



**Promoting healthy school
physical environments to
improve learner academic
performance: A framework
for principals**

MGN Mtimkulu

 **orcid.org/0000-0001-5757-7538**

Thesis accepted in fulfillment of the
requirements for the degree *Doctor
of Philosophy in Education
Management*
at the North-West University

Promoter: Prof SJ Kwatubana

Graduation: November 2022

Student number: 20494726

DECLARATION

Name: Mtimkulu Melody Glory Nosisa

Student number: 20494726

Degree: Doctor of Philosophy in Education Management

I declare that: **Promoting healthy school physical environments to improve learner academic performance: A framework for principals**, is my own work and that all the sources that were used and/or quoted have been indicated and acknowledged by means of a complete list of references. I further declare that I have not previously submitted this work, or part thereof, for examination to any other university for another qualification or at any other higher education institution.



02. 06.2022

ACKNOWLEDGEMENTS

- To God for giving me the strength to complete this research study. Philippians 4: 13” I can do all things through Christ who strengthens me”.
- To my promoter, Prof Siphokazi Kwatubana for her guidance and constant motivation throughout this long, tireless, and enjoyable journey. She was a pillar of strength through challenging times, her support kept me going till the end.
- To the principal Mr Sedi, deputy principals Mr Sibanyoni, Ms Mzinyane and staff members at Iketsetseng Comprehensive who participated in this study, without your willingness to participate, this study could not have been completed.
- To Jackie who did language editing with excellence.
- To colleagues, friends and relatives for their motivation and encouragement.
- To my family: my husband Case Joseph, my children Vusumuzi, Atlehang, Nomasonto and Kuhle. My grandchildren Onalerona, Khanyisa, Elijah, Zibusiso and Nothile for their love, support, understanding and sacrifice during times when I could not fulfil my role as a wife, mother, and a grandmother. My sisters Thabo and Mpume who were pillars of strength, my nieces Thuledu, Samkelisiwe, Ayabonga and Phiwokuhle for their motivation and unending support and the whole Yeni and Mtimkulu families for understanding.

NGIYABONGA.

DEDICATION

This study is dedicated to all my grandchildren,
great grandchildren, and my late parents
Kenneth Sqalo and Dinah Nomgqibelo Yeni.

Shibase! Qhenya munt'omuhle.

Bhungane! Makhulukhulu!

ABSTRACT

Poor academic achievement of learners is one of the most challenging problems in South African schools. School physical environments are of critical importance in the delivery of quality education, as they have a direct impact on academic achievement, discipline, learner attendance, and dropout rates. The purpose of this study was to develop a theory-based, empirically derived framework for principals to promote healthy school environments to improve learner academic performance. The research was conducted in the Fezile Dabi District Municipality, Free State, South Africa.

A qualitative research approach was followed. Emancipatory thus participatory research was conducted. The study was conducted in one purposefully sampled township high school. The sample consisted of 16 participants: six school management team (SMT) members; seven teachers; one school governing body (SGB) member; and two learners who were members of the Representative Council of Learners (RCL). Data were gathered by means of photovoice, focus group interviews and discussions, and observations. Senge's theory of learning organisations was used as a theoretical lens to understand the data.

The study showed that, the school's physical environment, environmental aesthetics, clean school and clean school surroundings, availability of special buildings, a playground and sports facilities, and safety are academic enhancers. The complementary nature of these factors engenders feelings of relaxation and calmness and, most importantly, reduces stress, so enhancing concentration. Another significant finding was that adverse conditions in the school's physical environment reduce academic performance. These conditions included buildings that were not conducive to teaching and learning, the unavailability of a vegetable garden, conditions that created conflict, and a shortage of resources. A conclusion drawn from the findings is that factors that adversely affect academic performance seemed to be mostly related to a lack of the following: resources, maintenance of buildings, cleanliness of the school and its surroundings, and safety. The role of the principal in promoting healthy environments was found to be key to increasing academic performance.

The empirical data were drawn on to develop a theory-based framework for principals to promote healthy environments to enhance academic performance. The said framework is grounded on the five principles of Senge's theory of learning organisations, namely personal mastery, vision sharing, systems thinking, team learning, and mental models. These principles are the driving forces for principals to promote healthy school environments.

Key words: learner academic performance; school physical environments; healthy school environments; promotion of healthy school environments.

TABLE OF CONTENTS

DECLARATION	i
ACKNOWLEDGEMENTS	ii
DEDICATION	iii
<u>ABSTRACT</u>	<u>iv</u>
CHAPTER 1.....	1
BACKGROUND AND ORIENTATION TO THE STUDY	1
1.1 Introduction	1
1.2 Background and problem statement	4
1.2 Research questions	8
1.3 Research aim and objectives.....	8
1.4 Conceptual framework	9
1.4.1 Learner academic performance	9
1.4.2 School physical environment	10
1.4.3 Healthy school physical environments	10
1.4.4 The role of principals	11
1.5 Theoretical framework.....	11
1.6 Personal rationale	12
1.7 Delimitation of the study	13
1.8 Research methodology and design	14
1.8.1 Research paradigm	14
1.8.1.1 Ontology and epistemology	16
1.8.2 Qualitative research	16
1.8.2.1 Research approach	17
1.8.2.2 Strategy of inquiry	18
1.9 Site selection, population and sampling	19
1.9.1 Site selection	19
1.9.2 Participant selection and recruitment	20
1.10 Methods of data gathering	21

1.10.1 Photovoice.....	22
1.10.2 Focus group discussions.....	23
1.10.3 Semi-structured individual interviews	24
1.10.4 Observation	25
1.11 Data analysis	25
1.12 Measures to ensure trustworthiness	26
1.12.1 Credibility	26
1.12.2 Transferability	26
1.12.3 Dependability	27
1.12.4 Conformability.....	27
1.13 Ethical Considerations	27
1.14 Chapter layout	29
1.15 Chapter summary.....	29
CHAPTER 2.....	31
THE ESSENCE OF PROMOTION OF HEALTHY SCHOOL PHYSICAL ENVIRONMENTS	31
2.1 Introduction	31
2.2 Definitions of school physical environment and healthy school physical environment	31
2.2.1 What school physical environment entails.....	31
2.2.2 What a healthy school physical environment entail	33
2.3 Healthy school physical environments and academic performance	42
2.3.1 School buildings	43
2.3.1.1 Classroom conditions	44
2.3.1.2 Availability and condition of toilet facilities and academic performance....	47
2.3.1.3 General outlook of school buildings and academic performance	48
2.3.2 Landscape, green spaces, clean surroundings and academic performance	49
2.3.3 School grounds and sports facilities	51
2.3.4 School safety and academic performance	52
2.4 Promotion of healthy school physical environments	54
2.4.1 The essence of promotion of healthy school environments.....	54
2.4.2 How healthy physical environments are promoted	57
2.4.2.1 School health policies and programmes.....	57
2.4.2.2 Programmes for promotion of healthy environments	61
2.4.2.3 Involvement of teachers in school health promotion	78

2.4.2.4 <i>Involvement of learners in school health promotion</i>	80
2.4.2.5 Community collaborations and partnerships in school health promotion	81
2.5 Leadership roles in the promotion of healthy SPEs	85
2.6 Conclusion.....	94
CHAPTER 3	95
LEARNER ACADEMIC PERFORMANCE IN SECONDARY SCHOOLS IN SOUTH AFRICA	95
3.1 Introduction	95
3.2 What learner academic performance entails	95
3.3 Learner academic performance in high schools in South Africa	97
3.3.1 Academic performance and learner drop	97
3.3.2 Strategies to improve learner academic performance.....	103
3.3.2.1 Provision of additional support	103
3.3.2.2 Provision of extra tuition	105
3.3.2.3 Importance of intervention strategies for schools	109
3.4 Role of the school principal in enhancing learner academic performance	113
3.4.1 The principal as a leader and a manager	114
3.4.2 The school principal as an instructional leader	116
3.4.3 The school principal as a strategic leader	117
3.4.4 The school principal as a reflective practitioner	118
3.4.5 The school principal as a transformational leader.....	122
3.5 Chapter summary.....	124
CHAPTER 4	125
ORGANISATIONAL LEARNING THEORY	125
4.1 Introduction	125
4.2 Learning organisations	125
4.2.1 History of the theory of learning organisations	125
4.2.2 What a learning organisation entails.....	126
4.2.3 Schools as learning organisations	133
4.3 Peter Senge's disciplines of learning organisations	138
4.3.1 Personal mastery	140
4.3.1.1 Application of personal mastery	141
4.3.2 Systems thinking	143
4.3.2.1 Application of systems thinking.....	146
4.3.3 Shared vision	149

4.3.3.1 Application of a shared vision	151
4.3.4 Team learning	153
4.3.4.1 Application of team learning	156
4.3.5 Mental models	159
4.3.5.1 Application of the mental models	162
4.4 The role of principals in transforming schools into learning organisations	164
4.5 Conclusion	171
CHAPTER 5	173
RESEARCH METHODOLOGY	173
5.1 Introduction	173
5.2 Paradigmatic perspectives	173
5.2.1 Emancipatory paradigm	174
5.2.2 Qualitative research	175
5.2.2.1 Participatory action research as a qualitative inquiry	176
5.3 Overview of the research design and methodological strategies	182
5.3.1 Research design	183
5.3.2 Selection of participants	183
5.3.2.1 Selection of the case	183
5.3.2.2 Participant selection and recruitment	184
5.3.3.1 Photovoice	186
5.3.3.2 Focus group discussions	190
5.3.3.3 Semi-structured individual Interviews	194
5.3.3.4 Observation	195
5.3.3.5 The role of the researcher	196
5.4.Data analysis	197
5.4.1 Data triangulation	200
5.4.2 Ethical considerations	200
5.5 Measures to ensure trustworthiness	202
5.5.1 Credibility	203
5.5.3 Dependability	204
5.5.4 Confirmability	204
5.6 Conclusion	204
CHAPTER 6	205
DATA PRESENTATION, ANALYSIS AND INTERPRETATION	205

6.1 INTRODUCTION.....	205
6.2 BACKGROUND OF THE SCHOOL	
6.3 PARTICIPANT PROFILE	206
6.4 EMPIRICAL RESULTS.....	208
6.4.1 Understanding promotion of HSE	209
6.4.2 Factors that enhance academic performance	215
6.4.2.1 Beautiful school surroundings.....	215
6.4.2.2 Cleanliness of the school and its surroundings	220
6.4.2.3 Availability of resources	223
6.4.4.4 Safety of the school community and their belongings.....	234
6.4.3 Factors that deter academic performance	240
6.4.3.1 Broken facilities	240
6.4.3.2 Dirty toilets and lack of sanitation facilities	243
6.4.3.3 Lack or shortage of resources	245
6.4.3.4 Lack of waste management system	250
6.4.4 Role of the principal in promoting healthy school physical environments .	251
6.4.5 Role of the principal in the promotion of healthy school environments	252
6.4.5 Strategies to support involvement in the promotion of HSPE.....	257
6.4.6 Data from evaluation of action plans	259
6.4.6.1 Interventions focusing on factors that affect performance in buildings ...	260
6.4.6.2 Interventions focusing on factors affecting performance in school surroundings.....	263
6.5 Conclusion.....	271
CHAPTER 7	273
DISCUSSION OF FINDINGS.....	273
7.1 Introduction	273
7.2 What a healthy school physical environment entails	274
7.2.1 Environmental aesthetics and academic performance	274
7.2.2 Clean classrooms and clean surroundings	276
7.2.3 Availability and use of special buildings	276
7.2.4 Availability of a playground and gym facilities	277
7.2.5 Safety as a healthy school environment issue.....	278
7.3 The essence of learner academic performance.....	279

7.4 Factors that deter academic performance of learners in the school physical environment	280
7.4.1 Buildings that were not conducive to effective teaching and learning	280
7.4.2 Unavailability of a vegetable garden	281
7.4.3 Conditions that create conflict	283
7.4.4 Shortage of facilities (dumping space, storage, and water taps)	284
7.4.5 Lack of maintenance of facilities	285
7.5 Factors that enhance academic performance of learners	286
7.5.1 Environmental aesthetics	286
7.5.2 Cleanliness of the school and its surroundings	287
7.5.3 Availability of special buildings	288
7.5.4 Availability of playground and gym facilities	289
7.5.5 School safety as contributory factor	290
7.6 Roles school principals play in the promotion of healthy school environments to enhance academic performance of learners	291
7.6.1 Leadership in school health promotion	292
7.6.2 Leadership in collaborations and partnerships	294
7.6.3 Managerial role	295
7.7 Strategies to promote healthy school environments	299
7.8 Conclusion	301
CHAPTER 8	302
THEORY-BASED FRAMEWORK FOR PRINCIPALS	Error! Bookmark not defined. Bookmark
8.1 Introduction	302
8.2 Discussion of academic performance frameworks and models	303
8.2.1 The Leadership Improvement for Student Achievement (LISA) theoretical framework	303
8. 2. 2 Learning-Centered Leadership (LCL) framework	307
8.2.3 Essential Supports Framework	308
8.3 A THEORY-BASED FRAMEWORK FOR THE PROMOTION OF HEALTHY ENVIRONMENTS TO ENHANCE THE ACADEMIC PERFORMANCE OF LEARNERS	312
8.3.1 Personal mastery	314
8.3.2. Shared vision	318
8.3.2 Systems thinking	321

8.3.4 Mental models	328
8.3.5 Team learning	331
8.4 Conclusion	337
CHAPTER 9.....	338
SUMMARIES, CONCLUSIONS AND RECOMMENDATIONS.....	338
9.1 Introduction	338
9.2 Summary of chapters	338
9.3 Discussion of problems	340
9.4 Conclusions	341
9.4.1 What a healthy school physical environment entails.....	341
9.4.2 The essence of learner academic performance.....	341
9.4.3 Factors that enhance learner academic performance	341
9.4.4 Factors that deter learner academic performance	342
9.4.5 Roles school principals play in the promotion of healthy school environments to enhance academic performance of learners	342
9.6 Recommendations for implementation.....	343
9.6.1 Personal mastery	343
9.6.2 Shared vision	344
9.6.3 Team learning	344
9.6.4 Systems thinking	345
9.6.5 Mental models.....	346
9.6 Summary of contributions	347
9.7 Suggestions for future research.....	348
REFERENCES 1	349
 APPENDIXES	
Appendix 1.....	421
Appendix 2.....	424
Appendix 3.....	427
Appendix 4.....	428
Appendix 5.....	432
Appendix 6.....	434

LIST OF TABLES

Table 1. 1: Average current spending per learner per year in 2016	1
Table 1. 2: Fezile Dabi District matric performance 2016–2021	6
Table 1. 3: Performance of Grade 12 learners over five years	6
Table 1. 4: Pass rate and dropout rate in Grades 10 and 11	7
Table 3. 1: Matric results over five years	98
Table 3. 2: Survival dropout rates in each grade	99
Table 5. 1: Categories of challenges identified during the data gathering phase	182
Table 5. 2: Photovoice timeline	190
Table 5. 3: Timeline for FDGs	191
Table 5. 4: Action plans	192
Table 6. 1: Co-researcher profiles	207
Table 8. 1: Senge’s disciplines and themes	312

LIST OF FIGURES

Figure 4. 1: Disciplines of learning organisations	138
Figure 5. 1: Participatory Action Research steps	177
Figure 6. 1: School entrance with flowers and trees.....	215
Figure 6. 2: Green grass and Trees	215
Figure 6. 3: Water feature	218
Figure 6. 4: Passage between classes.....	220
Figure 6. 5: Clean school premises.....	220
Figure 6. 6: Clean classroom	221
Figure 6. 7: Clean toilet wall	221
Figure 6. 8: Library	223
Figure 6. 9: Kitchen	223
Figure 6. 10: Basins	225
Figure 6. 11: Bathroom for learners	225
Figure 6. 12: Water tap.....	225
Figure 6. 13: Dustbin	228
Figure 6. 14: Mobile classroom	228

Figure 6. 15: Playground	231
Figure 6. 16: Gym	231
Figure 6. 17: Sickroom for learners	233
Figure 6. 18: Gas cylinder	234
Figure 6. 19: Electric meter box	234
Figure 6. 20: Lights.....	234
Figure 6. 21: School gate	237
Figure 6. 22: Control room	237
Figure 6. 23: CCTV camera	237
Figure 6. 24: Emergency assembly area.....	238
Figure 6. 25: Teachers' cars at school	239
Figure 6. 26: Broken tables and chairs.....	240
Figure 6. 27: Broken windows in classrooms	240
Figure 6. 28: Dirty toilet	243
Figure 6. 29: Toilet with falling ceiling board	243
Figure 6. 30: Water tap.....	245
Figure 6. 31: Parking ground.....	246
Figure 6. 32: Mobile classroom	248
Figure 6. 33: Food garden space	249
Figure 6. 34: Dumping area.....	250

Figure 6. 35: Repaired windows.....	262
Figure 6. 36: Painted pillars.....	262
Figure 6. 37: Painted pillars.....	262
Figure 6. 38: Cage for broken furniture	264
Figure 6. 39: Well-maintained lawns	265
Figure 6. 40: Dumpster donated by SASOL	266
Figure 6. 41: Garden project	268
Figure 6. 42: Planted food garden.....	268
Figure 6. 43: Poster on first-aid training	270
 Figure 8. 1: The Leadership Improvement for Student Achievement framework	 305
Figure 8. 2: The Learner-Centered Leadership framework	308
Figure 8. 3: Essential Supports Framework (Sebring & Montgomery, 2010)..	309
Figure 8. 4 Framework for Principals to promote healthy physical environment	 314
Figure 8. 5: Personal mastery, aspects of a school physical environment and role of a principal.....	 315
Figure 8. 6: Shared vision, aspects of a school physical environment and role of a principal	 319
Figure 8. 7: Systems thinking, aspects of a school physical environment and role of a principal.....	 322

Figure 8. 8: Mental models, aspects of a school physical environment and role of a principal.....	329
Figure 8. 9: Team learning, aspects of a school physical environment, the role of a principal and strategies to support SHP	332

CHAPTER 1

BACKGROUND AND ORIENTATION TO THE STUDY

1.1 Introduction

Poor academic achievement of learners is one of the most challenging problems for South African schools. South Africa's matric pass rate has been increasing since the year 2016 when the national pass percentage was 73. In 2017, the national pass percentage moved up to 75%, to 78% in 2018, with another three-percentage increase in 2019, reaching 81% pass rate. However, in 2020, the pass rate dropped to 76% and increased by 0.2% in 2021 (DBE, 2022). This picture is promising as the decrease is less than 1%. Nevertheless, the number of learners who is failing in Grades 10 and 11 is concerning. The statistics according to the Department of Basic Education (DBE, 2020) indicate that only 68% of learners in Grade 11 continue to Grade 12. The high failure rate in these grades results in high retention and dropout rates. The DBE indicates that grade repetition may be the cause of dropping out of school. DBE (2021) further asserts that repetition discourages children about their educational prospects and makes them relatively old for their grade, so opting out of school might become socially or economically more attractive. In this study, *academic performance* refers to the results of end-of-year summative assessments, with a focus on high schools.

The South African government spends vast amounts of money on education. Table 1.1 indicates the average current spending per learner.

Table 1. 1: Average current spending per learner per year in 2016

Q1	Q2	Q3	Q4	Q5	Primary level	Secondary level
R13,822	R13,795	R13,179	R12,783	R12,946	R12,882	R15,231

The table above indicates that each learner is supported by an average of R13,413 (\$17.9) per year. Quintile one to three schools reside in poor communities; the support for each learner in these schools is higher than that for learners in quintiles four and five schools which reside in affluent communities. Furthermore, South Africa's

expenditure on education is higher compared to some developed countries – relatively higher than in some countries internationally and in Africa. While South Africa spends \$17.9 per learner, other African countries, such as Zimbabwe, Zambia, Uganda, Senegal and Ghana, all spend \$14 and less. On such expenditure, a high rate of learner academic performance could be expected.

This study was conducted in the Free State province, South Africa, where several strategies have been put in place to boost academic performance. It is important to note the collaboration between the district and non-governmental organisations (NGO) such as the Kagiso Shanduka Trust (KST). Kagiso Shanduka Trust (KST) embarked on a project and collaborated with 428 schools in Fezile Dabi and Motheo Districts, both in the Free State province, with the aim of transforming education. This resulted in a top tier, integrated whole-school development model that addresses infrastructure development, curriculum support, social welfare, and leadership implemented at a district level (African News Agency [ANA], 2020). The district also embarked on a teacher-quality and quality-teaching approach, which is anchored and complemented by dynamic and well-structured teacher development programmes. Fezile Dabi District has a partnership with Boitjhorisong Resource Centre, which provides support towards enhancing sustainable teaching and learning in Fezile Dabi local schools, with the specific aim to improve learner performance in mathematics, physical sciences, life sciences, and accounting.

Besides the above-mentioned interventions, other strategies also intend to enhance academic performance of learners. First, district leadership and school leadership work collaboratively towards the same objectives. Huguet (2017) asserts that leadership should encourage such collaboration. Second, Fezile Dabi District has systems in place for monitoring progress towards the achievement of goals and expectations. District officials are divided into teams, and each team has a team leader who is assigned a cluster of schools to monitor and support. Third, schools are twinned, especially schools with lower enrolments – the district permits teachers to teach a subject in two or more schools to allow for sharing of expertise. Fourth, extra

classes are presented to maximise teaching and learning. However, as much as these strategies are necessary, they do not seem to be improving performance for schools to reach the required targets. Moreover, the performance of learners in Grades 10 and 11 in the participating schools does not show that these strategies are working for them. Therefore, the current study was conducted to develop a framework for principals to promote healthy school physical environments that would enhance academic performance of learners.

In this study, *school physical environments* refer to school buildings, environmental aesthetics, and playgrounds. School physical environments are considered healthy if they contribute positively to the physical, mental, or emotional state of the school community members and are safe. Several studies conducted internationally and in Africa have shown the link between the school physical environment and learner academic performance. Internationally, several studies in the USA have shown that spending more time in green space, or even views of green landscapes, can improve both direct attention and performance (Bratman *et al.*, 2015). In Italy, a study by Mason *et al.* (2021) indicates that a break in a green environment after mentally demanding activities is an opportunity to sustain learners' cognition. Barrett *et al.* (2019) found that providing access to safe, healthy spaces affects pupils' academic outcomes. In Africa, studies mostly associate academic performance and level of motivation with school infrastructure. These include a study by Akomolafe and Adesua (2016) in Nigeria, Chipfakacha (2019) in Zimbabwe, and Parnwell (2015) in Kenya.

In South Africa, SABC News (2019) stated that poor school infrastructure is said to be one of the main factors affecting academic performance in schools in the North West province. Amsterdam (2010) expressed concern about the state of sanitation facilities, littering and vandalism, and lack of safe and inviting spaces in which to play and socialise to improve learning. Khumalo and Mji (2014) agree that poor infrastructure plays a role in the learning and teaching context. Most of these studies focus mostly on only one aspect of the physical environment – that is, infrastructure. This study intended to investigate factors in the school physical environment (inclusive of

infrastructure, playgrounds, and green spaces) that promote and deter academic performance to develop a framework to assist principals in playing a role in promoting healthy settings for their schools. I argue that school physical environments can be regarded as of critical importance in the delivery of quality education, as they have a direct impact on academic achievement, discipline, learner attendance, and dropout rates.

1.2 Background and problem statement

According to Mullis *et al.* (2020), South Africa has not been performing well in the Trends in International Mathematics and Science Study (TIMSS). The TIMSS (2019) results show that Grade 8 obtained last position out of 39 countries in science and achieved second-last position in Mathematics. Primary schools are also not doing well, as Grade 4 Science as well as Mathematics obtained third-last position, respectively (Mullis *et al.*, 2020). Developed countries like Singapore spend less than South Africa per learner, but in all the tests, it obtained first position. The main concern is that learner performance in South Africa does not equate to the amount of money spent on education. The gap between South Africa's best and worst performers in the TIMSS mathematics tests, for instance, is large. Several other developing countries also display similar gaps. What is arguably even more serious is that South Africa's whole test score distribution is close to the lowest of all TIMSS participants. Put differently, the average South African learner, and South Africa's most disadvantaged learners, perform poorly. These patterns are clear, whether one looks at Grade 4 or Grade 8 results (Mullis *et al.*, 2020). This is even though South Africa's average public spending per learner is very high by developing country standards.

South Africa's education system, according to Wilkinson (2015), is in a state of "crisis" and at the bottom of the class as regards the quality of its education if one considers the small percentage of learners who pass matric with bachelor. Education stakeholders – such as teachers, parents, community members, local business leaders, and school governing body (SGB) members – have expressed their concern over the poor quality of academic results (Olumeri & Olayeye, 2013). The high failure

rate of learners in Grade 12, in both internal and external examinations, is a major concern that is highlighted in most research studies (Mouton *et al.*, 2012). Mushtag and Khan (2012) are of the view that schools have no worth without good academic performance. The DBE is aware of this challenge, as one of its targets is to increase the number of Grade 12 learners who become eligible for a bachelor's programme at university level (DBE, 2016).

According to DBE (2021), the Free State province was the top-performing province in 2016 having received 88% pass rate. This was a six-percentage improvement on the year before. The 2016 cohort was the largest ever to write matric finals in the province. Again, in 2017, the Free State remained the top-performing province, with a pass rate of 90%. Moreover, 2018 saw a pass rate of 91%, taking first place yet again. With a remarkable 88% pass rate, the Free State began developing an impressive trajectory in 2019, ranking first in all nine provinces. As the top-performing province in 2020, the matric pass rate in the Free State was 85%, which was only a three-percentage drop from their 88% pass rate the previous year. In 2021, the Free State was the best-performing province with 85.7% pass rate, improving with 0.6% from 2020.

As much as the statistics above look good, the districts in the Free State have not been performing as expected. It is a fact that the district's academic performance at Grade 12 level has since increased. The district has repositioned itself from last position to first position within five years. Thus, the DBE's recent acknowledgement and recognition of Fezile Dabi District's excellent and consistent academic performance of 90% and above for six consecutive years (2016–2021) suggests that the district might have found a winning formula (ANA, 2020). However, Fezile Dabi District has had a target of obtaining 95% in Grade 12 results since the year 2016 of which it is struggling to achieve. The district pass percentages are depicted in Table 1.2 below.

Table 1. 2: Fezile Dabi District matric performance 2016–2021

Total No of secondary schools=51	Pass %	Schools with 95-100% pass rate	Below 85% Schools	% of Bachelors
2016	91.8	25	9	35.8%
2017	90.2	24	13	34.0%
2018	92.3	24	8	40.1%
2019	90.3	24	12	38.0%
2020	86.5	15	18	39.1%
2021	87.5%	15	20	40.5%

DBE (2022)

For the past six years, Fezile Dabi has failed to obtain 95% in their matric pass rate to meet its target. This is despite different strategies and interventions put in place as discussed above. The district would improve its performance if the number of schools got 95% and above increases. In 2016, only 50% of the schools got 95%, and in the following years, there has been a downward slide. Moreover, from 2018, the number of schools that passed above 95%, decreased, whereas schools that obtained below 85%, increased.

At the time of this study, in the school where this research was conducted, the academic performance of Grade 12 learners was good, as the school had not been classified as underperforming in the years prior. In some years, it would perform above 90%, as depicted in the table below.

Table 1. 3: Performance of Grade 12 learners over five years

YEAR	ENROLMENT	Pass %
2010	134	93%
2011	143	87%
2012	128	92%
2013	103	89%
2014	165	91%

South Africa -Schools Administration and Management System (2015)

As depicted in Table 1.3, it is impressive to see that even when the number of learners in this grade increased, more learners perform well. However, the situation on the performance of learners in Grades 10 and 11 is a cause for concern. Table 1.4 shows statistics on the pass- and dropout rates in Grades 10 and 11 over five years.

Table 1. 4: Pass rate and dropout rate in Grades 10 and 11

GRADE 10					
YEAR	ENROLMENT	NO PASSED & %	NO FAILED	NO DROP OUT	Drop out%
2010	383	107 27.9%	276	69	3.8%
2011	410	132 32.1%	278	48	4.1%
2012	398	157 39.4%	241	52	3.9%
2013	503	205 40.7%	298	70	5.3%
2014	482	199 41.2%	283	61	4.8%
GRADE 11					
YEAR	ENROLMENT	NO PASSED & %	NO FAILED	NO DROP OUT	Drop out%
2010	286	134 46.8%	152	33	2.8%
2011	322	143 44.4%	179	29	3.2%
2012	344	128 37.2%	216	45	3.8%
2013	299	103 34.4%	196	38	2.2%
2014	312	165 52.8%	147	18	3.1%

South Africa -Schools Administration and Management System (2015)

First, it is only in one of the five years that learners in Grade 11 performed above 50%. This is the highest performance for both these grades. Learners performed dismally in

Grade 10 for five consecutive years. This could mean that most learners are retained in Grade 10, and the same learners might also be retained in Grade 11. The number of learners that fail in both grades far exceeds the number that passes each year. Although the number of learners that drop out each year is high in both grades, it is alarming in Grade 11. When looking at Table 1.3 and 1.4, one would not believe that these grades are in the same school that seemed to be doing well in Grade 12. The number of learners that reach matric are far less than those that were in the previous grade in most years.

1.2 Research questions

The primary research question was as follows: What healthy physical school environment features can be used by the principals to improve the academic performance of learners?

The secondary questions were as follows:

- What does a healthy school physical environment entail?
- What do school principals regard as the essence of learner academic performance?
- What factors in the school physical environment deter academic performance of learners?
- What factors in the school physical environment enhance academic performance of learners?
- What leadership roles do school principals play in the promotion of healthy school environments for the enhancement of learner academic performance?
- How can a theory-based, empirically derived framework for principals to promote healthy school physical environments to enhance learner academic performance in schools be presented?

1.3 Research aim and objectives

The aim of this study was to develop a theory-based, empirically derived framework for principals to promote healthy school environments that will improve learner academic performance.

The secondary objectives were as follows:

- to determine what a healthy school environment entail;
- to establish the essence of learner academic performance;
- to establish factors in the school physical environment that deter academic performance of learners;
- to establish factors in the school physical environment that enhance academic performance of learners;
- to investigate leadership roles that school managers play in the promotion of healthy school physical environments for the enhancement of learner academic performance; and
- to present a theory-based, empirically derived framework for principals to promote healthy school physical environments to enhance learner academic performance.

1.4 Conceptual framework

The key concepts in this research are learner academic performance; school physical environments; healthy school physical environments; and the role of principals. The challenges of academic performance have been highlighted in the foregoing sections. In this research, it is believed that part of the solution lies with promotion of healthy school physical environments where the principal plays an effective role.

1.4.1 Learner academic performance

Academic performance is the outcome of education – the extent to which a learner or an institution has achieved their educational goals (Haywood & Pienaar, 2021).

Academic performance, according to Papageorgiou (2017:226), “is measured in terms of marks obtained by learners”. It is the learners’ score levels in assessments of a structured, knowledge-based curriculum that focuses on attaining core skills and knowledge competences (Carnoy *et al.*, 2008). Academic performance is the extent to which a learner, teacher or an institution has attained their short- or long-term teaching and learning goals. “Learner academic performance is regarded as a complex phenomenon that is influenced by a variety of factors” (Mason, 2017:282), including the school physical environment. In this study, the investigation was based on how academic performance is affected by the school physical environment.

1.4.2 School physical environment

According to Bates (2015), a school environment comprises three different contexts: the physical environment, resources, and the social environment. This research focused on physical environments. Koroye (2016) describes the physical environment as physical facilities, such as the school site, the buildings (classrooms, libraries, laboratories, and other special rooms), sports facilities, water supply infrastructure, and sanitary facilities. Maphoso and Mahlo (2014) in their definition include trees and grass, soil condition, hedges, flowers, paving and playgrounds. The school physical environment contains only physical elements that are tangible, that people can touch – in simpler terms, it is the natural surroundings, the things within it and how they interact to create a space. The school physical environment, according to Marishane (2014), refers to infrastructure, which collectively constitutes school assets, including school buildings, equipment, furniture, grounds, fencing, and services that are essential for effective functioning of a school. In this study, the elements of physical environment incorporate buildings, sanitary and water facilities; surroundings with green spaces; and playgrounds. All school physical facilities are regarded as important in supporting teaching and learning and key to academic performance.

1.4.3 Healthy school physical environments

Dooris (2009) defines a healthy physical environment as a school setting with appropriate facilities, resources and buildings, available school-based health support programmes, services, and policies. A healthy physical environment indicates quality – positive, adequate, and appropriate spaces for learning, with well-maintained surroundings, where buildings support, rather than hamper, learning and performance (Baafi, 2020). A healthy physical environment contributes to the emotional, physical and psychological well-being of the people within it. It is only when physical environments are healthy that they can contribute meaningfully to teaching and learning and enhancement of academic performance of learners.

1.4.4 The role of principals

A search for a definition of *role* in different dictionaries on the Internet yielded the following result: A role is about position assumed by a person. A principal is in a position of leadership, which is the highest in a school. Everybody in a school looks up to the principal for direction and guidance. A role refers to a purpose that someone has in an organisation. The principal's role is an important variable for the education standard or quality of education; excellent schools have leaders who influence their participants, resulting in high level of student accomplishment (Bhujel, 2021). According to the South African Standards for Principalship (South Africa, 2016), the principal is mandated to ensure that the school, human and other resources are organised and managed in a way that would provide a safe, effective and invigorating environment (South Africa, 2016). In this study, a principal is regarded as having a position of power and influence with specific functions they are responsible for, such as providing guidance in development of health policies, establishing and supporting health and environmental committees that can enable them to promote a healthy school environment so as to boost learner performance.

1.5 Theoretical framework

Senge's theory of learning organisations with all its five disciplines was employed in this study. A learning organisation is an organisation that seeks to create its own future and assumes learning as an ongoing and creative process for its members. It is the one that "develops, adapts and transforms itself in response to the needs and aspirations of people, both inside and outside itself" (Asumeng & Osae-Larbi, 2015:30). Such an organisation seeks to continuously improve itself as a whole by adopting learning organisation activities in order to effectively manage both internal and external change situations ahead of time (Argyris, 2008).

The challenges pertaining to academic performance in South African schools need to be addressed. As alluded to earlier, strategies have been in place to enhance academic performance; however, it is important to note that such challenges could be better approached using strategies that are multi-pronged. Moreover, using the theory of learning organisations for principals to promote healthy environments would require a new view of leadership that may lead to learning new ways of doing things. This theory was used as a lens to understand the empirical data and to develop a framework for principals to promote healthy school physical environments to improve learner performance. The theory is well developed with five theoretical constructs that fit with the topic under investigation.

1.6 Personal rationale

I have worked in schools for 31 years as a teacher, head of department (HoD) for 10 years, and as a deputy principal for 10 years. I was an HoD for African languages. Being the deputy principal allowed me to work collaboratively with nine HoDs with school curricula (English, Mathematics and Science, Commercial subjects, Social Sciences, Natural Sciences and Technology, Life Orientation, Arts and Culture, Economical and Management Sciences, and Life Sciences). After each examination, I was responsible for analysing the school's academic results for record keeping and for presentation at the district office. This was a period when the DBE was keen on public accounting. Each school's representative would present the results of their

school in the presence of school management teams (SMTs) of a cluster of schools, the district director, district officials (including subject advisors) and management of curriculum in the district. When presenting the results, I had to give reasons for each good or bad performance. This routine would force me to come up with strategies to improve the academic performance of learners in our school. After every presentation, I would meet with the SMT to share good practices from other schools, and then we would strategies on how to up the ante in order to maintain high levels of academic performance. My school became one of the high-performing schools in the district with regard to matric results since the year 2002 until I left the school in 2014. However, there was an underlying problem that we had no solution to in all those years: the low academic performance in Grades 10 and 11, which led to high retention of learners. This is the problem that I carried with me all the years; I kept on looking for a solution that does not involve rote learning, which was a norm in high schools. Contrary to the good performance at matric level, the school was the oldest in the township that started in 1977. All the buildings were old, drains and toilets were always blocked, ceilings and floors were not in good condition, and the surroundings reflected an unhealthy school. I developed an interest in how promotion of healthy school physical environment could contribute to learner academic performance.

1.7 Delimitation of the study

This study was conducted in the Free State province, South Africa. The Free State (FS) comprises five district municipalities: Xhariep, Motheo, Lejweleputswa, Thabo Mofutsanyana, and Fezile Dabi. Each district municipality consists of one education district office. This study focused on the Fezile Dabi District Municipality, which is located in the Northern Free State and extends to the Vaal River, which forms the border between Free State and Gauteng province. This district is the smallest in the province (20 674 km²), making up 16% of its geographical area. It consists of four local municipalities: Moqhaka, Metsimaholo, Ngwathe, and Mafube. The following towns fall under Fezile Dabi District Municipality: Cornelia, Deneysville, Edenville, Frankfort, Heilbron, Koppies, Kragbron, Kroonstad, Oranjeville, Parys, Renovaal, Sasolburg,

Steynsrus, Tweeling, Vierfontein, Viljoenskroon, Villiers, and Vredefort. The school that participated in this research is located in the town of Sasolburg. Furthermore, Fezile Dabi District has 158 schools: 85 primary schools; 51 secondary schools; 15 combined schools; four intermediate schools; and three special and specialised schools.

1.8 Research methodology and design

Empirical research entails methodology and methods. Methodology is described as a bridge that brings together our philosophical standpoint and method (Hesse-Biber & Leavy, 2010). Research methodology includes the procedures whereby the researcher goes about their work of collecting data, analysing, and describing the phenomenon under investigation. In this study, the research paradigm, ontology, and epistemology discussed in the following sub-sections formed part of the methodology. Research methods, on the other hand, are methods used when collecting data (Hesse-Biber & Leavy, 2010). In the next sub-section, the research paradigm, ontology, and epistemology that were employed in this study, are discussed.

1.8.1 Research paradigm

Research paradigm refers to the theoretical or philosophical grounds for the research work (Khatri, 2020). "It is regarded as a research philosophy. In educational research, the word *paradigm* is used to describe a researcher's worldview" (Mouton *et al.*, 2013:3275). This worldview is the perspective, or thinking, or school of thought, or set of shared beliefs that notifies the meaning or interpretation of research facts. Similarly, De Vos *et al.* (2011) define a research paradigm as a comprehensive belief system, worldview or framework that guides research and practice in a field. Thus, my worldview entailed my thoughts and beliefs about the issue explored in this research which later guided my actions. My worldview guided me in the general process of investigation, including selecting the research problem; formulating the research

questions; determining the nature and types of reality; knowledge; methodology; and worth of the research work.

The emancipatory research paradigm was employed in this study. The emancipatory paradigm, according to Denzin and Lincoln (2011), advocate for social change, focused on the freedom and release, both in the process of the research and in the transformation of society itself. The emancipatory approach is critical research that is conducted through participation, leading to awareness, using qualitative and participative research methodology (Ramirez *et al.*, 2013). Mahlomaholo and Nkoane (2002) indicate that emancipatory research is a process of producing knowledge that can be of benefit to disadvantaged people, and the key aim of such research is to empower the research participants. To that end, this study was participatory, as discussed below, and aimed at empowering the research participants and bring transformation to the participating school. Mertens (2015) further describes emancipatory research as transformative research. Emancipatory research came from the disability community and was born out of the motto “nothing about us without us” – a political action that aimed to move the control of research into the hands of the community being researched (Mertens, 2015). In emancipatory action research, those who are affected by a phenomenon must be involved in coming up with solutions. It is a bottom–up approach as opposed to a top–down approach. Besides participation, some of the key principles of this research paradigm are openness, accountability, empowerment, and reciprocity (De Vos *et al.*, 2011). There was openness in terms of what the research was about, the process followed, and co-researchers were involved in all the steps during the study.

We (myself and co-researchers) were committed to social change and aimed at empowering each other, as we understood emancipatory research as a process of learning and awareness raising, and empowerment also brings specific and general improved action competencies for present and future situations (Humphries & Truman, 2005). We learnt from one another as to how to use cameras, teamwork, and respecting each other and other’s opinions. For this study, activities regarding data

gathering on learner academic performance and school physical settings were an opportunity for emancipation to unfold, as it brought the school community together, provided a platform for debate and education for democratic practice, and gave the school community a voice (Chinn & Falk-Rafael, 2015).

The school community was brought together by involving all members in planning, discussions, and implementation. All activities were aimed towards the promotion of healthy school physical environments for the enhancement of learner academic performance.

8.1.1 Ontology and epistemology

This study linked ontology and epistemology to the emancipatory paradigm. There are multiple realities, as knowledge is created and understood in different ways. This research aligned with the idealist/pragmatist approach in which researchers empathise with oppressed people and idealise or romanticise possibilities for improving the lives of the poor. The oppressed in this research were teachers and learners who were expected to perform in school physical environments that were not conducive to learning. Thus, the progressive reformist approach to this research focused on solving problems at the micro-level (school) without relating them to broader social, political and economic elements at the macro-level.

1.8.2 Qualitative research

A qualitative method was used in this study. Such a method, according to Rajasekar *et al.* (2013), is concerned with a qualitative phenomenon, involves quality, and is non-numerical. In qualitative research, participants are allowed to describe their lived experiences of a phenomenon (Terre Blanche *et al.*, 2006). In this study, in the focus group discussions and semi-structured individual interviews, participants aired their views on their experiences of learner academic performance and its association with school physical environments.

Qualitative research is suitable for developing deep issues of making voices heard (De Vos *et al.*, 2011). The participants in this study were involved in problem identification, development of action plans and in the implementation of plans to solve the problems identified in the school physical environment. This is in line with the paradigm that guided this study. Furthermore, this method helped with gathering information on the perceptions of the participants on the role of the principal in promoting healthy school physical environments to enhance academic performance by means of inductive research approaches, such as interviews, discussions, participation observation, and representing this phenomenon from the perspective of the research participants.

