs. ____

11. Help him see how other learners behave in these various situations and praise him for doing the same. ____

12. Realize that Donny is probably not getting the attention he needs and start being more responsive to him. ____

D. Your son is one of the better players on his soccer team which has been winning most of its games. However, you are concerned because he just told you he failed his English test and will have to retake it the day after tomorrow. You decide that the best thing to do is:

13. Ask him to talk about how he plans to handle the situation. ____

14. Tell him he probably ought to decide not to go to tomorrow's game so he can catch up in English. ____

15. See if others are in the same predicament and suggest he do as much preparation as the others. ____

16. Make him miss tomorrow's game to study; soccer has been interfering too much with his school work. ____

E. The school debating (public speaking) team has been having trouble all year. How could Miss Wilson best help them?

17. Have regular debates so that the school debating team will be motivated to do as well as the other school teams. ____

18. Make them practice more and give them special privileges for improvements. ____

19. Have each team member keep a debating file and emphasize how important it is to have a good file. ____

20. Help the team devise ways of learning public speaking skills together (skits, games, etc.). ____

F. In your class is a girl named Margy who has been the butt of jokes for years. She is quiet and usually alone. In spite of the efforts of previous teachers, Margy has not been accepted by the other learners. Your wisdom would guide you to:

21. Prod (encourage) her into interactions and provide her with much praise for any social initiative. ____

22. Talk to her and emphasize that she should make friends so she'll be happier. ____

23. Invite her to talk about her relations with the other learners, and encourage her to take small steps when she's ready.____

24. Encourage her to observe how other learners relate and to join in with them. ____

G. For the past few weeks things have been disappearing from the teacher's desk and lunch money has been taken from some of the learners' desks. Today, Marvin was seen by the teacher taking a cell phone from her desk. The teacher phoned Marvin's mother and spoke to her about this incident. Although the teacher suspects that Marvin has been responsible for the other thefts, she mentioned only the one and assured the mother that she'll keep a close eye on Marvin. The best thing for the mother to do is:

25. Talk to him about the consequences of stealing and what it would mean in relation to the other learners. ____

26. Talk to him about it, expressing her confidence in him and attempting to understand why he did it. ____

27. Give him a good scolding; stealing is something which cannot be tolerated and he has to learn that. ____

28. Emphasize that it was wrong and have him apologize to the teacher and promise not to do it again. ____

H. Your daughter has been getting average marks, and you'd like to see her improve. A useful approach might be to:

29. Encourage her to talk about her report card and what it means for her. ____

30. Go over the report card with her; point out where she stands in the class. ____

31. Stress that she should do better; she'll never get into university with grades like these. ____

32. Offer her R20 for every A and R10 for every B on future report cards. ____

Summary

Education has been earmarked as the key to social upliftment and economic prosperity in South Africa. Eighteen years after the demise of Apartheid, much progress has been made in the South African education system, but many challenges still remain. Whereas equity has largely been attained in educational spending and almost universal enrolment has been achieved, vast discrepancies persist in the quality of education received by learners in different school types.

This cross-sectional survey study investigated both contextual and individual factors related to educational effectiveness in South Africa. The contextual variables examined were school type (i.e., Advantaged, Transitional, Disadvantaged Black, and Disadvantaged Coloured), school environment, classroom environment, and average class size. At the person level, two educator variables (i.e., burnout and motivating style) and two learner variables (i.e., motivational aspirations and Grade 12 achievement) were included. The sample consisted of 1040 Grade 12 learners from the Motheo District in Bloemfontein and 106 Grade 12 educators from the same nine randomly selected schools. The main outcome variable under consideration was learners' Grade 12 matriculation examination marks, which represent the primary barometer of the health of the South African education system.

Five specific research questions were formulated and investigated. The first research question concerned the relationships between school environment, classroom environment, educator burnout and educator motivating style. Hypotheses were largely confirmed and several significant correlations were identified (small to medium effect sizes). The second research question investigated whether school environment could predict educator burnout, and multiple regression results indicated that school environment was indeed an important predictor of educator burnout. Research question three examined whether learners' motivational aspirations and the average class size per school could predict Grade 12 learner

achievement. Using Structural Equation Modelling (SEM), a good fit was found for the specified model and all hypotheses were confirmed. Average class size was negatively related to Grade 12 learners' achievement as well as learners' relative intrinsic aspirations. Learners' relative intrinsic aspirations were positively related to their Grade 12 achievement. Research question four concerned whether school type could predict Grade 12 learner achievement. Multiple regression analysis results confirmed that school type was a significant and important predictor of Grade 12 achievement. Learners in Advantaged schools performed best, followed by those in Transitional schools, and learners in Disadvantaged Black and Coloured schools performed most poorly. Finally, research question five investigated whether the four school types differed in their school, classroom, educator and learner variables. Analysis of Variance (ANOVA) results indicated that significant differences existed in school environment, classroom environment, learners' motivational aspirations and learners' Grade 12 achievement across the four school types. No significant differences were found for the educator variables. By identifying differences between the four school types, it was possible to identify which variables may be important for Grade 12 learner achievement in South Africa. Results for the five research questions were interpreted and discussed against the backdrop of relevant theory and research and with consideration to the South African educational context. Potential implications of the findings for education in South Africa were presented and the importance of the school environment as a focus area for assessment and intervention was highlighted.