1.8.2.1 Research approach

In line with the emancipatory paradigm, participatory action research (PAR) was used. This form of research is employed to gather information on social or environmental issues for change. It involves people who are concerned about or affected by an issue and who take a leading role in producing and using knowledge about it (Behrendt & Machtmes, 2016). It was for this reason that this study involved SMT members, teachers, SGB members, and learners. In this research, it is believed that the issue of learner academic performance affects everyone in the school community (Suprpto *et al.*, 2020). Participants who were part of and had an interest in the issue under study, drove this study. Teachers and SMT members have an interest in the academic performance of learners in their schools, as failures and successes in academic performance reflect their practices. Moreover, teachers and SMT members were co-researchers in this study.

McIntyre (2007) recognise co-researchers as playing a more active part in the research process than just being research subjects. Pope (2020) asserts that co-researchers typically have a closer relationship with the principal researcher in participatory research. Co-researching in this study meant that participants were involved throughout the research process as investigators and co-constructed the

findings and implications based on the data collected. The role co-researchers play is key in that, while I may bring important knowledge, skills and resources to the project, I might also miss key insights or interpretations because of the outsider lens.

Moreover, the creation of reciprocity and strong relationships between researchers and co-researchers is essential to the success of a participatory study (Frankena *et al.*, 2019). In our first meeting, I explained to them that we were all equal when we collect and present data, so no one should feel threatened or undermined. Boylorn (2008) makes it vivid when he says co-researchers are joint contributors and investigators in a research study. Trust in such close working groups was important. Trust builds on long-term honest relationships that are characterised by closeness, empathy, and emotional involvement (Bergold & Thomas, 2012).

“PAR was also used because of its values, which include respect for people and for the knowledge and experience they bring to the research process; a belief in the ability of democratic processes to achieve positive social change; and a commitment to action” (Brydon-Miller & Maguire, 2009:107). I was aware that teachers and SMT members had information – more than anyone else in the school community – concerning healthy school environments and their effect on academic performance and the role of the principal in promoting such environments. Participants brought knowledge, expertise and experience that enabled them to get to deeper issues and come up with solutions to their problems.

In line with Giatti (2019), PAR in this study followed six steps: problem identification; consulting with the potential researchers; data gathering and diagnosis; feedback sessions; joint diagnosis of the problem; joint action planning, implementation and evaluation of action plans. These steps are discussed in detail in chapter 5.

1.8.2.2 Strategy of inquiry

This study used a single case study as a strategy of inquiry. Yin (2011:45) defines a case study as “an empirical inquiry that investigates a contemporary phenomenon

within its real-life context, especially when the boundaries between the phenomenon and context are not clear". The phenomenon that was investigated in this research was the effect of school physical environment on academic performance of learners and the role of principals in promoting healthy school environments. The purpose of using a case study in this research was to get as much as possible in-depth details about the effect of school physical environment on academic performance of learners and the role of principals in promoting healthy environments. Multiple sources were used to collect data to get an understanding of the topic under investigation. The data gathering methods are elucidated next.

1.9 Site selection, population and sampling

In this section, I discuss how the research site was selected from the list of schools that was obtained from the district. The population, sampling and sample for this research are also elaborated on.

1.9.1 Site selection

The site was purposefully selected and as indicated earlier; data were collected in Fezile Dabi District in the Free State province. De Vos *et al.* (2011) define purposeful selection as a non-probability sample that is selected based on characteristics of a population and the research objective. The logic and power of purposeful sampling lie in selecting information-rich cases for in-depth study. To that end, information-rich cases were those from which I could learn a great deal as regards the link between school physical environments and academic performance, which were of key importance in this study. The following criteria applied in site selection:

- A school had never obtained 95–100% pass rate in the past five years. This was based on the 95% target for the Grade 12 pass rate as set by Fezile Dabi District.

- A school had a learner enrolment of more than 1 000. These were schools in the highest quartile, with more than 720 learners, as indicated by the DBE in its Ordinary Schools Master list. Twelve schools were found in this category.
- A school had not performed below 85% for the past five years. These were schools that had not been classified as underperforming. Six schools met this criterion.

The selection criteria were based on high enrolment, which is 1 000 learners in a school, and academic performance. I noticed that 12 schools out of 51 secondary schools in 2022 had enrolment of approximately 1 000 learners. The assumption is that schools with high enrolment would have low academic performance because of challenges in running the school and struggles to sustain or focus on promotion of healthy physical environments. The schools that qualified to participate in this research had not performed between 95% and 100% (never met the district target) in the past five years. Another category was of the school that had not performed below 85% (never been dysfunctional) for the past five years. The school chosen had to meet the three criteria. Four secondary schools met all three criteria.

I wrote letters to the four principals requesting the schools to participate in this study. Of four schools, only three were prepared to participate; however, in two schools, only the SMT members and teachers agreed to participate. It was important to get volunteers from the SMT, teachers, learners, and the SGB. The first of the two schools that had all four groups agreeing to participate was selected. Motivation for the choice of just one school is presented in § 5.3.2.1.

1.9.2 Participant selection and recruitment

In line with site section, purposive sampling was used to select participants to get information-rich data. Cresswell and Plano Clark (2011:31) define purposeful sampling as “a technique widely used in qualitative research to identify and select individuals or groups of individuals who are especially knowledgeable about or experienced with the

phenomenon of interest”. In this study, participants had to teach in high school and be knowledgeable about academic performance of learners and the promotion of school environments.

Recruitment started after the school principal and the SGB were approached by me and agreed to participate. I put advertisements in the school’s administration block and in the staff room. An advert (Appendix 4) was used to avoid intimidation and coercion to participate. The advert listed the requirements as per the study, and teachers who were interested in participating in this study submitted their names to the secretary. I scheduled a meeting with the teachers, SMT members, learners and SGB representation who indicated that they were interested in participating. The information on how learners were recruited in this research is presented in Chapter 5.

The sample size, according to Krippendorff (2016:481), should be “determined based on informational needs so that the research questions can be answered with sufficient confidence”. The selection of participants was informed by the organisational development theory, which emphasises the inclusion of representatives from different stakeholder groups. The participants were selected from five groups: SMT members (n=6); teachers (n=7); SGB member (n=1); and learners (n=2). A total of 16 participants participated in this research.

1.10 Methods of data gathering

Methods of data gathering are “various essentially planned procedures and methods used in research to help researchers collect data and find a solution to a research problem” (Rajasekar *et al.*, 2013:110). Lewis (2015) adds that data gathering is a series of interrelated activities designed to gather information to answer emerging research questions. In this study, in line with the case study design and PAR, multiple data gathering methods were used. The data were collected by means of photovoice, focus group discussions (FGD), individual interviews, and observations. Data gathering started with photo voice, this was the agreement between the researchers.

In FGDs researchers shared stories behind the photos that were taken. When individual interviews started, researchers had a clear understanding of the healthy school physical environment and its promotion and could elaborate on different matters pertaining to this concept. Observations became more interesting, researchers had a clear understanding of the study they could share their opinions with ease as they were comfortable with each other. Each of these data gathering methods discussed next are linked to the PAR cycle in this research.

1.10.1 Photovoice

Photovoice is “a participatory research strategy with which people can identify, represent and enhance their community through a specific photographic technique” (Milne & Muir, 2019:65). Photovoice is an example of a research method that is useful for eliciting data that may deepen understanding of the lived experiences of the participants. Participants in this research made use of disposable cameras to gather data. Photovoice in this research had three main goals:

- to enable participants to record and reflect factors in the physical environment that promote or deter academic performance of learners;
- to promote critical dialogue and knowledge about factors in the physical environment that promote or deter academic performance of learners through group discussions of their photographs; and
- to reach a consensus on social change towards improvement of physical environments in the school.

Photovoice in this study answered the following research questions:

- What factors in the school physical environment deter academic performance of learners?
- What factors in the school physical environment enhance academic performance of learners?

Participants were given cameras and asked to document various aspects of their lived experiences through photography – this is also known as *photo novella*. The photo-taking was guided by the two research questions. Photo novella can capture reality from the individual's perspective because everyone takes photographs of what is meaningful to them. The potency of photovoice lies not simply in the pictures but in the dialogical interpretation that occurs between me and those taking the pictures as discussed below.

Prior to the start of photo-taking, participants were trained on how to use disposable cameras. This stage – which is also called a camera orientation session – was important, as all participants were familiar with taking photos using their phones but not with disposable cameras. This session served as an introductory meeting, which intended to build rapport between me and the participants. Study participants were provided with a disposable camera and a demonstration of its use. Moreover, as Littlechild *et al.* (2015) believe that time management is vital in the photovoice process, participants were to take photos over two weeks, in their free time and after teaching time. They had to take up to 30 photographs (the number of images taken reflected on the disposable cameras) that they deemed relevant to the purpose of the study.

1.10.2 Focus group discussions

Flynn *et al.* (2018) define focus group discussions as group considerations exploring a set of specific issues that are focused because the process involves some collective activity. Definitions of focus groups tend to emphasise their value in “exploring participants’ knowledge and experiences and in helping to understand not only what people think but also why they think the way they do about a specific issue” (Mouton *et al.*, 2013:59). As indicated earlier, the photo shoot from the photovoice was followed by discussions where participants reflected on the content of photographs. Individuals first sorted their pictures: those that showed factors that promoted academic performance, and those that were perceived as deterring it. They selected

photographs that were most representative of their reality and discussed them in photo-sharing sessions with other co-researchers.

All co-researchers received SHOWeD forms as indicated in § 5.3.3.1 and I explained how to use them during the photo-sharing session. The purpose of the first and second focus group discussions was to allow co-researchers to reflect and share information on the images they had produced.

The formation consisted of 16 participants, which is in line with Bashore *et al.* (2017:464), who indicate that “10 to 15 participants are considered large enough to gain a variety of perspectives and small enough not to become disorderly or fragmented”. The group's composition and the discussion were carefully planned to create a non-intimidating environment so that participants felt free to talk openly and give their honest opinions. I believe that one cannot discuss a topic exhaustively just by conducting a single group discussion. Therefore, four group discussions sessions were held in this research. As mentioned earlier, the first and second were for photo-sharing, and the third was on findings from photovoice and individual interviews and action plans. It was necessary to have a session where participants were deliberating on the factors that deterred academic performance. In this session, participants suggested action plans, as discussed in chapter 5. The last session was for debriefing and sharing of information on implementation and evaluation of action plans. In all the sessions, I was the facilitator.

1.10.3 Semi-structured individual interviews

Creswell *et al.* (2007) assert that individual interviews are in-depth interviews; thus, my intention was to get a detailed information of participants' beliefs about the topic under investigation. Semi-structured individual interviews were conducted to answer the following research questions: *What leadership roles do school principals play in the promotion of healthy school environments for the enhancement of learner academic performance? What does a healthy school physical environment entail?* The

interview was only for the SMT members. The overall purpose of using semi-structured interviews for data gathering was to “gather information from key informants who had personal experiences, attitudes, perceptions and beliefs” (Creswell & Poth, 2016:3) relating to academic performance.

I conducted face-to-face interviews with one participant at a time, using open-ended questions (Appendix 5). These interviews were often accompanied by follow-up why-or how questions, as suggested by Doody *et al.* (2013). The conversation nature of the interviews was to allow relaxation and in-depth engaging in the topics. The interviews lasted for 45 minutes to one hour to minimise fatigue. I used a recording device to record all the interviews.

1.10.4 Observation

Observation was used as the fourth data gathering method. Observation is a method of data gathering where “researchers observe within a specific research field” (Driscoll, 2011:17). It is also sometimes referred to as an unobtrusive method that is a fundamental and basic method of getting information about anything, and not just seeing things, but carefully watching them and trying to understand them in depth to get some information about them (Kawulich, 2012). It allows for rich, detailed description of behaviour, intentions or situations (Kawulich, 2012). In this research, all co-researchers were encouraged to do observation during the time when plans were implemented and to scrutinise in depth if the implementation of plans was successful. In this case, the observation was used for evaluation of action plans. The focus of observation was guided by questions as indicated in Chapter 5. The participants had journals in which they noted their observations based on the questions.

1.11 Data analysis

Before the start of data analysis, immediately after each data-gathering phase, the data gathered by means of photovoice, focus group discussions, interviews and

observations were transcribed verbatim. Thematic analysis was employed to analyse the data. According to Creswell *et al.* (2011:808), “thematic analysis is a data analysis strategy that is commonly used in qualitative research. It is viewed as a linear model, where one cannot proceed to the next phase without completing the prior phase”. I followed the thematic analysis process suggested by Braun and Clarke (2022).

All participants in the discussion sessions did the preliminary data analysis, which was later finalised by me under the guidance of the study supervisor. Preliminary interpretations in all the FGDs were jotted down before grouping the data into categories in a table (Appendix 7); a table was needed to ensure the quality of the analysis (Kawulich, 2012).

1.12 Measures to ensure trustworthiness

Trustworthiness of results is the “bedrock of high-quality qualitative research”, according to Birt *et al.* (2016:1802). The following criteria were used:

1.12.1 Credibility

Credibility deals with the question, “how corresponding are the findings with reality”? (O’Reilly & Marx, 2011:330). Credibility is about establishing that findings are true and accurate. Credibility is observed through “the development of an early familiarity with the culture of participating organisations before the first data gathering” (O’Reilly & Marx, 2011:331). The site was visited several times before the start of the research. I did this to build rapport with the participants and also familiarise myself with the culture of the school. In this study, three strategies of data gathering were used to ensure the accuracy and trueness of the results. Other strategies that were used to ensure credibility are discussed in Chapter 5.

1.12.2 Transferability

Transferability is another measure used to ensure trustworthiness. It is concerned with “the extent to which the findings of one study can be applied to other situations, settings and groups” (O’Reilly & Marx, 2011:330). Transferability is “applicable beyond the study sample to similar situations, questions and problems, regardless of demographic characteristics” (Anney, 2014:220). A detailed account of how the research was conducted, the context and the participants is described in this research.

1.12.3 Dependability

Dependability shows “techniques to display that if the work was repeated in the same context, with the same methods and with the same participants, similar results would be obtained” (O’Reilly & Marx, 2011:330). Dependability refers to the “stability of findings over time and involves participants evaluating the findings, the interpretation thereof and recommendations made to ensure that they are all supported by the data received from the study informants” (Anney, 2014:412). In this study, the co-researcher analysed the data, and the findings were referred back to the participants to make sure that all the information was accurate. When participants agree with the results, dependability is enhanced.

1.12.4 Conformability

Confirmability, according to O’Reilly and Marx (2011:332), is the “indication of objectivity where steps must be taken to help ensure as far as possible that the findings are the results of the experiences and ideas of the informants, rather than the characteristics and preferences of the researcher”. This prevents researcher bias. The data gathering methods and processes were explained in detail. The processes within the study were reported in detail, as suggested by Shenton (2012:3).

1.13 Ethical Considerations

Leedy and Ormrod (2019:101) state that ethical issues fall into four categories: “protection from harm, informed consent, right to privacy and honesty with professional colleagues”. These ethical measures, as well as confidentiality, are discussed in this section. No physical or psychological harm was intended with this research study. Permissions were granted by the NWU ethics committee, the Free State Department of Education and the Fezile Dabi District Office, the SGB and the principal of the case school.

Informed consent is an ethical and legal requirement for research involving human participants. This is a process where participants are informed about all aspects of the research, and they must agree to participate in the research. This information is important for the participant to make an informed decision as to whether to agree to participate. Participants were afforded time to think about and understand the processes of the research for them to agree to participate voluntarily and to confirm their willingness to participate. Voluntary participation in this research meant that participants were allowed to withdraw at any stage of the research without explanation or negative consequences. Specifically, the participants were introduced to the study and their roles; “potential risks and benefits were outlined; information about the duration of the study and the importance of obtaining informed and signed consent to participate were provided; and participants were offered suggestions as to how to avoid potential ethical problems” (Miller *et al.*, 2012:255). Participants all signed informed consent forms, giving permission to participate in the research and to be audiotaped during discussion sessions and interviews.

The participants were made aware of ethical principles regarding using cameras. In this research, participants were discouraged from taking photos of teachers, learners and anything that would reveal the identity of people in the school community and the school; therefore, it was regarded as low risk.

Confidentiality, according to Miller *et al.*, (2012:257), is “protecting the identities of the individuals who participated in a research study”. Breaches in confidentiality can

damage the public's trust in researchers. A researcher may breach a participant's confidentiality if they use personal information of a participant or reveal their identity. In this study, the names of the participants and the school are not revealed,

1.14 Chapter layout

- Chapter 1 – Background and orientation to the study
- Chapter 2 – The essence of promotion of healthy school physical environments
- Chapter 3 – Learner academic performance in South African high schools
- Chapter 4 – Theory of learning organisations
- Chapter 5 – Research methodology
- Chapter 6 – Research results
- Chapter 7 – Research findings
- Chapter 8 – Theory-based framework for principals to promote healthy physical environments to enhance academic performance
- Chapter 9 – Summary, conclusions and recommendations

1.15 Chapter summary

This chapter provided the background to and orientation of the study. The problem statement revolved around the state of learner academic performance in South Africa in the Free State province, Fezile Dabi District, where the research was conducted. It is believed that such research, among other interventions, which is meant to improve learner academic performance, with a focus on promoting healthy school physical environments, is imperative.

Moreover, several studies that attest to the link between academic performance and school physical environments were presented. The research questions and objectives provided the scope of this research. Senge's theory of learning organisations was introduced in this chapter (elaborated on in chapter 4) and used as lens to understand

the data (presented in chapter 6) and became a driving force in the development of a framework in chapter 8. PAR was preferred in this research due to its nature that allows for participation of people who are affected by a situation to empower them to come up with strategies to solve their own problems. The emancipatory paradigm is in line with PAR and qualitative research. Multiple data gathering methods were preferred to strengthen trustworthiness and to deal with researcher bias.

The next chapter presents a discussion on what the promotion of healthy school physical environments entails.

CHAPTER 2

THE ESSENCE OF PROMOTION OF HEALTHY SCHOOL PHYSICAL ENVIRONMENTS

2.1 Introduction

The primary content of this chapter is a discussion of the promotion of healthy school physical environments. The concepts of school physical environment (SPE) and healthy school physical environment (HSPE) are defined. The chapter then elaborates on how HSPEs are promoted through school health policies, health programmes, and the involvement of teachers, learners and the community in school health promotion. Moreover, the importance of school physical environment on academic performance is explored, and special features of a school setting are emphasised. In conclusion, the leadership role in the promotion of HSPEs is discussed.

First, it is important to define key concepts or the basic terms that guide this study to allow the reader to have a comprehensive understanding of the issue at hand.

2.2 Definitions of school physical environment and healthy school physical environment

In this section, the definitions of SPE and HSPEs are provided. It is known that all schools have physical environments, but not all have physical environments that can be regarded as healthy. It is vital that each of these concepts first be explained and that information on the relationship between the two concepts then be presented.

2.2.1 What school physical environment entails

Baafi (2020), Ileoye (2015:148) and the WHO (2008) define an SPE as physical and aesthetic surroundings such as school buildings, playgrounds, water, kitchens, and

sanitary facilities. This means that an SPE is a designed and controlled environment that helps to promote teaching and learning activities within a school. Nurlinda *et al.* (2019), in their definition, include fixtures, classrooms, libraries and spaces for physical education, restrooms, playrooms, and swimming pools. Although public schools in South Africa have most of these features, very few own swimming pools. Hence, definitions of SPEs would seldom include swimming pools as a feature. Moreover, it seems that not enough physical facilities are available, as Kutsyuruba *et al.* (2015:104) emphasises “appearance of school buildings and their classrooms, school size, and ratio of learners to teachers in the classroom, and order and organisation of classrooms in schools”.

Another form of defining SPEs includes school landscape. The DBE (2013) includes school site, which is the actual physical location of the school, covered and uncovered areas of the surrounding surfaces. Covered areas could include green areas that could provide suitable spaces for learning and physical activities. In this regard, Maphoso and Mahlo (2014:129) include “trees and grass, soil condition, hedges, flowers and paving, and playgrounds” in their definition. In the context of this description, there is an element of connection to nature and natural environment.

A summary of the meanings of an SPE can be found in Yusuf (2008:12), who categorises the elements of an SPE as follows: “(i) the school landscape, including trees, grass, lawns, hedges, and accompanying paths; (ii) sports facilities, like football, volleyball, basketball and badminton grounds, tennis court, swing-slide ground, table tennis; and (iii) buildings, like classrooms, administrative blocks, library, laboratories, health blocks, kitchen, examination hall, dining hall, assembly hall, clinics, restrooms, toilets, hostels, store, staffrooms, and workshops”. These categories are inclusive of the elements mentioned in the definitions above.

The focus of this study was on the elements of SPEs, with an intention to understand the factors that promote or deter academic performance. This notion is premised on the belief that an SPE is a distinct component and a causal factor that can interact with

learner characteristics, learning-task characteristics, or a combination of these (Choi *et al.*, 2014; Naz *et al.*, 2013). Therefore, my definition of SPEs denotes features such as (1) school buildings (including classrooms, toilets and kitchens); (ii) green spaces (school surroundings and vegetable gardens); and (iii) playgrounds.

SPEs are compulsory components of any educational institution (Naz *et al.*, 2013). The SPE is a significant element of a school and focuses on “the setting of the school, intended to provide a child-friendly environment that facilitates the smooth running of the school” (Maphoso & Mahlo, 2014:310). The latter is necessary to ensure effectiveness and efficiency of the system (Koroye, 2016). According to Akomolafe and Adesua (2016), there are physical factors in schools that contribute to quality learning environments and that connect with a variety of places in which learning occurs within the classroom and across the school outside the classroom. The SPE enables the teacher and learner to carry out the teaching and learning process effectively and “contributes to the achievement of the school goals and objectives without fatigue and distraction” (Nelson *et al.*, 2015:2). The importance of an SPE is emphasised by Koroye (2016), who indicates that nothing can take place without its existence, and it must be available in the workplace for effective work to take place.

2.2.2 What a healthy school physical environment entail

According to the Merriam Webster dictionary, anything that can be regarded as healthy is something that is beneficial to one's physical, mental or emotional state – i.e., conducive to or associated with good health or reduced risk of disease. A healthy school is a place where teachers can teach and learners can learn in a welcoming environment where all educational policies can be fairly applied (Baafi, 2020). Thus, SPEs can be considered as healthy if they possess certain aspects such as a state of complete physical settings with appropriate facilities, resources and buildings, available school-based health support programmes, services and policies (Dooris, 2009). In addition, quality, positive and healthy SPEs must have “adequate and appropriate spaces for learning and well-maintained, enhanced surroundings and

buildings that support rather than hamper learning and attainment” (Choi *et al.*, 2014:12).

The benefits of having an HSPE are indicated in the literature. These benefits can be categorised into three components: benefits for the teaching and learning environment; benefits for learner academic performance; and benefits to the school. Regarding benefits for teaching and learning, Kweon *et al* (2017) argue that healthy SPEs are environmentally friendly and enhance teaching and learning. Healthy SPEs have “aesthetic and cosmetic features such as exterior painting and carefully maintained, beautiful flower gardens that foster a strong sense of belonging and generate enthusiasm for learning” (Bell & Dymment, 2008:129).

HSPEs are environments that provide for and support physical development and contribute to the health of learners (WHO & UNESCO, 2021). As outlined in UNESCO’s strategy on education for health and well-being, contributing to the sustainable development goals, health and education are mutually reinforcing healthy learners learn better, and better-educated learners are healthier (Limenu *et al.*, 2020). Ileoye (2015) believes that healthy school environments help learners achieve their academic potential and support the development of life-long healthy habits.

Healthy environments can lead to healthy schools. Healthy schools influence the perception and choice of learning experience desired by parents and learners (Mitchell, 2008). It is important to establish what children need and want to be able to increase their knowledge and improve their own health behaviour (Malek *et al.*, 2021:2). “The school setting is an ideal setting for health promotion initiatives, provides an opportunity to reach all children, and therefore this is where most programmes take place” (Malek *et al.*, 2021:335).

For environments to be healthy, there are certain requirements that have to be met. First, the South African Schools Act (SASA) (1996a) indicates that schools must have sufficient water supply for drinking, personal hygiene and food preparation. They must

have water collection points and facilities that allow for convenient access (SASA, 1996a). DBE (2019) indicates that healthy schools must have adequate water and appropriate cleaning and hand-washing materials. It is the responsibility of the Department of Basic Education to establish minimum uniform norms and standards for public school infrastructure, which includes sufficient water supply, while the SGB accounts for maintenance according to the SASA (1996a).

“In South Africa, water is crucial in the battle against poverty, and it is the cornerstone of prosperity and a limiting factor to growth” (Sibiya & Gumbo, 2013:45). South Africa is one of the few countries in the world that formally recognises water as a human right (Brown *et al*, 2016). According to the Constitution of South Africa (Act 108 of 1996b), it is every person's right to have access to clean water. In schools, basic hygiene measures taken by staff and school children, like handwashing, are compromised by a lack of water (Cradock *et al.*, 2012).

According to Popkin *et al.* (2010), drinking water should be available throughout the school day, and children should be encouraged to drink water to stay hydrated. There must be sufficient water collection points and water-use facilities in the school to allow convenient access to, and use of, water for drinking, personal hygiene, food preparation, and cleaning (Cradock *et al.*, 2012). Water points should be sufficiently close and at a suitable height for users to encourage them to use water as often as required.

Also, a proper drainage system prevents water from stagnating around distribution points. Stagnated wastewater can be a breeding place for vectors like mosquitoes and other insects (Mowla & Islam, 2013). Lack of proper drainage systems contributes to flooding (Nahvi *et al.*, 2018). It is important to maintain a proper drainage system in the school for the following reasons: good drainage prevents water accumulation by allowing the free flow of water and, in most cases, preventing accumulation that can lead to flooding. Healthy living is guaranteed if good drainage is properly managed

(Nahvi *et al.*, 2018). Mowla and Islam (2013:18) argues that regular “maintenance of the drainage system is crucial, as it waves any possible blockage that may be caused by eroded sediments or not properly disposed waste”.

Another important factor in healthy physical environments is hygienic school toilets. A report by SAHRC (2021) indicates that 77% of schools in the Free State make use of flush toilets. Township schools in the province fall into this category. As much as these schools have access to safer toilets, their condition is perceived as appalling due to lack of cleanliness and maintenance. It is interesting to note in this context that the Lucas *et al.* (2010) encourage parents to visit the toilets when choosing a school for their child. Although school hygiene and cleanliness do not form part of a formal Ofsted (2009) inspection, the issue might be raised in feedback from parents or could indirectly influence other judgments about the school. Involving parents is one way of ensuring effective management of toilet facilities in a more hygienic and sustainable way to retain optimal sanitary levels.

As the issues of sanitation go beyond availability of toilets, it should also encompass good hygienic practices. Staff toilets and school children’s toilets should be located next to handwashing points that have adequate drainage (WHO, 2016). In addition, teachers and learners need soap and towels in bathrooms to maintain proper hygiene. Hygiene refers to “habits that can enhance cleanliness and promote health, such as frequent handwashing and use of soap” (Cronk *et al.*, 2015:94). Access to hygiene is a human right and a critical precondition for ensuring good health and well-being of school children (Grossi *et al.*, 2016). Safe water and sanitation empower appropriate hygiene and are essential determinants of quality of life and human nobility (Cronk *et al.*, 2015). It is important to keep handwashing facilities clean and functional (Bolatova *et al.*, 2021). Environmental hygiene management is a vital part of good infection control where learners learn appropriate hygiene practices such as the effective washing and drying of hands (Grossi *et al.*, 2016). Schools are high-risk areas for infections because they are closed environments where children work and play near one another and can come into contact with many contaminated objects and surfaces.

Infectious diseases can, therefore, spread rapidly in schools (WHO & UNICEF, 2021) if hygiene practices are not taken into consideration and prioritised.

In schools, the high cost of improving hygiene is often a barrier to implementing health-related projects (Bolatova *et al.*, 2021) and having sustainable hygienic sanitation facilities. Other diverse challenges are frequently related to inappropriate system operation: problems with physical infrastructure; lack of continuous provision of hygiene consumables; inadequate cleaning; and insufficient maintenance (Grossi *et al.*, 2016:22). At the beginning of each academic year, the provincial Department of Education earmarks an amount for the procurement of physical resources and learning and teaching support materials (LTSM) for each school under their administration and deposits the amount directly into the so-called “section 21” school’s banking account (South Africa, 2011). It is from this budget allocation that public schools get money for cleaning and maintenance of toilets and buildings. This funding is never enough, as there are many other competing demands with no other source of income. Moreover, the DBE (South Africa, 2011) is tasked with promoting healthy schools by providing basic services such as adequate sanitation facilities that promote health and hygiene standards and should comply with the National Building Regulations and Water Service Act (Act 108 of 1997) in all public schools. Nonetheless, the issue of dirty, unhygienic toilets in schools is a cause for concern.

“Cleanliness and hygiene can be promoted in class and the school environment” regardless of the location (Cronk *et al.*, 2015). School hygiene can be promoted through the following ways: by educating learners about appropriate hygienic culture such as good handwashing; stocking up on supplies for cleaning materials such as tissues; dusting of shared objects in the classroom or school environment; and discussing healthy behaviour with learners in class and within the school premises should be encouraged and promoted (Uleanya, 2020). Ogbeba and Muluku (2013) concur by indicating that learners should be taught personal hygiene as one of the co-curricular subjects. Uleanya (2020) believes that hygiene is a contributing factor that enhances the learning abilities of learners. He further opines that cleanliness should

be treated with esteem in high schools and at all education levels. Ogbeba and Muluku (2013:21) conducted a study on “the influence of clean school environment and standard classroom-size facilities on the achievement of learners in Biology”. The study finding showed that cleanliness had an important impact on the academic performance of learners in Biology. Ogbeba and Muluku (2013:21) add that hygiene and cleanliness in schools help to ensure a better learning environment for learners and healthier school buildings. These, in turn, ensure a “lower absenteeism rate and consequently promote academic success” (Ogbeba & Muluku, 2013:22).

Second, it is important to have crucial specialist rooms, such as kitchens, libraries and sick rooms. “Libraries provide space for children to learn, offer a quiet area for learners to study and encourage them to read” (Ahlfeld, 2019:928). The school library must have an environment conducive to engagement, rise to possible challenges, and have ongoing opportunities for learners to become effective, thoughtful, responsible and ethical users and creators of ideas and information (Keller, 2018).

The sick room is a school facility where teachers can monitor learners who feel unwell and is always available for use (Shotsberger & Freytag, 2021). Sick rooms should be located where they can be accessible to injured learners and staff and should be well-lit, ventilated, and clearly identified with appropriate signage (Shotsberger & Freytag, 2021). Schools must have sick room facilities to allow for the provision of basic first-aid care as well as first-aid treatment such as minor cuts, scratches, bruising, and bodily injury (ISHP, 2012). In a school, a teacher is assigned the responsibility of providing first aid to learners. The primary focus of an operational sick room is to create a health service environment conducive to learning about health and illness, developing lifetime skills in self-help and self-care, creating a friendly atmosphere, and involving learners and staff in taking pride in their school health services centre (Ager, 2013). To serve such a purpose, the sick room must have all the necessary equipment that would enable functionality. Absence of sick rooms reflects the poor state of school health services (Oyinlade *et al.*, 2014).

“The significance of a sick room is to provide first aid to learners, because the lives and safety of children are of utmost importance” (Kuponiyi & Olorunfem, 2016:2). “Schools are like the second home for children where they spend most of their time; while school focuses on the intellectual development of the learners through academics, they are also expected to do something about their health knowledge development” (Kuponiyi & Olorunfem, 2016:2). “Care provided in a sick bay has a positive impact on learner success and is an essential component of teaching and learning” (Bolatova *et al.*, 2021).

Third, schools with healthy environments have appropriate fencing around the school buildings, with burglar proofing, an alarm system, a security guard, and fire extinguishers that conform to national and international regulations (GDBE, 2014). In other words, healthy school environments have safety and security measures in place. School safety, according to Kutsyuruba *et al* (2015:24), is “prevention and early intervention to support schools in consistently delivering teaching and learning in an environment that is physically and socially safe”. Safe schools promote the protection of learners from violence, exposure to weapons and threats, theft, bullying, unhealthy places and the sale or use of illegal substances on the school grounds (Masitsa, 2011). According to Xaba (2014), generally, schools are concerned with creating effective teaching and learning spaces for both teachers and learners, but sadly, school communities find themselves in situations where other concerns take up most of their energy, resulting in the core business of schools, although important, becoming a secondary priority. Schools are faced with matters of safety and security. A safe school environment is one that is not dangerous and that does not pose a threat(s) to the school community in terms of their physical, emotional and psychological well-being. School safety contributes to the promotion of healthy school environments. Themane and Osher (2014) agrees with Xaba (2012), recognising a safe school environment as a secure environment that is free from physical and psychosocial threats.

The Gauteng Department of Basic Education (GDBE, 2014) addresses aspects of safety and security of learning institutions by considering the following: visitation to

schools; presenting regulations for safety measures at public schools; providing measures for emergencies and fire procedures, including emergency evacuations, installation and maintenance of fire extinguishers and alarms, as well as the conducting of fire drills; declaring schools as zones that are free of drugs and dangerous objects; giving directives relating to dangerous objects or illegal drugs on school premises; and allowing random body searches and/or randomly administering urine tests to learners who are reasonably suspected of using illegal drugs. The presentation of these guidelines by the Department of Education is an indication that the safety of teachers and learners in a school is of paramount importance.

Lack of school safety can lead to academic performance that is not on a par with the goals and aspirations of the school (Ncontsa & Shumba, 2013). Learners who are victims of physical or emotional harassment, or who are involved in the sale or use of illegal substances on school grounds, are at risk of poor attendance, failure, and dropout (Burton & Leoschut, 2013). Lack of safety in a school is counterproductive and defeats the purpose of effective teaching and learning. The levels of crime and substance abuse a school experience are strongly correlated with school-wide test scores, academic performance, and attendance rates (Masitsa, 2011). In schools with higher levels of collective hostility, one finds gangs, fighting between different groups of learners, and poor performance in reading and in test scores (Masitsa, 2011). A perception of safety is a foundation that makes it possible for learners to be ready to learn and feel accepted (Zuilkowski & Marty, 2021). Safe schools are a prerequisite for learning, while unsafe schools can negatively affect learners' well-being and educational success (Schiell, 2021). Adherence to safety measures fosters an optimal learning environment in which learners feel safe and supported and are in a better position to prosper in terms of academic performance (Cardinal, 2021).

The fourth aspect is about aesthetic surroundings. Aesthetics in this research refer to an appreciation of the natural environment. School grounds are places for everyday play that can provide many benefits for children, supporting their physical and mental health, learning and development (Bell & Dymont, 2008). Their design and properties differ but they have an impact on children's activities (Garbett, 2020). Aesthetics of a

school environment can be a factor that could contribute to an improved quality of education. School grounds can have multiple values, and especially sufficient size and green elements have been described as positive qualities (Jansson & Ericksson, 2018).

School ground content is of great importance for well-functioning school grounds (Chawla *et al.*, 2014). Learners enjoy more vegetation on their school grounds (Rosenberg, 2020), and they favour flowers and woody species. Well-designed, sufficiently large school grounds with several settings of varied content, with greenery, sports facilities and multifunctional seats and equipment are appreciated and important for learners in secondary school (Jansson *et al.*, 2018).

Playing in areas with a natural character has been found to be more imaginative, varied, gender-mixed and creative than in other settings. Children in schools like green grounds (Bell & Dymont, 2010). In addition, according to Chawla *et al.* (2014), green grounds help learners with finding peace from stress, with physical activity and with building social relationships.

The fifth predictor of a healthy school environment is cleanliness of the school. Cleanliness should be treated with esteem in all schools, and learners should be taught personal hygiene as one of the extracurricular subjects (Uleanya, 2020). Furthermore, according to WHO (2018), cleanliness can be promoted by educating learners about appropriate hygienic culture such as keeping their surroundings clean, stocking up on cleaning materials, showing learners how to maintain a healthy nature, and discussing healthy behaviour with learners. In schools, teachers must ensure cleanliness within classrooms, on the school premises, and in toilets (Uleanya *et al.*, 2019). Community members, parents, teachers and learners can be informed about the dangers of lack of cleanliness, which may help them to take the issue of cleanliness more seriously (Fives *et al.*, 2012). Cleanliness needs to be regarded as a priority by doing regular check-ups and monitoring the roaster to clean certain places (Fives *et al.*, 2012). Loffing and Hagemann (2016) share the same opinion regarding the

importance of cleanliness in schools, namely, to provide a healthy, safe environment for learners.

The sixth predictor is about the availability and usability of sports grounds and sports facilities. School grounds are important settings for the promotion of children's physical activity, and they provide regular opportunities for children to be active (De Meester, 2014). School sports grounds represent a significant factor relevant to parental school choice and policymakers because the ambiance encourages learners to want to attend and learn (Alsaudi, 2015). The findings of a study conducted in Saudi Arabia by Alsaudi (2015) indicated that learners took pride in their surroundings and the fact that they belonged to an impressive institution that they could be proud of. Consequently, parents are more likely to select new, beautiful schools than those that are antiquated and without sports grounds and equipment.

There is some evidence that changes in the environmental supportiveness in schools are associated with changes in physical activity – meaning, where there is no sports ground, learners do not take part in sports (De Meester, 2014). Van Sluijs *et al.* (2013) looks at the availability of school sports facilities through another lens: the author says that the wider community uses school premises to enhance perceptions of the school within the local community, which provides opportunities for greater parental and community involvement in schools. In South Africa, disadvantaged schools in township and rural areas lack basic sports and recreation facilities and sports equipment, and as a result, the development of sports skills and talent suffers tremendously (Walter, 2014).

2.3 Healthy school physical environments and academic performance

This section intends to establish a link between healthy physical environments and academic performance. In the foregoing sections, information on the essence of healthy physical environments was presented. As alluded to earlier, the definition of physical school environments in this research comprises three components: physical

facilities, including buildings; landscaping; and school grounds and facilities. It is with each of these components that this section intends to establish connections with academic performance. The essence of academic performance is presented in chapter 3; in this section, only its association with healthy school environments is discussed.

The argument in this research is that learners need a healthy and stimulating environment in which to grow and learn (Usaini *et al.*, 2015) for them to perform well academically. School learners spend six to eight hours at school, where the environment plays an important and critical role in their development (Usaini *et al.*, 2015). The school environment, according to Kweon *et al.* (2017), is of paramount importance in shaping and reshaping intellectual ability, and this makes learners more comfortable and more focused on their academic activities, which result in high academic performance. A proper and adequate environment is greatly necessary for fruitful learning of the child and provides the necessary stimulus for learning experiences (Usaini *et al.*, 2015). Supporting this, Jimoh *et al.* (2017), in their study in Nigeria, investigated the influence of a school plant on students' academic performance in Economics in secondary schools in Ile-Oluji Okeigbo Local Government Area of Ondo State. The findings showed that educational equipment, buildings and playgrounds, and plantations had a significant influence on students' academic performance in Economics. A further emphasis is on provision of required and conducive SPE for an effective teaching and learning process to occur (Akomolafe & Adesua, 2016). Based on such notions, the next subsections present information on the association between each component of SPEs and academic performance.

2.3.1 School buildings

In this component of SPE, the relationship between clean classrooms and the availability and condition of toilets and academic performance are presented. The effects of unclean and overcrowded classrooms with broken windows on academic performance are also discussed.

2.3.1.1 Classroom conditions

Ogbeba and Muluku (2013) conducted a study on the influence of a clean school environment on the achievement of learners in Life Science. The finding of the study revealed that cleanliness had significant effect on the academic performance of learners. However, the study only focused on one subject, not the general academic performance of learners. Similarly, Kiplagat *et al.* (2017) conducted a study on the perspectives of students in connection with the impact of cleanliness of university facilities on academic achievement, using one public university in Kenya. The findings showed that cleanliness contributed to the qualification of students. There is a significant difference between the achievement of learners from clean schools and those from dirty schools (Tsavga, 2011). Learners from clean schools have higher achievement scores than those from dirty schools.

On the contrary, a dirty classroom encourages learners to litter, portrays a negative image of the school, increases illnesses and absenteeism, and reduces performance (Matsekoleng, 2017). Messy and dirty classes not only present a poor image, but they can also be distracting and negatively affect teaching and learning. Msezane and Mudau (2014) assert that learners consume different foodstuffs daily, which are most of the time covered by plastic bags and papers, which they throw on the ground and in their classrooms. Learners do not only litter but also write graffiti on desks, classroom walls and ceilings, and vandalise school furniture (Msezane, 2014). Some schools punish misbehaving learners by forcing them to clean the classrooms and surroundings, but learners end up having a negative attitude towards keeping their environment clean because grounds staff and culprits will clean up after them (Msezane, 2014). Building a classroom culture that values the school, teaching responsibility, accountability and cleanliness to prevent clutter is up to the teacher (Mapotse & Mashiloane, 2017). Mapotse and Mashiloane (2017) further believe that learners should be involved and encouraged to take care of their classroom from the start. Hashimoto *et al.* (2012) support the idea by indicating that learners must be

assigned different cleaning tasks to keep the class clean and create a clean environment in which to study.

The impact of class size on learner achievement remains an open discussion despite a plethora of studies that have been published on this issue. There are those who believe that smaller classes allow a better quality of teaching and learning which consequently leads to improved academic performance (Bruhwiler & Blatchford, 2011). A study conducted by Bruhwiler and Blatchford (2011) revealed that smaller classes led to higher academic learning progresses, better knowledge of students, and better classroom processes. These findings are supported by Freeman *et al.* (2017), who indicated that a smaller number of learners in a class is associated with more interaction, and Ballen *et al.* (2019), who mentioned benefits especially for at-risk learners.

In the South African context, most studies conclude that larger class sizes are linked with poorer educational outcomes on average (Köhler, 2022). Overcrowding in South African classrooms is a vast issue that affects academic performance. Masitsa (2011), in his study that he conducted in the Free State province in South Africa, commented on learners who sat on desks and some shared chairs or stood when they were taught due to overcrowded classrooms. The study mentioned Grade 12 learners who were overcrowded, with 64 in a classroom which was supposed to accommodate half this number (Masitsa, 2011). Overcrowded classrooms occur because of a shortage of teachers, a lack of school infrastructure, and a high number of poorly resourced no-fee (quintiles 1–3) schools (Meier & West, 2020). According to Okolo *et al.* (2018) and Muthusamy (2015), school infrastructure and overcrowding affect the quality of education and are influential factors when considering better academic performance in classrooms. Van Wyk and Van Der Westhuizen (2015) also believe overcrowded classrooms contribute to poor learning environments because of the lack of space and fresh air which could lead to a lack of attention and even create stress in learners.

Windows are also indicated as a factor in the academic performance of learners in South African schools. Ntwaagae (2013) reveals that many of the classrooms and offices in South African schools have broken windows. An investigation conducted in one high school in the Western Cape province revealed 500 broken windows that had been broken for more than four years (Equal Education, 2013). Broken windows can cause cuts and wounds, are not safe for learners at the school, and can be extremely dangerous (Wolhuter & Russo, 2013). Broken windows can damage the appearance of the school and do not give a clean and professional look, because the condition of windows indicate that the school properly has not been taken care of, which is something that the parents of potential learners check before registering their children at the school (Eloff *et al.*, 2010).

Furthermore, classrooms with broken windows are cold in winter. It is extremely difficult for learners to concentrate in a cold classroom without windows in winter (Wolhuter & Russo, 2013). Thus, broken windows in the classroom become a means of distraction for learners, which means that they will not pay full attention during class hours, eventually resulting in poor grades and results (Eloff *et al.*, 2010). Sommer (2010) believes that it is advisable to maintain the positive and safe reputation of the school by getting the broken-windows problem fixed as soon as possible.

Interesting views – including the view of vegetation and the view of human activity – through a window always give positive satisfaction (Lau & Yang, 2009). The body's conditioning depends on awareness of the daylight cycle to function properly, so without exposure to window light, the human body clock can get confused, and this can lead to lack of memory and focus (Lindemann-Matthies *et al.*, 2021). Therefore, it is not surprising that classrooms with opening windows see learners' performance improve faster than the performance of learners in classrooms without windows or windows that do not open (Lindemann-Matthies *et al.*, 2021). Research has revealed the difference in response between a good window view against no view; a good view results in increased efficiency, mental function, and improvement in memory recall (Lindemann-Matthies *et al.*, 2021). One study surveyed 3 000 learners in a school with

both windowed and windowless classrooms (Chen, 2015). The same study found that 94% of the participants preferred classrooms with windows; only 4% indicated a preference for windowless classrooms. In addition, the teachers at the school described the learners in windowless classrooms as shy and more likely to complain (Chen, 2015). Another study of primary school learners found a 14% improvement in learner performance for those in classrooms with operable windows (Dudek, 2007). These consistent and positive findings contradict some educational theories that postulate that views from classroom windows can be distracting for learners, having a negative effect on learning (Gelfand & Freed, 2010).

2.3.1.2 Availability and condition of toilet facilities and academic performance

One of learners' most fundamental needs, which must be met at school, is adequate sanitation facilities (Uleanya, 2020). Enough sanitation facilities are determined by the required number of toilets cubicles for every school, depending on the school enrolment (Adjibolosoo *et al.*, 2020). A maximum of 40 pupils using a toilet cubicle per day is recommended (Ghana, 2010). Toilets for children should be appropriately sized to ensure that children are comfortable with and feel safe in the use of the toilet (Ghana, 2010). The WHO (2010) suggests a separate toilet block for boys and girls, and a changing room for adolescent girls in each toilet block for girls is highly acceptable, since this ensures adequate privacy for each gender group (Ghana, 2010). Toilet doors must have bolts, which are lockable from the inside to provide maximum security to all users. Toilets must also be reasonable distances from the school buildings for easy accessibility, increased maximum usage and maintenance (WHO/UNICEF/JMP, 2010). For girls, having appropriate sanitation is important. Girls often find it difficult to manage their menstrual periods due to lack of adequate and clean school facilities (Sommer, 2010). In such periods, girls may routinely stay home when they are menstruating, compromising their education (Ogbeba & Muluku, 2013).

Uleanya (2020) asserts that toilets that are not maintained pose a health risk to learners. When children have access to safe water, toilets and soap for

handwashing at school, they have a better environment to study, learn and realise their full potential (Sommer, 2010). According to Sommer (2010), adequate and safe school sanitation is not only a prerequisite to the health and dignity of school learners but plays a crucial role in advancing education in South Africa. Learners' health is central to improving their academic performance, which is promoted by providing a healthy and inviting learning environment where they are protected from physical harm which can lead to compromises in cognitive development and absence from schools (Ogbeba & Muluku, 2013). The link between sanitation and learner performance plays a significant role in enhancing academic school performance (Sommer, 2010). The major negative consequence of this is that children who attend schools without toilets use that as an excuse to go home without going back to class. Teachers also use teaching hours to look for a toilet facility because there are no toilets facilities available (Ogbeba & Muluku, 2013). Girls are also absent from school during their menstrual period, so every month, female learners miss classes for at least a week, and this affects their studies (Adjibolosoo *et al.*, 2020). Khamisa *et al.* (2022) confirm that schoolgirls leave early from school, some dodge and come back, but the afternoon lessons become tough because they are distracted, lose concentration, are tired and cognitively impaired.

2.3.1.3 General outlook of school buildings and academic performance

People instinctively believe that the physical structure of a building can especially influence those residing within the building (Earthman, 2017). Hartenberger *et al.* (2011) cited Winston Churchill: "We shape our buildings; thereafter they shape us." However, it is difficult to measure how buildings influence their users. How individuals perceive buildings is both personal and flexible in nature (Earthman, 2017). Research has indicated that the condition of a school building can influence the performance of learners and teachers because they spend substantial time within the school building, and consequently, the building can be influential (Earthman, 2017).

A properly maintained school building, with requirements such as sanitation, might be taken for granted, but for some South African learners, the lack of these facilities keeps

them from excelling in their schoolwork and finishing school (Williams, 2013). These situations lead to learners being less motivated, more withdrawn and poor academic performers (Moon *et al.*, 2012).

School buildings that are in poor condition contribute to systematically under-educated learners in schools (Turunen *et al.*, 2014). Earthman and Lemasters (2017) presented a research review focusing on the effect of SPEs on student performance. They stated that every study they described clearly showed a relationship between student performance – both achievement and behaviour – and the condition of the built environment. According to them, it is essential to invest in improving the built environment of schools as a means of improving pupil achievement and behaviour (Earthman & Lemasters, 2017).

2.3.2 Landscape, green spaces, clean surroundings and academic performance

The design of today's school buildings and spaces is beginning to reflect the values of green and healthy learning environments, as more green spaces are incorporated in schools (Brandli *et al.*, 2020). Research by Kweon *et al.* (2017) demonstrated the positive effects of green spaces on academic performance and human behaviour. Although research discovered links between green surroundings and learner achievement, only limited research has focused on the effects of green spaces on cognitive function, specifically measured by learner academic performance (McCurdy *et al.*, 2010). It is reprehensible that most South African learners have been dispossessed of some or all these features when compared with international standards (Visser *et al.*, 2016).

Green lands play a vital role in drawing focus and concentration, for when learners become mentally tired, they may display irritable behaviours such as agitation and may have concentration challenges, leading to failure to perform well or as expected (Kweon *et al.*, 2017). Spending more time in a green space or views of green can

improve both direct attention and performance (Bratman *et al.*, 2015). In addition, proficient and advanced academic performance in reading and mathematics was observed by Williams and Dixon (2013) in their USA study; they found that there was a performance connection between learners and green spaces. Exposure to outdoor green spaces may also improve learners' academic outcomes, and learners who are taught on green schoolgrounds as outdoor classrooms find an outdoor, nature-centred environment for learning much more meaningful than an indoor, book-centred environment (Williams & Dixon, 2013). The implication is that green grass, flowers and trees and water ponds may bring motivation to learners at school level. In agreement, Jimoh and Balogun (2022) recommend that principals should be adequately informed and sensitised about the importance of school plant in school goal achievement.

There are many good reasons for increasing and maintaining green plantation in schools, such as stress reduction, motivation and improved physical activity. Adams *et al.* (2018) believe that access to green space and nature is considered to improve the mental well-being of children and have restorative and relaxing properties, enabling an escape from stressful situations. Dettweiler *et al.* (2017) define stress as the perception of discrepancy between environmental demands (stressors) and individual capacities to fulfil these demands. Research suggests that outdoor nature play is important for children's mental, emotional and social well-being by developing connections to social and physical environments while stimulating imagination and creativity (Bell *et al.*, 2018). Van den Berg *et al.* (2016) speak of the stress reduction theory, which seeks to explain the impact of connections to nature on mental health and well-being. This theory is of therapeutic interest by suggesting that environments produce certain effects; perceived safe environments trigger positive intellectual and emotional responses when children are exposed to green spaces, resulting in improved grades (Van den Berg *et al.*, 2016). Stress reduces learners' work rate, their ability to learn in class and causes lack of concentration in class. This, in turn, leads to poor quality work and reduces academic performance (Joseph-Antoine *et al.*, 2021). Many scholars have conducted research on stress and its outcomes on academic performance and concluded that it is important for schools to maintain a well-balanced

academic environment conducive to better learning (Agolla, & Ongori, 2009; Ongori & Agolla, 2008).

Voight *et al.* (2013) emphasise that most schools have comfortable and beautiful environments at their disposal but are not academically successful. It can happen that the actual learner achievement is unaffected by the physical environment; however, achievement behaviours, such as attendance, class participation and satisfaction, can be affected by the physical environment, as learners in uninviting schools may experience fatigue and discontentment (Okeke & Mtyuda, 2017).

2.3.3 School grounds and sports facilities

Akomolafe and Adesua (2016) believe that the mind and body are one entity and that anything that happens to the one will affect the other. It is believed that the whole child comes to school to be educated and that education is about both mental and physical training. Based on this conviction, there has been a parallel development of mental and physical training in schools globally. Physical activity contributes to intellectual development and hence academic achievement because the functions of the mind and the physical body are one entity (Akomolafe & Adesua, 2016). Consequently, those who support physical activity advocate for the need for long-term strategies that include the availability of sports grounds, sports facilities, and continuous use of such facilities to the benefit of learners. Howie and Pate (2012) and Jones *et al.* (2014) argue that quality physical activity positively contributes to cognitive thought processes and concentration levels, leading to improved academic performance. Availability of sports facilities helps in the development of school teams, which is a viable way in which to promote better development in academic performance (Pate, 2009).

In South Africa, inactivity is often associated with disadvantaged communities (Walter, 2014). This means that learners from poor socio-economic backgrounds could have lower physical activity than those in affluent communities. Disadvantaged schools and townships areas lack basic sports and recreation facilities and resources. Black

learners have been discouraged from sports participation by the absence or neglect of facilities and equipment (Mchunu & Le Roux, 2010). In such conditions, learners from disadvantaged communities cannot have the benefits of physical activity that are linked to academic performance as learners in advantaged communities. Ahn and Fedewa (2011) argue that illiteracy is not confined to the person who is not able to read or write or use the computer but includes a person who fails to adequately exercise and play physically (Ahn & Fedewa, 2011). In this case, inactivity due to unuse of available facilities is tantamount to illiteracy.

2.3.4 School safety and academic performance

The DBE takes school safety seriously and deems it a top priority. Various policies have been put in place that strive to provide the school community with the guarantee of health and safety within the school environment. The Bill of Rights, Chapter 2 of the Constitution of South Africa (1996b), provides the framework of rights, including the safety of all learners, educators and relevant stakeholders in schools. This right implies that teachers also have the right to teach or work in a safe and secure school milieu, which is of critical importance, because in the absence of such an environment, the teacher would not be able to effectively perform their duties and responsibilities (Masitsa, 2011). The South African Schools Act (SASA) (1996a), as amended – sections 8, 8A, 9, 60 – provide safety measures at public and independent schools. Schools are, therefore, legally obliged to protect the rights of learners to a safe and healthy environment.

Safety in schools is necessary to support the academic success of each child, giving them the opportunity to learn and achieve in a safe and nurturing environment (Mapaya, 2019). A school is an environment that is nurturing and that provides opportunities to pursue knowledge and to achieve personal growth (Tshatshu, 2016). Numerous factors create safe schools for learners, including zero-tolerance policies and the creation of safe spaces for learners with programmes for drug- and violence-free schools. When such measures are in place and enforced, safe school

environments that are free from threats to personal safety, violence and bullying, providing a structured and inviting atmosphere (Cornell & Mayer, 2010; Mayer & Furlong, 2010), will be created and maintained.

Schools are supposed to be safe places where effective teaching and learning can take place. For instance, keeping schools safe allows children to look forward to being in an encouraging environment that promotes social and creative learning (Riesch *et al.*, 2011). Learners need to concentrate during lessons to perform at their best in school. The safety of teachers is as important as that of learners. The SAHRC (2008) states that as much as children should be provided with a safe learning environment, educators also need to be provided with a safe work environment so that they can carry out their duties with confidence. It is for this reason that the South African Council for Educators (SACE) (2021) published a handbook on teacher safety and security in South African schools. In addition to the acknowledgement of the impact of violence on teachers' physical and psychological well-being, there is an agreement on the negative effect on the delivery of tuition. It was envisaged that the handbook would provide teachers with the necessary skills that would enable them to deliver lessons without fear and intimidation (SACE, 2021).

Nonetheless, daily, learners are expected to go to unsafe schools to pursue their dreams (Tshatshu, 2016). Due to a hostile and unsafe school environment, learners are more likely to feel stressed and to have low motivation for learning (Steck & Perry, 2018). Steck and Perry (2018) and Zuilkowski and Marty (2021) state that learners in unsafe schools are at a higher risk of academic failure, with alarmingly high dropout rates, which is associated with the chronic stress. Being in unsafe spaces with unlocked gates and where gangsters do as they please makes it hard for learners to concentrate and pay attention in class (Farhangpour *et al.*, 2019). Moreover, when learners' basic safety needs are not met, they are at risk of not feeling comfortable at school and may stop showing up, or they may remain on edge throughout the day (Jacobson *et al.*, 2011).

Unsafe conditions in schools contribute to lack of concentration in class, paying little attention to learning activities, and an increase in absenteeism. In addition, the after-effects of feeling unsafe include curtailing activities, feeling threatened, experiencing emotional or stressful reactions, and feeling at risk because of activities that are a threat to safety in the school (Sautner, 2008). One survey of middle-school learners reported that sixth, seventh, and eighth grade learners missed class because they felt unsafe in school and were threatened with uncontrolled violence, which affected a tremendous percentage of school performance (Jacobson *et al.*, 2011). Specifically, recent literature reveals that unsafe schools affect class attendance, engagement and motivation, as students in such environments may suffer from mental health problems, such as reduced self-esteem, an inability to concentrate, and depression (Barrett *et al.*, 2012; Dunne *et al.*, 2013; Hazel, 2010; Hemphill *et al.*, 2014; Kosciw *et al.*, 2013).

2.4 Promotion of healthy school physical environments

It is important that the teaching and learning environment is proper. Koroye (2016) confirms that the setting must be attractive enough to make learners wish to spend long hours in school. In this case, it is important to elaborate on how healthy school environments are promoted. The following sub-section starts by discussing school health promotion in general and then elaborates on what promotion of healthy school environments entails.

2.4.1 The essence of promotion of healthy school environments

According to the Ottawa Charter (WHO, 1986), health promotion is a vital core intervention strategy in the South African national health system which forms a central framework for action to improve health in policies of the national, provincial and local governments. School health promotion forms part of the South African national health system. School health promotion is an internationally recognised approach that connects health promotion and education in a planned, integrated and holistic way (Coovadia *et al.*, 2009). South Africa adopted the concept of a health-promoting school

in 1994 to address historical imbalances in both educational and health services (WHO, 2013).

Schools that are part of health promotion are also referred to as health-promoting schools. In 1997, an expert WHO committee on comprehensive school health education argued that health-promoting school initiatives would positively influence the health and education of future generations (WHO, 1997). Since then, practice and research by many scholars followed with the focus on health-promoting school, which can be defined as a school that constantly strengthens its capacity as a healthy setting for living, learning and working (WHO, 1998). The health-promoting school's framework comprises programmes that are to be implemented by each school that has obtained a health-promotion status (Coovadia *et al.*, 2009). Health-promoting school programme implementation, according to Clarke *et al.* (2010) and De Meij *et al.* (2013), represents a complex and great interaction between the characteristics of the initiative (school health promotion), the providers in schools (teachers leading health, wellness, and other related committees) and various aspects of the organisation and functioning.

Promoting HSPEs has been an important goal of WHO, UNESCO, UNICEF, and other international agencies since the 1950s. The aim of health-promoting schools is to achieve healthy lifestyles for the whole school population through developing supportive environments that are conducive to promoting health and effective learning (Kwatubana, 2018). The main objective of the promotion of HSPEs is to enhance educational outcomes, because the core business of a school is maximising learning outcomes to achieve good academic performance (Amlaner, 2015). Successfully promoting a school environment, according to Oyinlaade *et al.* (2014), is an essential educational investment, and the following are characteristics of a school where a healthy environment is promoted: friendly environment, meaning that the appearance of the school is inviting; the school strives for learner-friendly conditions in the buildings; the school is designed to reduce stress, it is comfortable, clean and sanitary; and the risk of adverse health effects is very small.

The work of Simovska *et al.* (2015) carefully develops the issue of sustainability in health-promoting schools. For example, Griebler *et al.* (2017) argue that effective health-promoting schools have common and similar features, like a clear and focused vision; a safe and encouraging school environment; excellent leadership celebrating learner and school achievements; and strong parent–teacher relationships. Likewise, in strengthening sustainable development in schools, learners need to become critical about their attitudes and behaviours related to health and sustainability (Deschesnes *et al.*, 2014). In strengthening health-promoting schools, there is a need for involvement of learners, teachers, parents, school community members, and health professionals. Dassanayake *et al.* (2017) and Kearney *et al.* (2016) argue that the necessity for collaboration across professional and institutional boundaries can be attributed to a need for a whole-school approach. Yet, schools like to remain with a traditional approach instead of realising an integrated approach, which indicates a need for more support during implementation and adjustments of health-promotion activities (Adamowitsch, 2017; McIsaac *et al.*, 2017). The involvement of different stakeholders in school health promotion is discussed in the next sub-section.

The settings approach is important in the promotion of healthy school environments. The WHO (1986) asserts that health is made and lived by people within the settings of their everyday life where, they learn, work, play, and love. According to Banerjee and Greene (2016), a school may be the optimal setting to display educational health-related interventions. Educators may have the opportunity to gradually positively influence students' life-long learning and work to reduce health inequalities. Moreover, schools are best suited to adopt innovative active approaches, where learners are not considered as passive but are engaged in practical actions about healthy lifestyles. Therefore, the WHO (2005) indicates that schools need to come up with health intervention strategies and provide healthy environments for learners. In this regard, there is a need to strengthen schools as the heart and base of health. Owing to the limited effectiveness of traditional health education curricula in schools, there is

increasing interest in interventions aiming to promote young people's health by modifying the school environment (Banerjee & Greene, 2016).

2.4.2 How healthy physical environments are promoted

This subsection elaborates on the policy that guides the promotion of healthy physical environments, health programmes, involvement of teachers, learners and community members, and partnerships and collaborations. This is a multipronged approach that is implemented in health-promoting schools worldwide. The involvement of the school community – including parents, community members, and health professionals who have interest in school health promotion – can be regarded as a whole-school approach. The whole-school approach to health has six essential components: (i) healthy school policies; (ii) physical environment of school; (iii) social environment of school; (iv) individual health skills and action competencies; (v) community links; and (vi) health services (Moynihan *et al.*, 2016). The pillars of health promotion are discussed below.

2.4.2.1 School health policies and programmes

Several policies have been implemented in schools with the objective of providing healthy school environments and to educate learners about healthy living. These policies include having a formal health promotion school policy as part of education policies. An example of such a policy in the South African school context would be the inclusion of Life Orientation in the Curriculum Assessment Policy Statement (CAPS). The objectives of Life Orientation are to: 1) guide and prepare learners to respond appropriately to life's responsibilities and opportunities; 2) equip learners to interact optimally at a personal, psychological, cognitive, motor, physical, moral, spiritual, cultural and socio-economic level; 3) guide learners to make informed and responsible decisions about their own and others' health and well-being; 4) expose learners to their constitutional rights and responsibilities, to the rights of others, and to issues of diversity; 5) equip learners with knowledge, skills and values to make informed

decisions about subject choices, careers, additional and higher education opportunities and the world of work; 6) expose learners to various study methods and skills pertaining to assessment processes; and 7) expose learners to an understanding of the value of regular participation in physical activity (DBE, 2011). Life Orientation is a curriculum-based subject that promotes healthy school environments. This policy is supported and implemented in parallel with a combination of education and health policy such as the Integrated School Health Policy (ISHP) that was piloted in schools in 2010 and adopted in 2012. The national health policies that apply in this research are the ISHP (South Africa, 2012) and CAPS (2012).

The South African government has pledged to “put children first” by becoming a signatory to the United Nations Convention on the Rights of the Child, Office of the High Commissioner of Human Rights (1989) and by according children special recognition in the Bill of Rights, Chapter 2 of the South African Constitution (Republic of South Africa, 1996). This commitment aims to ensure that children’s rights are upheld, and that provision is made to enable all children to reach their full potential. This is especially important in the formative school years, during which providing special attention to children’s optimal health would improve not only their survival, growth, and health but also their learning outcomes and development (ISHP, 2012). The ISHP intends to support such a commitment by providing directives and guidelines on how school health promotion can be conducted in schools.

The perspective of the ISHP is intersectoral (implemented by different sectors) since the core business of schools is focused on educational outcomes rather than the reduction of health problems. The ISHP (2012), as mentioned above, is a policy implemented to strengthen the school’s capacity to address children’s needs for healthy development (Department of Health, 2012). From an educational point of view, the school’s contribution to health includes a reference to citizenship and healthy living with a dual purpose: a) to create conditions for pupils’ achievement (such as school environment, school climate, nutrition services, policy and planning, access to social

and health services, and partnerships); and b) acquiring health competencies for empowerment for healthy decision-making (Jourdan, 2011).

The ISHP (2012) aims to build on and strengthen existing school health services through:

- A commitment to close collaboration between all role players, with the Departments of Health (DOH), Basic Education (DBE) and Social Development (DSD) taking joint responsibility for ensuring that the ISHP reaches all learners in all schools.
- Provision of services to learners in all educational phases. These are the Foundation Phase (Grades R–3); the Intermediate Phase (Grades 4–6); the Senior Phase (Grades 7–9); and the Further Education and Training (FET) Phase (Grades 10–12).
- Provision of a more comprehensive package of services which addresses not only barriers to learning but also other conditions which contribute to morbidity and mortality amongst learners during both childhood and adulthood. Although the ISHP initially targeted the most disadvantaged schools, sequenced plans for progressive implementation aim to ensure that all learners are reached.
- More emphasis being placed on provision of health services (as opposed to screening and referral) in schools, with a commitment to expanding the range of services provided over time. Mechanisms need to be in place to ensure that learners who are assessed as requiring additional services receive these services.
- Implemented within the Care and Support for Teaching and Learning Framework that is currently being used by the DBE to cohere to all care and support initiatives implemented in and through schools, including school health services.

The ISHP (2012) guides the provision of school health services to learners. This aspect is crucial, as research reveals a significant relationship between academic achievement and the health status of learners. Health problems have a significant

influence on the overall performance of learners, thus there is a need to look at the various health determinants and how they affect learners. Identifying health factors that impact learner performance is essential because of the relationship between health and academic performance (Knopf *et al.*, 2016). In the context of South African schools, health services are the responsibility of the DOH. School nurses are allocated a few schools they are mandated to provide health services to. These services are important for detecting early signs of learning disabilities in learners. It is believed when learning disabilities are detected early, chances of reverting their progression are higher if suitable remedial action is taken.

The ISHP (2012) aims to develop skill-based health education. Jones and Lavallee (2009) believe that positive high school learner skills development may be fostered through being taught skills, values and virtues that help them thrive throughout life. It is also believed that many of the skills required to succeed are transferable to other life contexts. These skills include problem-solving, time management, goal setting, coping with success and failure, and performing under pressure (Jones & Lavallee, 2009). There is evidence that knowledge and motivation alone without skills development do not necessarily result in subsequent behavioural change (Thompson & Stapley, 2011). Developing critical thinking skills influences academic performance and progression, and it predicts learners' risk of failure and ability to succeed (Thompson & Stapley, 2011). One of the components of a health-promoting school is the development of personal skills of members of the school community, thus enabling them to improve their own health and influence the healthy development of others (ISHP, 2012).

In summary, the ISHP is about the health and well-being of learners. It takes a comprehensive approach in that it is made up of an integrated set of planned, sequential, school-affiliated strategies, activities and services designed to promote optimal, physical, emotional, social and educational development of learners.

2.4.2.2 Programmes for promotion of healthy environments

In this subsubsection, programmes that are employed in schools to promote healthy environments are discussed. The WHO (2005) asserts that health is not merely the absence of diseases but a complete state of well-being, which includes the food one eats. Therefore, next is a dedicated discussion about the provision of the National School Nutrition Programme (NSNP) in public schools in South Africa. It is important to indicate how school nutrition aids effective teaching and learning and, consequently, academic performance.

2.4.2.2.1 National School Nutrition Programme (NSNP)

In South Africa, the NSNP was started as a presidential initiative in 1994 as part of the Reconstruction and Development Programme. The important legislative framework that guides the NSNP is the South African Constitution and International Children's Charter which emphasise access to quality food and essential nutrition; the National Educational Policy (Act 27 of 1996) as well as SASA (Act 84 of 1996) which highlight the right to access to quality primary education and learner success; and the 2003–2005 Strategic Plan of the Department of Education which covers the care of children affected by HIV/AIDS (Public Service Commission, 2008).

At inception, the DOH was responsible for implementation of the programme, but this was transferred to the Department of Education from April 2004. Provision of meals started in 1994 to all learners in quintile 1, 2 and 3 public primary schools from Grade R to Grade 7. The programme extended to public secondary schools in April 2009 (DBE, 2009). The aim of the programme is to provide nutritious meals to learners in disadvantaged communities. The intended outcomes of school nutrition in South Africa as in many developing countries are twofold, namely, to curb food insecurity and encourage children to go back to school, improve academic performance, and keep them enrolled (Devereux *et al.*, 2018). The first outcome implies that school nutrition is a safety net that feeds children and their families. The school nutrition programme

becomes important in a country that has 7.6 million unemployed people and 55.5% of the population (30.3 million people) living in poverty. Poverty is defined as a state or condition in which a person or community lacks the financial resources and essentials for a minimum standard of living (Investopedia). In addition, the national estimate of child multidimensional poverty for all children (aged 0–17), according to Statistics South Africa (Stats SA) (2020), was 62.1%. Multidimensional poverty means various deprivations experienced by poor people in their daily lives, such as poor health, lack of education, inadequate living standards, disempowerment, poor quality of work, the threat of violence, and living in areas that are environmentally hazardous, among others (Alkire et al., 2010). Learners affected by multidimensional poverty depend on school nutrition for survival. In addition to these atrocities, the rate of unemployment in South Africa is very high, with parents having no means to feed their children (Stats SA, 2020). The Free State now has the second highest unemployment rate after the Eastern Cape, and the number of unemployed people increased from 388 000 in the first quarter of 2021 to 415 000 in the second quarter of 2021 (Stats SA, 2020).

The second outcome is based on the notion that learners cannot learn effectively on empty stomachs. Learners coming from deprived backgrounds that are food insecure go to school without having eaten any meals. Many scholars believe that nutrition has a positive impact on education. This school of thought may have influenced the determination to feed as many learners as possible in public schools in South Africa. Statistics, according to the DBE (2014), reflect that 9 131 836 learners receive meals from the NSNP in South Africa. In the Free State province, where this study was conducted, 533 252 learners were recipients of the Programme in 2014. Currently, all learners in quintiles 1, 2 and 3 public primary and secondary schools benefit from the Programme, as food is supplied to all public schools in this category. Quintiles 1–3 schools are in poor communities, while quintiles 4 and 5 schools are in affluent communities. Each province is responsible for designing its own administrative and implementation strategies of the NSNP (Mtapuri *et al.*, 2015). Schools purchase their food, especially starches and proteins, from local supermarkets, while small quantities of vegetables and fruits are purchased from farmers, but other schools work with

SMMEs that purchase and supply food to schools, and they benefit as service providers (Sibanyoni & Tabit, 2017).

Devereux *et al.* (2018) speak of the secondary benefit of school feeding programmes, which is to create employment for food handlers and caterers who manage and prepare food for learners. In South Africa, more than 50 000 food handlers work to support the NSNP. Their responsibilities include cooking and cleaning the cooking area, and the individuals are expected to maintain a high level of personal hygiene. Insufficient food safety knowledge and skills of food handlers can result in unsafe food handling practices and cross-contamination in food service establishments (Ncube *et al.*, 2022). Hence, it is vital that food handlers undergo regular food-hygiene training to improve food-handling practices (Rasul *et al.*, 2019).

Nutrition is necessary for survival, health, mental, growth and physical development, performance and productivity from childhood to adulthood. The focus areas addressed within this programme includes household and food security, growth monitoring and promotion, control of micronutrients deficiencies, nutrition education, disease-specific nutrition support, as well as food service management (ISHP, 2012). Nutrition is closely linked to overall physical health and academic performance (Mawela & Van Den Bergl., 2020). The ISHP (2012) indicates that unhealthy learners are at higher risk for school problems than those who are free from hunger and medical problems. Children with poor health have a higher probability of school failure, grade retention and dropout (ISHP, 2012).

The results after the implementation of the NSNP indicate that nutrition has an impact on academic performance (DBE, 2015). Studies from international countries – such as that of Baum *et al.* (2017), Martinez *et al.* (2018) and Watson *et al.* (2017) – attest to the positive impact of school nutrition on academic performance of learners. Studies from Africa – such as the study conducted in Zimbabwe by Chinyoka (2014) and in Nigeria by Omuemu and Ogboghodo (2020) and Okafor *et al.* (2020) – found that hungry and under-

nourished learners are less able to learn and concentrate and revealed a positive relationship between school nutrition and academic performance.

In South Africa, a report on the implementation and evaluation of the NSNP indicates that principals and teachers feel strongly that hunger and malnutrition are barriers to participation in class, and teachers understand that effective learning is not possible on an empty stomach, since hungry learners are easily distracted and are unable to concentrate (DBE, 2016). Thus, the NSNP addresses the challenge of absenteeism in schools (Watson *et al.*, 2017). Qila and Tyilo (2014) also indicate that the NSNP reduces dropout rate and truancy and increases attendance and learning abilities. Receiving a meal at school is a strong incentive for learners to regularly attend school, and the introduction of a breakfast programme in some schools encourages learners to be punctual (DBE, 2016; Pienaar, 2019).

2.4.2.2.2 Provision of green spaces

Green spaces and aesthetics are regarded as important factors in healthy physical environments. A green space is considered as an area that is covered with grass, trees, flowers, or other vegetation (Chawla, 2014). Jansson *et al.* (2018) define a green space as any vegetated land or water; this includes gardens, playing fields, children's play areas, woods, and other natural areas and grassed areas. The design of school buildings and spaces is starting to reflect green and healthy learning environments, as communities are incorporating more green spaces in schools (Kweon *et al.*, 2017). Several studies have commented on the value of green schools and satisfying factors of being outdoors (Björklid & Gummesson, 2013; Björklid & Nordström, 2007; Chawla, 2014; Jansson & Martensson, 2012). First, research supports green spaces as environments that promote an improvement in moderate to vigorous physical activity (Baines & Blatchford, 2011). Green space is associated with walking, running, cycling, and football or rugby (Belanger *et al.*, 2011). Gardening as do-it-yourself manual work is a physical activity and connects to green spaces (Coombes *et al.*, 2010). Sports in places such as urban areas take place away from green space but at specialised facilities and leisure centres which have paving or are plastered (Belanger *et al.*,

2011). Motivation in people plays a big role in making them willing to do sports in green spaces to strengthen the association between green space and sports (Coombes *et al.*, 2010). The research study by Mytton *et al.* (2012) on green space and physical activity revealed that people living in the greenest areas are more likely to achieve recommended amounts of physical activity. Sugiyama *et al.* (2010) agree with Mytton *et al.* (2012) but believe that positive association between the two variables, green space and physical activity, has tended to emphasise attractive green space. Second, Ward (2016) showed that with every 1% of time spent in green space, there was a 0.66% increase in the life satisfaction score and well-being. Green space gives learners more contact with nature (Browning & Rigolon, 2019), and they can interact with all of this and learn about the natural world around them for the good of their mental health. According to Abraham *et al.* (2010) there is increasing evidence for a positive correlation between greenspace and well-being. Many studies have shown that viewing or spending time in green spaces appear to have stimulating effects on stress reduction (Honold *et al.*, 2015; Fischer *et al.*, 2019) and avoidance of negative moods, such as anger, frustration and aggression (Kabisch *et al.* 2016; Roe & Aspinall, 2011). Foellmera *et al.* (2021) reveal that green spaces and well-being interact in three significant ways: i) by promoting a feeling of detachment from daily stress; and a green space serves as place for recreation and recovery from concentration fatigue in everyday life. This restorative effect becomes even more apparent among learners engaged in activities that require sustained attention ii) by being an identity-creating element of the school; a green space promotes mental well-being and evokes positive emotions, like happiness and energy; iii) as a place of social encounter and inclusion, a green space triggers social belonging which, in turn, potentially supports academic success.

Third, satisfaction, according to Bell (2008), occurs because the green space can calm learners and make them feel safe and open to learning. Chawla (2014) emphasises that a green and aesthetic environment has a significant impact on the way that learners feel, and the way learners feel has a significant impact on attitude towards and mindset regarding learning (Baines & Blatchford, 2011). Lavie and Tal (2015)

believe that seeing greenery from classroom windows improves concentration and reduces stress, whereas classrooms without green views do not. Learning in relatively green classrooms, in school gardens and in natural contexts has been associated with high levels of student interest in learning (Browning & Rigolon, 2019).

Fourth, research by Kweon *et al.* (2017) has shown the positive effects of green spaces on academic performance and human behaviour. Lavie *et al.* (2015) assert that spending more time in green space or views of green can improve both direct attention and performance. This belief makes one think that it means teaching outdoors or in natural or agricultural areas can aid teaching and learning. Green lands play a vital role in drawing focus and concentration, for when learners become mentally tired, they may display irritable behaviour, such as agitation, and may have concentration challenges, leading to failure to perform well or as expected (Kweon *et al.*, 2017). Williams and Dixon (2013) support the opinion that exposure to outdoor green spaces may improve learners' academic outcomes and learners who are taught on green school grounds as outdoor classrooms find an outdoor, nature-centred environment for learning much more meaningful than an indoor, book-centred environment.

A study conducted by Wells *et al.* (2015) concluded that the intensity of a garden-based learning intervention leads to improved knowledge scores in Physical Science. Proficient and advanced academic performance in reading and mathematics was observed by Williams and Dixon (2013) in their study. This emphasises a performance bond between learners and green spaces. These studies attest to the motivation that green grass, flowers and trees may bring to learners at school level, resulting in higher levels of academic performance. Kweon *et al.* (2017) argue that there are many good reasons for increasing and maintaining green plantation in schools, such as stress reduction in stakeholders, motivation to improve SPE, and increase learner academic performance.

Based on the benefits discussed in the foregoing paragraphs, it is not surprising that many scholars are increasingly showing interest in academic performance interventions that deal with school green spaces (Browning & Rigolon, 2019; Joseph-Antoine *et al.*, 2021; Lavie & Tal, 2015; Laurie *et al.*, 2017).

The next sub-section is about school food gardens which are a component of school health promotion due to their inclusion in the NSNP. The school nutrition programme has three sub-programmes, according to the Department of Education (2008a):

- Feeding programme – which aims to reduce short-term hunger by providing nutritious meals to learners on all school days – enhances the child's learning capacity.
- Sustainable Food Production in Schools (SFPS) – which promotes the implementation of sustainable food production initiatives to provide knowledge and transfer skills to schools and communities – improve household food security.
- Nutrition Education (NE), which strengthens nutrition education to improve nutritional knowledge as well as healthy eating and lifestyles among school communities.

The NSNP has been discussed in the sections above. The next subsubsection elaborates on sustainable food production in schools and nutrition education. It is believed that several school nutrition programmes have been introduced in South Africa to improve learner performance by providing nutritional meals through the cultivation of vegetables in school gardens (Moletsane, 2018).

2.4.2.2.3 School garden programmes and nutrition education

The second sub-programme of the NSNP encourages schools to establish school gardens to enhance meals (Rendall-Mkosi *et al.*, 2013). School food gardens are of paramount importance in South Africa, according to many scholars. The DBE (2008) defines school gardens as a vehicle for spreading knowledge of food production, creating a culture and love for food gardening, and making the link with nutrition. FAO

(2010) defines a school-based vegetable garden as an area of cultivated land that is on school premises which is usually tended to by teachers and learners. These gardens usually produce fruits and vegetables and may provide a platform to teach learners about sustainable food production. School gardens have several benefits, namely educational and economic/food security benefits (Mfaku, 2019).

School-based vegetable gardens are the focus of many interventions that aim to address malnutrition and hunger in previously disadvantaged schools. School gardens are of particular benefit in areas where learners lack food at homes (Calamidas *et al.*, 2020). They provide opportunities for learners, such as taking vegetables home, and learners are encouraged to work hard in school gardens (Calamidas *et al.* 2020). Schools with garden initiatives can provide food to needy learners on a daily basis and educate them regarding nutrition and health-related challenges. They can, therefore, support sustainable health development among learners (Laurie *et al.*, 2017). Thus, school gardens have a history of being a valuable educational programme (Loso *et al.*, 2018). The introduction of vegetable gardens in schools indicates multicomponent interventions for promoting a healthy diet among schoolchildren (Van Cauwenberghe *et al.*, 2010). School food gardens also have the potential to provide, to some extent, locally grown vegetables, fruit and legumes to be included in school meals (Van Cauwenberghe *et al.*, 2010). The advantage for schools is that vegetables, fruits and other food can be harvested fresh from their garden, with no need for storage, as most schools do not have cooling facilities. Several school food garden projects have been implemented across various provinces of South Africa (Laurie *et al.*, 2017; Maringe *et al.*, 2015; Tundzi, 2008). However, a decline in several schools with gardens from 6 503 in 2008 to 3 994 in 2011 has been reported in other studies (Rendall-Mkosi *et al.*, 2013).

In Africa, education systems are short of diversity and localisation of the curricula and life skills that link well with the needs of communities (Okiror *et al.*, 2011). It has also been argued that school curricula in Africa are dominated by modest academic subjects and prioritise written examinations over practical skills and contextualised

learning such as gardening (Okiror *et al.*, 2011). There are arguments from different scholars about inclusion of gardening in school curricula (Okiror *et al.*, 2011). It has been claimed that schools can serve as platforms for reaching communities with gardening and farming innovations through pupils (Leuven *et al.*, 2018). School gardens become learning environments for learners, the community of parents, and other involved interested parties (Newman & Dale, 2013). The advantage of the style of learning that takes place in a school garden is that it uses direct contact with the natural phenomenon and becomes more experiential and inquiry-based (Blair, 2009).

Markwell and Somerset (2009) also believe that the introduction of school food gardens has been shown to be associated with changes in children's skills and attitudes, conducive to enhancing vegetable and fruit consumption. Parmer *et al.* (2009) are of the opinion that school gardens improve knowledge about vegetables and fruit towards positively influencing dietary habits for children at an early age and changes in food behaviour (Blair, 2009). Okiror *et al.* (2011) also attest to gardening activities enhancing pupils' learning achievement and learning transfer from school to pupils' homes. Research has verified nutritional benefits, increase in vegetable and fruit consumption, improved learner health, good attitude towards the environment, and improved performance in schoolwork and physical activities (Newman & Dale, 2013). Moreover, school food gardens have a potential to provide learners with a tool for survival during periods of food shortages, as sustainable food production methods that are learnt from school can be applicable at home for food security.

The establishment and maintenance of gardens entail a complex and ongoing process, which requires the involvement of devoted partakers throughout the year. The steps in the establishment are as follows: approval by the school principal and the SGB; getting a supportive team; obtaining funds and garden equipment; planting; and maintaining and sustaining the garden (Rendall-Mkosi *et al.*, 2013). Principals play a role by supporting teachers, drawing the outline of the garden, deciding on the partakers to involve, and developing a plan of action (Mawela & Van den Berg, 2020). Cultivation, planting of seeds and establishing the responsibilities of all members begin

once the plan of action is established (Alexander & Grannum, 2021). There are sets of activities that must be attended to for the success of garden maintenance, such as planting, watering, weeding, mulching, fertilising, monitoring for pests, and harvesting (Johnson et al., 2008). Okiror *et al.* (2011) encourage schools to follow the advice of Alexander and Grannum (2021), the DBE (2015) and Johnson et al. (2008) on how to run school-based vegetable gardens successfully, and not like in the past where school gardens were often poorly managed, giving rather negative examples to communities. It is important to note that for the formation of successful gardens, all stakeholders need to be involved.