Key Terms

Education, educational effectiveness, Grade 12 achievement, school type, school environment, classroom environment, educator burnout, motivating style, motivational aspirations.

Opsomming

Onderwys was geïdentifiseer as die sleutel tot sosiale verheffing en ekonomiese vooruitgang in Suid-Afrika. Agtien jaar na die verval van Apartheid was daar baie vooruitgang gemaak in die Suid-Afrikaanse opvoedkundige sisteem, alhoewel daar steeds baie uitdagings is. Waar ekwiteite grootliks bereik is in opvoedkundige bestending en universele werwing bykans bereik is, is daar steeds ontsaglike diskrepansies in die kwaliteit van onderwys wat ontvang word deur leerders in verskillende tipe skole.

Die deursnee-opname navorsing ondersoek beide kontekstuele en individuele faktore wat verband hou met opvoedkundige effektiwiteit in Suid-Afrika. Die kontekstuele veranderlikes wat ondersoek was, is skooltipes (bv. Bevoordeelde, Oorgangs-, Benadeelde, Swart en Benadeelde Kleurling skole), skoolomstandighede, klaskameromstandighede en gemiddelde klasgroote. Op die persoon-vlak was twee onderwyserveranderlikes (bv. psigiese uitbranding en motiveringstyl) en twee leerderveranderlikes (bv. motiveerende aspirasies en Graad 12-prestasie) ingesluit. Die steekproef bestaan uit 1040 Graad 12-leerders van die Motheo Distrik in Bloemfontein en 106 Graad 12-onderwysers van dieselfde nege ewekansig gekose skole.

Die hoofuitkomsveranderlike in oordenking was leerders se Graad 12-matrikulasie eksamenpunte, wat die primêre barometer van die gesondheid van die Suid-Afikaanse onderwyssisteem verteenwoordig. Vyf spesifieke navorsingsvrae was geformuleer en ondersoek. Die eerste navorsingsvraag behels die verhouding tussen skoolomstandighede, klaskameromstandighede, onderwyseruitbranding en onderwysermotiveringsstyl. Hipoteses was grootliks bevestig en verskeie merkwaardige verbande was geïdentifiseer (klein tot medium effek grootes).

Die tweede navorsingsvraag ondersoek die moontlikheid of onderwyseruitbranding deur skoolomstandighede voorspel kan word, en meervoudigeregressie resultate het aangedui dat skoolomstandighede inderdaad ’n belangrike bepaler is vir onderwyseruitbranding.

Die derde navorsingsvraag ondersoek die moontlikheid dat leerders se motiverende aspirasies en die gemiddelde klaskamergrootte per skool Graad 12-leerderprestasie kan voorspel. Deur Strukturele Vergelykings-Modellering (SEM) te gebruik, was ’n goeie passing gevind vir die gespesifiseerde model en alle hipoteses was bevestig. Gemiddelde klasgroote was negatief verwant aan Graad 12-leerderprestasie sowel as leerders se relatiewe intrinsieke aspirasies. Leerders se relatiewe intrinsieke aspirasies was positief verwant aan hul Graad 12-prestasie.

Navorsingsvraag vier ondersoek die invloed van skooltipe op Graad 12-leerderprestasie. Meervoudigeregressie-analise het bevestig dat skooltipes ’n betekinisvolle en belangrike bepaler van Graad 12-prestasie is. Leerders in Bevoodeelde skole presteer die beste, gevolg deur die leerders van Oorgangsskole, en leerders in Benadeelde Swart en Banadeelde Gekleurde skole vaar die swakste.

Laastens, navorsingsvaag vyf ondersoek of die vier skooltipes verskil in terme van hul skool-, klaskamer-, onderwyser- en leerderveranderlikes. Variansieanalise (ANOVA) resultate dui aan dat betekenisvolle verskille bestaan in die skool- en klaskameromstandighede, leerders se motiverende aspirasies en leerders se Graad 12-prestasie in die vier skooltipes. Geen betekinisvolle verskille was gevind vir die onderwyserveranderlikes nie. Deur die verskille tussen die vier skool tipes te indentifiseer, was dit moontlik om vas te stel watter veranderlikes belangrik mag wees vir Graad 12-leerderprestasie in Suid-Afrika.

Resultate vir die vyf navorsingsvrae was geïnterpreteer en bespreek teen die agtergrond van relevante teorie en navorsing, met konsiderasie vir die konteks van Suid-

Afrikaanse onderwys. Potensiële implikasies vir die bevindings van onderwys in Suid-Afrika was voorgestel en die belangrikheid van die skoolomstandighede as ’n fokus area vir evaluering en ingryping was beklemtoon.