The successful implementation of school vegetable gardens depends on establishing strong collaboration between teachers, learners, community members, and the SGB (ISHP, 2012). Collaborations are imperative for well-managed and sustainable school gardens (Castle & Bialobrzaska, 2015). For example, community members may take care of safety and security by looking after the garden when the school is closed or when school-based members cannot (Alexander & Grannum, 2021). The collaborators can select one member who will take the lead and be the garden co-ordinator to supervise and organise all garden activities (DBE, 2015). Teachers and learners can also play a key role in ensuring the school gardens are sustainable. According to Laurie *et al.* (2017) and Oldewage-Theron et al. (2015), these gardens can enable teachers, learners and community members to participate in sustainable food production and serve socio-economically challenged learners.

There are schools that develop well-integrated gardens, and there is evidence indicating that for learners to benefit, they need to receive enough education and exposure to school gardening to make long-term changes (Hazzard *et al.*, 2011). A well-integrated school garden is described as a maintained garden that is used primarily to create meaningful experiences for learners, is a valued part of the school's environmental culture, and is sustained over time (Berry *et al.*, 2014). Sustainable food production in schools is important. Nationally, 45% of schools where the NSNP is implemented (8 717 out of 19 383) had school food gardens in 2014 (DBE, 2014).

Challenges that schools usually encounter with school gardening is unavailability of physical space, costs to start the programme, gaining support from stakeholders, learner experience, and teacher training (Ozer, 2007). Castle and Bialobrzaska (2015) add the following challenges: lack of basic resources such as water, fencing (to prevent theft and vandalism), seeds, garden equipment; poor quality of soil; harsh climatic conditions; pest and disease infestation; lack of support and commitment from the SGB and parents; and the challenge of growing sufficient vegetables to supply neighbouring schools that have high learner enrolment. The Public Service Commission (2008) identifies failure to link school gardens with other core-curriculum and extracurricular activities as another challenge. Teachers pose another challenge, as they are inadequately prepared to start or run garden programmes. As a result, there is a need for training and education on implementing such programmes. Repeatedly, teachers are guided to establish gardens but are not assisted in starting well-integrated gardens (Hazzard *et al.*, 2012).

2.4.2.2.4 Maintenance of school physical environment

It was important to include maintenance as a programme of school health promotion, as it intends to provide clean and safe environments for children and create a physical setting that is suitable and adequate for learning (Xaba, 2012). Without maintenance of physical facilities, school health promotion cannot be sustainable. Maintenance of a school's physical environment is guided by policy. For instance, according to the Occupation Health and Safety Act (1993), the DBE provides and maintains, as far as is practically possible, a working environment that is without risk to its employees (GDBE, 2014). According to the Department of Basic Education (South Africa, 2018), maintenance entails a combination of any technical and non-technical work and the associated management and administrative processes that need to be undertaken to retain any component of a facility at an acceptable occupational and functional standard, thereby sustaining its usefulness and value, ensuring its full functionality over its lifespan in pursuit of the business objectives of the facility, and elongating its

useful life. The DBE (South Africa, 2018) believes that this would refer to any corrective or preventative work of any type or magnitude that would be carried out on a facility with a view to maintaining the same level of functionality of any facility component and/or its systems as were provided at the time the facility was commissioned or intended to be provided at the design stage. Xaba (2012:230) relates “maintenance to the repair, replacement and general upkeep of physical features as found in school buildings and on school grounds”. These definitions include maintenance work of any type that would be carried out in a school with a view to maintaining the same level of functionality of any school component.

There are different types of school maintenance: emergency, routine, preventive, predictive, corrective and deferred maintenance (GDE, 2014). These are intended to address breakdowns and emergencies. Emergency maintenance is called breakdown maintenance, as there is immediate risk to the health and safety of learners. “Emergency maintenance refers to maintenance activities performed after an unexpected breakdown that could negatively affect productivity and safety without immediate attention” (Mishra & Pathak, 2012:4). Due to the urgent nature of the risks involved, “emergency maintenance tasks must be prioritised above all existing work orders” (Putri *et al.*, 2021:3). Emergency maintenance is concerned with the repair or replacement of facility components or equipment requiring immediate attention because the functioning of a critical system is impaired or because health or life is endangered (Mishra & Pathak, 2012). One example of emergency maintenance is replacing a leaking water pipe which can cause a significant damage, financial loss, and even physical harm if left unattended (GDBE, 2014).

“Routine maintenance refers to the repair, replacement, addition and general upkeep of the surrounding grounds and buildings” (Nurcahyo *et al.*, 2019:57). The GDBE (2014) refers to this type of maintenance as scheduled maintenance that provides systematic monitoring and inspection. Routine maintenance is done on a planned and continuous basis to identify and prevent problems before they result in equipment failure (Nurcahyo *et al.*, 2019). Routine maintenance includes regular inspection and

repair of facilities. Although schools understand their responsibilities regarding routine maintenance of physical facilities, they encounter problems that make it difficult for them to fulfil this mandate. A study by Nhlapo (2020) revealed that school principals highlighted insufficient budget for the maintenance of school facilities as a fundamental challenge

Preventive maintenance is known as breakdown maintenance, as it is a maintenance programme where nothing is done to a piece of equipment, facility or building until it breaks completely. After the equipment breaks, the least expensive repair option is used to take back the equipment to service. The maintenance seems to be cost saving, while the opposite occurs, because schools mostly spend a lot of money to repair totally broken equipment. Many schools in South Africa, according to Xaba (2012), tend to use this method. "Preventive maintenance is the most significant category of school maintenance" (Vilarinho *et al.*, 2017:1172). The GDBE (2014) suggest that preventive maintenance is the scheduled maintenance of equipment, such as the semi-annual inspection of facilities, and is crucial for ensuring that equipment is always in good working order and provides health benefits for learners and teachers. This form of maintenance comprises actions performed to retain an asset in its required condition or standard and sets out to prevent failure by providing systematic inspection and monitoring to detect and prevent deterioration and/or failure and includes testing to confirm correct operation (GDBE, 2014).

Another type of maintenance is called predictive maintenance. The GDBE (2014) describes predictive maintenance as maintenance that projects the failure of equipment based on age, user demand, and performance procedures. "Predictive maintenance is imbedded in the correct execution of school facilities audit" (Xaba, 2012:217) which aims to assist schools in avoiding emergencies cases and reducing damage. Predictive maintenance involves foreseeing breakdown of the system to be maintained by detecting early signs of failure to make maintenance work more proactive. In addition to the aim of acting before failure, it also aims to attend to any

fault, even if there is no immediate danger of failure, to ensure smooth operation and reduce energy consumption (Selcuk, 2017; GDBE, 2014).

Grasmick *et al.* (2008:5) regard “corrective maintenance as maintenance that addresses deficiencies that certainly result from unforeseen events, like vandalism, hail, flooding and lightning strikes, but excludes activities that expand the capacity of an asset or upgrade the asset to serve needs different from those originally intended”. The GDBE (2014) describes this type of maintenance as unplanned and reactive, which requires action towards restoring an asset to its respective operational condition because of unforeseen failure that seriously affects the functioning of the asset. Corrective maintenance is carried out after a fault has been recognised and is intended to put the failed item back into a state in which it can perform its required function (Stenström *et al.*, 2016).

The GDBE (2014) refers to deferred maintenance as backlog maintenance, as any maintenance that should have been conducted, but due to lack of funds or one or the other reason, it was deferred, cancelled or not carried out. In deferred maintenance, the repairs that were not performed when they should have been or were scheduled to be, are put off or delayed to a future time. Such maintenance action can be quantified, planned and scheduled and therefore can be classified as planned maintenance. If the school does not address needed repairs in a timely manner, the problem only gets more expensive and time consuming to fix in the future (Loris, 2020). Deferred maintenance includes arranged activities that are delayed or postponed for reasons such as unavailability of funds or human resource changes in priorities and use and occurs when preventive maintenance costs are selectively deferred to a future time and has value when a school facility is not performing as expected and when cash preservation is critical (Xaba, 2012:218).

The lack of maintenance of physical facilities can lead to maintenance backlogs, resulting in further deterioration over time. This situation can expose learners to threatening environments, demotivates teachers, and costs the state more over time

as buildings collapse (South Africa, 2012). The main causes of building collapse can be prevented by regularly repairing or removing any damage that puts learners at risk; clearing gutters and stormwater drainage before the rain season every year; conducting basic roof-checking and repairs every year to ensure roofs will not blow off in storms; undertaking termite treatment every five years to prevent damage to roofing; taking out buildings insurance to cover fire and emergency damage (sec. 6060, Gazette 30637); emptying full toilets and septic tanks; and repainting external metal work (South Africa, 2012).

Certain steps need to be considered when planning effective maintenance of physical facilities. First, each school should have maintenance organisation which takes place by creating an organisational structure for maintenance that clearly defines duties and responsibilities (Elghaffar, 2007). Xaba (2012:217) asserts that “school maintenance management is the responsibility of the SGB in terms of its governance functions”. The SGB must create a school committee for maintenance that will be responsible for ensuring regular maintenance and repairs, raising funds for maintenance activities, and educating the school community on how to properly look after the buildings (Nhlapo, 2020).

According to the ISHP (2012), school maintenance is carried out under the authority of officials at three levels, namely: the school principal and the SGB; the circuit and/or district management; and the provincial infrastructure directorate. Each public school in the country has an SGB, which has roles and responsibilities. In terms of SASA (1996a), SGBs need to take responsibility for planned and unplanned maintenance and repairs using the school’s fund allocation provided by the provincial Department of Education. The SGB, in collaboration with the principal, is responsible for the maintenance of the school building and premises. The principal must designate an educator to take responsibility for maintenance operations. The designated educator reports to the principal and the SGB on maintenance matters, and they act as the contact with the provincial Department of Education (GDBE, 2014).

It is also clear, according to Nhlapo (2020), that the SGB may encounter some challenges in executing its duties when: lacking understanding of the role it should play; having general confusion about the roles of the governance and management structures in the school, and this confusion may lead to tension and conflict; and having confusion about the roles of the governance and management structures in the school. The SGB is sometimes easily manipulated, and the principal and teachers dictate the terms; this creates tension between the SGB and teachers or the principal, and tension might be exacerbated by “teachers who refer to the SGB as a body of uneducated parents” (Mafora, 2013: 102). In such an environment, it becomes difficult for the SGB to perform expected school maintenance roles, which contributes to building and facility deterioration (Leoschut & Makota, 2016). In this regard, Xaba (2012:217) argues that “this is a specialist function and should be assigned to professional facilities-maintenance staff as opposed to being allocated to lay school governors”, since no studies in South Africa have explored facilities maintenance, which is a school governance function.

Second, maintenance inspection should “be conducted to check on school building examination in order to prepare a school maintenance plan and collect information to form the foundation for the maintenance programme, using various forms of inspection such as checklists for building structures, including, roofing, building envelope, grounds, and services systems” (Xaba, 2012:218).

Lastly, there “must be thorough maintenance planning that relates to establishing a maintenance strategy for achieving better use of school facilities and minimising the cost of resources tied up in grounds and buildings” (Dickerson & Ackerman, 2016:685). A rigorous “maintenance plan can help to ensure that school infrastructure is cared for appropriately”. Maintenance planning must include maintenance policy formulation and details of maintenance funding (Leoschut & Makota, 2016:23). However, Olagunju and Adejare (2011) predict problems in the future if there is lack of maintenance planning in schools. In addition, Shohet and Straub (2013) attribute problems to “increasing demands on maintenance programmes in schools to support

maintenance planning”. It is important that an organisation plans to meet the challenges of effective school maintenance.

A focus on maintenance has several benefits for a school and its community. For instance, it is a necessity to carry out maintenance works for the well-being of all in schools (Olagunju & Adejare, 2011). According to Leoschut and Makota, (2016:23), “school maintenance contributes to an organisation’s instructional effectiveness and financial well-being; improves the cleanliness and orderliness of an education organisation’s structures; reduces operational and life cycle costs of a building; helps staff deal with limited resources by identifying priorities proactively rather than reactively; extends the useful life of buildings; and helps the environment”. “School maintenance aims to provide learners with a comfortable, effective and quality environment to enhance organisational effectiveness” (Xaba, 2012:217). Additionally, “maintenance of public schools’ physical environment eradicates poor conditions and enhances the quality of building structure” to meet modern requirements in order to lengthen the lifespan of buildings and infrastructure (Oladunni & Femi-Oladunnim, 2008:4).

According to Uline and Tschannen-Moran (2010), many scholars provide evidence of a link between school building suitability and learner academic performance. In this regard, Olagunju and Adejare (2011) say that school physical conditions may have a stronger effect on student performance than the influences of family background, socio-economic status, school attendance, and behaviour combined, and learners are more likely to prosper when their environment is conducive to learning. In addition, Isyaku *et al* (2015:4) perceive maintenance issues in public schools as “one of the major contributors to the academic performance of learners” if well-controlled and managed. Research in South Africa advocates for “school facilities maintenance to be accorded a priority as part of school programmes aimed at promoting teaching and learning goals and effectiveness” (Xaba, 2012:217). Walton and Brady (2017:29) believe that South Africans in general tend to focus on “improving the academic achievement of learners, which is dependent on several factors”, of which the physical

environment is paramount. Moreover, Nhlapo (2020:2) asserts that the “teaching and learning process does not take place in a vacuum but in an environment structured for learning” which is comprised of well-maintained and functional school facilities.

2.4.2.3 Involvement of teachers in school health promotion

The ISHP (2012) and the WHO (1986) endorse the involvement of teachers in the implementation of school health programmes. Teachers are fundamental to the success of developing a health-promoting school and are central to the success of developing and sustaining such a school (Laud *et al.* 2016:3)

The first formal involvement of teachers is that of facilitating health education as part of CAPS (South Africa, 2011). For teachers to perform this activity effectively, however, “they need to understand the subject, acquire good teaching practices, and understand developmental and culturally appropriate information” (Laud *et al.* 2016:3). Potgieter-Groot *et al.* (2012:60) indicate that teachers experience dilemmas and conflicts around certain topics in health education. Ahmed *et al.* (2009) agree, stating in their findings that messages about condom distribution and safe sex were a challenge for teachers, whereas they promoted abstinence. Powell (2019:7) argue that “teachers feel burdened by what they see” as the responsibilities of the Department of Health and Welfare.

Another concern is that teachers find health topics challenging to teach. Numerous studies have revealed that teaching about HIV/AIDS and sexuality is perceived to be challenging for teachers in terms of language and communication norms (Kwatubana (2012) and lack of skills and knowledge (Mukoma *et al.*, 2009:108), the latter being attributed to the lack of training of Life Orientation teachers (Francis, 2010). Less frequently addressed messages are safe sex (Ahmed *et al.*, 2009:14) and practical knowledge about contraception, like where to buy condoms and how to introduce condoms into sexual activity. Ahmed *et al.* (2009:14) highlight the need for a

comprehensive approach towards health education to facilitate the dissemination of sexual health messages.

The second main and important “role of teachers in shaping and improving the health-promoting school programme in their school communities is one of the drivers of health-promoting schools in many countries” (Yeager *et al.*, 2016:375). All schools in South Africa have “teachers who are leaders of health-promotion committees” (Kwatubana, 2018:2). The role of teachers that lead (are chairpersons of) health committees is to ensure that health policies and health programmes are implemented effectively (Jourdan *et al.*, 2021:296). Thus, teachers as the critical supporters of school health promotion are often concerned with acquiring practical solutions and gaining new knowledge that meets their situational needs, school circumstance and establish platforms for growth (Boot *et al.*, 2010).

Teachers become involved “by showing affection and interest by being concerned, by promoting behaviour, by being available to all learners” (Stroet *et al.*, 2015:130), and by showing commitment to health intervention programmes in their schools. Teachers can also express their involvement by “providing resources such as time and by making sure that they are dependable and available to offer support” (Yeager *et al.*, 2016:375). Without the involvement of teachers, positive changes in school health promotion are impossible. Failure for teachers to become involved in the promotion of healthy school environments may increase existing challenges and affect teaching and learning together with health promotion in schools.

To ensure that teachers execute their role in school health promotion effectively, training and supervision of, and support for, health promotion staff are essential. The ISHP (2012) attends to the importance of training and re-orientating teachers who are involved in the implementation of this policy. Although school health teams across all provinces of South Africa have been trained using a school health resource manual, Gray and Vawda (2014:5) advise that “further training is needed in competence in health promotion as well as leadership and management skills for school health team

leaders”. Kwatubana (2012) also highlights the importance of training of teachers in health promotion. Studies show that teachers who have received health promotion training tend to be involved in health promotion projects more frequently and have a more comprehensive approach to health education (Kwatubana, 2012).

2.4.2.4 Involvement of learners in school health promotion

As with teachers, the involvement of learners in school health promotion is endorsed by ISHP (2012) and the WHO (1986). Simovska and Jensen (2009:11) define learner involvement as “practices that involve teamwork between learners and various groups of the school community concerning health promotion”. The same authors believe that learner involvement has been a key element of health promotion in schools since the adoption of the Ottawa Charter by the WHO in 1986.

There are several reasons why it is important for learners to be involved in school health promotion. “Learners play a key role in influencing decision-making regarding designing, planning, implementation or evaluation of health promotion measures” (Gruber *et al*, 2019:3). In addition, Griebler *et al* (2017:196) state that when learners are involved, “they can influence activities in school health promotion processes rather than simply taking part in them or being recipients of health programmes”. The effects of learner involvement are seen as outcomes, which can be classified as positive, neutral, or negative (Mager & Nowak, 2012). Learner involvement can be regarded as positive if learners are actively involved and participate fully in the planning, implementation and evaluating of health interventions. On the contrary, negative involvement occurs if learners are passive and not contributing to or participating in health initiatives in their schools. There is, therefore, accord that active engagement of learners is crucial to the effectiveness of health promotion strategies (Eriksson *et al.*, 2008). Studies mention “increased satisfaction, motivation and ownership, skills development, competencies and knowledge, personal development, health-related effects and influence on learner perceptions towards health promotion” (Griebler *et al.*, 2017:197) in cases where learners were involved in health promotion strategies.

Learners participate in health promotion activities and simultaneously develop the ability to actively participate in democratic processes in society and influence matters of concern beyond health (Simovska, 2008, 2012). In this fashion, participation of learners at school would contribute to competences for participation in general and thus to enforcing the rights of other learners in a bigger sense. At the same time, children are crucial for the development of healthy behaviours and a healthy life process (Sawyer *et al.*, 2012). “Involving learners in health-promoting settings is significant and has an impact on their lives and their future as members of healthy families, communities and societies” (Gugglberger, 2021:298).

Learners need to be “consulted and encouraged to support the implementation of the health initiatives in their school, through platforms created at school and community level” (ISHP, 2012:9). Learning spaces must create a culture of involving learners. In schools where there is no such culture, negative participation may dominate. In South African schools, learners are involved to a lesser extent due to a perception that children do not know much, and they cannot be involved in adult affairs.

According to Gugglberger (2021:297), “schools are an ideal setting for health promotion and involvement of learners worldwide, because learners spend most of their day in schools”. In schools, learners can be encouraged to adhere to norms and regulations regarding specific school health policies, processes and programmes (Eriksson *et al.*, 2008; Mazur & Mazur-Malek, 2017:132), and these can be designed in a way that accommodate and celebrate active involvement.

2.4.2.5 Community collaborations and partnerships in school health promotion

Community participation is widely believed to be beneficial to the development, implementation and evaluation of health promotion in schools. “A community refers not only to a territorial or geographic unit but also to the quality of human relationships” (Grover *et al.*, 2021:334). A distinction must be made between a community in general and a school community in particular. In general, a community of a school comprises

external stakeholders, including anyone who is invested in the welfare and success of the school and its learners and has interest in the activities of the school. Examples of such external stakeholders, referred to in this thesis, are community members, business community, non-governmental organisations, church-based organisations, civil organisations, etc. A school community involves the people intimately associated with the school learners, their parents, teachers, administrators, school staff, and friends bound together by their common interest in the learners served by the school (Redding, 2011). A school community can be regarded as a combination of external and internal stakeholders. A sense of community does not develop automatically in a school but is intentionally built by collaborating with every member and ensuring that all are connected to the purpose of the school, i.e. learners learning (Henderson *et al.*, 2007). “In the school community, relationships are formed, and these interrelated connections can influence both the community inside and outside a school” (Grover *et al.*, 2021:334). The following paragraphs refer to a community outside the school, which was earlier indicated as external stakeholders, and a school community inclusive of both external and internal stakeholders.

School–community collaborations are central in school health promotion. Collaboration, by definition, means “to work together in cooperation” (McNeilly & Slutsky, 2017:1926), where parties are not necessarily bound contractually but having a relationship. Collaboration is less formal than a partnership, which has a binding, legal contract and responsibilities which may not be shared equally (Rinaldi *et al.*, 2012). A collaboration exists “when several people pool their common interests, assets and professional skills to promote broader interests for the community’s benefit” (Henderson *et al.*, 2013:3). Henderson *et al.* (2013:3) emphasise that “schools do not collaborate but people in the school community do”. School community members, inside and outside the school, work in collaboration to help children find meaning in the things they do, what they encounter, and what they experience (Rinaldi *et al.*, 2012).

Kwatubana (2014:1459) believes that it is important for schools “to engage communities to fortify their efforts of health promotion. Some community members are involved in community health projects in their communities; this could mean that they are conversant with health policies”. It would be unwise to ignore vast experiences of community members central to successful health promotion initiatives at schools. “Community participation is, therefore, a critical element of health-promoting schools where partaking in shared decision-making, responsibilities and outcomes is the norm” (ISHP, 2012:16). Collaboration and involvement may prevent the violation of health policies, which is caused by a lack of knowledge and understanding of how such policies should be implemented (Chigona & Chetty, 2008).

A school community has shared health promotion beliefs such as the following: parents want the best for their children, and learners and parents partake in health promotion activities for the benefit of learners. Teachers are inspired to see that learners succeed. School success is bolstered when parents, teachers and other members of the school community work in unison, sharing one vision, and school leaders establish and nurture the health promotion processes and practices necessary to intentionally strengthen the SPE (Redding, 2011). “Active involvement of the SGB, community leaders (such as traditional and faith-based leaders, and ward councillors) as well as buy-in of the entire school community are required” for the success of the IHSP (ISHP, 2012:17).

Community structures who work with schools play an important role in improving the health of learners in schools. “Community mobilisation should be conducted to create awareness for people to take positive action towards improving the health of learners in schools” (ISHP, 2012:17). Community mobilisation is not only about organising the community but also all the resources available in the community to move them towards achieving a certain health programme goal. In health promotion, the creation of cooperative partnerships and collaborations between schools and their communities are emphasised.

Schools can also form partnerships with communities. A partnership is a legal contractual relationship involving close co-operation between two or more parties having specified and joint rights and responsibilities, and each party has an equal share of the risk as well as the rewards (Rinaldi et al., 2012). “It is important for schools to establish effective partnerships between government, trade unions, private sector, academic institutions, civil society and non-governmental organisations to assist in the formulation, implementation, monitoring and evaluation of priority areas in school health programmes” (ISHP, 2012:18). International evidence shows that implementation of successful school health programmes depends on strong and healthy partnerships between education and health departments, teachers and health workers, schools and community groups, and learners and persons responsible for school health programmes (WHO, 1996).

The school community members are expected to execute policies and contribute their ideas and opinions to enhance school effectiveness (Kwatubana, 2014). The Life Skills/Orientation teacher or a designated member of staff coordinates all the ISHP activities in the school including:

- “mobilising and liaising with the school community, including teachers, the SGB, and other role players;
- building partnerships with external providers including NGOs and other community organisations” (ISHP, 2012:17).

Community members get involved in health policy implementation by being recruited and motivated to participate.

Regardless of the positive developments, health promotion in Southern Africa is still facing challenges about collaborations and partnerships with communities, such as the lack of coherent theory and slow professionalisation in the field (Van den Broucke *et al.*, 2010). Nyamwaya and Cossa (2009:68) mention several challenges, including “the limited cooperation among community members, the lack of indicators for measuring effectiveness, and the limited documentation of best practices for health

promotion as the main problems". The ISHP (2012:17) attests to the challenges by indicating collaboration challenges in schools as follows:

- "finding individuals willing to sponsor and promote particular programmes in schools;
- linking the health-related curriculum with the education curriculum is another key to success;
- timing of collaboration;
- negotiating roles and boundaries of each partner in a school-based health programme;
- aligning divergent sectoral agendas;
- developing shared understandings of intersectoral point of view".

These are some of the challenges that schools must deal with to collaborate and partner effectively with communities. The starting point would be to change the status quo of having most programmes and activities planned, managed and controlled by professionals and ordinary people usually participating only passively in the health promotion process. For schools to benefit from the knowledge and skills that community members possess, they must devise means to involve them more. In this study, it is believed that health promotion cannot only be the responsibility of a school.

2.5 Leadership roles in the promotion of healthy SPEs

According to Kwatubana *et al.* (2021), schools, especially principals, are expected to play an important role in providing healthy environments for learners and teachers. This role is documented in different policies. A case in point is the Policy on the South African Standard for Principalship (South Africa, 2016), which clearly outlines the general roles and responsibilities of school principals. The main role of principals that refers to school health promotion in this document is about the creation of a safe and secure school environment. School principals have a responsibility to ensure that the school, human and other resources are organised and managed in a way that would

provide a safe, effective and invigorating environment (South Africa, 2016). The issue of school safety has been discussed in detail in relation to academic performance in § 2.3.4. In this section, the focus is on responsibilities of the principal in relation to promotion of health in general in schools. Moreover, although the implementation of the ISHP (2012) is the prerogative of the school-based support team (SBST), all activities must be conducted under the supervision of the school principal. Thus, principals are assigned the responsibility of providing guidance on the performance of tasks and mobilising the community to ensure that all components of the integrated school health package are provided. To that end, the two policies mentioned here place school principals in South Africa at the forefront regarding school health promotion.

School health promotion is about reform, innovation, and change. According to Hoberg (2012), as gatekeepers, principals must accept and support school reforms in their leadership roles. DuFour and Marzano (2011) emphasise the necessity for school reform to solve school challenges that schools are faced with. School reform occurs by “developing a results-oriented process and plan committed to building the collective capacity of staff to fulfil the purpose and priorities of their school” (Morrison et al., 2022:5). “School reform further helps the organisation to form a workable future and the capability to shape the environment and move towards a productive future for the organisation” (Morrison et al., 2022:5). Hence, it is about making structural changes that are meant to improve the quality of education. It is believed in this research that structural changes almost never predict outcomes, but they are essential for initiatives to take root and develop. In order for such initiatives to be effective, principals need to assume the role of being change agents. The concept of change agents is discussed in detail in chapter 4.

Bush (2016:3) view school leadership as “administrators in charge of the daily operations and activities of a school, from instructional leadership, transformational leadership to managerial operation”. School leadership “involves a process of influence” (Yukl et al., 2013:12) which is exerted intentionally by one person, usually

the school principal or many people, the SMT, over others to structure the activities and relationships in the school. The term *intentional* is significant, as “school leadership is based on specific goals or outcomes to which the process of influence is expected to lead” (Yukl et al., 2013:12). “Leadership is about providing direction, assuring alignment, building a commitment in teachers, and facing adaptive challenges” (Mahlangu, 2014:1378). Thus, a leadership role is “a position that requires one to manage people, situations, and items effectively and ethically” (Brown et al., 2005:27). *School leadership* is often used interchangeably with *school management*. According to Algahtani (2014:72), the difference is as follows: “managers do things right, while leaders do the right thing”. All the definitions indicate that school leadership must have a vision, bring transformation and be innovative to attain positive outcomes at school.

A leadership role is one where a leader is responsible for managing a situation, a team or an entire organisation ethically and effectively. “It is critical that school principals skilfully manage their roles as school leaders in order to establish role competence” (Rigby, 2015:375). Handford and Leithwood (2013:195) define competence as both “functional and mutual”. This definition indicates that competence is more than managing school resources properly; “it also entails problem-solving, maintaining the school vision, and modelling professional behaviour” (Handford & Leithwood, 2013:194). “School leaders that are role competent engage in formal and informal school observations and are knowledgeable about the activities occurring around the school” (Handford & Leithwood, 2013:195).

There are certain characteristics that people in leadership positions should possess for them to be effective in their roles. Kwatubana (2019:73) makes the argument that “principals have to possess certain qualities so that they create a conducive environment to turn their schools to health-promoting ones”. She looks at principal qualities and characteristics such as the following: being visionary; conversant with collaborations in school health-promotion; committed to health projects and collaborations; being a team builder and a team player; having social skills;

understanding the scope of health projects; and “having the ability to monitor and evaluate health projects” (Kwatubana, 2019:74). Leithwood et al. (2020:6) add that the “principal creates and motivates staff to belong to learning teams”. Furthermore, “a principal is part of a team as a team builder and team player” (Kwatubana, 2019:74).

There are different roles that principals must play in fulfilling their mandate as mentioned in the foregoing paragraphs. First, “principals must play a leading role in developing a shared vision” (Ngcobo & Tikly, 2010:174). Celik et al. (2016:198) define a shared vision as “a clear mental view and often a goal that a person wants to achieve which is important for bringing people together and fostering a commitment to a shared future”. Shared vision refers to “a clear and common picture of a desired future state that members of an organisation identify themselves with” (Martin *et al.*, 2014:4).

Bockelmann (2020:8) believes that a “shared vision seeks to establish consistency in all affected areas, such as the curriculum and teaching, professional development, communication with stakeholders, resourcing, and learner agency”. The same can be said about consistency in the promotion of healthy physical environments. Research conducted by McIsaac *et al.* (2015) found that schools that were motivated by vision and school health promotion support, showed enhanced health promotion functioning. Several of the most well-known scholars suggest developing a vision for a change of a situation (Michel *et al.* 2017; Stouten *et al.*, 2018; Taylor et al., 2014) and a sense of the desired future workings and outcomes of an organisation (Gurley *et al.*, 2015:62). Based on development of a vision for change, the principal becomes a change agent. Change agents are the “individuals who transform organisations through special approaches, attending to internal processes and culture, and examining different change options” (Lunenberg, 2010:91). In this study, change agents refer to school principals, and stakeholders denote the rest of the school community, teachers, parents, SGBs, and community leaders. Principals as change agents must understand how a shared vision is developed and implemented. Their interaction and communication with stakeholders will provide regular feedback about project goals and logics, and leaders and stakeholders “establish shared language and shared

imagination of the future” (Kezar, 2014:47). In this way, stakeholders are empowered to effect and own the change project rather than sign on to it. It is important for principals to make stakeholders collaborators in the shared vision. “Putting together a change project vision in even a small team can be contentious or inharmonious, and bringing stakeholders into the process can make it unpredictable” (Bergmark & Westman, 2016:52). The implication is that engaging stakeholders in a shared vision is important, and this process can be started anytime in the life of a change project.

Second, principals as leaders are responsible for building and sustaining high motivation to successfully change and coordinate processes and activities and encouraging them to sustain new practices and activities (Kwatubana *et al.*, 2021). “Developmental principals promote teachers’ intrinsic motivation to act beyond their job description by elevating their self-esteem and self-value” (Roth & Eyal, 2010:3). “Motivation can be about providing intellectual stimulation by soliciting creative thinking, challenging teachers and stimulating them to question, reframe problems and approach old situations in innovative ways” (Eyal & Roth, 2021:48). Motivation is all about how engaged employees feel in the cycle to the organisation’s goals and how empowered they feel (Khan & Law, 2015). Teachers are motivated when they are given individualised consideration by attending to their individual needs and differences and helping them to work towards higher levels of potential (Williams, 2018).

Principals are responsible for building and maintaining high motivation, supporting their school staff in developing the skills needed for successful change, “coordinating the processes and activities, and encouraging the school staff to sustain new practices and activities” (Dadaczynski & Paulus, 2015:225). Principals need to motivate teachers to attend capacity-building workshops and exchange information to sustain change, because workshops are vital for staff development and there is a need for investing in staff development as a way of improving their performance (Kwatubana *et al.*, 2021). Schools that motivate teachers and learners “promote healthy surroundings, meet their educational goals and are more essential” (Weare, 2010:74).

Principals must encourage teachers, parents and learners, because they need constant motivation to work hard to improve the culture of learning and teaching. Research shows the significance of motivation for the enhancement of learner performance and “that poor performance leads to lower self-esteem in teachers and learners” (Gustafsson *et al.*, 2010:52). They also believe that low self-esteem increases the risk of a child performing poorer in school.

Third, Eyal and Roth (2021:48) indicate that “principals can exert idealised influence by acting according to the school’s values and serving as models to be emulated”. A role model, according to Cosner *et al.* (2015:125), is “a person that others look up to in order to help determine appropriate behaviours”. Role models can be either positive or negative. “Positive role models offer a range of helpful or useful behaviours. Negative role models, on the other hand, offer examples of harmful or disruptive behaviours” (Cosner *et al.*, 2015:125). School principals can illustrate the necessity and importance of change processes to all school members, but this takes place if the goals are shared by all members as indicated above. Change processes, such as becoming a health-promoting school, have a high chance of being sustainable (Dadaczynski & Paulus, 2015:225) “if principals utilise their influence by showing how important such change is”.

Fourth, it is important for principals to provide support especially to teachers leading health committees, as open and honest communication is the foundation of a successful team (Cosner *et al.*, 2015). This is true because it helps to build the interpersonal skills necessary for effective support and teamwork. “Sharing ideas, points of view, information and expertise helps to keep everyone informed and, in the loop,” (Cosner *et al.*, 2015:63).

Varrati and Smith (2008:9) assert that “teachers view principals as key figures for support and guidance”. According to Darling-Hammond *et al.* (2020:99), “keeping good teachers should be one of the most important agenda items for any school leader”. Principals can play a vital part in the implementation of health programmes in

their schools just by providing support to teachers leading such programmes. School principals reinforce the institutional culture by providing guidance and support and offering instructional and institutional resources for the promotion of healthy school environments. Principals could also take an active role in “improving their support systems through mentoring programmes” (Varrati & Smith, 2008:14).

Fifth, the school principal is responsible for ensuring that the school and the people, assets and all other facilities are organised and managed to provide an effective, efficient, safe and nurturing environment (South Africa, 2016). “Facilities management is a process that ensures that buildings and other technical systems, the operations of an organisation, are properly cared for” (Onyekwere & Ubong, 2019:75). It is important that the school principal takes initiative and creates a plan to manage the facilities, as educational facilities are material resources that enhance teaching and learning, thereby making the process meaningful and purposeful, which leads to improved performance (Asiyai, 2012). “Facilities create and convey meaning about the school – for instance, facilities that are old and dilapidated would be associated with poor leadership and organisational culture and affect the school negatively” (Janson & Xaba, 2007:134). Asiabaka (2008:12) maintain that school “facilities management plays a pivotal role in the actualisation of educational goals and objectives by satisfying the physical and emotional needs of staff and learners”. This role is particularly important for the promotion of HSPEs, because it becomes difficult to keep expensive teaching and learning material and computers at school while the environment is not safe.

Sixth, “school principals have a significant influence on deciding whether to make schools healthy organisations, and the key role of the school principal is to promote the interests of all learners and staff members” (Dadaczynski & Paulus, 2015:225). “School leadership and the principal are important precursors for school level adoption and implementation of school health promotion strategies” (Kwatubana, 2018:3). This role includes an ongoing visible endorsement of the school activities to deal with the challenges that might arise.

Influence can be exerted on learners and staff members through caring leadership (South Africa, 2008). Caring lies at the heart of effective enhancement of healthy school environments and good school leadership. This is evidenced by health policies, wherein “principals are indirectly obliged to act ethically and morally” (Kwatubana, 2018:4). The caring school leader has an obligation “to provide everyone within the school with a caring and safe working environment and a favourable school atmosphere for the promotion of healthy environments” (Kwatubana, 2018:4). The principal as a caring leader can support teachers who lead health committees and influences the programme implementation in a positive way in order to be perceived as benevolent (Cranston, 2011:53). Principals and their teams must be consistent in their words and actions and should demonstrate genuine care for teachers, learners and parents (Cranston, 2011). “The principal must be a trusted contact person for the whole school – teachers, learners and parents” – in other words, the principal must be a people’s person (Dadaczynski & Paulus, 2015:226).

Seventh, the school leader has a responsibility to strengthen relationships between internal and external stakeholders and solidify commitment to work together (Kwatubana, 2018). “It is the school manager’s responsibility to initiate and give guidance on actions to warrant the participation of the school community in school health programmes” (Scribner *et al.*, 2011:3). Collaboration and school health promotion relate because they are both internationally recognised and connect health and education in a planned, “integrated and holistic way and has the potential to support improvements in both health and education” (Barlow *et al.*, 2006:47). Collaboration and societal relationship are defined as that which “comes into being when individuals bind themselves together for the purpose of fulfilling a special need or to realise a shared or a communal interest” (such as health promotion in schools) (Van der Westhuizen & Mentz, 2007:145). Furthermore, “the relationship in collaboration has a negotiation and a persuasion sphere, and authority and respect” (Van der Westhuizen & Mentz, 2007:63).

Kwatubana (2019:72) believes that “it is vital for school leadership, especially the principal, to collaborate with parents, community members, local businesspeople, and local companies”. She further argues that “collaboration would create effective health-promotion alliances” – thus, it requires leaders who are skilled in networking, knowledge sharing, partnership creation, and support (Kwatubana, 2019:71). “The recognition of a need for collaboration with school communities provides a foundation for the investigation of skills and qualities that school leaders need to acquire to steer their teams” (Kwatubana, 2019:71). Successful collaborative leadership needs basic skills and certain traits to be strong and benefit the poorest learner at school (Williams, 2011).

Developing trust between the school and members of the community is important for any school. Manu *et al.* (2015:99) define trust as “reliability, openness, competence, honesty, and benevolence”. “Trust is the key characteristic of school leaders who have to establish interpersonal trust within their organisation” (Tschannen-Moran & Gareis, 2015:67). In fact, without trust, the collaborations that are formed may not be effective. Many studies suggest a link between trust and collaboration for the success of projects in schools (Bond-Barnard *et al.*, 2014; Buvik & Rolfsen, 2015; Manu *et al.*, 2015). “The level of trust predicts the degree of collaboration, which, in turn, predicts the success of the project” (Dietrich *et al.*, 2010:5). When school principals promote trust and collaboration in a project, it is more likely that the project will be a success in terms of time, cost and quality objectives, but more specifically, that “all the stakeholders involved will perceive the project as a success” (Chiocchio *et al.*, 2011:3). It has been revealed that the expectations that “project stakeholders in schools have of each other as well as the exchange of knowledge between them is integral in determining the level of trust in a project” (Bond-Barnard *et al.*, 2018:11). Moreover, coordination and the “relationship between stakeholders are crucial for collaboration, which together with trust leads to project success” (Bond-Barnard *et al.*, 2018:11).

2.6 Conclusion

This chapter discussed the essence of promotion of HSPEs. The SPE and HSPE were deliberated on as some of the key concepts that guided the study. It was necessary to discuss the importance of healthy school environments in teaching and learning as this can result in improved academic performance. The chapter further argued how HSPEs are promoted through school health policies, health programmes, and involvement of teachers, learners and community in school health promotion. The chapter revealed the importance of SPE in academic performance, focusing on physical structures of a school milieu. It was further important to elaborate on the leadership roles of the principal in the promotion of HSPEs. As mentioned earlier, the principal is at the centre of school improvement initiatives, especially those that are meant to improve the quality of education, and consequently contribute to academic performance. The next chapter focuses on the epitome of academic performance.

CHAPTER 3

LEARNER ACADEMIC PERFORMANCE IN SECONDARY SCHOOLS IN SOUTH AFRICA

3.1 Introduction

This chapter discusses learner academic performance in secondary schools. Factors affecting learner academic performance in South African schools and the impact thereof on academic performance are elucidated. As the school principal is the key role player in increasing learner achievement, it is important to expound on effective leadership styles performed by the principals, as these styles determine the impact the principal has on learner learning outcomes. Principals' leadership styles play the most important role in effective schools and are decisive in shaping learner excellence in academic performance. To that end, this chapter also looks at the principal as an instructional leader, a strategic leader, a transformational leader, and a reflective leader.

3.2 What learner academic performance entails

“Academic performance is the outcome of education – the extent to which a learner, school or teacher has achieved educational outcomes” (Steinmayr *et al.*, 2018:2). It represents “performance results that indicate the extent to which a learner has achieved specific goals that were the focus of activities in instructional environments such as schools” (Steinmayr *et al.*, 2018:2). It encompasses academic achievement (Boyer, 2012; Karadag, 2020), attainment of learning objectives, acquisition of desired skills and competencies, satisfaction, persistence, and post-college performance (York *et al.*, 2020). “Tests, examinations or continuous assessment in schools are used to measure learner performance, and good performance is awarded with grades or certificates” (Wirthwein & Steinmayr, 2020:1199). Wirthwein and Steinmayr (2020:1120) agree that “academic performance is the result of learning, prompted by

the teaching activity by the teacher and produced by the learner”. It is, therefore, a product of a learner in a learning environment which is expressed through grades.

Academic performance is sometimes measured or observed “by assessing knowledge, skills and values” (Wirthwein & Steinmayr, 2020:1120). Kapur (2018) asserts that education is one of the imperative aspects that not only teaches essential skills, abilities and knowledge among individuals but also leads to overall growth and progress of the individuals, community and nation as a whole. The instilling of academic knowledge, skills, abilities and proficiency among learners are enhanced through learning and academic performance (Kapur, 2018). Consequently, the purpose of academic performance is to achieve an educational goal, i.e., learning.

“A gap between learners’ academic performance and expected performance is called diverging performance” (Lamas, 2015:356). Unsatisfactory academic performance is below expected performance. Stakeholders in schools and the Ministry of Education in South Africa are concerned about poor student performance, especially in the Grade 12 examinations. Poor academic performance is when one fails to attain a set standard performance in each evaluation exercise. High failure rate becomes a problem in education, as it points to several factors that are not functional or efficient. A number of strategies have been used over the years to curb poor performance in schools. These include school camps, providing extra classes, twinning schools, etc. These strategies are discussed at length in § 3.5.

Academic performance as one of the several components of academic success cannot be regarded as the only outcome. However, it determines the future goals and objectives of learners, the subjects in which they will specialise in college or university, the educational institution at which they will enrol, and career opportunities they may take up (Kapur, 2018). “Educated persons are not only able to accomplish their desired goals and objectives but are also able to render an efficient contribution towards the well-being of the community” (Arnaiz-Sánchez *et al.*, 2020:2). Good academic performance, according to Allensworth *et al.* (2016:2), “grants admission to reputed

academic colleges or universities, and academic success at the finest universities leads to a high-paying job that would fulfil one's needs". This becomes important in a country that was sitting with 66.5% youth unemployment in the first quarter of 2022 (Stats SA, 2022). A matric certificate becomes the only hope for many South African youth to escape poverty and live a better life.

3.3 Learner academic performance in high schools in South Africa

This section elaborates on academic performance of learners in high schools as compared to international countries. It further presents statistics on the performance of learners in Grade 12 from 2015 to 2021. The arguments that have been raised regarding academic performance of learners are highlighted. It is important to obtain more information about factors that contribute to high performance and those that are detrimental to it to find solutions that would improve performance in South African schools. The argument in this research is that schools can develop the necessary conditions and processes that realise the goal of promoting success for all as well as good levels of academic performance.

3.3.1 Academic performance and learner drop

This subsection starts by providing statistics on the pass rate at matric level over five years and then elaborate on school dropout. The former extends on the information provided in § 1.2. It is a tradition that the national matric results are announced every year in December or January by the Minister of Basic Education. These results are eagerly awaited by all stakeholders that have an interest in education. Table 3.1 below presents the national matric results for the past five years (2017–2021).

Table 3. 1: Matric results over five years

YEAR	Pass %
2017	75.1%
2018	78.2%
2019	81.3%
2020	76.2%
2021	76.4%

Statistics South Africa (2022)

The results in the table above show a steady increase from 2017 to 2019; however, there was a drop in performance in 2020 and 2021. This decrease in performance could be expected in a country that was hit by COVID-19. Researchers attested to the negative impact on learner achievement, attributing this to school closures (Hammerstein *et al.*, 2021), anxiety and lack of motivation and anxiety on both learners and teachers (Elhadary *et al.*, 2020) and change in social and learning environment that could influence learning significantly (Wang *et al.*, 2022). In addition to social factors learners in South Africa were faced challenges with remote learning, online learning and use of digital supporting technologies. Moreover, most learners do not have access to internet. This makes it difficult for them to learn effectively online. A series of measures had to be taken to safeguard the health of the school community. There were several lockdowns with varying levels, which made it impossible for schools to continue as per normal with their mandate. Education was one of those sectors that was hard hit, and this reflects in the results of 2021. Nevertheless, ministries of education worldwide are developing strategies to strengthen their interventions for effective teaching and learning to take place and improve academic performance.

Concerns are always raised after the publication of matric results, including that the report does not give a complete and accurate reflection of the state of education in the

country. For example, according to Spaul (2013:46), the “Grade 12 results are misleading, since they do not take into account those pupils who never make it to Grade 12”. One of the arguments that are raised when academic results are announced is that the high number of learners that are left behind each year is not mentioned; instead, the results focus on learners that managed to complete Grade 12. In South Africa, many learners do not complete secondary education, one of the reasons is high dropout rate before matric, which, according to Bengesai and Nzimande (2020), is condoned by the high failure rate. Some scholars call the high dropout rate in the country a crisis (Weybright *et al.*, 2017). De Witte and Kortelainen (2013) define school dropout as leaving school without obtaining a minimal academic qualification. In South Africa, the minimal and important school qualification is the National Senior Certificate, which learners get at the end of Grade 12. Dropout in the South African context refers to learners exiting school before they complete Grade 12.

The table below from Stats SA confirms the fact that the dropout rate is a challenge in South Africa.

Table 3. 2: Survival dropout rates in each grade

	Survival rate	Survival	Percentage dropping out after attaining this Grade
Total Cohort	100%	1000	
No Schooling			
Grade 1	99.32%	993	0.68%
Grade 2	99.22%	992	0.10%
Grade 3	98.22%	990	.23%
Grade 4	98.68%	987	0.31%
Grade 5	98.34%	983	0.34%
Grade 6	97.77%	978	0.58%
Grade 7	95.49%	965	1.31%
Grade 8	93.89%	939	2.69%
Grade 9	89.79%	898	4.37%
Grade 10	80.35%	804	10.51%
Grade 11	68.43%	684	14.84%
Grade 12	51.95%	620	24.08%

Statistics South Africa, (2020)

Table 3.2 shows that children start primary school in greater numbers, but dropout rates are significant and lead to low levels of school completion. Most learners who drop out of school do so between Grade 10 and Grade 11, resulting in more than 30% of learners dropping out before Grade 12. As a result of substantial rates of drop out and non-completion of school, many children are leaving schooling without obtaining the most basic skills (Education For All (EFA), 2011). “Lack of basic skills may limit their future opportunities and lead to inefficient utilisation of the scarce resources allocated to education” (Sabates *et al.*, 2010:8). Policies are clear on the measures to be taken as regards children who are not promoted to the next grade, who must either repeat the same grade or drop out of school. Repetition rates in the South African context are known to be high from Grade 9 up to Grade 11, with Grade 10 recording the highest levels at 22% in 2017 (DBE, 2018). The Learner Unit Record Information and Tracking System (LURITS) provides accurate estimates of grade repetition figures it indicates that 25% of learners repeated Grade 10 in 2015 (DBE, 2016).

These “high repetition rates in the FET phase are a cause for concern and worrying given the value attached to it in determining better learner academic performance, post-schooling outcomes, and labour market access” (Van Der Berg *et al.*, 2019:27). “The completion of Grade 12, as well as higher education, is directly related to employment outcomes”, as asserted by Moses and Villodas (2017:2257). In this regard, “poor schooling outcomes in the FET Phase are largely associated with lower productivity jobs and lower income levels, while good schooling outcomes are associated with high productivity jobs and higher incomes” (Van Der Berg *et al.*, 2019:27). Thus, the importance of good schooling and correct implementation of policies cannot be overstated.

The literature mentions several reasons for high dropout rates. Many children are registered in schools but fail to attend, participate but fail to learn, are enrolled for several years but fail to progress and, consequently, drop out from school (Weybright *et al.*, 2017). According to Branson *et al.* (2013), school dropout should be understood not as a single event but as a long process of disengagement caused by the

convergence of a few factors; it has more than one proximate cause. Some scholars underscore factors that are school-related, such as poor academic performance, lack of positive experiences in school, and rejection of school values (Gan & Guo, 2022). Tuck (2011:820) claims that school practices such as “assessments, final examinations, tests, and rule enforcements that learners find humiliating can cause learners to drop out of school”. Gan and Guo (2022:809) add an “unwelcoming, unfriendly school environment, differential treatment by race, gender, sexuality or even class, and a lack of curricular, pedagogical and instructional sophistication as contributing factors”. Poor-quality educational provision is also a contributing factor, according to Lewin (2009).

Gan and Guo (2022) indicate that in post-apartheid South Africa, children and youth are struggling with personal issues such as lack of motivation. Factors that belong to the individual are poor health or malnutrition and motivation, in addition to those that emerge from children’s household situations, such as child labour and poverty (Lewin, 2009). Archambault et al. (2013) and Li *et al.* (2017) believe that the dropout rate is increased by advice from peers and relatives who dropped out themselves and the cost of education.

Absenteeism is a school-level factor that contributes to low achievement and high dropout rates. School absenteeism is associated with a range of life-course problems in school learners, such as teenage pregnancy, risky sexual behaviour, and substance abuse (Gubbels *et al.*, 2019). Extreme absenteeism, in turn, is an indication of ongoing school attrition, which, in the end, leads to permanent dropout from school (Cabus & De Witte, 2015). The challenges of absenteeism and dropout affect not only individual learners but also parents and the community through their effects on education, health, wealth, and social matters (Subrahmanyam, 2016). Frequent absence from school leads to poor performance and failure in school.

As indicated earlier, when learners fail, they have to be retained. Peixoto *et al.* (2016) define grade retention as the practice of requiring a learner to repeat a particular grade

when a learner does not meet the academic standards of the grade level in which they are currently enrolled. This retention practice is an intervention strategy to provide low-achieving or slow learners with an additional opportunity to meet such academic standards by allowing them to repeat the grade, re-learn material and catch up with their peers (Chen & Jang, 2010). It has been used to afford underachieving learners an opportunity to master the content of their previous failed grade as well as acquire developmentally appropriate skills. Although these reasons are valid and are meant to support the struggling learner, if they are retained in all four phases of schooling, they complete matric four years older than their peers. This might be a challenge for some learners, as they could be ridiculed for being the oldest in their classes.

According to the Department of Education (1998), South Africa has adopted the Admission Policy for Ordinary Public Schools, which stipulates that a child can only repeat once in each of the four education phases: The Foundation Phase (Grades 1 to 3); the Intermediate Phase (Grades 4 to 7); the Senior Phase (Grades 8 to 9); and the FET Phase (Grades 10 to 12). This implies that a learner who fails any grade in a single phase for the second time cannot be retained in that grade and should be allowed to progress to the next grade. “Progression can, therefore, be used to prevent a learner from being retained in a phase for a period exceeding four years, provided that the underperformance of the learner in the previous grade is addressed in the grade to which the learner is promoted” (Van Der Berg *et al.*, 2019:27). This implies that when a learner reaches the FET Phase (Grades 10 to 12), they might have been retained three times.

It is unfortunate to note that, according to data, this “policy is often not applied, so some learners already fall several years behind their correct grade for age before they reach secondary school and beyond” (Van Der Berg *et al.*, 2019:28). Therefore, some learners complete Grade 12 at the age of 22 years or older. Grade retention is considered as an outcome of a previous grade failure and simultaneously predicts later or future failure (DBE, 2018). Grade retention has, however, been a controversial issue in the sector, with some defending it as a beneficial remedial practice to improve

academic performance, while others argue against its harmful effects (Peixoto *et al.*, 2016).

3.3.2 Strategies to improve learner academic performance

Traditionally, improvement of student academic performance has focused on three main components: personal characteristics or individual factors (e.g., intelligence); contextual factors or improvement of the educational environment (e.g., school improvement); and factors related to self-beliefs, understanding of self and the environment (e.g., responsibilities, mentality and personal experiences) (Van Mieghem *et al.*, 2020). In other work, procedural factors such as school leadership have been considered. The interventions discussed next are employed in high schools in South Africa.

3.3.2.1 Provision of additional support

The DBE (2014), in the definition of additional support needs, asserts that every learner needs support, but some learners, for whatever reason, may require additional support for learning that can arise from any factor that causes a barrier to learning, whether such factor relates to social, emotional, cognitive, linguistic, disability, or family and care circumstances. Katz *et al.* (2017) is of the opinion that social and emotional learner support leads to academic success. Extended support to learners motivates them and makes them feel special, and some lower-grade learners work harder to see themselves in Grade 12 so that they can also go to camps and other programmes. Andrews and Osmanm (2015) assert that learners are never old or there is no cut-off age where support and provision of learning skills become less effective for learners to overcome academic challenges. Hlalele (2010) and Salisbury and Sheridan (2011) claim that support intervention strategies and learning support programmes are imperative for learner achievement. Hlalele (2010) further indicates that pass rate improves when less prepared or at-risk learners are equipped with basic

learning skills and strategies to face questions during examinations, including skills to keep calm, which will help learners in universities and in general life.

There are several policies that guide provision of support to learners, however, for the purpose of this study the Policy on Screening, Identification, Assessment and Support (SIAS) (DBE, 2014) suffices. The purpose of the SIAS policy (DBE, 2014) is to provide a policy framework for the standardisation of the procedures to identify, assess and provide programmes for all learners who require additional support to enhance their participation and inclusion in school; improve access to quality education for vulnerable learners and those who experience barriers to learning; manage and support teaching and learning processes for learners who experience barriers to learning within the framework of the National Curriculum Statement Grades R–12; establish a seamless system of early identification and effective intervention to minimise learning breakdown and potential dropout; directs the system on how to plan, budget and programme support at all levels; ensure the transformation of the education system towards an inclusive education system in line with the prescripts of Education White Paper 6 on Special Needs Education.

Moreover, the SIAS policy (DBE, 2014) provides clear guidelines on the processes that have to be followed by school-based support teams (SBST) and district-based support teams (DBST) in screening, identifying and assessing barriers experienced by learners with a view to planning the support provision according to programmes and monitoring by DBST. It provides the protocol that outlines the role functions of staff appointed in the district as well as school structures responsible for planning and provision of support to learners. This policy regulates the composition and operations of the key coordinating structures required for the implementation of an inclusive education system, namely SBST and DBST, which are transversal structures aimed at rationalising and maximising support provision at the school and district level. Additionally, this policy aligns with other DBE strategies which aim to support teachers, managers, districts and parents in schools.

3.3.2.2 Provision of extra tuition

In South Africa, integrated intervention programmes that target learning strategy and literacy skill development in underperforming learners have proven to be effective (Andrews & Osmanm, 2015). These programmes are run because teachers can no longer simply take individual decisions on the spot to support diverse learning needs (Loreman *et al.*, 2016; Specht & Katz, 2015). The school and teachers work as a team in all different programmes to support learners in specified settings inside or outside the school. Motivation and engagement play a significant role in success of such interventions (DBE, 2018). Understandably, both also play significant roles in academic achievement. Consequently, those learners who are motivated by and engaged in learning tend to perform considerably higher academically and are better-behaved than their unmotivated and unengaged peers (DBE, 2018). Henderson (2019) describes learner engagement as the tendency to be behaviourally, emotionally and cognitively involved in academic activities. Learners are motivated to fully participate in such strategies for them to benefit.

The Department of Education (2018) together with schools are doing all they can to ensure improved learner performance across all grades, but mostly Grades 12, by embarking on teaching learners during school vacation camps and weekend camps. They also organise seasonal camps where learners are taught by the best teachers in the subject in a district. Each of these are discussed below.

- **School camps**

School camps are when learners go away from family and home for few days to be with their teachers and experts in different subject fields for enrichment in study and learning skills to improve academic performance (Henderson, 2019). Child development professionals recognise the camping experience as valuable in helping children mature socially, emotionally, intellectually, morally and physically (Kallison & Stader, 2012). The building blocks of self-esteem are belonging, learning and contributing to activities. The camping experience offers unique opportunities for

learners to succeed in these vital areas (Salisbury & Sheridan, 2011). At camp, learners may acquire problem-solving skills, make social adjustments to new and different people, learn responsibility, and gain new social skills to increase their self-esteem. In some instances, learners and teachers revise previous question papers in preparation for upcoming examinations. One interesting perspective is that such camps are conducted outside the classroom at neutral venues, mostly chosen strategically for learners (Salisbury & Sheridan, 2011). Williams (2010) revealed that teaching outside of the classroom – i.e., arranged educational trips field excursions and school camps – makes learning more memorable than classroom-based learning.

School camps are common in South African township schools. They are conducted as an intervention to improve Grade 12 results. An MEC of education in his motivation speech said, “[as] a department, we are offering our Grade 12's with all the necessary support to ensure that learners can successfully complete their schooling career, as they are currently busy with weekend lock in sessions. We are pulling out all stops ahead of the final exams, with most Grade 12's attending extended Spring Camps for a period of 10 days” (Northern Cape DBE, 2018). In some instances, the Spring school camps assist learners in subject areas that have been identified by the districts and schools as areas that need further support ahead of the National Senior Certificate, particularly in underperforming schools (DBE, 2018).

In some cases, the MEC of a particular province might set up camps for a district that poorly performs over a period. For example, the DBE Matric Camps in the Sedibeng West district in Gauteng province was the vision of the MEC for Basic Education in Gauteng. This district is known for achieving last position in the districts of the province. To improve matric learner performances through partnering with institutions of higher learning in the province (GDBE, 2016), matric camps were established. To increase positive impact on learners, the camps were hosted by institutions of higher learning – Vaal University of Technology and the North-West University – and the core business was to improve the performance of learners to increase the matric pass rate of the province (GDBE, 2016). Exposure to the university environment encourages

learners to work harder during their final exams to be accepted at universities the following year (GDBE, 2016).

- **Extra classes and collaboration**

The Department of Education (SASA, 1996) prescribes that each school must have an improvement plan for every occurrence at school. After the release of the Grade 12 results, the district director calls in a meeting of all the districts and school stakeholders to announce the results and give directions. Performance information about schools that performed well is discussed and those that performed poorly are presented. The district director announces intervention strategies that will be conducted by the district office and then advise principals and the SMTs to work on their school improvement plan (SIP) before individual teachers can start with their school subject improvement plans. Improvement plans usually include the problem area, the target percentage, time frame, and responsible people to implement and monitor. In 2016, an MEC for education launched the secondary schools' improvement programme (SSIP) to provide extra tutorial support to 73 054 Grade 12 learners in 460 Gauteng schools. The SIP programme is designed to enhance Grade 12 learners' performance, particularly in previously disadvantaged communities (GDBE, 2016).

Teachers may make use of differentiation where learners are differentiated according to their levels of performance, which starts by identifying the learners from the analysis of their previous examination, usually beginning of terms 2 and 3. Learners who obtained levels 1 to 3 are grouped, and those who obtained levels 4 to 7 are grouped. These learners are helped by teachers during extra class time. In a school where two or three teachers share the same subject in the same grade, one teacher takes the high-flyers (levels 4–7), and the low-flyers (levels 1–3) go to the other teacher(s). It is important that teachers identify learners correctly.

Teachers may make use of extra classes to close gaps. If the teacher is behind according to their teaching programme, they cover the work that is behind during this

time, not during normal teaching and learning time. This is done to make sure that the syllabus is completed at the end of each term.

The DBE (2010) requires and insists that teachers, learners and schools collaborate on education practices – this is why school holidays, especially Winter and Spring, and weekends, are used by schools for extra teaching and learning; the aim is to complete the curriculum timeously. Each school does its own classes but sometimes schools in a circuit or area combine learners and share work to teach. Teachers share work according to their expertise in different subjects. In such classes, learners get the opportunity to be taught by different teachers, which, in some cases, is to their benefit. Some schools engage in school twinning, where a good-performing school, works with a poor-performing school.

- **Adherence to teaching and learning policies**

This pertains to support provision and monitoring by subject advisors. Subject advisors are known to be the specialists in their respective subjects. They conduct planning meetings where they advise teachers on all the curriculum issues, especially adhering to the policies as according to DBE. They monitor the planning of work, implementation, assessment, recording of marks and filing system to check adherence to the CAPS, Assessment, and other important policies. They work hand in hand with the heads of departments and the relevant teachers. Moderators and chief markers from matric marking centres always write reports after each marking, they report on the performance of learners in the examination per question, indicating challenges they came across from marking and mistakes that learners do. This diagnostic report is given to teachers, to observe parts in the question paper that need more attention.

The above-discussed strategies focus on techniques that enable learners to understand content, using academic strategies. This subsection was presented to acknowledge the presence of initiatives taken to improve academic performance in schools. The extent to which these methods work, and benefit learners and schools is beyond the scope of this research. The argument in this study is that, in addition to

these interventions, attention should be given to other factors that have a potential to enhance learner academic performance. Quality teaching and learning are key to achieving higher performance, however, if learners continue failing, other measures must be taken to strengthen existing strategies.

3.2.2.3 Importance of intervention strategies for schools

There has always been competition between township and urban schools in terms of learner pass rates and learner enrolment. Several authors such as Urquiola (2016), Ingraham (2021) and Molina-López *et al.*, (2018) have underscored that competition between schools has a positive effect on the academic performance of learners. Schools with higher pass rates may attract more learners than their counterparts. Since 1994, learners and their parents have preferred schools in town due to the perception that they provide better-quality education. In principle, in such systems, schools compete for learners. Therefore, there is a reason for schools to be concerned about the intervention strategies used to improve performance as high learner academic achievement may enhance reputation. According to many studies, school reputation is a determining factor for parental school choice (Bell, 2016; Lacireno-Paquet & Brantley, 2008; Ting & Lee, 2019). Reputation plays a key role in the school choice of parents because they must take into account several factors in order to reach a conclusion about the schools on offer; thus, good quality has been prioritised by parents exercising school choice (Atamturk, 2018). Parents collect information about eligible schools when they search for the best-quality schools (Van Zanten, 2013). Once information is collected, they compare schools to make the best choice. Angus (2015) defines those parents as strategic players. This definition fits well, since there are lots of things to consider for such parents when making a choice regarding the best school. They view quality of education, which is essential for academic success, as essential for their children's future career. Therefore, to choose and provide their children with the best option, parents undergo a stressful period, collecting information from various sources about schools, comparing the collected information and synthesising it in order to reach their goals (Atamturk, 2018). Parental

school choice is a complex phenomenon which arises from the fact that parents do not act as normal agents making normal choices as far as school choice is concerned (Thomas, 2010). As Kosunen and Carrasco (2016:174) note, “parents use a combination of rationalities when choosing schools, of which academic reasons are the most important in parents’ choice in this regard”.

Reputation is a set of judgements a community makes about the personal qualities of one of its members or group (Bunar & Ambrose, 2016). Rindova *et al.* (2010:612) sees reputation as “a set of perceptions held by people inside and outside the institution, crystallising the institution’s perceived ranking in a field of other rivals”. “The concept of reputation is based on perceptions, combines and reflects the individual perceptions of all stakeholders (both internal and external) and is relative (and consequently comparative), since it is formed in relation to perceptions regarding other similar institutions” (Rindova, 2010:613). Walker (2010) adds by defining institutional reputation as a relatively stable, issue-specific aggregate perceptual representation of an institution’s past actions and future prospects compared against some standard. Reputation is thus the opinion that people in general have about a school; it is about how much respect or admiration the school receives based on past behaviour or character (Ponzi *et al.*, 2011:16). From the definitions of reputation, three distinct clusters of meaning can be identified: reputation as a state of awareness; reputation as an assessment; and reputation as an asset.

Walker (2010:387) highlights that institutional reputation can be either “positive or negative, good or bad and that it is relatively stable in time and quite difficult to change once it has been consolidated”. A good reputation is considered an asset that assures access to valuable resources (Skallerud, 2011). Moreover, it is closely associated with parental satisfaction, which, in turn, is associated with parents’ loyalty to a school (Badri & Mohaidat, 2014; Skallerud, 2011). Good reputation improves motivation and brings more support, success and results in high-teaching quality, which is usually accompanied by high levels of learner academic performance (Badri & Mohaidat, 2014; Oplatka & Nupar, 2012; Skallerud, 2011), upholding the school’s

history and tradition (Badri & Mohaidat, 2014; Skallerud, 2011), parents' perception about teachers' openness to collaborate with them and their willingness to satisfy their needs (Badri & Mohaidat, 2014; Skallerud, 2011), and close and warm relationships between teachers and learners (Oplatka & Nupar, 2012).

This section also focuses on the concept of corporate reputation in schools and stresses the importance of aesthetics in the management of corporate reputation. Aesthetics, while often limited to the beauty of nice or artistic objects, also refer to how the appearance of an organisation with its surroundings, buildings, interior and affordances, may attract learners by convincing them about the superiority of the study environment (Šontaitė & Kristensen, 2009). The most accepted view of the management of corporate reputation is that it is created and managed by the actions undertaken in corporate identity and transmitted through corporate communications. Corporate reputation has three facets: personality (what the organisation is); identity (what it says it is); and image (what people see it as). Aesthetics can be used in corporate reputation management, as they appeal to people's desire for beauty in their lives and make the organisation more competitive. This research argues that over and above good academic quality, aesthetics must also be considered. Aesthetics do not compensate for low academic quality but complement efforts to enhance it.

Garganourakis *et al.* (2022) identify characteristics that help institutions to build a strong and positive reputation known to many external stakeholders acting well beyond the geographical locality of the institution, namely credibility, reliability, trustworthiness, and responsibility. Reputation management is, therefore, seen as an important activity for attracting and retaining learners (Skallerud, 2015). Credibility refers to the ability of an institution to perform in such a way to meet or even outdo its clients' expectations (Francke *et al.*, 2011). In the case of schools, credibility can be clearly related to their performance, which, in turn, is usually related to learners' academic performance as well as to teaching quality, factors that, as is evidenced by the relevant literature, do indeed affect school reputation (Badri & Mohaidat, 2014; Oplatka & Nupar, 2012; Skallerud, 2015).

Reliability has to do with an “institution’s ability to fulfil continuously and consistently its mission”, in other words, its claims to always prove true (Garganourakis *et al.*, 2022:5). Reliability protects the tradition of a school to consistently produce academic results of a high standard and plays a significant role in a school’s reputation (Badri & Mohaidat, 2014; Oplatka & Nupar, 2012; Skallerud, 2015).

Trustworthiness is the property that comes because of combining the transparency and honesty of an institution’s function with its reliability (Keppler *et al.*, 2021). Trustworthiness reflects the degree of transparency and honesty in its relationship with parents and their perceptions about the willingness of the teaching staff to listen to them and cater to their needs (Badri & Mohaidat, 2014; Skallerud, 2015) or the kind of emotional relationship and support between teachers and their children (Oplatka & Nupar, 2012). Trustworthiness sometimes extends to teacher collaboration, indicating that communication among teachers can contribute to positive outcomes for learners, teachers and the school at large (Vangrieken *et al.*, 2015). For learner–teacher collaboration, sharing information about life experiences has been found to improve understanding and achievement (Egodawatte *et al.*, 2011; Reeves *et al.*, 2017). However, such discussions among teachers could include the sharing of positive reputations, which might lead a teacher to further challenge learners to reach their potential, not vice versa (Lomos *et al.*, 2011). Nevertheless, sharing negative reputations might increase the likelihood that teachers would view a learner as a troublemaker and increase how severely teachers want a learner to be disciplined (Okonofua *et al.*, 2016). Knowledge of a good or bad reputation must shape teachers’ responses to misbehaviour, which shows maturity and focus to moulding the learner, irrespective of the learner’s behaviour.

“Responsibility involves the successful accomplishment of critical tasks allocated to or undertaken by an institution” (Kwatubana, 2014b:1440). Responsibility is related to the successful accomplishment of critical tasks of a school to constitute a safe, disciplined and protective environment that is conducive to learning, and as revealed in research,

school safety and a disciplined school climate are important factors that contribute to school reputation (Badri & Mohaidat, 2014; Oplatka & Nupar, 2012; Skallerud, 2015).

Given the great diversity of factors influencing academic performance shown in scientific literature and discussed above, this research centres on school improvement. Building on such studies, this research emphasises improving academic performance by focusing on contextual factors such as school physical environments and involvement of school leadership. It is believed that a healthy school physical environment may influence academic goals and become a predictive factor in academic performance.

3.4 Role of the school principal in enhancing learner academic performance

According to the DBE (2015), school principals are the most important partners in education. Literature shows that principals have a significant impact on learner achievement and the overall learning environment in the schools they lead (Hitt & Tucker, 2016; Leithwood *et al.*, 2010). The principal is universally acknowledged as an essential feature in the process of realising school effectiveness and evolvment (Day & Sammons 2013; Robinson & Scott., 2009). The principal is the cornerstone of the school and plays a central role in the development of education programmes that would produce creative learners who will be leaders of tomorrow; hence, the principal must be a role model from whom learners and other staff members in the school learn (Abdikadir, 2013). In general, principals need to be able to help teachers guide learners to learn to be critical of the status quo and become agents of change for a fairer and developed community. In addition, literature by educational leadership researchers claims that the role of principal leadership at all levels is to build school conditions that foster high-quality teaching and generate improvements in learner performance (Leithwood *et al.*, 2010).

The principal has the overall responsibility to lead and manage the school and is accountable to their employer, the DBE, the provincial HoD and, through the SGB, to

the school community (DBE, 2015). There are eight interdependence areas, according to DBE (2015), which constitute the core role of the school principal in the South African context, namely: leading teaching and learning, shaping the direction and development of the school; managing quality and securing accountability; developing and empowering self and others; managing the school as an organisation; working with and for the community; managing human resources (staff) in the school; and managing and advocating extramural activities. These areas are discussed in the sections below.

3.4.1 The principal as a leader and a manager

Leadership is at the heart of effective management, thus the actions and attitudes of those in positions of authority affect the actions and attitudes of their employees and subordinates (Braun, 2008). Principals lead schools and thus qualify to fall into the category of leadership. Leadership is the leading and moving of people towards specified goals, such as good academic performance in the case of schools. Leadership is treated as a form of apparent leader behaviour, the use of influence strategies, and inferred personality from interpretations and implications of different kinds of leader–member relationships (Davis, 2010). Leadership, in nature, contains an element of power and the state of having influence over others. From this point of view, leadership is a kind of influence and ability that affects the roles and functioning of school principals. It is also about fostering decision-making among all members of the school community and establishing a client-focused environment in the school (Abdikadir, 2013). In South Africa (DBE, 2015) and in other countries, principals are responsible for leading nearly every aspect of the school (Kindall *et al.*, 2018).

The DBE (2015) believes that there is a need to create a clear and agreed-upon understanding of what the South African education system expects of those who aspire to be and entrusted with the leadership of schools, thus they developed the South African Standard for Principalship (SASP) policy which fully defines the role of school principals and key aspects of professionalism, image and competencies

required, and also serves as a guide to address professional leadership and developmental needs. The most important roles of leaders are creativity and encouragement (Karaköse, 2008). Executing this role depends on opportunities for flexible decision-making by those enacting leadership (Leithwood *et al.*, 2010). This indicates that principal leadership is essential for school success; however, effective principal leadership in each school could differ, depending on “who is involved in leading and how one makes decisions in different contexts” (Liu & Werblow 2019:736). Moreover, Al Jammal and Ghamrawi (2013) assert that principals assume so many closely related roles, they are often unable to distinguish between the characteristics of different leadership styles, yet they need to be effective in many areas under all types of leadership to be successful.

Van den Berg *et al.* (2017) define a school principal as a person with leadership skills, who can maintain accountability, see potential and creative value in fellow teachers, peers and learners to enable them to strive for higher education by focusing on goal setting and daily objectives that are productive for the overall community, family and the individual. Principals must have numerous professional and leadership skills to effectively develop and lead others (Patton *et al.*, 2015).

Abdikadir (2013), in his observation, see the principal as the chief manager responsible for the overall administration of a school, including the direction and supervision of educational programmes, curriculum development, guidance services, public relations, personnel and organisation management. The principal as the manager is the biggest driver of better education outcomes, the key delivery agent in the education system, so school academic performance is highly correlated with the abilities and commitment of the principal (DBE, 2015). The principal implements all these managerial and leadership duties by executing the different leadership types set out by the DBE (2015) to have a tremendous impact on the overall success of the school.

3.4.2 The school principal as an instructional leader

The school principal plays a pivotal role in improving learner achievement (Tucker *et al.*, 2016). Most findings in the literature show that the principal is the most important person providing leadership for improved instruction and better curricular to enhance academic excellence in educational performance (Adeyemi & Bolarinwa, 2013). Instructional leadership associated with school principals who manage curriculums, budget and schedule, and are responsible for the success of each learner in their school (Alvoid & Black, 2014; Bush, 2015). “Instructional leadership occurs when the principal is closely involved in establishing an academic mission, monitoring and providing feedback on teaching and learning, and promoting professional development” (Robinson & Scott, 2009:544). A curriculum leader focuses on reviewing materials, control issues, daily problem-solving, and encourages a predictable yearly routine while simultaneously establishing new direction, aligning people and resources, motivating participants, and producing meaningful change for school improvement (Wiles & Bondi, 2007).

The perception of principal instructional leadership was introduced in the 1980s by American scholars (Johnson *et al.*, 2021). The early models of instructional leadership were developed by Hallinger and Murphy (1985) and Murphy (1990), and Weber and Robertson (1998) elaborated on the critical roles of principals for instructional success. The picture of the instructional leader that emerged is that of the “leader as a facilitator and controller of the primary process of teaching and learning” (Johnson *et al.*, 2021:25). The appearance of concepts such as curricular leadership (Hendriks & Scheerens, 2013) and instructional leadership (Hallinger 1983) reflects the view that focuses instructional leadership on only one of the four core leadership practices mentioned by Leithwood and Jantzi (2006), namely managing the instructional programme.

It is evident that the principal should focus on three important aspects, namely: emphasising, defining and communicating the school’s vision and mission; managing

the instructional programme; and promoting a favourable school climate (Liu *et al.*, 2022). “The first aspect focuses on the principal’s responsibility to work with staff to develop and communicate the school’s achievable goals focused on learner success” (Leithwood *et al.*, 2010:612). The school principal who sets an instructional improvement goal needs to involve teacher leaders to collectively promote instructional success (Goddard *et al.*, 2015). This is called shared instructional leadership; instead of looking to the principal alone as regards teaching and learning issues, we need to develop leadership capacity among all members of the school community (DBE, 2021). Available research evidence supports that schools with “increased shared instructional leadership often have proactive principals” and teacher leaders leading instructional improvement in schools (Lubis, 2020:43; Liu *et al.*, 2022). The shared instructional leadership model highlights collaborative activities between the principal and teacher leaders to fulfil instruction-related school leadership functions together (Liu *et al.*, 2022). It is evident that instructional leaders in South African schools pay attention to nurturing collaborative relationships and promoting teacher professional development due to the dominant collective culture and the policy request (DBE, 2021). The second aspect entails that the principal ensures that the school has well-structured and well-crafted curricula, high-quality instruction, and effective assessment plans to monitor teacher and learner performance (Gümüş *et al.*, 2022). The third aspect entails that rewards should be aligned with goals and practices to promote teacher and learner outcomes (Lubis, 2020:43). The lessons that can be learnt from the literature on instructional leadership is that principals must attend to tasks that lead to school improvement. Identifying such tasks and gaining a more comprehensive understanding of instructional leadership practices may contribute to school improvement.

3.4.3 The school principal as a strategic leader

According to Grunefeld *et al.* (2015:5), “strategic leadership is a school principal’s ability to visualise, plan, lead and make the best of the resources at their disposal to execute strategies efficiently and successfully”. Strategic leaders stick to their strategic plan and strategic management (Vithal, 2016), and their organisation

respects their leadership role and overall vision while working to bring that vision to life. “These leaders can see how the big picture relates to the present and the future” (Grunefeld *et al.*, 2015:5). Strategic leadership is a combination of synergy between managerial leadership and vision. It is the ability to influence others to develop willingness to make daily decisions that lead to the organisation’s success.

A strategic principal, according to Krupp *et al.* (2013), must have special skills to manage the school, such as being a strategic thinker and a visionary thinker, with a positive outcome in mind. It is vital that the principal communicates the vision of where the organisation should be heading and has the social skills necessary to accurately communicate their vision with the team and staff (Vithal, 2016). Other skills vital “to run a school efficiently are strategic planning, agility and implementation when they turn goals into actions” (Jaradat & Mashhour, 2017:108); being able to create a goal-setting framework that defines tracks and objectives (Dimitrios *et al.*, 2013), being trusting and reliable when working with teachers to see their vision turn into reality by being good managers who know how to allocate resources; delegating (Zhang, 2017); and empowering their subordinates to make decisions on their behalf (Setiawati *et al.*, 2017).

All the above skills are supported by Serfontein (2009:203), who assert that “strategic leadership is deemed visionary leadership because the principal is always willing to take a risk”. Strategic leadership entails the ability of a strategic leader to change the organisation to meet the changing environment’s demands (Dimitrios *et al.*, 2013).

3.4.4 The school principal as a reflective practitioner

A reflective practitioner is someone who, at regular intervals, looks back at the work they do the work process and considers how they can improve (Paterson *et al.*, 2013). A reflective practitioner is a person, employee or any individual who believes in learning constantly and updating their knowledge by reflecting on activities they have done in the past. According to Fullan (2011), a central feature of leaders who promote

educational change is their ability to build on their work in an adaptive way. This is done to address the challenges and unexpected events that occur in their schools. According to Fullan (2011), this is linked to constant learning that allows the attitudes, values and beliefs of an institution to change. He explains that the essence of a reflective leader is in their ability to spread passion in others through action. Moreover, Rivas (2020) quotes Peter Senge (2012), who affirms that organisations are a product of the way of thinking and acting of members. Therefore, reflective leadership who “is able to distribute power, build trust and engage all actors in the educational community to participate is one of the keys to creating strong schools” (Rivas, 2020). Fullan (2011:152) also points out that “the role of the principal is critical in developing a school’s capacity to address change”. In this regard, Carroll (2011) explains that the “first step of all innovation always begins with a person who acts and communicates with others until they have formed a movement that encompasses much more than a single school”.

Reflective practice, on the other hand, “is the ability to reflect on one’s actions so as to take a critical stand or attitude towards one’s own practice” and that of one’s peers, engaging in a process of continuous adaptation and learning (Cappelletti & Sajon, 2022:246). Reflective practice is an important tool in practice-based professional learning settings where people learn from their own professional experiences rather than from formal learning or knowledge transfer (Wright *et al.*, 2019). A reflective practice may be the most important source of personal and professional development and improvement. It is also an important way to bring together theory and practice; “through reflection a person is able to see and label forms of thought and theory within the context of their work” (Wright *et al.*, 2019). A person who reflects throughout their practice is not just looking back on past actions and events but is taking a conscious look at emotions, experiences, actions and responses and using that information to add to their existing knowledgebase and reach a higher level of professional effectiveness (Fullan, 2011).

When implementing any idea or concept, several challenges may arise, ranging from “the designing part, planning, implementing of the design, or even from execution” (Rivas, 2020). The best part is that “even though cognitive and organisational barriers play an important role, they reflect upon the situation, which provides much greater insight into and understanding of the problem” (Rivas, 2020). School principals must promote reflective practice. “Reflective practice is learning through and from experience towards gaining new understanding of self and practice” (Finlay, 2008:5). It aims to make one more aware of one’s own professional knowledge and action by “challenging expectations of everyday practice and critically evaluating practitioners’ own responses to practice situations” (Finlay, 2008:5). *Reflective practice enables the practitioner to “remove” themselves from the proximity of being directly involved in the decision or action and to place their actions within a context that provides a fuller appreciation of all the circumstances that have led to the decision or action* (Baker et al., 2019).

Moreover, according Anijovich and Cappelletti (2018), reflective practice helps to build communities; encourages teachers and leaders to network around common topics or areas of interest; encourages sharing and testing of ideas; and facilitates this through setting up meeting spaces and allowing time in the day for teachers to come together and reflect on the work or projects conducted. Anijovich and Cappelletti (2018) highlight that it is necessary to generate conditions to promote instances to reflect on learning and teaching beyond the reflection that occurs during practice. Domingo (2013) adds that when reflection on one’s own practice becomes permanent, it favours professional development. The idea of reflection as a social practice that promotes trust between professionals highlights the importance of dialogue between colleagues (Anijovich & Cappelletti, 2018).

Thus, reflective practice can be deemed a strategy that allows teachers, principals and even school communities to review the present practices in their school to modify them, improve them and continue working. This would make it possible “to achieve the clear purposes set as a horizon for any innovation process” (Rivas, 2020). Reflection,

from this perspective, collaborates with innovation and allows one to build on what already exists to achieve significant transformation. Studies conducted in Latin America by Álvarez-Pérez, (2018) and in Mexico by Roget (2018) explain that it is necessary for professionals to understand the factors that determine daily action in order to transform them. Within the framework of school transformation, any change that yearns for improvement, requires a process of reflection (Roget, 2018).

The identity of school principals, reflective practice and educational reforms are inter-related (Rivas, 2020). Reflective leadership appears as one of the fundamental components to go through the processes of change on the road to school improvement. Wright (2009) refers to how reflective practice promotes the moral and professional autonomy of school principals as they strive to improve the quality of their learners' educational opportunities. Roget (2013) describes the role of the principal as a mediator between the institution and its normative context and between the institution and the unstable social context in which the school is immersed. Roget (2013) argues that in leading teams, principals are responsible for recording the social and technical changes of society in general and, based on that, promoting and directing the relevant school change processes. In this context, Murillo Torrecilla (2011) describes that the principal must be able to make decisions by integrating their technical knowledge and their reflection capacity. Roget (2013:4) also maintains that "reflective practice implies a permanent attitude of teachers and principals that must be activated in all their activities – in previous planning, during a class session, and in the moments after". Thus, reflexive practice implies a posture, a form of identity, or a habit (Wright 2009). Richesky and Murillo (2011) propose that during times of working for school improvement, it is important to develop collaborative work habits in which principals and teachers reflect together about challenges and possible action plans to follow. Indeed, Wright (2009:2) adds that one of the indispensable conditions for innovation and educational change is that "teams of school principals work collaboratively and reflect together, generating shared learning".

Reflection provides as an opportunity for a principal to see themselves more accurately and clearly. It is like a mirror that that can be used to observe their own thought processes in a critical, self-reflective manner. Reflection has to also focus on decision-making and actions. This becomes key considering the actions that are taken to ensure that academic success. Principals must make time for reflection, in order for them to develop greater awareness of self and others and enhance their professional effectiveness.

3.4.5 The school principal as a transformational leader

Kouzes and Posner (2009) define transformational leadership as leadership skills in school principals who can grow the school to a new level at the pivot of school development by influencing major changes in the attitudes, beliefs and values of followers to a point where the goals of an organisation and the vision of the leaders are internalised. In addition, Rhodes *et al.* (2009) believe that through these conditions, followers typically achieve performance beyond those inspired by other leadership styles. Principals who apply this type of leadership style would provide opportunity to their staff, teachers and learners to achieve more in whatever they do, especially in academic performance, which is the core reason for schooling. This leadership style assumes that the central focus of leadership ought to be the commitments and capacities of organisational members, in this case, teachers and learners (Bush, 2018). “Higher levels of personal commitment to organisational goals and greater capacities for accomplishing those goals may result in extra effort and greater productivity” (Leithwood *et al.*, 2010:16).

This style has been shown “to enable both principals and teachers to rise to higher levels of ethics and motivation” (Magaña-Medina *et al.*, 2021:82). Even though teachers and the principal are enabled, Boberg and Bourgeois (2016) assert that teacher performance is likely to be influenced more by school leaders, as teachers are mostly motivated, encouraged and inspired by the modelling of their leaders. “The profound influence that the teacher gains from the school principal seems to be the

most important element of improving learner academic performance” (Leithwood & Azah, 2017:263). Hence, if the role of a school principal is considered a crucial factor in the academic context and in ensuring the effectiveness of the school, then the principal's leadership style is essential for encouraging teachers' commitment to engage in a certain teaching style and for learners to perform well.

Hallinger and Heck (2010:96) assert that in some communities, “principals are requested to change from transactional leadership towards transformational leadership”, bringing a shift to a paradigm that shapes the whole school culture. The goal of “transformational leadership is school development”, so if a school wants to develop, it should change to a different leadership style and have different goals (Yang, 2012:283). Bush (2014:443) affirms that “when transformational leadership works well, it has the potential to engage all stakeholders in the achievement of educational objectives”. “The objectives of leaders and followers coalesce to such an extent that it may be realistic to assume a harmonious relationship and a genuine convergence leading to agreed decisions” (Rehman & Waheed, 2012:75). “The positive influence of transformational leadership on follower outcomes and the development of a positive school environment are indicated in the literature” (Kurland *et al.*, 2010:8). Transformational leadership has also gained support among research scholars due to its positive impact on teaching commitment (Al-Mahdy *et al.*, 2018; Bird *et al.*, 2009; Liu & Werblow, 2019).

“Good, quality learner performance and positive school are gained through correct leadership and support” (Leithwood *et al.*, 2020:263). Leadership comes after teaching and learning in its potential to generate school improvement. Day and Sammons (2013) show that a combination of transformational and instructional leadership styles helps principals to achieve and sustain improvement. Some studies have shown that high-functioning schools had transformational principals who were able to shape and focus the vision for the school and established a school culture that fostered teacher empowerment (Kurland *et al.*, 2010; Valentine & Prater, 2011). Given that transformational leaders have staff members committed to a shared goal, these staff

members are often more satisfied and committed to their teaching positions (Cohen, 2009).

3.5 Chapter summary

This chapter presented the essence of learner academic performance and background on learner performance in South African schools. The arguments were supported by statistics reporting on the matric results over a period. The opposing arguments raised every year when the results are published are concerning and an indication of deeper issues that need to be addressed in education. It is important to note that several interventions are implemented to curb high failure rate. These interventions do not seem to assist the grades lower than Grade 12, as a significant number of learners drop out every year, and many repeat the same grades. In this study, the school principal is regarded as the key role player in improving academic performance of learners. It is also believed that the principal needs to implement several strategies to achieve the goal of higher academic performance of learners. Therefore, a framework for the promotion of healthy school physical environments to improve academic performance is proposed. The next chapter elaborates on Senge's theory of learning organisation that will be used to understand the data were gathered in this research and assist in developing an empirically based framework that is presented in Chapter 8.

CHAPTER 4

ORGANISATIONAL LEARNING THEORY

4.1 Introduction

This study focused on and utilised Senge's theory of learning organisation as a framework to understand the actions and reactions that are part of the promotion of healthy school physical environments, the contribution of such an environment to academic performance and the role of principals in it. First, a discussion is presented on learning organisations in general and schools as learning organisations. Second, for the purpose of this research, all five disciplines of learning organisations are discussed: systems thinking; personal mastery; mental models; building shared vision; and team learning. Information on the disciplines is supported by the elucidation of how each can be applied. It is also important to conclude by highlighting the role of school leaders in transforming institutions into learning organisations.

4.2 Learning organisations

This section starts by elaborating on the history of the theory of learning organisations. The focus then shifts to the essence of learning organisations, including differentiating between learning organisations and organisational learning. It is important to discuss the goal and nature of learning organisations and how individuals and organisations learn.

4.2.1 History of the theory of learning organisations

The term *learning organisation* first appeared in the research titled *Organizational Learning: A Theory in Action Perspective* by Argyris and Schon in 1978 and was further popularised by Senge in his book *The Fifth Discipline* (Bui & Baruch, 2010). Before writing his book, Senge was inspired by De Hete's speech when he held his Research Camp at MIT University. "Senge associated systems thinking and mental

models with organisational learning and then dubbed it *learning organisations*, which refers to the best organisations with high innovation and intelligence” (Wen, 2014:290). In the late 1980s and early 1990s, the term learning organisation was often used interchangeably with organisational learning (Steininger, 2010). This theory of learning organisations has long been key for organisations to keep abreast of changes in the globalised era marked by competitiveness and rapid technological innovation. Historically, “learning organisations shaped the learning story and put together learning programmes and solutions, building collateral; today, they need to cultivate spaces and support people to learn” (Kools & Stoll, 2016:24).

4.2.2 What a learning organisation entails

Kareem (2016:5) describes a learning organisation as “a place where people continually expand their capacity to create results, they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together”. In agreement, Chancharoen and Cruthaka (2021:3) believe that “a learning organisation is a workplace where an individual can continuously build up and extend their creative competency as desired, and this type of organisation continually motivates its employees to be creative and to create clear mutual learning”. Song *et al.* (2013:223) refer to a learning organisation as “a place of discovery, correction of errors and of learning from the individuals”. Furthermore, learning in such organisations is a conscious, purposeful, collaborative, active, constant and developing processes that provides rapid feedback that is effective at the group and organisational levels (Basten & Haamann, 2018). Coldwell and Fried (2011:102) describe a learning organisation as one “that facilitates the learning of all of its members and continuously transforms itself in order to meet its strategic objectives”. “A learning organisation is a strategic commitment to capture and share learning in the organisation for the benefit of individuals, teams and the organisation” (Lunenburg, 2010:24). It does this “through alignment and the collective capacity to sense and interpret a changing environment; to contribute new knowledge through continuous learning and change; to imbed this

knowledge in systems and practices; and to transform this knowledge into outputs” (Coldwell & Fried, 2011:102).

Most interpretations of a learning organisation, according to Luhn (2016:48), entail that there is a need “to develop continuously and learn simultaneously”. Senge (2006) highlights that development in an organisation has no real end point – it is thus continuous. Success is considered by increased value-added contributions, process enhancement, and organisational competitiveness (Wilkens *et al.*, 2004). “A learning organisation is classified as an open system because there are mutual relationships with its surroundings and transparent information within the systems in the organisation” (Luhn, 2016:5). “A learning organisation creates values, practices and procedures in which learning and working are synonymous throughout the organisation” (Coldwell & Fried, 2011:3). “Learning organisations align people’s learning and development continuously with school vision, mission and values” (Bui & Baruch, 2012:229). The best organisation must be able to respond effectively to four challenges: the complication of the situation; the fast-changing environment; interaction; and sustainable development (Lunenburg, 2010). In addition, the organisation should have sufficient intelligence to understand the complexity of situations by being sensitive enough to adapt to changes; having adequate ability of systems thinking to see the inter-affection within a larger system; finding “fundamental solutions”; and having the abilities of learning, action and innovation to make the organisation healthy and sustainable (Lunenburg, 2010).

Burnette *et al.* (2013:13) argues that organisations need “to evolve their mindsets around learning for them to learn effectively. To that end, a learning organisation has to offer all members the opportunity to learn to navigate continuous transformation” (Pedler & Burgoyne, 2017) and create conditions for learning to thrive and survive. Therefore, a learning organisation has a goal of helping individuals as well as itself succeed. According to Hughes and Byrd (2015:59), a learning organisation should be “a coherent strategy of continuous organisational change and one that centres on exploring and facilitating a link between the development of the organisation and the

personal development of employees". "It must constantly strive to develop and implement policies and plans which encourage and make use of learning at all levels within the organisation" (Bui & Baruch, 2010:229).

"Learning organisation theory is based on two defining elements: as its name suggests, learning and organisational contextual features" (Bui & Baruch, 2010:229).

"Learning in learning organisations takes place when all individuals, at all levels, partake in learning about the importance of a concept, with the expectation that more learning would assist the organisation to be more effective" (Argote, 2012:46). Learning organisations cannot survive and cannot be effective without proper learning.

"Learning enhances capacity to create new things in an organisation, and the organisation becomes a learning organisation" (Song & Chermack, 2008:425).

"Existing organisational management literature appears to have the most mature conceptualisation of organisational context, often including components such as organisational culture, climate, goals and missions, processes (policies, mode of governance), power dynamics, state/condition, structure (size, shape and type of organisation, hierarchical levels), and time" (Dee & Heineman, 2016:10). "Learning organisation theory rests on the basic premise that organisational features define processes in which individual and group knowledge and capacity for learning interact" (Bui & Baruch, 2012:230). Here, the definition of organisation contextual features is sufficient, as this aspect is discussed extensively in the next section.

It is further important to differentiate between organisational learning and a learning organisation. Chandler and Hwang (2015) provide three differences between the two types of learning by indicating that a learning organisation is a type, whereas organisational learning is an activity. Also, organisational learning literature is descriptive, whereas learning organisation literature is primarily prescriptive (Chandler & Hwang, 2015). Asif and de Vries (2015:2) further state that "organisational learning is academic in nature, as it focuses on learning as a process of change". Cheng (2012:345) believes that "organisational learning and learning organisations belong to different currents of imagining in the field". Organisational learning is a descriptive

current, focusing on how an organisation learns; a learning organisation is a prescriptive current, aimed at understanding how an organisation learns.

Despite these differences, “the literature agrees on the following: the centrality of environmental alignment; the necessity of individual learning and its transfer to the organisational level; and the significance of maximising the impact of contextual factors such as strategy, structure and culture” (Cheng, 2012:345). Chanthago *et al.* (2020:213) summarise the concepts by emphasising that, in short, learning “organisations proactively pursue congruency between contextual factors and the environment to facilitate the organisational learning process”. Whereas organisational learning focuses on doing things right, learning organisations emphasise learning to do the right things by creating the capacity to do both better (Senge, 2012).

Mishra and Pandey (2018:594) asserts that “organisational learning takes place at three levels: at individual level; group (team) level; and organisational level”. In this section, it is important to elaborate on individual and organisational learning. Team learning is elaborated on in § 3.3.3 below. At individual level, the persons themselves take the responsibility to learn. According to Senge (2000), the ability to learn is the basis of human creativity; to prove his statement, he invoked the belief that no one teaches children the basic actions they need, but they learn walking, talking, et cetera, through just curiosity, imitating people around them and examining power they have in themselves. For Senge (2000), real learning gets to the heart of what it is to be human – people become able to recreate themselves at both individual and organisation levels. Song and Chermack (2008:426) regard individual learning as “the process by which individuals increase their knowledge”. Individual learning can also be regarded as a practice for self-development. Originally, people participate personally in activities, conversations and reflections in order for them to learn. “In the field of adult learning, more focus has been given to the individual learning processes” (Song & Chermack, 2008:426). Even though focus is on individual learning, it does not guarantee organisational learning. However, “without it, no organisational learning occurs” (Nissila & Karjalainen, 2020:179).

Individual learning increases individuals' credibility and reduced resistance to change. DuFour and Marzano (2011) indicate that future leaders are committed to individual learning and development and they exemplify the notion of *leader as learner*. Nuchso *et al.* (2016:183) connect transformational leadership with "individuals who are willing to change their behaviours when they discover that those behaviours are ineffective or counterproductive", and Nuchso *et al.* (2016:183) note that "transformational leaders set an example by their individual learning, which inspires others to learn". In addition, Sidani and Rowe (2018:119) point out that "participation in the self-assessment process by each individual promotes self-reflection and helps individual employees learn".

At organisational level, organisational learning is the sum of what individuals learn within organisations (Bui & Baruch, 2010). In this case, organisational learning becomes more than the learning of its individual members. As Fullan and Gallagher (2017) state, organisational learning starts from using individual knowledge and abilities, staff members' need to learn, and a constructive organisational environment that focuses on team working as well as formal and informal co-learning. "Organisational learning is taken to be the sum of individual and collective learning" (Bui & Baruch, 2012:228). To remain workable in an uncertain and changing environment, "organisations and individuals alike rely on an ability to learn and teach" (Nuchso *et al.*, 2016:183). The implication is that organisational management using the theory of learning organisation would enable employees to cultivate self-learning and knowledge sharing throughout the workplace, and this may lead to achievement of work development efficiency and eventually success (Chancharoen & Cruthaka, 2021).

Sidani and Rowe (2018:119) confirm that "an organisation learns by acquiring understanding, knowledge and skills to amplify its information base". According to Nuchso *et al.* (2016:183), knowledge justifies beliefs that increase an organisations' capacity for effective action. Organisational learning has been linked to knowledge

management, indicating that the latter enhances learning in institutions (Kwatubana, 2021). Kwatubana (2021) further indicates that the shift from the levels of action of individual knowledge to organisational knowledge necessitates knowledge management. "Knowledge management is the process of organising, creating, using and sharing knowledge within an organisation, and successful knowledge management includes keeping information in a place where it is easy to access" (Zhong *et al.*, 2022:5). Chu (2016) supports this definition by describing knowledge management as the systematic process of acquiring, organising and communicating the knowledge of organisational members so that others can make use of it to be more efficient and productive. The main aim of knowledge management is to mine available knowledge for an organisation, to organise knowledge to understand knowledge sharing and full utilisation, and to realise creativity value-adding (Zhong *et al.*, 2022).

On that note, Ghamrawi (2013) suggests that principals should become knowledge leaders so that they can use all available assets to identify and map critical knowledge; facilitate sharing among teachers of their knowledge, experiences and best practices; and make decisions in respect of learners' learning and school improvement. Knowledge is imperative for school performance. Knowledge enables a school to take advantage of the resources at its disposal to support teaching and learning. Without knowledge, schools tumble and fall. It does not help the school if knowledge is centred around a person; in fact, literature indicates that this is individual learning and an organisation can only benefit from when knowledge is shared. "Knowledge helps teachers to discover new ways to meet the numerous demands brought about by change in schools" (Thambi & O'Toole, 2012:58). "Knowledge improves decision-making and empowers schools to face external and internal pressures for school improvement" (Chu, 2016:23). Three types of knowledge are indicated in the literature: explicit knowledge; implicit knowledge; and tacit knowledge (Davenport, 2015). "Tacit knowledge is the knowledge that people possess that is gathered from personal experience and context; it is the information that, if asked, would be the most difficult to write down, articulate, or present in a tangible form" (Wang *et al.*, 2022:23). Argote (2012) further claims that with tacit knowledge, "people know more than they can tell".

It is important to note that tacit knowledge is personal, in the mind of the person, and based on the individual's values and beliefs. Tacit knowledge is practical expertise which is formed by the influence of interactions with the setting (Stokvik *et al.*, 2016). In the case of this study, this type of knowledge is important, as more people who possess it within an institution can contribute to the realisation of the promotion of healthy school physical environments and, consequently, improved academic performance. Individuals in a school can, based on their experience, determine why it is important to implement programmes that promote healthy school physical environments.

Explicit knowledge, according to Wang *et al.* (2022:198), is “the most basic form of knowledge and is easy to pass along because it is written down and accessible”. “Explicit knowledge is the result of data that are processed, organised, structured and interpreted” (Wang *et al.*, 2022). Explicit knowledge is easily articulated, recorded, communicated and, most importantly, in the world of knowledge management, stored (Ganco, 2013). Examples of explicit knowledge are data sheets and reports from knowledge-management platforms in an organisation (Ganco, 2013). In this research, explicit knowledge could include contextual rules and descriptions of a process in the form of a document on how to promote healthy school physical environments that enhance academic performance. Such rules and descriptions are documented in policies, handbooks, manuals and circulars that are available in schools. Teachers in a school should come to the same understanding of the content to create harmony in the use of this knowledge.

“Implicit knowledge is the practical application of explicit knowledge” (Wang *et al.*, 2022:199). There is a range of options to perform a task as well as the potential outcomes, which can lead to a thoughtful process to determine the best course of action (Ganco, 2013). It is a team member's implicit knowledge that informs the conversation on how to do something and what could happen (Yang & Li, 2012). Explicit knowledge of teachers will influence how they interpret and respond to challenges (Burnette *et al.*, 2013) and thus “plays a central role in the adaptive

management of challenges” (Yeager & Dweck, 2012:28). The belief in the case of this research was that understanding of explicit knowledge is linked to how that knowledge would be applied. Schools and school communities are faced with constantly changing requirements and must be able to react competently to various challenges. To do so, professional abilities need to be acquired and further developed in an ongoing learning process for them to be effective in their efforts at school improvement.

4.2.3 Schools as learning organisations

Jansen (2020) defines a school as a localised administrative entity concerned with the face-to-face instruction of school learners at a single site. “Schools are ecologies and complex places where many different kinds of human actors exist in this dwelling called school” (Jansen, 2020:36). These human actors interact with each other and often depend on each other. There are many activities that the occupants of a school as an organisation do, including governing and managing, teaching and learning, serving and administering, leading and following. The occupants of a school need to learn several things: to work together; understand and execute their duties effectively; and to be aware of the resources at their disposal and how to harness them for the good of the school. According to Jansen (2020) and Ndhlovu *et al.* (2010), a school consists of a group of people (teachers, learners, administrative staff and management team) gathered with a plan for the common purpose of teaching learners. In this case, the school then becomes an organisation.

Senge (2012) defines an organisation such as a school as the necessary combination of human efforts, material equipment and physical structure brought together in a systematic and effective correlation to accomplish the desired results for maximum effect on academic performance through learning. “An organisation is a setting that focuses on the social and physical environments in which people spend their time and aims to create workplaces and communities that support and enhance school programmes” (Sole *et al.*, 2010:1495). Senge (2012) perceives a school as the actual organisation of personnel, resources, events, structures and infrastructure. Building

on the seminal ideas of Leavitt (1964), substantial theorists have identified five essential components common to all organisations, namely participants, goals, environment, organisational structure and a core, and supporting tasks (Hatch & Cunliffe, 2013). Moreover, characteristics of an organisation include having formal organisational properties; the face-to-face encounter is central to its instructional practices; and it has special and temporal specificity (Jansen, 2020).

For schools as organisations to learn and react effectively in uncertain and dynamic environments, they must develop processes, strategies and structures that allow school-improvement processes (Chen-Levi *et al.*, 2021). “Schools must consistently create an environment where people are engaged in their work and committed to the vision of the organisation and learning” (McGowan, 2014:299). “They adapt to the new information and changes that are a constant in today's world” (McGowan, 2014:299). There is a shift in conventional roles of teachers and learners as well as forms of assessment, “the central value of well-being for all, and in ways that would lead to a more sustainable future” (Krebs & Zvi, 2016:290). Additionally, innovation, creativity and entrepreneurial mind sets as well as computer-enhanced learning are a hallmark of schools nowadays (Howard *et al.*, 2019). A learning organisation uses these competencies “to mobilise and use resources efficiently and to achieve the larger task of managing the changing environment inside and outside the school to improve the quality of teaching and learning” (Williams, 2012:130). This notion, though it applies to teaching and learning, can also be applied in different school programmes, such as promotion of healthy school physical environments.

Literature establishes that “where schools are perceived to be learning organisations, learner outcomes tend to be high” (Williams, 2012:130). Learning outcomes are specifications of what learners should learn; they are assessed on their understanding and mastery of these outcomes. Consequently, academic performance directly links with learning outcomes. This research is premised on the belief that schools that embrace the idea of becoming learning organisations have a better chance of improving the academic performance of their learners. Through the increasing

attention of bringing change in schools, all stakeholders direct the emphasis towards learning and interest in obtaining knowledge (Collins, 2010). Organisations manage to survive and transform if they have the ability and potential to learn something new (Van der Haar *et al.*, 2013).

Organisational theory suggests that school contexts affect learner attainment through a variety of indirect and direct passages (Simon & Johnson, 2015). The school context describes the school's unique features and includes information that reflects on the educational, geographic and social characteristics of the school (Moloi, 2010). Kutsyuruba *et al.* (2020:2) believe that "school context refers to the dimensions represented in and shaped by the structure, size, functions and nature of an organisation – in this case, a school – within which a group of people work together to achieve specific goals". Indirect effects likely operate through the influence of organisational contexts on the activities of the school. Studies consistently find poor teacher turnover in schools with "dysfunctional contexts and a lack of organisational support". Low rates of teacher turnover reduce learner achievement (Simon & Johnson, 2015). This statement indicates that the bad school organisational context promotes absenteeism on the part of teachers, and this leads to non-completion of the syllabus and poor learner performance.

A study conducted by Kraft *et al.* (2016) in New York found four key components regarding the connection between organisational structures and learner achievement. Organisational structure in this context is related to school context.

- i. Schools with higher quality school contexts have learners who experience larger achievement gains.
- ii. Improvements in the school context within a school over time are associated with corresponding increases in learner achievement gains.
- iii. The relationship between the school context and learner achievement gains at a school is stronger in mathematics.

- iv. The relationship between the school context and learner achievement gains varies considerably across dimensions. This pattern of stronger relationships between schooling and learner academic growth is a consistent finding in education research literature (Kraft *et al*, 2016).

Another definition of organisational structure pertains to “the way people are organised or how their tasks are divided and coordinated” (Mintzberg, 2009:3). Greenberg (2011) views organisational structure as the formal design among people and gatherings concerning the duties, designation of undertakings and specialists in the association. In a school, there are predefined structures – some are rigid, while others are flexible. Usman *et al.* (2018:109) identify two school organisational structures: “an authoritarian and a professional structure”. An authoritarian structure entails position and hierarchy. Strict compliance with the rules, regulations and directives is the basic principle of operation. Power is intense and flows from top to bottom. Rules and procedures are impersonally applied. Those with higher positions always have the last say. In this case, the principal rarely accepts advice from teachers and stakeholders. The principal ignores creative solutions and expertise from teachers. The school and the staff get discouraged and hurt all the time, which negatively affects school improvement. On the contrary, a professional structure is one in which extensive decision-making is delegated to the professional staff. Members of staff are perceived as professionals who have the expertise and competence to make important organisational decisions. Rules and procedures are used as guides rather than strict formats to be applied uniformly. “Teachers have much power in the organisational decision-making process. In short, those who have knowledge and expertise make decisions” (Usman *et al.*, 2018:109). In a professional structure, there are clearly defined short- and long-term goals, rewards and consequences for not meeting goals. The principal involves teachers in decision-making and planning. Self-motivated teachers tend to be most successful because the principal has created a structured environment where everything is clear, and the atmosphere is relaxed. Teachers can approach the principal or the SMT to discuss issues concerning school improvement.

The professional structure discussed above is a component of an organisational structure that reveals vertical operational responsibilities and horizontal linkages of individuals. In this case, an organisational structure can be regarded as the relationship between the management team and the workforce for performing formal tasks and reporting. The main task of the individuals given a leadership role in the “organisational structure is coordination for best results in favour of the organisation” (Bhebehe & Nyathi, 2019:2).

The school as a learning organisation emphasises “the shift from the structure to the process, it insists on empowering as well as creating new effects at the school, attends to both structural and cultural elements, and recognises a larger role for power processes and strategic action” (Scott, 2013:106). Hughes and Byrd (2015:4) comment on “characteristics of a school as a learning organisation, which includes: prioritising the interest of an individual learner by ensuring that each child gets the opportunity to develop their inner potential; cooperation with the society until the individual society develops a positive attitude towards the school; flexibility in order for the school to be balanced, as society always tends to change and needs of the human being also change with time; comprehensiveness in each aspect of the activity in order to present a clear picture of the school (organisation); and utilisation of all the possible resources to help in achieving the goals”. For an organisation to possess such characteristics, it must continually expand its capacities to create the results it truly desires. This calls for nurturing of new and expansive patterns of thinking, which involves learning and continually learning how to learn together (Senge 2006).

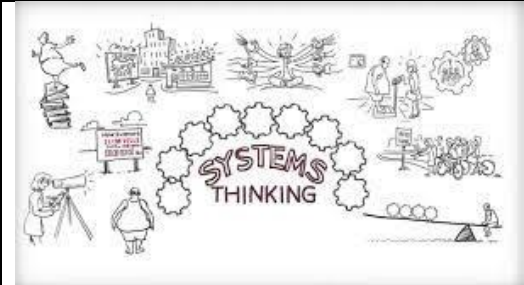
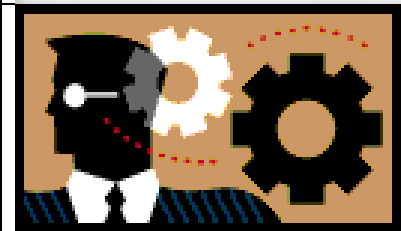
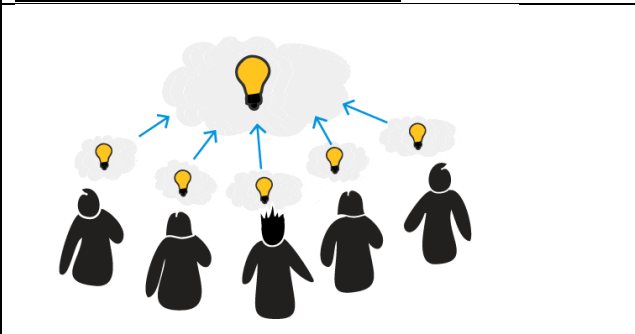
The importance of learning in organisations is based on the view that learning organisations develop the capacity to learn, reflect and innovate (Collins, 2010). For goals and objectives to be achieved, everyone within the learning organisation must be committed to life-long learning (Moloi, 2010; Waldy, 2009). The 21st century brought about rapid changes in most organisations, including education institutions (Nejad *et al.*, 2012). Organisations keep pace with the change, otherwise their survival

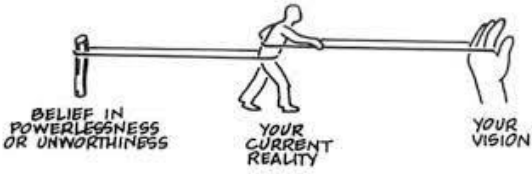
is at stake, and they are bound to die. They must remain flexible and continually improve in totality – that is, academically, physically and socially (Nejad *et al.*, 2012).

4.3 Peter Senge's disciplines of learning organisations

According to Senge (1990), the core foundations to build a learning organisation comprise five disciplines: personal mastery; mental models; shared visions; team learning; and systems thinking. Figure 4.1 below, briefly summarises Senge's disciplines and their connectedness to one another. Each of these disciplines is presented in the figure below and discussed at length thereafter.

Figure 4. 1: Disciplines of learning organisations

		Systems Thinking	Comprehend and address the whole and examine interrelationships between the parts.
		Mental Models	Deeply ingrained assumptions, images, generalizations that influence how we act. Ability to reflect in and on actions.
		Shared Vision	With vision, people excel and learn not because they are told to but because they want to.

	Personal Mastery	Continually clarifying and deepening our personal vision.
	Team Learning	Process of aligning and developing capacities of a team to create results they truly desire to see.

Adapted from Senge (2012)

Senge (2012) argues that “the five disciplines illustrated in figure 4.1 above originated and developed separately and are the collective product of many different people, but they are increasingly converging to create and support learning organisations”. Senge (2012:11) believes that “the disciplines are a developmental path to greater proficiency in organisational transformation”. Hughes and Byrd (2015) support this by saying “each discipline has an influence on the rest, and this influence is usually hidden”. Senge’s disciplines are “elaborate, philosophical and structured to turn organisations into dynamic bodies that promote creative thinking and employee commitment to the visions of their organisation” (Hughes & Byrd, 2015: 60).

In using the term *disciplines*, Senge refers to ways of understanding and ways of doing simultaneously. In addition, *disciplines* refer to bodies of theory and to the practical tools which have accompanied and grown from these conceptual developments. A discipline is, therefore, a developmental path to greater proficiency (Kools *et al.*, 2020). Disciplines form new patterns, comprehensive thinking, collective tendencies and sharing of ideas (Kools *et al.*, 2020). McGowan (2014:7) explains the importance of using Senge’s disciplines, which “assists practising and aspiring managers and can help them to turn their organisations into learning organisations”. McGowan (2014:7)

further clarifies that these “theories are influential and focus on creating environments where people, both leaders and subordinates, learn”. Applying Senge’s disciplines to a school setting can “bring a new picture of the structures and systems that can help or hinder improvement efforts” (McGowan, 2014:8). It was expected that the current study would provide substantial cues in both practice and theory for developing school change in the promotion of healthy physical school settings for enhanced academic performance.

According to Cheng (2011), Senge advised that disciplines be developed together, because when they are applied to the school context, the sequential interrelation among them is important. According to Senge (2006), these disciplines connect as a unit. Therefore, all five of Senge’s disciplines were regarded as important for developing a theory-based framework that would enable principals to promote healthy school physical environments to improve academic performance. The first discipline that is discussed is that of personal mastery.

4.3.1 Personal mastery

Personal mastery, according to Senge (2012), is a discipline that concentrates on the aspects of learning at the individual level in an organisation. It enables people to delve deeper into their personal vision, into what they truly desire, concentrating all their efforts on developing their personal and professional skills and capabilities. Settaraming *et al.* (2012:7) assert that “personal mastery is the discipline of personal growth and learning”. In agreement, Kwatubana (2021) confirms that the concept of personal mastery is defined in the management field as the capacity to grow and learn on a personal level. Personal mastery is about personal development, personal skills and the ability of a person to use their skills to execute tasks to a level of excellence. Senge (2012) explains the evolution of the term mastery originating from the medieval French *maître*, which means someone who is exceptionally proficient and skilled – a master of a craft. *Maître*, as it is used today, means the capacity, not only to produce results but also to master the principles that underpin the way an individual produces

those results (Senge, 2012). According to Algi *et al.* (2014), personal mastery is similar to self-leadership, as they both require self-awareness, self-management and self-learning.

“Personal mastery is concerned with an inner locus of control, self-belief and unending personal and professional development” (Bui *et al.*, 2013:229). It is also characterised by having five strong principles: a vision; maintaining creative tension; commitment to an occupation; high self-belief; and consciousness of self-positioning (Senge, 2012). A personal vision is vital in personal mastery. As alluded to in the next subsections, a vision at both the individual and organisational level is key to the success and sustainability of an organisation (Mirvis *et al.*, 2010). Crossan and Mazutis (2008:241) are of the opinion that “the process of formulating a vision starts with the leader’s unique personal ethos, which affects the formulation of one’s personal vision. A clear personal vision is a statement about the purpose of life that needs to be addressed; it is about the values gained as well as the ambitions and principles of the future (Retna & Ng, 2011). These values are important in personal mastery (Bui & Baruch, 2010) and of school management. The impact of personal values is thought to be of special relevance in school leadership (Kwatubana, 2021). It is not the vision itself that is more important but what the vision can do that matters (Retna & Ng, 2011). People who have high personal mastery regard a vision as a calling, and behind their objectives is a sense of purpose (Bui *et al.*, 2013). Creative pressure is an effective power or force to achieve one’s personal vision (Senge, 2012). Senge (1990) opines that one can achieve creative pressure by pulling reality towards the vision or engaging personal vision towards reality. I believe for people to be true to themselves, it is important for them to know who they are, what their values are, and what their vision is.

4.3.1.1 Application of personal mastery

School leadership has become an important component of school effectiveness (Retna & Ng, 2011), thus high expectations and demands for achievement on the part of the school are put on school principals, who are continuously regarded as tools to

influence and transform schools. Fullan and Gallagher (2017) claim that the principal is “absolutely” the key person in terms of change and school-based reforms. As mentioned above, personal mastery is the discipline of personal growth and learning, which is the core business of what happens in a school situation. In such situation, the principal’s personal mastery and that of teachers become the basis of the learning organisation. Whereas individual learning does not guarantee organisational learning, without it, no organisational learning can occur because organisations learn only through individuals who learn (Senge, 2012). People with a high level of personal mastery are continually expanding their ability to create the results in life they truly seek (Kwatubana, 2021).

People with high personal mastery possess certain character traits, which include high self-belief. High self-belief, which is internally controlled, entails the awareness of the capabilities one possesses and feelings of being accountable for the results set by the organisation (Yoeli & Berkovich, 2010). People with high self-belief attach meaning to their successes and failures in past performances (Algi *et al.*, 2012). Self-belief plays a role in every school leader’s personal and professional life. People who believe they can perform well tend to do better than those who expect to fail (Settaraming *et al.*, 2012). Generally, leaders with strong self-confidence have positive expectations and so are willing to take risks that others might avoid (Liu & Yin, 2020). This allows them to accept accountability, make difficult decisions and follow them up with decisive and crucial action (Liu & Yin, 2020).

“Individuals with high personal mastery are usually self-motivated (Bui *et al.*, 2013). With motivation, consciousness of self-positioning develops (Kwatubana, 2021). Sufficiently motivated people might also be willing to commit themselves to an occupation. Having a commitment to an occupation includes a strong obligation towards goals and values of the organisation. It involves a personal duty to work and have a powerful passion to stay submerged in the organisation (Settaraming *et al.*, 2012). Molina-Lopes *et al.* (2018:220) indicate that “personal mastery influences

organisational performance directly and indirectly through organisational learning and innovation”.

4.3.2 Systems thinking

Systems thinking is the fifth discipline and the cornerstone of all the disciplines: personal mastery, mental models, shared vision, and team learning (Senge, 2006). Without it, the other disciplines cannot stand on their own (Senge, 2006). Systems thinking is the exploration of wholes rather than individual parts, and it is a way of thinking in which the superiority of the whole over the elements is admitted (Senge, 2006). Sole *et al.* (2010) define systems thinking as the ability to deeply understand and interpret systems characteristics and behaviour. “A systems thinker is capable of identifying systems components, recognising the relationships among them, exploring and understanding emerging properties of the components, and analysing and synthesising phenomena in a wider context” (Verhoeff *et al.*, 2018:2). It supports the concept of learning and sustainable development of human resources in an organisation. Systems thinking is about the continual linkage between acquired knowledge and individual expertise. In this regard, an individual’s holistic ideas lead to an organised perception of work functions and performances. It also involves rational thinking expressed through thinking pattern and language, and this outcome effectively changes an organization’s work system to concur with real situations of a learning organisation (Chancharoen & Cruthaka, 2021).

Systems thinking derives from systems theory and is the practical use of systems theory (Senge, 2006). Systems thinking is one of the major breakthroughs in understanding the complex world of systems theory and interprets it as a broad model concerned with connectivity, interrelationships and mutuality between the various components, and they emphasise a duality between parts and the whole, views and boundaries (Williams & Hummelbrunner, 2011). Hallinger (2018) describes systems thinking as a leadership model that utilises instructional leadership ideas, but which account for the influence of seven contextual elements in school leadership: economic,

political, sociocultural, community, personal, institutional, and school improvement. These elements include the three broad areas of Hallinger's (2018) model, which are economic, sociocultural and political, as well as the addition of technological context to better account for how technologies of all sorts impact on education and often outside of traditional influences (Duignan, 2020). Economic context is concerned with the economic development of the broader society. Sociocultural context is focused on prevailing societal values and norms. Political context is associated with how the numerous political contexts shape schools. These contextual factors mostly have one-way influence on schools and principals (Schechter *et al.*, 2018). One-way influence occurs when one manipulates others to get one's way with power and control (Kutsyuruba *et al.*, 2020). Shaked and Schechter (2016) consider system thinking as a view of system leadership that is vital for school principals and that has four elements: leading wholes; using a multidimensional view (collectively seeing the whole beyond the parts); influencing indirectly; and evaluating significance characteristics (collectively seeing the parts in the context of the whole).

Cheng (2011), Shaked and Schechter (2019), and Williams and Hummelbrunner (2011) indicate that systems thinking is the capacity of being able to see interrelationships among the parts in the work system, takes understanding of leadership beyond the position of the principal, and is shaped by the school context (Hallinger, 2018). In simpler terms, systems thinking is a way of assisting a person to see the world, including its organisations, from a broader perspective, which includes structures, patterns and events rather than just the events themselves.

Systems thinking is not content-specific or influenced by a single model; it is a formal, abstract and structured thought process that draws on several unique cognitive skills (Cabrera *et al.*, 2008). Members can see continuous processes rather than snapshots of work activity (Cheng, 2012). This broad view helps one to identify the real causes of issues and know where to work to address them (Senge, 2012). In the case of school health promotion, one would observe a broad picture of a dirty, unwelcoming and uncondusive school, for example. The systems that are part of a school include

parents, communities, and government departments at the local, provincial and national levels. Communication reflects the connections among these systems (Wen, 2014). The school community would then devise a plan to promote health by using systems mechanics, which aim to help the school as an organisation to adapt to the clean and healthy environment while maintaining the capacity of innovative and sustainable development (Wen, 2014).

All systems share certain basic attributes which generate patterns of behaviour, referred to as system dynamics (Williams & Hummelbrunner, 2011). A system's dynamics may be unorganised, random systems, organised by being simple or complicated systems, or self-organised as complex or adaptive (Williams & Hummelbrunner, 2011). Most systems in which humans interact are viewed as complex, adaptive systems. Adaptive systems are vital in schools because schools are organisations where human beings interact. "Human systems naturally adapt as members learn through interactions and adjust to changes in the environment" (Riley *et al.*, 2021:556). System productivity is a function of human interactions, generating important, valuable, new and unpredictable results not found in the specific actions of individuals (Williams & Hummelbrunner, 2011). "Successful system changes results in a sustained shift in the nature and pattern of interactions among system components" (Riley *et al.*, 2021:556).

To understand the source and the solutions for new issues, linear and mechanism thinking should be replaced by non-linear and live thinking that usually is called *systems thinking* (Laleka, 2019). The promotion of healthy school environments can be regarded as a new issue in schools in South Africa. This is because although international countries understood and embraced the school health promotion concept as early as 1900, it was only in 1997 that the Department of Education in South Africa introduced it to schools. This research appeals for organisational transformation. It is believed that organisational transformation is possible with the use of systems thinking. Systems thinking is about empowerment and transformation. It is through the

application of systems thinking that one can structuralise the organisation's learning process and finally the learning organisation itself (Sidani & Rowe, 2018).

4.3.2.1 Application of systems thinking

The application of systems thinking is called systems analysis and is based on system dynamics (Senge, 1996). It is highly theoretical and provides ways of understanding practical school issues. In schools, it can be applied in terms of communication between staff members, different committee leaders and members, health programmes co-ordinators, school managers, parents, learners, district officials, community members, and community leaders. Application of systems thinking looks at systems in terms of types of cycles, and it includes explicit system modelling of complex issues (McGowan, 2014).

There are three assumptions based on systems thinking that informed this study. In systems thinking, the school is looked at as a system that is interconnected with different parts of life that intersect and influence each other (Waldy, 2009), as indicated in the foregoing sections. "These interrelated parts are bound together in such a way that they become clearly attached to one another" (Hughes & Byrd, 2015:332). The important components and stakeholders of a school include learners, teachers, context, learning processes, programmes such as those that promote healthy school physical environments, and any identifiable component that affects learning. Systems thinking lies in a shift of mind to one that sees interrelationships and one that causes effect chains and processes of change rather than snapshots (McGowan, 2014). The discipline of systems thinking begins with understanding the relevance and importance of feedback among staff members to achieve the best results – this is how actions can reinforce or balance each other (McGowan, 2014). In trying to build effective healthy environments, schools must learn to see the deeper patterns and interrelationships of change.

As an approach that advocates for the consideration of any given issue, systems thinking emphasises the interrelationships between system components rather than the components themselves (Gharajedaghi, 2011; Senge, 2006). Systems thinking involves attempts to understand and improve complex systems, examines systems holistically, and focuses on the way that a system's constituent parts interrelate (Shaked & Schechter, 2019). Overall, systems thinking offers a comprehensive way to both conceptualise and practise leadership for learning within the entire school setting, which leads to enhancement of the quality of collaborations and shared management teams that create a sense of commitment among school members and enable them to achieve more together than they would as individuals (Shaked & Schechter, 2019).

“Systems thinking has to do with interconnectedness, which entails connecting people with their environment, adjusting work practices based on information, and linking the organisation to communities” (Sidani & Rowe, 2018:200). Systems are inevitably moving towards interconnectedness (Arnold & Wade, 2015). A focus on interconnectedness of systems is an effective means for improved understanding of the roots of complex systems to better predict behaviours and, ultimately, adjust their outcomes (Arnold & Wade, 2015). It further enables easier understanding of phenomena and achievement of desired changes (Sole *et al.*, 2010). Therefore, it has been proposed as a way of assisting managers (including school managers) in dealing effectively with challenges (Stoll & Kools, 2017).

Systems theory diverges from the bureaucratic-hierarchical paradigm by upholding that the explanation for any phenomenon within a system cannot be simplistic and that the impact of environmental influence cannot be ignored (Schechter *et al.*, 2018). Systems thinking stresses the interdependency of all the components of a given organisation to achieve its goal through cooperation between people, regardless of their roles (Schechter *et al.*, 2018). In school health promotion, some systems are interdependent. Systems thinking is typified by interdependent human relations and tight connections, allowing for a free flow of information (Bui & Baruch, 2012). Thus,

the essence of systems thinking is to understand interpersonal relationships, see processes of change, and understand connections and contexts. Systems thinking aims to clarify complex phenomena by shedding light on the interactions between parts to generate a systems view (Shaked & Schechter, 2019).

Staff members usually know of all the systems in place that form part of promotion of healthy physical environments that are supposed to be part of planning, implementation and evaluation of all programmes. When these systems connect, there is a focus on broader mission, vision and goals. The interconnection of all structures can bring common understanding of the promotion of healthy physical environments in an organisation and help the organisation to meet demands. Systems that connect closely with the basic aims help transform organisations into learning organisations (Sidani & Rowe, 2018). Senge (2009) purports that systems thinking drives people to a place of continuous discovery, creation of reality, and positive change. School development efforts in such a framework of discovery help thrive unprecedented internal and external pressures to change.

The first assumption in the application of systems thinking is leading wholes. The conceptualisation of all parts of school life as one large system is important so that when there is a necessity to change or improve it, the principal would not separate small parts and attempt to repair them but rather consider numerous interactions as they mutually influence each other (Shaked & Schechter, 2014). The second assumption is adopting a multidimensional view (the ability to cope with several aspects) of a given issue simultaneously, hypothesising a wide range of reasons for its emergence and continued existence, considering a variety of its consequences, and predicting various options for its future development (Senge, 2006). Thus, a multidimensional view facilitates the consideration of various issues from multiple relevant perspectives and viewpoints as well as cognitive switching among perspectives to overcome problematic or complex issues (Chen-Levi *et al.*, 2021)

The third assumption is influencing indirectly (applying an indirect approach) when dealing with tasks and challenges, based on the awareness that countless mutual influences are at play among various elements within the school, each of which is connected to others, affecting them and being affected by them (Senge, 2012). Since each element within the school functions as an interconnected part of an entire system, with implications for other parts of the system, school practices can be affected indirectly. Thus, members should examine how their actions can contribute directly and, more importantly, indirectly, to improving the situation (Shaked & Schechter, 2014).

The fourth characteristic is evaluating significance (the ability to evaluate the various elements of school life) according to their level of importance in terms of the entire system, prioritising them in terms of the urgency of the need for a solution and identifying patterns within the system as well as between the system and its environment (Chen-Levi *et al.*, 2021).

In line with systems thinking, the above main assumptions overlap, are interconnected and interrelated (Senge, 2012). School principals who perform at the systems school level should be considered as such, not because they demonstrate several of these assumptions but rather because they reveal an overall ability to apply the conceptual framework of systems leadership in the reality of schools. Thus, the assumptions above are seen as reflections of a comprehensive approach (Shaked & Schechter, 2014).

4.3.3 Shared vision

Garvin *et al.* (2008) state that shared vision involves members' determination to establish shared objectives and implementation to reach these goals. Vision means having a perspective and an ideal image, which forms a mental understanding of the future that a person or an organisation desires to create or prepare for its achievement within a time span (Senge, 2012). A vision is an inspirational description of where a

person or the leader would like to take themselves or the organisation because of their forward-looking capacity and the desire to see dreams come true and hopes fulfilled (Kouzes & Posner 2009). Polovina *et al.* (2021) also believe that vision is the belief about the future. A shared vision is important in schools because shared visions serve to amplify success, increase participation, and erode the divide between leaders and staff members. Hence, “besides promoting individual and organisational capabilities, the organisation itself should facilitate the construction of shared visions among members of all levels” (Ruggiero *et al.*, 2018:97). Therefore, the Department of Basic Education encourages all public schools to have written school visions and missions.

Vision, according to Mirvis *et al.* (2010), can occur at both the individual and organisational level and is key to the success and sustainability of an organisation. In support, Reynolds *et al.* (2015) indicate that images of beliefs and personal future are shaped by multiple factors at the level of the individual, such as conditions, opportunities, circumstances and experiences that the individual is exposed to. The process of formulating a vision in an organisation starts with the leader’s unique personal ethos (Crossan & Mazutis, 2008; Kwatubana, 2021) which affects the formulation of one’s personal vision. For instance, in formulating personal ethos, the leader “determines what motivates them to identify what reality they wish to promote. They also must learn from the people who influenced them and their past experience” (Yoeli & Berkovich, 2010). Leaders’ personal values may be echoed in the vision they have formulated (Kwatubana, 2021).

The shared vision of an effective school reflects the common, schoolwide understanding of what effective school means and how the school is motivated towards a learning organisation (Mogren *et al.*, 2019). The presence of a shared understanding and vision is vital for an integrated and effective school policy towards an effective learning organisation (Leo & Wickenberg, 2013). A shared vision focuses the work of the school, supports teachers and learners to develop shared beliefs (Verhelst *et al.*, 2020) and should be created collaboratively in a culture of openness to learning. School principals and leadership teams must guide the school community

to develop a clear and concise statement of belief and a trajectory for learner achievement. A shared vision should place their core values and beliefs at the centre of their professional practice (Leo & Wickenberg, 2013).

4.3.3.1 Application of a shared vision

Burhanuddin and Aspland (2016) describe creating a shared vision as one of the most impactful practices a school leader can do to improve outcomes for their school community. Visioning in shared vision is the process by which schools or individuals create their visions. O'Connell (2014) identified four ways in which a shared vision process begins:

- i. The principal creates a vision and communicates the vision to their staff.
- ii. The principal together with a group of other leaders, such as the SMT or committee leaders within a school, create a vision and communicate the vision to the whole school.
- iii. Leaders and followers co-create a vision, with the principal and staff developing a shared vision through an iterative process.
- iv. A group comes together to create a vision without a distinct leader.

The first two above-mentioned methods of developing visions are cascading visions; it is “the responsibility of the school principal to develop, foster, communicate and assimilate others towards a unifying vision” (Ruggiero *et al.*, 2018:97). Ruggiero *et al.*, (2018:97) outline this process in three distinct steps: “(1) the leader sets the stage; (2) the leader cascades the vision; and (3) the leader assesses the impact of the cascading process”. In the first step, the principal assesses the school's needs and assets and begins to design a compelling and realistic vision for their staff. Next, the principal engages in transformational leadership and begins ensuring that the vision is carried out in all parts of the school and resonates deeply with their staff. Finally, the principal flows from a transformational leader to a transactional leader and back to a transformational leader. They spot-check to ensure that the school is moving towards agreed-upon outcomes.

The last two approaches to creating a shared vision are more collaborative and much less leader centric. Developing a shared vision is a cooperative effort of creating and making sense of key aspects that include the goals, strategies, roles and individuals involved in the change process (Prestiadi *et al.*, 2019). Principals build a shared vision by using practices of co-orientation, formational communication, and collaboration to empower stakeholders to contribute to the goals and design of a project and not simply to be its implementers or beneficiaries (Stoll & Kools, 2017). A shared vision can be effective for change agents because it can help incorporate a range of voices and perspectives into a project, building a more democratic, wider and stronger base of support for change. A shared vision process encourages principals to listen to stakeholders and respect their autonomy, and it erodes the power divide between project leaders and the people they want to engage in the work, such as teachers in committees. In the more collaborative and mutual approaches to building a vision, the principal's responsibility is to act as a facilitator and help the staff create a unified vision through a sense-making process (Wiek & Iwaniec, 2014).

As a shared vision is an ongoing process that can occur at every stage in a change process or in the life of an organisation (Taylor, 2016), regular communication with stakeholders is important. Communication helps in providing consistent feedback about goals and logics, and leaders and stakeholders establish and re-establish a shared vision, language and imagination of the future (Kezar, 2014). The communication and expression of the vision increases awareness of what is expected, thereby focusing energy, providing direction and affirming an individual's purpose and position in the organisation's direction (Rohiat, 2021). Knowing what one is expected to do can raise self-confidence and arouse motivation. Moreover, the process of communicating vision also helps build commitment to and pride in the organisation and its central values (Cunningham *et al.*, 2016).

Commitment to a shared vision is one of the leading factors differentiating effective schools from less operative schools (Bebell & Stemler, 2013). A vision comes alive

through the organisational team's leadership and shared commitment. Commitment to a shared vision can be related to organisational commitment, which is a multidimensional construct. This multidimensional construct consists of affective commitment, continuance commitment, and normative commitment (Selamat *et al.*, 2013). In affective commitment, employees identify with and are involved in the shared vision. Teachers that possess affective commitment may have emotional attachment to the organisation and its vision, beliefs and values (Robbins & Judge, 2012). In continuance commitment, employees are aware of the costs associated with leaving the organisation. Teachers may have perceptions of value in staying with the organisation (Robbins & Judge, 2012). On the other hand, normative commitment is about employees' commitment to the organisation based on a sense of obligation to the organisation. A level of conformity exists between the employees' beliefs and values and organisational norms (Robbins & Judge, 2012). These three dimensions of commitment are important in vision-sharing for schools to be successful in achieving their vision.

4.3.4 Team learning

Team learning is a skill developed for group problem-solving and learning (Senge, 2012). It is a necessary discipline an organisation and its members must develop to build an operative learning organisation (Senge, 2012). Team learning is important, because teams, not individuals, form the basis of schools, and since most school activities are team-based and collaborative, teams consist of individuals who have new ideas and are creative (Edmondson & Nembhard, 2009). Team learning implies the continual enhancing of collective capacities and the improving of team effectiveness (Senge, 2009). In a school situation, Cheng (2011) believes that learning process occurs when teachers share ideas, learn together and eventually work together to change the organisation. By sharing ideas, they actively help teach each other (Lehmann-Willenbrock & Allen, 2018). Garfield and Dennis (2012) opine that everyone is willing to learn from others if the operation of an organisation is based on the ethos of sharing knowledge, open dialogue and developing a knowledge sharing culture.

Thus, team learning is a process during which the capability of the group members increases in a way that its resulting outcomes would be desirable to everyone (Bui *et al.*, 2016). The notion of team learning as a process is supported by the integrated team-learning model developed by Decuyper *et al.* (2010), which adds to their antecedents and outcomes.

As a process, for team learning to occur, information needs to be shared amongst team members, discussed and scaffolded to existing knowledge, and stored in some way to be retrieved later (DeChurch & Mesmer-Magnus, 2010). This process does not happen in a single moment but in a series of interactions that unfold over time. According to Decuyper *et al.* (2010), team learning provides a comprehensive framework of when, how and what teams learn over time. Furthermore, this team learning process may involve knowledge transfer in which individual learning is shared with other individuals and teams within the organisation or school and is ultimately archived and brings change in the organisation (Santos & Passos, 2013).

Team learning helps people to connect with each other, their work and their community in a process of understanding and learning together (Bui *et al.*, 2016). Learning in a team improves the team function of the individuals at the school (Edmondson & Nembhard, 2009). In this way, team learning produces value of mutual support, the value of constructing a plan of action, greater teamwork and positive working relations, because each member in a team must work in a responsible and accountable manner with each other to achieve a common goal (Liao *et al.*, 2013). Team learning makes team members think and act in a different way than they did before (Van der Haar *et al.*, 2013).

Another outcome of team learning is trust. If done effectively, “learning assists in building trust among the school community and brings to the fore issues that people want to talk about but have previously been afraid to discuss” (Allen *et al.*, 2018:505). Team members engage in a free and open dialogue about the essence, nature,

challenges and operations of their work, and dialogue allows speaking during which the group discovers the realities that individuals cannot discover alone (Cheng, 2011).

As team members can learn together to create what they want to create, Wiese and Burke (2019) indicate two different types of team learning outcomes: a shift in a team's collective knowledge state; and the changes in performance due to team learning over time. According to Van der Haar *et al.* (2013), a team needs to develop new task knowledge about what is going on (shared situation awareness) and what needs to be done (shared goal and task perceptions). "Collective knowledge includes a shared idea of the situation and its risks, a shared idea of the team goal that follows from this situation, and a shared idea of how to act towards this goal together in an efficient manner" (Allen *et al.*, 2018:505). Collective knowledge becomes a resource and a starting point for decision-making on the actions that are needed (Lee *et al.*, 2010). The best performing teams have collectively shared knowledge; teams with members who understand the task from other perspectives, too, outperform others (Van der Haar *et al.*, 2013). Changes in performance are associated with outcomes as discussed in the foregoing paragraph.

Moreover, Wiese and Burke (2019) assert that team learning behaviours (behaviours that aid in the development of collective knowledge) can be further categorised into three different types of behaviours: intrateam, interteam, and fundamental learning behaviours. Intrateam learning behaviours are illustrative of the internal processes in which teams engage that build shared meaning from existing information, identify and fill in gaps in teams' collective knowledge as well as challenge, test and explore assumptions. This is representative of how most literature has operationalised team-learning processes (Bui *et al.*, 2016). Examples of intrateam learning behaviours are asking questions, experimenting, discussing errors and outcomes, constructive criticism, and exploration (Savelsbergh *et al.*, 2018). Intrateam learning behaviours do not necessarily reflect the actions of sharing information with the team but, instead, how the team obtains new information from their fellow team members and how that information is integrated into their collective knowledge (Van Der Haar *et al.*, 2013). In

other words, they are the knowledge obtaining and scaffolding processes that occur within the immediate team.

Interteam learning behaviours occur when teams seek and integrate information from individuals outside the immediate team. While some of these behaviours (e.g., asking questions, seeking feedback) may be indistinguishable from intrateam learning behaviours, the consequence of these actions is different. Individuals outside the team are likely to bring new and different perspectives to the team's dynamic compared to internal team members (Hülshager *et al.*, 2009). On the one hand, these kinds of behaviours can be helpful. Fresh eyes can promote innovation and help teams better understand complex problems. New perspectives can be gathered from individuals who are unfamiliar with the team's current situation or individuals who can provide expert feedback (Hülshager *et al.*, 2009). "Fundamental learning behaviours represent the basic learning processes that promote learning in teams" (Wilson *et al.*, 2016:16). Unlike intrateam and interteam learning behaviours, fundamental learning behaviours are actions that individual team members take to share, store and retrieve information. Consequently, how well teams learn will very much determine school success.

4.3.4.1 Application of team learning

Aboramadan *et al.* (2021) assert that team learning assists in bringing members of an organisation together and creates a new understanding within the structure of the organisation. For team learning to occur, learning organisation members must be able to suspend individual assumptions about the work and think together. At the heart of a learning organisation, according to Senge (2012), is a "shift of mind from seeing self as separate from the world to connect to the world providing the field for learning from each other, creating new perspectives and change mind-sets".

There is a close relationship between inclusive leadership and team learning (Aboramadan *et al.*, 2021). The common factors between the two concepts are that the inclusive leader is open to hearing new ideas, is attentive to new opportunities to

improve work processes, and is open to discuss the desired goals and new ways to achieve them (Aboramadan *et al.*, 2021). Korkmaz *et al.* (2022) indicate that inclusive leadership is ethical, empowers purpose and is process oriented. Team learning in schools provides empowerment to committee leaders and offers teachers the opportunity to be part of the decision-making through empowering them (Korkmaz *et al.*, 2022). Inclusive leaders demonstrate openness, inclusiveness, accessibility and interactive communications with employees (Carmeli *et al.*, 2010). Similarly, Hollander (2013) mentioned that the focus of inclusive leaders is to listen and pay attention to employees' needs and to transmit the feeling to employees that the leader is available to them. In different terms, inclusive leadership is characterised by continuous support to followers, open communication, aiding, and showing concern for others' interests (Carmeli *et al.*, 2010; Hollander, 2013).

Concerning the association between inclusive leadership and schools, Carmeli *et al.* (2010) predict that leadership inclusiveness positively contributes to team learning, because the inclusive leader is open to listening to followers' feedback and input. This generates a feeling among followers that the leader appreciates discussion and information sharing (Tran & Choi, 2019). Therefore, when the leader offers an opportunity for the expression of ideas and views, followers are encouraged to speed up their knowledge acquisition and dissemination (Zagorsek *et al.*, 2009). Furthermore, the availability of the leader to assist and support others motivates followers to enhance their dedication to continuous learning (Pokharel & Choi, 2015). Consequently, inclusive leaders create an atmosphere in which followers can learn and develop their qualities (Najmaei & Sadeghinejad, 2019). Finally, an easily accessible leader facilitates more interactions with followers and encourages a learning-focused environment (Tran & Choi., 2019). Based on this, Javed *et al.* (2019), Korkmaz *et al.* (2022) and Walumbwa *et al.* (2011) predict that inclusive leadership supportive behaviours would positively contribute to team learning for the following reasons: When inclusive leaders pay attention to the feelings and interests of their employees, employees show high levels of energy and commitment to their leaders and thus are more likely to pay back by contributing positively to team learning.

Team learning is sometimes affected by triggers, which are events that cause the team to inspect their current collective knowledge state (Cronin *et al.*, 2011). Triggers have the potential to generate change in the team's collective knowledge state (generate team learning) (Tran & Choi, 2019). As such, it is important to discuss where these triggers come from and how they set teams on a path of learning. Team learning triggers come from a variety of sources, the likelihood of which partially depends on where teams are in their development. During the initial phases of the team's development, individual team members will need to share their communication preference with their teammates to develop collective knowledge with respect to the team's interpersonal network (Aboramadan *et al.*, 2021). Team leaders can also provide a source of learning during the initial phases of development and provide goals and expectations for the team, such as clear deadlines and relationship expectations between team members.

Not every team-learning episode is the same. Some learning episodes only last for a short while, whereas others may never be completed. The length of team learning episodes depends on several factors. First, learning episodes last longer when the information is more complex. When teams face the challenge of integrating complex information into their collective knowledge state, they have a higher tendency to engage in information-processing failures (Schippers *et al.*, 2014). Schippers *et al.* (2014) suggest three categories of information-processing failures where teams fail to (1) reveal/discuss information, (2) explain or scrutinise information, and (3) successfully integrate new information into their prior beliefs/current behaviours. Teams may make efforts to avoid these failures; however, doing so prolongs the team-learning episode (Aboramadan *et al.*, 2020).

Second, team-learning episodes may also be prolonged when teams are asked to integrate information that is conflicting or starkly divergent from the current state of their collective knowledge (Aboramadan *et al.*, 2021; Wiese & Burke, 2019). Teams are comfortable maintaining the status quo, and ideas that come into conflict with the

status quo will be met with fighting. Furthermore, divergent information is more likely to engender differences in opinion, which will need to be resolved before the team can learn (Aboramadan *et al.*, 2021; Allen *et al.*, 2018). Incorporating information that is not congruent with the team's collective knowledge state may take more time, but there are positives. For instance, teams that can integrate this conflicting information may be more likely to perform better on creative or innovative tasks, which is ultimately worth the longer time it takes for them to learn.

Third, factors external to a particular team-learning episode could prevent teams from completing that learning episode (Aboramadan *et al.*, 2021; Bui *et al.*, 2016). Multiple learning episodes can occur simultaneously, overlapping each other and, potentially, conflicting with one another. Some team-learning episodes may fall to the wayside, as they are no longer prioritised in the grand scheme of the team's agenda. Another external factor that could prevent completion of a team-learning episode is change in membership. If a team member suddenly exits, it could slow down or halt the progress of learning (Aboramadan *et al.*, 2021; Decuyper *et al.*, 2010).

4.3.5 Mental models

Garvin *et al.* (2008) state that mental models involve individuals' continual dissecting of thinking and perception development, coupled with their challenges against both ambiguous and vivid existing assumptions about the organisation and the work environment. Mental models are frameworks consisting of people's underlying assumptions of socialisation, values, beliefs, education, and experience that helps to organise information. In simple terms, mental models dictate how people understand their world (Gerasimova, 2017). In the same breath, Senge (2012) defines mental models as assumptions, generalisations, pictures and images which are deeply rooted in people's minds and have the ability to influence how they understand the world and actions. Senge (2006) perceive mental models as the action of turning the mirror inward, learning to unearth internal pictures of the world to bring them to the surface and hold them carefully to analysis. It also includes the ability to continue learning and

developmental conversations that balance inquiry and support, where people expose their own thinking effectively and make their thinking open to the influence of others (Senge, 2012).

In the education context, teachers' mental models have been studied in relation to subject matter, teaching and learning (Santos & Passos, 2013). Furthermore, the relationship between teachers' mental models, implicit representations and classroom practices has been examined in teacher research (Tarnanen *et al.*, 2021).

Mental models are subjective images, deeply ingrained assumptions, generalisations and stories that people carry in their minds about themselves, other people, institutions and events that take place in the world. These mental maps act as a filtering system for people's judgements and influence on how people take actions based on these judgements (Senge, 2012). If these mental maps or models are not questioned, they could become blockages to change, but to succeed in transforming schools into learning organisations, it is important that individuals learn how to unearth their internal pictures (subjective images) of the world and bring these to the surface and critically scrutinise them. The subjectivity of mental models is because they are individuals' representations of phenomena (Aşçı *et al.*, 2016) or cognitive representations of real and imaginary situations (Tarnanen *et al.*, 2021). Mental models are based on one's judgement and conception of a situation, which, in turn, shape a person's perception.

Organisations do not have brains, but Argyris (2008) asserts that individuals can change their personalities, beliefs and mental models. In this case, adoption of changes will occur when organisation members develop constructive mental models and consider the organisation as part of their learning (Garvin *et al.*, 2008). Prior to forming mental models, individuals need to have a purpose for an optimal mental model that needs to be constructed (Chen-Levin, 2021). Knowing the variables that can partly or fully change or be updated may lead to understanding of the problem. Moreover, it is important to be knowledgeable about the variables that form the problem and to create a channel between the problem and the mental model to be

created. A suitable mental model for the problem may also be chosen (Jones *et al.*, 2011). Thus, it becomes inevitable to solve problems in a shorter time (Argyris, 2008). The main problem here is understanding how and in which situations or conditions the mental model will be created, because knowing the numerous variables speeds up the process of forming mental models. The process may also lead to erroneous analyses (Argyris, 2008) and create the wrong solution variable.

Forming mental models and, more importantly, implementing them is effective, not only for administrators, but also for ordinary people who face problems in daily life. The use of mental models based on the contingency approach, both during the learning process of learning organisations, and their learning, is a tool in solving problems (Senge, 2012). Mental models are significant because they heavily influence how we observe information and how we react to it. Individuals, leaders, teams and organisations need to understand the why behind their thinking and behaviours (Aşcı *et al.*, 2016). Mental models influence not only leadership reasoning and behaviour but also organisational outcomes and often mental models become barriers to change rather than enablers (Aşcı *et al.*, 2016).

Forming new mental models can be done if meaningful conversations are encouraged in the school where educators expose their own thinking patterns and listen to other colleagues. These conversations can influence individuals to shift their thinking patterns and see the other side of the story (Senge, 2012). People are often not that aware of the impact of such assumptions of understanding the world on their behaviour, yet, this gives them the opportunity to develop the ability to reflect in and on action (Senge, 2012). Argyris (2008) cautions that mental models involve continuous changeability, because as problems or situations people come across increase or get complicated, the need to create mental models will also increase in direct proportion to these.

4.3.5.1 Application of the mental models

According to Tarnanen *et al.* (2021), three functions of mental models are to allow people to: (1) describe the purpose and form of a system; (2) explain the functioning of the system and observed system states; and (3) predict future system states. The first function refers to conceptions of why a system exists, what it contains, and how it looks (Tarnanen *et al.*, 2021). One of the dangers of having a flawed mental model about the purpose of existence of a system may include a faulty understanding of one's role in the system. The second function involves explanations of what happens in the system and why the system works as it does (Mevorach & Strauss, 2012). A negative mental model would focus on the failures of the system and its limitations. On the contrary, a positive mental model would pay attention to how one can make the system work by detecting anomalies, appreciating the system's responsiveness, performing workarounds and adaptations. The third, a predictive function, represents anticipated changes and system events (Jones *et al.*, 2011). In the context of this study, how effectively teachers conceptualised their role in health promotion had a bearing on the sustainability of their engagement with school health education and promotion (Jourdan *et al.*, 2016).

Aşçı *et al.* (2016) believe that mental models affect our thinking style, understanding system and actions through assumptions and generalisations, which are stereotyped, strongly imprinted and deeply rooted in our minds. It is believed that people draw on their previous experiences to develop mental models as a framework with which to understand events, allowing people to interact with the world (Jones *et al.*, 2011). Individuals create such models based on prior knowledge, existing ideas and past experiences to interpret and explain world events (Jones *et al.*, 2011; Mevorach & Strauss, 2012). In schools, teachers believe that school health promotion is time-consuming; this perception can make it difficult for teachers to commit to and identify with the processes of this initiative. Moreover, meaningful engagement in health promotion in schools depends on several factors, including teachers' perspectives of its relevance (Manrique & Abchi, 2015). Such mental models need to change for

schools and their communities to benefit from school health promotion. Fixed mental models prevent changes that could come from systems thinking (Senge, 2006).

Gerasimova (2017) suggests four ways to challenge mental model beliefs by focusing on the following:

First, being aware of our thinking (asking ourselves provoking questions and reasoning). This awareness can include past, present and future thoughts. Thought awareness is important in being critical of our own thoughts. Awareness of thought can be associated with mindfulness. Utami *et al.* (2021:31) describe mindfulness as “the self-regulation of attention so that it is maintained on immediate experience, which is accompanied by a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness, and acceptance”. Breaking mental models is a powerful practice for both leaders and teachers, which can happen when teachers are able to become aware of their mental models (Gerasimova, 2017). They ask themselves what led them to that way of thinking or feeling, and whether the results intended were achieved.

Second, showcasing advocacy (using examples, facts and information gathering). In this research, the concept of advocacy is understood as “the process by which the actions of individuals or groups attempt to bring about social, environmental and/or organizational change on behalf of a particular health goal, program, interest, or population” (Joint Committee on Health Education and Promotion Terminology, 2012:12). Advocacy in this sense means efforts to promote healthy environments by addressing underlying problems, providing solutions and creating change. In action, teachers will continuously promote, defend and support the interests of school health promotion.

Third, inquiring into others' thinking (having a meaningful dialogue when challenging our own and others' points of view). Ensuring that a dialogue, and not just an information session, is created and described as a prerequisite for all caring

encounters (Tarnanen *et al.*, 2021). In the dialogue sessions, open communication and a non-judgemental environment are important. Dialogue (which entails working together to tackle complex problems) and reflection (paying attention to one's thoughts, feelings and behaviours and what effect these may have on the person and others around him) are important tools in breaking mental models (Aşcı *et al.*, 2016).

Fourth, interpreting meaning (for us, and resisting jumping to conclusions based on what we think others meant) and aligning thinking and expressing ourselves. In such situations, it is important to allow contributors to elucidate their ideas, and questions should be asked for clarification.

Fifth, developing an organisation's working ability through mental models requires both learning new skills and implementing organisational innovations which allow these skills to be used in daily practice (Aşcı *et al.*, 2016). Argyris (2008) supports this motion by saying that if organisations are to develop a capacity to work with mental models, it will be necessary for people to learn new skills and develop new orientations and for their future institutional changes to foster such change. In the context of this research, teachers need to learn skills of promoting healthy school environments that would enhance the academic performance of learners.

4.4 The role of principals in transforming schools into learning organisations

The theory of a learning organisation emerged to create alternative models for change agency and organisational change, which includes leadership in schools (Caldwel, 2005). Fullan and Gallagher (2017), Kools and Stoll (2016) and Senge (2006) consider the leadership role of school principals as a key element in setting the direction and ensuring the conditions for fully achieving the assumed goals of an organisation. Four roles are discussed next, including the responsibility of being a change agent. This first role is based on the fact that as the educational leader of a school, the principal is responsible for the implementation of school improvement and change. The second role pertains to the principal as a team leader. Schools as organisations require

effective leadership from their school leaders to empower school staff to deal with a changing environment. The third and fourth roles are about the principal being a visionary and a role model.

4.4.1 The principal as an agent of change

According to Rohiat (2021), leadership is the ability to create the most effective changes in group behaviour for others; it is the process of influencing group activities towards setting and achieving goals. Asif and de Vries (2015) define quality management as a philosophy of continuous improvement which can provide a set of practical tools to every educational institution in meeting the needs, desires and expectations of educational customers, who, in this case, are learners and their parents. Continuous improvement is about change; it is not static. When change is needed, the principal must be flexible and adapt to the changing climate to provide what teachers and learners need (Fullan, 2010). To effect change, school principals must assume different roles, including being a thinker, believer, resource acquirer, leader, supporter, delegator and information provider (Fullan, 2010).

According to Yukl (2009), principals leading change are called change agents who create a practical vision and work with stakeholders to develop and work towards a shared vision by building leadership capacity in the stakeholders (Dufour & Marzano, 2011). “A change agent is anyone who has the skill and power to stimulate, facilitate, and coordinate the change effort” (Lunenburg, 2010:5). The belief that the principal carries the main responsibility for the difficult task of implementing unceasing school reforms is widely reported in the literature. It is also believed that “if leadership techniques do not match the order of change required by an innovation, the innovation will probably fail regardless of its merits” (Magaña-Medina *et al.*, 2021:s9). Indeed, researchers have found that resistance or “potholes” are inherent in the change process (Hall & Hord, 2015) and can be one of the largest barriers to principals as change agents (Harvey & Broyles, 2010). In such a situation, principals must acquire certain skills that would enable them to be change agents. The urgency for acquiring

change agent skills seems to be increasing, as the pace and magnitude of change is escalating (Fullan, 2016) and many new innovations are implemented without adequate planning or forethought.

Fullan (2010) confirms that the school principal must influence teachers to realise the need for change. School principals ensure that the school is characterised by a rhythm of learning, change and innovation. Once teachers see that a deficit exists in this context, within health promotion, the change process is adopted and implemented more effectively (Fullan, 2010). Further, Reeves (2009) states that the effective change principal puts the change into perspective by identifying what would be difficult to change, as opposed to focusing on what must be changed. In cultivating change, teachers and learners can clearly plan their targets, success criteria and actions (Woods & Martin, 2016).

The review of related literature clarifies that, at a minimum, principals who are effective change agents must satisfy three criteria: they must engage in innovation; they must hold their jobs long enough to see their innovation through, from inception to a point where there are visible results; and the visible results must include a positive result in learner outcomes (Ibrahim & Al-Mashhadany, 2012). The criteria show that principals must be committed to change to a point where they are willing to dedicate time and resources until their efforts bear fruit.

4.4.2 The principal as a team leader and manager

Principals as leaders in their school organisations are not only challenged as to how to accomplish routine administrative tasks but how they carry out the functions of effective leadership for improving the quality of teaching and learning (Burhanuddin & Aspland, 2016). The argument here is consistent with many studies and literature on leadership and management in schools that conclude that effective leadership of human resources is vital for organisational success. Team leadership relates to how the principal works with people and optimises the contribution of all stakeholders to

ensure success in attaining higher school performance within a changing context. The aspect of instructional leadership was dealt with in detail in chapter 3; the focus of this section is on team leadership and organisational management.

Literature emphasises teaching and learning as aspects of school leadership and further indicates that a strong, directive principal focuses on curriculum and instruction for effective school development (Horng & Loeb, 2010). Principals with curriculum and instruction interests at heart work directly with teachers and are often aware of classroom activities. Chenoweth (2010) refers to this type of principal as instructional leaders who can mentor their teaching staff by observing practice, providing pointed feedback, and modelling instruction when necessary.

Seashore *et al.* (2010) suggest organisational management for instructional improvement rather than day-to-day teaching and learning. Organisational management for instructional improvement means hiring high-quality teachers and providing them with support and resources to be successful in the classroom (Seashore *et al.*, 2010). “Strong organisational managers develop organisational structures for improved instruction more than they spend time in classrooms or on coaching teachers” (Hallinger, 2020:629). They are effective at hiring and supporting staff, allocating budgets and resources, and maintaining positive working and learning environments (Chenoweth, 2010). This style of leadership and management has a tremendous effect on learning through the teachers they hire, how they assign those teachers to classrooms, how they retain teachers, and how they create opportunities for teachers to improve (Horng & Loeb, 2010).

Chenoweth (2010) speak of principals who support learners in the learning environment and then create environments that support learning for all. School principals ensure an integrated approach to responding to learners' learning and other physical environmental needs (Woods & Martin, 2016). Overall, effective principals as leaders and managers do not implement one or two things and obtain the results; they focus on several activities simultaneously through integration (p & Rowe, 2018).

Prestiadi *et al.* (2019:3) emphasise “the importance of total quality management”. The word *total* in total quality management means that everyone in the organisation must be involved in efforts to continuously improve. The word *management* in total quality management applies to all people in educational institutions. Prestiadi *et al.* (2019:3) provide “five pillars of total quality management: focus on customers (learners); total involvement of the whole staff in programmes; measurement of quality and progress; commitment; and continuous improvement”. Quality in education requires a commitment to create an environment that allows staff and learners to do their best work. To perform effectively as team leaders, principals must have a clear vision underpinning their school organisation.

4.4.3 The school principal as a visionary

“Visionary leadership is the ability of leaders to create, formulate, communicate and implement the thoughts of all components of the organisation that must be realised together” (Prestiadi *et al.*, 2019:3; Rohiat, 2021). Each organisation and schools have a vision, which is a comprehensive picture of how the organisation sees conditions in the future (Burhanuddin & Aspland, 2016; Prestiadi *et al.*, 2019). In schools, principals are expected to be able to clearly formulate the goals of their schools as set out in the vision and mission statement of the school (Mulyasa, 2016). The principal must further have the ability to avail human resources, or the facilities and infrastructure needed by the school; by so doing, they act as effective mobilisers (Mulyasa, 2016). As a visionary leader, they must “develop ways of thinking to provide maximum service to learners, teachers, the community and parents” (Prestiadi *et al.*, 2019:2). Prestiadi *et al.* (2019) suggest “three elements that can be of assistance to principals when they formulate a school vision: first, determining the long-term goals to be achieved; second, providing a clear picture of the expected future; and third, making agreed-upon values to be followed”.

Taylor *et al.* (2014) believe that principals’ visionary leadership role will greatly affect the performance of the people around them, and future goals will be accompanied by

activities that fulfil quality management directly and bring the school to clear goals. Leaders develop and maintain collaborative relationships that encourage individual contributions and the ability to display the power of knowledge set in the vision and elaborated in the mission (Rohiat, 2021). In the end, the principal does not work alone. It is important that the principal develops and maintains a shared vision as an aspect to appreciate every human resource in the school – teachers, SMTs, and learners (Pawirosumarto *et al.*, 2017). The principal conducts a shared vision to achieve the goals to be attained by the team, where they socialise, communicate and direct all school components to jointly support and contribute to achieving the vision (Pawirosumarto *et al.*, 2017).

The principal must lead in the creation of the vision of the organisation while supporting staff members (DuFour & Marzano, 2011). An effective principal would motivate school staff to seek a worthy vision because it promotes learning and growth for all (Yukl, 2009), thus gaining buy-in from staff as all are committed to the collectively created vision. When all members of an organisation share a vision of learners learning, it becomes the learning culture of the organisation (Yukl, 2009). Support for the vision may be accomplished through numerous opportunities: observation; feedback; reflection; resources; professional growth opportunities; and developing skills (Pawirosumarto *et al.*, 2017). According to Kouzes *et al.* (2009:28), “creating a visionary culture of a school will not occur without the principal”. School principals ensure that the organisation’s actions are consistent with its vision, goals, and values (Kools & Stoll, 2016).

4.4.4 The principal as role model

A role model is an individual who displays certain behaviours or has achieved certain success that other people look up to and wish to imitate (Bush, 2018). Bush (2018) asserts that a role model in the workplace would be a manager or someone without any official leadership position title. “Leadership is widely understood to be the most important factor influencing learner outcomes and impacts on the quality of the school

organisation and on pupils' learning" (Leithwood & Azah, 2017:53). The principal is regarded as a role model to their subordinates at school. Mishra and Pandey (2018:9) believes that "transformational leaders are natural role models". As a transformational leader, the principal must be consistent with the overall work and behaviour (Mackenzie & Barnes, 2007). A transformational leader works hard as role model and pitches in when their staff need help, always demonstrating a commitment to company goals (Van Dierendonck, 2011).

Before a principal can be a role model in an organisation, like a school, it is of vital importance that they perceive themselves as a person. As Senge (2012) suggests, a core leadership strategy is simple: "be a model and commit yourself to your own personal mastery". This statement highlights the importance of understanding and exploring personal mastery in leaders and managers and their ability to create a functional learning organisation. Algi *et al.* (2012) advise that first, one must pursue personal mastery to stay true to one's vision and second, one must commit to the truth. According to Retna and Ng (2011), the latter relates to a relentless willingness to root out the ways one limits one's ability to attain one's vision. People with high levels of personal mastery see more of the structural conflicts underlying their own behaviour and model appropriate action in a manner that demonstrates to other people that they consider and practise what they preach (Retna & Ng, 2011).

The principal must ensure high level of integrity to be capable of giving motivation, inspiration and empowerment to teachers, learners and staff members. Integrity is honesty, credibility and consistency; a leader must apply these values in their actions; a leader with integrity can show conformity internally (heart and mind) and externally (Malingkas *et al.*, 2018). Role models take responsibility and accountability for their actions and inspire others to do the same. If you make a mistake, admit it, and let the team know how you plan to correct the situation. Never blame others or make excuses (Malingkas *et al.*, 2018).

While setting an example is the basis of leadership in general, when leading transformation, principals must become the change they want to see in the

organisation, be trustworthy, show respect, and always be positive about life. This approach of being exemplary assists principals to translate abstract concepts into tangible actions and measure performance to enable teacher-leaders to improve or, as Kouzes and Posner (2009) describe it, modelling the way, beginning with oneself, or walking the walk indicate accountability (Melchar & Bosco, 2010). The role of the school principal is seen when leaders model learning leadership, distribute leadership and help grow other leaders, including learners (Kools & Stoll, 2016).

Role modelling by principals help teachers, as by observing others, one forms an idea of how new behaviours are performed. First, the appropriate skills are role-modelled; next, teachers can receive guided practice under simulated conditions; and finally, they are provided with ongoing support by the role model so that they persevere in their efforts to internalise new behaviours (Manan, 2014). The success of this approach depends on two factors: first, the ability of the role model to motivate teachers and second, perceived similarities between the role model and the teachers themselves. Teachers are likely to adopt and cultivate new behaviours more readily if they observe someone; they can relate to successfully applying strategies to solve problems like the ones that they themselves encounter (Coleman, 2011).

4.5 Conclusion

The focus of this chapter was on Senge's theory of learning organisations. Theory of learning organisations is important in education – schools are under pressure to learn fast, and teachers are urged to become “knowledge workers” to deal effectively with growing challenges of the changing environment (Schleicher, 2012, 2016). Senge suggests that the five disciplines of learning organisations – systems thinking, personal mastery, mental models, building shared vision, and team learning – should be referred to as ways of doing and ways of understanding. This could mean that, in applying the disciplines, schools can simultaneously comprehend their actions and their knowledge of the phenomena they grapple with. The chapter concluded by highlighting the role of school principals in transforming schools into learning

organisations. The next chapter elaborates on the research methodology used in this study.

CHAPTER 5

RESEARCH METHODOLOGY

5.1 Introduction

In the quest to understand the role of principals in promoting healthy physical environments for improving learner academic performance, empirical research was conducted. For this research study, the following primary research question was formulated: How can a framework for principals to promote healthy school environments that will improve learner academic performance be developed? The secondary questions were as follows:

- What does a healthy school physical environment entail?
- What do school principals regard as the essence of learner academic performance?
- What factors in the school physical environment deter academic performance of learners?
- What factors in the school physical environment enhance academic performance of learners?
- What leadership roles do school principals play in the promotion of healthy school environments for the enhancement of learner academic performance?
- How can a theory-based, empirically derived framework for principals to promote healthy school physical environments to enhance learner academic performance in schools be presented?

This chapter elaborates on the paradigmatic perspectives and then gives an overview of the research design and methodological strategies. The ethical considerations and quality criteria are elucidated in the last sections of this chapter.

5.2 Paradigmatic perspectives

In the following sections, the epistemological and methodological paradigmatic choices I made for this study are discussed.

5.2.1 Emancipatory paradigm

The emancipatory paradigm, according to Van Der Riet (2008), looks for social change – focused on freedom and release – both in the process of the research and in the transformation of society itself. Mahlomaholo and Nkoane (2002) argue that emancipation comes through the commitment to the struggle to transform unjust relations and conditions. This type of research is committed to social change; it aims to empower and transform people and can be used in the planning and evaluation of community development programmes (Ledwith, 2005). I believed that, for transformation to occur and emancipation to prevail, the problem had to be identified and analysed by those who were affected by it so that the focus of the research would be for their benefit. In so doing, the search for solutions to problems could be optimised.

The emancipatory approach is critical research that is conducted through participation, leading to awareness, using a qualitative and participatory research methodology (Ramirez-Gomez *et al.*, 2013). Emancipatory research can be a process of learning; awareness-raising and empowerment also bring specific and general improved action competencies for present and future situations (Aitken *et al.*, 2016). The participants actively participated by implementing and taking control of all activities during the research process. They were the main actors in collectively identifying the research problem, how the study was to be conducted, the methods chosen to analyse the data, and the transformation of results into action. Concerning learning and awareness-raising, I believe that the study participants already had a rich popular knowledge base about school physical environments and academic performance due to their exposure to such environments over time and that they could generate knowledge necessary to guide actions for their own benefit. This knowledge might have been dormant; so,

unearthing it by means active participation in the research could raise awareness and liberate them to the benefit of the school and its performance.

Emancipatory research empowers research participants by encouraging ordinary people to participate in knowledge generation and to use the knowledge created to improve their situation. The abiding belief in people's capacity to grow, change and create underlies the democratisation of research. Unlike in other paradigms, it is the people themselves who create ways to liberate themselves, and it is in such processes that they are empowered.

Makombe (2017) defines a paradigm as one's view of the world, how one understands the world, a worldview based on experience, or to understand the nature of knowledge creation, which is ontology and epistemology. As indicated in Chapter 1 this research aligned with the idealist/pragmatist approach. As an idealist, I always dream of changing the world for the better, and I believe that the tools exist to figure out how to do that. Furthermore, idealists have contended that knowledge of reality is what the mind gathers from sensory perception and thoughts (Moon *et al.* 2012). The central notion behind idealism is that consciousness precedes existence. People are conscious first, and this state of consciousness then determines what is knowable and what exists. A pragmatic study focuses on an individual decision-maker within an actual real-world situation. The process of undertaking a pragmatic study is first to identify a problem and view it within its broadest context. This leads to research inquiry, which seeks to better understand and ultimately solve the problem (Salkind, 2010). A pragmatic study places practical solutions above philosophical discussions.

5.2.2 Qualitative research

In this study, a qualitative method was employed, as such a method is concerned with a process of naturalistic inquiry that seeks an in-depth understanding of social phenomena within their natural setting (Rajasekar *et al.*, 2013). The intention was to understand how school physical environments could promote academic performance.

This understanding was made possible by the experiences of the participants and the meanings ascribed by those who lived the experiences. Qualitative research is about the disclosure of the lived experiences of individuals in the research context that leads to the documentation of a phenomenon that was studied from the participants' viewpoint. Qualitative research helps one to gather information and perceptions using inductive research approaches, such as interviews, discussions, participation observation, and representing these from the perspective of the research participants (Khan, 2014) as discussed in the sections below. PAR is a qualitative inquiry that is considered democratic, equitable, liberating, and life-enhancing (Kaiser, 2012).

5.2.2.1 Participatory action research as a qualitative inquiry

I decided to use PAR to inform my doctoral studies, which focuses on the promotion of healthy school environments for an enhanced academic performance. Acquiring new knowledge and understanding in this area assisted in developing a framework for principals to enable them to promote healthy environments that benefit academic performance. To that end, action research in the case of this study was about seeking solutions to improve the situation people found themselves in.

Participatory Action Research involves people who are concerned about or affected by an issue and taking a leading role in producing and using knowledge about it (Pain *et al.*, 2013). Therefore, this study involved SMT members, teachers, the SGB, and learners. Pain *et al.* (2013) further emphasise that PAR is driven by participants who are part of and have an interest in the environmental issue being researched. Teachers and SMT members were directly involved in ensuring that quality teaching and learning take place to affect academic performance. They were concerned about strategies that could be employed to boost academic performance in the school. The SGB, although an outsider, has a direct interest in the activities of the schools, as its role is to govern the school. Learners, on the other hand, are recipients of the interventions in the school who are under pressure to perform. I knew that teachers, SMT members, learners and SGB members had more information than any other

person about academic performance and the school physical environment. They brought knowledge, expertise and experience about the phenomenon under study.

As earlier alluded, the six steps that were followed in this research are presented in the figure below



Figure 5. 1: Participatory Action Research steps

- **Problem identification**

One of the components of PAR is that the problem originates in the community itself and is defined, analysed and solved by the community. The first mission under problem identification was to decide on the issue that the research would focus on. On 4 February 2019, this step was embarked on. After much deliberation, the participants agreed that the major concern for all high schools in South Africa is academic

performance of learners. We also appreciated the information we got from the principal regarding learner academic performance for the past five years, which, at face value, looked good. However, most teachers and SMT members highlighted their concern as to the dismal performance of the school in other grades. The main concern for the team was that few learners reach Grade 12 because of high failure rate and retention. It was agreed that this problem needed to be investigated.

The next step was to talk about possible solutions to the problems. The team offered several strategies, mostly including those that they were implementing at the time, such as extra tuition, camping, etc. They had been employing these strategies without improvement in the grades lower than Grade 12. We started looking for other solutions in the school environment. We talked about areas in the school environment that could be improved to boost performance. We discussed the matter until we reached the decision to focus on the factors in the school physical environment that enhance or deter learner academic performance.

We then collaboratively formulated the primary question that would guide the study based on the problem we had identified. We were aware that, whatever plans we put in place after data gathering, would be based on what we had discovered.

- **Relationship building**

It is widely known that a relationship is not built in one day or over the phone; it takes time and requires planning. Hence, the length of time planned and taken for the consultation phase of this project was not only for contacting participants, but also for connecting and building meaningful and responsive relationships. In this research, the team had a series of meetings before the start of the first data gathering phase.

In our first meeting, on 4 February 2019, I introduced myself and shared some information about what I did and why I was doing research. Thus, we did self-introduction; each member explained their role at the school, such as subjects they

taught, committees they served on, and any extra information they could offer about themselves. We did an activity where one would explain to the group one's personality and characteristics. It is important to understand each character well if we were to work in a team to avoid unnecessary quarrels and conflicts that might challenge flow of events in the project. We agreed to always maintain a positive working relationship. We were to engage in a series of discussions; thus, it was important to build strong relationships to sustain our project.

After I explained what the research entailed and the processes involved, we discussed roles and responsibilities of members. We all were to take photos of all the places at school that had environmental conditions we thought could promote or deter learner academic performance. My supervisor and I trained all participants on how to take photos with disposable cameras. We agreed to meet twice a month until we completed the project. Each meeting was to be held at the deputy principal's office at 14h30, which was after school to avoid disruption of classes and causing disorder. All participants attended the meetings, unless a person gave report beforehand.

I facilitated the first two meetings, then two members who had expertise in facilitating meetings were chosen to chair and facilitate the meetings. All participants agreed to use English, Sesotho, and isiZulu for communication in meetings. We all understood the three languages, so members were free to use any of these languages.

Data gathering took two years to finalise: it started in February 2019 and ended in June 2021. I include the year 2020, even though we could only work during the first three months of that year because of the COVID-19 lockdown restrictions. This amount of time and consideration is fundamental to exploring and developing a research plan that contains what is considered by participants as the essential framework of ethical practice to be taken up, inscribed, and embodied within the research process (Dunbar & Scrimgeour, 2017).

- **Data gathering phase**

We all agreed in the previous meeting that we were going to take photos and share information about them in focus group discussion sessions to find answers to our research question. Participants took photos over a period of two weeks. After two weeks, I collected the 13 disposable cameras from all members to process them. They printed the photos and scanned the photos to my computer to be used in the results chapter as digital images. The printed photos were put in envelopes with the name of each participant. A date was set for a meeting, where the participants were to receive their photos back. They had to sort them according to the photos that showed factors that promoted or deterred academic performance. Focus group discussions followed this process as discussed in the sections below.

Individual interviews were conducted with the SMT members on the role of the principal in promoting school physical environments. The individual interviews between the selected SMT members and me were intended to solicit information on the role of the principal in the promotion of healthy school physical environments. The observations were conducted by all 13 participants – all who were involved in the photovoice activity. Observations were done to obtain information on whether the implementation of plans was successful. We looked at the changes that occurred in different areas, the causes of change, the effect they brought, and areas where nothing had happened for some reason. All changes had to have an impact on academic performance.

- **Reflection**

In all our meetings, we reviewed our vision and the processes to monitor progress. Each member reflected on the experience of taking photos, the interview and the information obtained including “aha!” moments. Members indicated that taking photos and choosing places were not as easy as they thought. It was confusing to mix the photos of good and bad areas of the physical environment, as they ended up not being sure how many photos they had taken of each. Five members did not start taking

photos because of reported reasons. They were given chance to take photos over five days. They could not be left out, because they were all valuable and expected to bring more knowledge to the research.

After receiving back, the printed photos, participants who were done with sorting, started with the collages. Collages are techniques of art creation, primarily used in the visual arts; in this study, photo collages were made to create a whole. Each member created their own collage which indicated good and bad environmental conditions. The activity was interesting, as it had also encouraged them to reflect on their work and what they thought about it. There were members who requested to take more photos with their mobile phones to add to their collages. We discussed the matter and ended up agreeing, they sent the photos to me for safekeeping after the session.

We also evaluated both the action and research processes that we undertook. We looked at our research question and objectives to check if we were able to gather relevant data that answered our questions. We tried to answer the following question next: Was our research relevant in addressing the issue of academic performance? Did we maintain healthy relationship amongst the team members? Did we manage the research study appropriately as initially planned? How were the research methods we used?

- **Monitoring and evaluation of action plans**

The monitoring and evaluation of action plans are important to detect challenges and determine the effectiveness of the interventions (McIntyre, 2007). Participants were all involved in determining the action plans that had to be implemented to solve some of the problems that were identified. They categorised the challenges according to those that needed urgent attention, those that would take longer to complete, and those that the school would not be able to attend to without the assistance of the Department. Table 5.1 shows the categories.

Table 5. 1: Categories of challenges identified during the data gathering phase

Challenges needing urgent attention	Challenges that would take longer to complete	Challenges that needed Departmental intervention
Waste management	Add more carports	Build more classrooms
Broken furniture lying outside	Shelter for assembly area	Construct school field
Broken windows	Water taps	
Starting a vegetable garden	repair broken toilets	
Training on the usage of the emergency health kit	Repair doors, burglar doors, ceilings and electric plugs, gutters	
Painting of pillars		

The items that could take longer to complete were collectively earmarked for future research. We also investigated the reports on monitoring and evaluation of plans to check for areas where we succeeded or failed, and then we planned for future research. Where we were successful, the new plans explored what more could be done to improve the processes. Where we were unsuccessful, new data may be gathered to determine what went wrong, and new plans could be piloted to see whether they would improve the processes. This was important to ensure that the school continued with the research and finding solutions to their problems. The emphasis was on continuous improvement. The strength of PAR is in empowerment (Soh *et al.*, 2011).

5.3 Overview of the research design and methodological strategies

In this section, the research design, selection procedures for cases and participants, and the strategies that were used for data generation, documentation and analysis are discussed.

5.3.1 Research design

I implemented a single case study design in this research. Creswell *et al.* (2007) view case study research as research that allows for thick descriptions, insight and an in-depth understanding of specific social phenomena, events, or people. Creswell and Poth (2016), Denzin and Lincoln (2011) and Hyett *et al.* (2014) describe a case study as a significant qualitative strategy that is a bounded system or case. A case study has one single inquiry, studied holistically in its entirety. This study was about a single inquiry of a high school. We worked as researchers who wanted to understand this case – that is, a school and the phenomenon of the promotion of healthy school physical environments for the enhancement of academic performance.

5.3.2 Selection of participants

The following subsections discuss the sampling procedures for the research site and study participants. Participant selection was conducted from 10 to 28 September 2018. First, I put up an advert relating to the research at the selected school for interested participants to see the requirements and make decisions. As explained in chapter one, the process continued until I sampled the number of expected participants. Participation started on 4 February 2019 and ended in June 2021.

5.3.2.1 Selection of the case

The site was purposefully selected, and data gathering was done in the Fezile Dabi district in the Free State province. As discussed in chapter 1, the recruitment process was based on academic performance and learner enrolment. Three schools met the criteria; fortunately, the first school that was approached accepted the request to participate, otherwise another school would have been chosen.

The choice of just one school was informed by the research design, as discussed above, and the fact that “PAR can be tedious and frustrating” (Milne & Muir, 2019:19)

to participants. Participation demands the stimulation of a proactive stance on the part of the participants in relation to decision-making, follow-up, and assessment (Giatti, 2019). Moreover, trust in PAR must be allowed to develop; it builds on long-term honest relationships characterised by closeness, empathy and emotional involvement (Bergold & Thomas, 2012). Vital to PAR is the participation of individuals in the entire research process (McIntyre, 2007).

The selected school was a quintile 3 school. It was a no-fee school that relied on the Department for funding, which is calculated at a rate of R1,177.00 per learner (DBE, 2013). Schools from the lower quintiles get more funding because their needs are more. There are no funds to hire additional teachers like in high-quintile schools. Teachers are overloaded and cannot perform extra work, except compulsory hours of teaching and learning (Graven, 2014).

5.3.2.2 Participant selection and recruitment

Purposive sampling was used to recruit participants, which yielded information-rich cases. In this study, purposeful sampling was used to recruit participants who had an interest and were directly working towards improving academic performance of the school.

The information on the recruitment of adult participants is presented in Chapter 1. Learners were also recruited to participate in this study. The inclusion of learners as co-researchers could be valuable, as it allows children's voices to be heard (BradburyJones & Taylor, 2015; Honkanen *et al.*, 2018). I requested the principal for two learners from the Representative Council of Learners (RCL). Learners were to be 18 years and older. The principal suggested four learners who met the criteria – i.e., being in the RCL and 18 years and older. All four learners were willing to participate in the study; however, two of them lived very far from the school. It was difficult for them to stay behind after school for sessions that we held on to weekdays. Considering this, they withdrew their participation. Involving learners as co-researchers enhanced

their participation and was a unique way to respect their rights in the research process (Dunn *et al.*, 2015).

The sample comprised of the members of the SMT, the SGB, teachers and learners. The SMT included the principal, two deputy principals and three HoDs for Life Orientation, Physical and Technical Science, and English. The Physical and Technical Science HoD was leading the environmental committee, which is responsible for the promotion of healthy school environments. Teachers who were members of the health committees (n=2 – participants 3 and 7) and other teachers from different subject committees (n=5 – participants 1, 6, 8, 9 and 12) were chosen because they were directly involved in teaching Grade 12 learners and had experience about the performance of learners. The subjects that determine the academic performance of a school because most learners do them, are Mathematics, Physical and Life sciences, Accounting, English, and Life Orientation. The chairperson represented the SGB as a person who is knowledgeable about what happens in the school in terms of academic performance and matters pertaining to governance. Learners are directly involved in academic performance; they are also beneficiaries of interventions in schools. It was assumed that they were aware of what would boost their performance.

The sample above indicates a stratified sampling method. There were four strata of data: SMT, teachers, SGB, and learners. Stratified purposive sampling constitutes a hybrid approach where the aim is to select groups that display variation of a particular phenomenon so that the subgroups can be compared.

All the participants were involved in gathering and analysing data, development, and implementation of action plans in this study. Albury *et al.* (2021) asserts that qualitative researchers conduct research with participants rather than with subjects and they recognise participants as a more active part of the research process. Jacques *et al.* (2019) view co-researchers as participants who are involved in each stage and design in PAR. Thus, they participated deeply and in all stages; thus, they were regarded as co-researchers and not ordinary participants.

5.3.3 Data generation

I followed a multimethod data generation approach, which involved photovoice, focus group discussions, interviews, and observations. In this study, the data generation phase was in the first cycle of PAR, as indicated in figure 5.1 above. Data generation started on February 2019 and ended in June 2021. Each of these data gathering methods are discussed hereunder.

5.3.3.1 Photovoice

Photovoice is a method of data gathering where participants take and share photographs of their environments in researcher- or facilitator-guided observations and discussions towards a stage of action where change is implemented (Nykiforuk *et al.*, 2011). Photovoice, according to Hergenrather *et al.* (2009), is a PAR tool which uses participants' photographs as a catalyst to engage participants in group dialogue for social change. It allows participants to experience their world as they see it through pictures and to hear in words what the visual meant to them.

As indicated in Chapter 1, prior to the start of photovoice, my supervisor and I conducted a workshop on 15 February 2019. Here we trained the participants in how to take quality and clear photos using disposable cameras. The workshop also focused on the photovoice technique, including discussions about ethics, power, and how to use disposable cameras as suggested by Minkler *et al.* (2012).

In this training, I explained to the participants that photovoice was much more than simply taking a photo and telling a story about the photo. In this two-hour-long training session, we handed out disposable cameras to all the members and kept record of all the members who had received cameras. Each camera could take 30 photos. We explained to the participants that it was important that we all knew how to use the cameras to avoid spoilt photos (photos that are irrelevant to our study) which would limit our data when we do analysis. We emphasised that for quality pictures, members

should take their pictures in good lighting and try different angles to produce clear photos. They also had to make sure to use the flash for best results, and if the photo was to be taken in a dark area, they had to find the right distance from the subject. We allowed each participant to take a photo to make sure that they were all comfortable with the task. Participants were to take photos over two weeks, in their free time that did not interfere with teaching time.

We handed out SHOWeD forms to all the participants and explained how to use them during the taking of photos. Participants were to fill in the form for each photo they had taken. According to Bashore *et al.* (2017:464), SHOWeD is the acronym for the following:

S – What do you **See**?-----

H – What is really **H**appening?-----

O – What does this relate to **O**ur lives?-----

W – **W**hy does this situation/concern exist?-----

D – What can we **D**o about it?-----

The participants had to explain what they saw in the environment that made them choose to take the photo of that place or condition. They further explained what was

really happening, how it related to academic performance, why the situation existed, and proposed what could be done about the situation. This information was to help the participants when they present their photos and tell stories behind them. These forms were a better way of keeping record and helped them not to deviate from the aim of the study.

The participants took photos of places and situations that needed to be exposed and reported to the whole team the factors in the school physical environment they perceived as enhancing or deterring academic performance of learners. Thus, participants took photos of all the factors in the school physical environment they thought could have an impact on academic performance of learners. The taking of photos took two weeks to complete. Professional formatting and printing services to process the photos took three weeks, which was longer than expected. The disposable cameras and photo-processing expenses were covered by my bursary.

Before taking cameras for processing and printing, I gave each participant an envelope with their name in which to put their camera after taking photos. This was done for easy management of photos. I collected all the cameras for processing. I requested that they process all photos in colour, not in black and white, because colour would make the photos clearer. I returned with all the printed photos in envelopes for each participant and the electronic photos on CD. I saved all the electronic photos on my computer; after the photovoice phase, all photos were submitted to my supervisor for safekeeping.

After receiving the photos, we started matching them with our SHOWeD forms. Each participant was given five days to match photos with the relevant SHOWeD forms. The participants stuck the photos on the SHOWeD form together with the captions of each photo, such as dirty toilet, school entrance, etc. The number of photos determined the number of SHOWeD forms per participant. We noticed that some individual photos were taken from one place but from different angles. We agreed that such photos would be taken as one photo.

As there were many photos that each participant had to report on, a single session was not enough. We agreed on having three sessions of over an hour each. Two sessions were held in one day and the last one on another day that was determined by the group. The focus was on only the good conditions in the first session, and in the next, conditions that could be improved. In the next meeting, we presented and discussed photos on bad conditions.

We used the school hall for the discussion. I reminded participants about the procedure to follow. We divided the wall into three parts. The headings on the wall were good conditions, conditions to be improved, and bad conditions. We placed all photos in the correct place. Each participant showed the photo and spoke about it as per their SHOWeD form information. After discussing the photo, the participant stuck the photo on the wall. The process continued until all participants presented. The discussions were fruitful because we respected each other's feelings. The discussion meeting took two hours, but we took two breaks in-between. It was clear that good-conditions photos were many – participants showed pride in their school, and some protected the bad conditions in the school by immediately coming up with possible solutions in their presentations.

As indicated earlier, the participants made collages. This exercise was intended to assist in the analysis of the photos. Each participant arranged the photos in their way and according to their understanding as regards good conditions, conditions to be improved, and bad conditions. Collage-making is a method of documentation, analysis and narrative development that uses photography as medium (Phillips & Bellinger, 2011). In this study, collage-making was used as a method to analyse photos and create a representation of the experiences of the co-researchers. Combining collage and portraiture is a qualitative research, arts-based method that is used to gather and analyse data of visual nature to represent stories and voices traditionally silenced by textual and linguistic data gathering and analysis methods (Knowles & Cole, 2008). The researcher in arts-based research has three options: being an observer of the art-

making process (using the artistic creations as data); being actively involved as the artist who creates as part of the research; or using a combination of the above approaches to incorporate art as a form of data gathering and source for analysis (Loftus *et al.*, 2011). I opted for the latter option, as I was deeply involved in the process of collecting data by means of photography and collage portraiture.

The photovoice phase took longer than expected due the number of steps that had to be taken to complete it. Table 5.2 summarises the time spent on the photovoice phase of data gathering.

Table 5. 2: Photovoice timeline

Stages	Date		
	February	March	April
Workshop on photo-taking	15/02/2019		
Photo-taking process	16/02/19	08/03/19	
Photo processing	09/03/19		10/04/2019
Feedback sessions 1: Good & to-be-improved conditions			16.04.2019
Feedback sessions 2: Bad conditions			28.04.2019

The intention was not to rush the steps but to make sure that everyone was on board, relevant photos were taken, everyone understood the process, and everybody was comfortable with the pace. All the participants were involved in other tasks other than the research; this was taken into consideration when the dates were set for finalisation of projects.

5.3.3.2 Focus group discussions

Four focus group discussions were conducted during the data gathering phase. Two focus groups were conducted for the photovoice phase; another was conducted to discuss the findings that emerged from the photovoice phase and interviews on the role of principals in promoting healthy school physical environments; and the last one was on evaluations of implemented action plans. Each FGD consisted of thirteen participants as in the photovoice.

Doody *et al.* (2013) define focus group interviews as group discussions exploring a set of specific focused issues because the process involves some collective activity. Kelly (2003) further describes focus group discussions (FGDs) as a way of obtaining data by asking the participants questions. In this study, I used FGDs to gather information from the school internal stakeholders. All conversations in the discussions were audio-recorded with the consent of the participants, and verbatim quotes were used in the report.

The first and second FGDs have been elaborated on in the section on photovoice above. As indicated in chapter 1, the data gathered were guided by two questions: What factors in the school physical environment deter academic performance of learners? What factors in the school physical environment enhance academic performance of learners?

In the third FGD, I presented the findings from the photovoice activity and those that emerged from interviews on the role of principal. The findings on photovoice were meant to remind and trigger memory regarding what transpired during the discussions. It was important to inform the participants about the findings of the research conducted by means of FGDs with the teachers and the SMT on the role of the principal in order to understand the important points and the concerns that were raised. The findings of the two data sets were collated and presented to participants. The following table presents a timeline for the FGDs.

Table 5. 3: Timeline for FDGs

	2019	2020	2021
Photovoice Session 1	16/04/19		
Photovoice Session 2	30/04/19		
Findings and action plans		03/02/20	
Feedback on observations			23/06/21

After the session on presentation of findings in February, the study could not continue as in March there was a hard lockdown due to COVID-19. It was difficult to continue with the study in 2020.

In the second session, participants focused on action plans. They discussed and agreed on a plan of action on the challenges they had identified. The plans were based on actions to address urgent matters that deterred academic performance in the school physical environment. Table 5.3 presents information on the items that were attended to, the dates and persons responsible for the tasks.

Table 5. 4: Action plans

Item	Funding source	Starting and Completion Date	Evaluation date	Responsible person
		Feb-May	March-May	
Broken windows	School	8/03/21 to 12/03/21	15/03/21 to 18/03/21	P7 & P6
Dumpster	Donation	04/02/21 15/04/21 delivery date	19/04/21 to 22/04/21	P13
Vegetable garden	Fund-raising	Fundraising -08/02/21 to 12/03/21 22/03/21 planting started	09/04/21 to 13/04/21	P1 & P3

Cage for broken furniture	School	27/03/21 to 04/04/21	12/04/21 to 20/04/21	P5
Training on first aid	Nurse from local clinic	18/05/21	19/05/21 to 24/05/21	

Some items in Table 5.3 above were to be fixed using funds from Norms and Standards, such as broken windows and the cage for broken furniture. It was indicated that those items were budgeted for in the previous year. Fund-raising had to be done to fix the water tap, drain and the school vegetable garden. The training on first aid did not need finances to be resolved.

With permission from the principal, we formulated donation forms (Appendix 7) which were taken to local businesses around the school and in town by P13. We requested the ward councillor to help us with the drain repair for the tap. She agreed but did not keep her promise, then we decided to add the project to the fund-raising fund. We consulted the Department of Agriculture to help with the garden. They only helped by training us on what to consider before starting the garden and throughout the whole process of planting. We bought seeds with our donation money. We agreed that the cage for the broken furniture would need material only, because the teacher who taught Civil Technology at the school volunteered to build it with the learners he taught. The school had a plan to repair broken windows; parents who always helped the school also volunteered to install windowpanes – the school had to buy glass. We wrote a letter to SASOL, requesting a donation for a dumpster, and they provided it. We started planting seeds in containers that were donated by a plant nursery in town, with the aim of selling the plantlets and vegetables to parents and the community. We did the planting, but the principal requested that we ask the school financial clerk to work with all the finances. After seeing that donation money was enough, we also bought iron and corrugated iron sheets for the cage and material to repair the water tap and the drain to relieve the school. The money that was left was taken to the principal for the school.

In the fourth FGD, participants shared information about their findings of the evaluation of the implemented strategies. After having done observations to evaluate the successes and failures of the implemented action plans, the team had a meeting to discuss their findings and to compare notes. Kelly (2003) states that, when people try to analyse observation field notes, they are trying to develop a model that helps to make sense of what the participants did. Time was allocated to each participant to talk about their observations, which they were required to write in journals that were given to them before the start of this phase. The sharing of information was guided by an outline of what the participants had to observe when evaluating the implementation of action plans to determine the successes and failures of the implemented plans. The participants reported on the changes that occurred and the areas in which they occurred; their perceptions on the driving forces for the changes; areas where there were no changes; and their thoughts on the restraining forces that prevented change to occur. It was important to discuss how the changes that occurred would affect academic performance.

5.3.3.3 Semi-structured individual Interviews

Interviews were conducted with a fairly open framework that allowed focused, conversational and two-way communication. Individual semi-structured interviews were conducted with SMT members on leadership roles played by the principal in the promotion of healthy physical environments for the enhancement of learner academic performance. Semi-structured interviews are flexible and relaxed, and the participant can give more information. A participant determines the direction the interview takes, can introduce an issue(s) the researcher has not thought of, in that case, is perceived as an expert (Harrell & Bradley, 2009). The interviewer follows a guideline but can follow topical trajectories in the conversation that may stray from the guide when it seems appropriate (Nieuwenhuis, 2020). An interview schedule (Appendix 5) was developed based on the following research questions: What does a healthy school physical environment entail? What leadership roles do school principals play in the

promotion of healthy school environments for the enhancement of learner academic performance?

The interviews consisted of open-ended questions, which allowed participants to give detailed answers. The questions were given to the participants prior to the date of the interview to allow them to familiarise themselves with the interview questions. Legard *et al.* (2003) suggest that the key to generating personal, detailed informant accounts is to be flexible in allowing informants to freely discuss important issues and to encourage informants to give in-depth responses to questions. The participants were allowed to freely elaborate on their responses.

5.3.3.4 Observation

In this study, all co-researchers were encouraged to do observation, especially during the time when plans were implemented and after their completion in order to scrutinise in-depth whether the implementation of plans was successful. The participants were guided by the following questions:

- What changes occurred and in which areas?
- What were the driving forces for the changes?
- What effect do the changes that occurred have on academic performance?
- What changes did not occur?
- What were the restraining forces?
- What effect do the changes that did not occur have on academic performance?

The participants were given journals in which to note their observations in line with the questions above. They were allowed to write about anything else they deemed as important, and they were not restricted to responding to only the above questions. In this case, the observations were semi-structured. When conducting semi-structured observations, I systematically recorded the patterns of participants, objects and occurrences without questioning or communicating with them. The semi-structured

observation was based on the planning that was done during the time when action plans were developed.

5.3.3.5 The role of the researcher

From the outset of the project, my role had been defined as that of a facilitator which was aligned with the role of a PAR researcher. I led the explanation of all the methods that would be followed, such as the process of photovoice. I took the lead in making sure that all participants understood what was expected of them. Thus, I made sure that systems were in place by planning with the participants before the start of the interview. As Bradbury (2015) asserts, the researcher must be well-prepared for the interview and should know what outcomes they want to achieve. I trained participants on how to use cameras for good photo-taking. It is important that a researcher has expertise and skills, such as creativity, communication skills, and organising skills (Showman *et al.*, 2013). I organised the photo-processing and arranged the venue and all necessary stationary for the FGDs and semi-structured interviews.

I led the data gathering phase and discussed matters with the co-researchers. I ensured that enough data were collected through constant monitoring. As in all qualitative research studies, I was actively involved in data gathering. To get the project started, I launched the project, developed relationships with the participants, and built group coherence. I always had resources to use when monitoring and evaluating different stages. The main aim of doing monitoring and evaluation was to: improve accuracy and relevance of reports that we would use in our discussions; improve performance of participants who were struggling to use the camera; empower the participants; and sustain learning and growth (Guijt, 2014).

I also served as a facilitator in the first discussion to monitor the understanding of the whole process by the co-researchers, introducing PAR, using generally accepted theoretical definitions of PAR. The terms “participation”, “action” and “research” were discussed with the participants. The specific objectives of the study were explored and linked to the concept of PAR. Thereafter, the participants were requested to sign

informed consent to show that they were willing to participate in the study. They were introduced to the visual participatory tools, which were the disposable cameras. I was involved in the training of participants on how to use these data gathering tools. I facilitated the get-togethers that led to FGDs, – those meetings were important for group maintenance. I kept notes of the meetings and transcribed the data gathered by means of FDG, photovoice, and observations. I was responsible for the finalisation of the analysis that was initiated in FGDs, facilitated the planning phase and adoption of plans, and later led the group in the evaluation of the implemented plans.

Although the facilitative responsibilities meant that I could not participate as fully as the other co-researchers, I was able to input suggestions and work closely with them. In that case, I was not viewed as an expert who would unearth model examples for enhancing learner academic performance in the school, but rather as an enabler to surface the expertise of the school community in solving their own problems.

5.4. Data analysis

I employed thematic analysis to analyse the data that were gathered by means of interviews. Braun and Clarke (2006) describe six phases of thematic analysis as a linear model, where one cannot proceed to the next phase without completing the prior phase. These phases were as follows:

- The first step is to familiarise oneself with the data. In this study, I familiarised myself with data by reading the transcripts and looking at the photos several times.
- The second step was to label important features of the data through coding (Braun & Clarke, 2012). I coded similar data according to themes. When we analysed the FGDs, we did the same; the only difference was that we were doing it as a group in the observation, FGDs and photovoice.
- In the third step, I made sure that I had condensed the extended meaning units by reducing the number of words without losing content of the unit. I then divided the coded data into domains as I was directed by the study in order to

get information on the role of the principal in the promotion of healthy school environments.

- In the fourth step, I started naming themes and writing a detailed analysis of each theme and the story that was told by the theme to get the essence of each theme.
- In the fifth step, I started writing up, weaving together the analytic narrative and (vivid) data extracts to tell the reader a coherent, persuasive story about the data, and I contextualised the data in relation to existing literature.

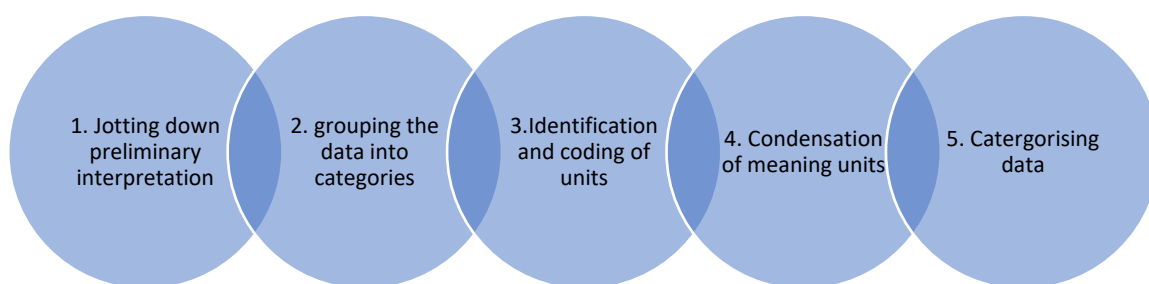
Photovoice and observation data analysis



Preliminary interpretations in the FGDs were jotted down before grouping the data into categories in a table. After the meaning units had been identified, I checked if all the content aspects had been covered. This was done by colour-coding all the meaning units. I then began to condense extended meaning units by reducing the number of words without losing content of the unit (Braun & Clarke, 2022:426). I then categorised data into different categories and discussed the findings with the whole team as planned before the start of the empirical investigation. We presented the themes in the

form of a table to allow the participants to get a quick overview of the results from the photovoice, FGDs, individual semi-structured interviews and observations. These results were discussed by all participants in a meeting to allow for member checking, where participants either verified or refuted the information. The preliminary data analysis was done by all participants in discussion sessions allocated for that and was later finalised by me under the guidance of my study supervisor.

Focus group data analysis



The field notes on observations made during photovoice data gathering were transcribed immediately after the discussions. After having done observations to evaluate the successes and failures of the implemented plans, the team had a meeting to discuss their observations and to compare notes. According to Driscoll (2011), when analysing interview information and observation field notes, one is trying to develop a model that helps to make sense of what the participants do. In this study, we provided an outline of the information that the team had collected and organised the information according to the outline to determine the successes and failures of the implemented plans. The data from these discussions were transcribed and analysed thereafter.

Participants were involved in all the stages of data analysis; they analysed their own photovoice data. All participants partaking in photovoice reflected critically on what the

images meant to them, and they sorted the images accordingly. The data were systematically refined within and across categories by all members and later by me when I combined the data with the data from the individual interviews. Although I analysed the data from the interviews, the participants also had an opportunity to further analyse the data as they were presented to them. They compared the data from the interviews to that the one that emerged from the photovoice. As alluded to earlier, this was done to take note of the challenges raised during interviews so that they were included when developing action plans. However, I still had to analyse the data and then compare my findings to the preliminary findings of the whole group. I had to read the transcriptions several times to familiarise myself with the data and to obtain the sense of the whole before the data could be broken down into smaller meaning units.

5.4.1 Data triangulation

Triangulation refers to the use of multiple methods or data sources to develop a comprehensive understanding of the phenomenon under study so as to address the research question. This research strategy can help one to enhance the validity and credibility of the findings (Heale & Forbes, 2013). In this study, the data that emerged from photovoice, individual interviews, FGDs, and observations were triangulated. The aim was to cross-check evidence, because when one uses data from only one source, it may be difficult to see whether the data are trustworthy.

5.4.2 Ethical considerations

Throughout this study, I was guided by ethical awareness, the protection of human rights, and social justice (Miller *et al.*, 2012).

Permission was requested from the NWU Ethics Committee after the title had been registered. The ethics application was approved in September 2018, and an ethics number (NWU-00475-18-A2) was provided (Appendix 1). The Free State Department

of Education and the Fezile Dabi district office were requested for permission to conduct the research in one of the schools in the district. The approval letter of the application is attached. It was important to first obtain permission from the district before the school was approached, as schools only agree to participate in research when there is proof of permission from the Department. Afterwards, the principal of the school where the research was conducted, the teachers, SGB members and learners were recruited.

Respect for participants implies a recognition of the right to be informed about the nature and potential consequences of a study, the right to decide whether to participate in a study, as well as the right to withdraw at any time (Miller *et al.*, 2012). This is known as procedural ethics (Tracy, 2010). I explained the reasons for choosing their school and not others. I informed the group about my intentions as researcher. The method of research, PAR, and the ethical principles and the procedures to be followed were clarified. What the participants were expected to do in each phase of the research was explained. Participants were made aware that they could decide to withdraw from the research at any stage without providing reasons. There were no consequences for such a decision. Participants were given consent forms containing this information together with information on benefits and potential risks. Those who agreed to participate signed a consent form; however, a member who wanted to withdraw from the project could do so even if they had signed a consent form. Informed consent is an ethical and legal requirement for research involving human participants, as after studying all aspects of the research, the participant voluntarily confirms their willingness to participate. All the participants signed an informed consent form giving permission to participate in the research and to be audio-recorded during discussions and interviews. Participation was voluntary, as they were not forced or coerced to participate in this study.

Moreover, the participants were made aware of ethical principles of using cameras. This research did not intend to gather data from photos of people; rather, data from photos of situations that promoted or deterred promotion of school physical

environments. Therefore, the study was regarded as low risk. According to Catalani and Minkler (2010), researchers involved in visual research must be aware of the potential ethical threats to conducting and circulating visual research, such as consent issues, data anonymity, confidentiality of subjects, and visual data use and distribution. I explained to the participants that taking pictures of people and minors (under 18 years), personal belongings and/or personal property was not allowed. They were free to take pictures of the school environment/settings that we could not specifically identify. I requested participants not to enter dangerous spaces/situations to complete the project, such as coming to school alone at night or over weekends to take photos for the study.

In this study, the names of the participants and the school are not revealed, and the information is indicated in such a way that an outsider would not be able to link such information to the participants or the school. Information or data were stored in different locked storages, and codes were used to label different data.

Furthermore, participants in the FGDs knew one another. We could not hide their identity, but because they had signed consent forms, they knew that they were not supposed to reveal sensitive information from the study to the public.

In this study, we shared power when making decisions; each one of us could suggest an opinion, meaning no one had power to overpower other participants. In the team, I was the only outsider, because I was not working at that school, but the team knew me as one of the teachers in the district. This condition made the participants relax, because they knew I was one of them in a way. I facilitated the first discussion, and then the team selected P1 and P3 to facilitate other discussions. They were alternating in facilitating. We communicated in English, Sesotho, and isiZulu as per agreement in our meetings to create a relaxed environment.

5.5 Measures to ensure trustworthiness

Birt *et al.* (2016) explain that qualitative researchers may sometimes impose their personal beliefs and interests on all stages of the research process, leading to the researcher's voice dominating that of the participant. Such bias must be reduced.

5.5.1 Credibility

According to Shenton (2004), trustworthiness is about establishing credibility, which indicates that the research findings are true and accurate. I started by creating relationships by visiting the research site – in this case, the school – before the research started. Birt *et al.* (2016:1803) explain that “qualitative researchers might sometimes impose their personal beliefs and interests on all stages of the research process, leading to the researcher's voice dominating that of the participant”. Participants were involved in all the processes of the research. Bias was also reduced by actively involving the participants in checking and confirming the results. In this study, analysed interview data were returned to participants for member checking. Member checking is used to “verify, or assess, the trustworthiness of qualitative results” (Doyle *et al.*, 2020:445). Anney (2014:330) recommend triangulation, which involves the use of different methods to enhance credibility. In this study, four data gathering methods were used to ensure the accuracy and trueness of the results. After completing preliminary analysis from photovoice, observations, FGDs and interviews, I combined all the data from the four sources to develop a comprehensive understanding of the promotion of healthy school physical environments.

5.5.2 Transferability

A thick, thorough description is provided in this study, elucidating all the research processes, starting with site selection, sampling, data gathering, context of the study until the final production. Moreover, the group's findings and the context is sufficiently and clearly described to enable readers to understand what aspects of the inquiry can be appropriated to their own context.

5.5.3 Dependability

In this study, the participants were involved in preliminary analysis; the final analysis I did was taken back to them to verify the accuracy thereof; and if the participants agreed with the results, the dependability of the study findings was enhanced.

5.5.4 Confirmability

In this study, the results that emerged from the data analysis were presented to the participants for member checking. This was done to prevent bias. Bias was reduced by actively involving the participants in checking and confirming the results. Member checking is used to verify, or assess, the trustworthiness of qualitative results (Doyle *et al*, 2020). Additionally, the methods of data gathering and the processes were explained in detail in this research, thereby providing an audit trail, as suggested by Shenton (2012).

5.6 Conclusion

This chapter elaborated on the empirical research, which was conducted with the aim of answering the research question – i.e., the development of a framework for principals to promote healthy school physical environments to improve learner academic performance. The emancipatory research paradigm guided the empirical research; this paradigm entails an idealist/pragmatist approach. This paradigm is known for its intent to better the lives of the oppressed. In this research, it was believed that an oppressive situation can include prevention from having certain opportunities. An environment that is not healthy cannot contribute to high academic performance. Teachers and learners need to be liberated from such worrisome situations. PAR is used to include people that are concerned and have an interest in the matter under investigation so that they can come up with a solution to the problem they identified. Four data gathering methods were used to gather data. Data were analysed by all participants so that action plans could be developed. The participants implemented and evaluated the plans. The research findings are discussed in the next chapter.

CHAPTER 6

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

6.1 INTRODUCTION

In this chapter, I present and discuss the data gathered by means of photovoice, FGDs, individual interviews, and observations. The data that emerged from photovoice and focus groups are presented first, followed by data from individual interviews with the SMT members. The last section of this chapter presents data from the evaluation of action plans that were developed by all researchers. In the last group discussion sessions, participants shared information about their evaluation of implemented interventions. It is first necessary to offer information on the background of the school, as this provides context for this research.

6.2 BACKGROUND OF THE SCHOOL

The community started the participating comprehensive secondary school. A comprehensive school offers normal stream secondary school subjects and those that are of a technical nature. The school intended to cater for learners who wanted to pursue academic careers and those that were practical in nature. Such comprehensive schools provide learners with more choices and options as compared to ordinary secondary schools. The community wanted a school that would offer technical, welding, graphic, consumer studies and many other subjects that were a prerequisite for learners to work in nearby factories and companies. The conception of this school was strategic in ensuring that learners were equipped with skills for the job market, and it increased the prospect of employability of those who completed their secondary education.

When this school started, it was accommodated at a nearby primary school for six months (January to June) in 1990 and was officially opened on 3 March 1992 by Sam de Beer who was the then Minister of Education. There was only one secondary school

in the township at the time, which became overcrowded because children from feeder primary schools all went to this one secondary school. The motto of the school is “WE CAN”. The first principal of the school. worked at the school for two years and was replaced by a principal who worked for 18 years. The present principal started in 2010, and at the time of the study, the school had 62 teachers and 1 897 learners – the largest secondary school in the Free State province. The enrolment can be attributed to the wide range of subjects that are offered and the high pass rate in Grade 12.

6.3 PARTICIPANT PROFILE

Below is the profile of the co-researchers who participated in this research. This was a stratified sample which was heterogenous in nature. Including different strata was a specific strategy to implement the broader goal of purposive sampling, as discussed in chapter 5. Heterogeneity in this research was used to capture a wide range of perspectives from representatives of different groups in the school. The table below depicts information about the participants.

Table 6. 1: Co-researcher profiles

PARTICIPANTS	GENDER	AGE	ROLES
Participant 1	Female	32	Mathematics teacher
Participant 2	Male	34	Deputy principal; Physical and Technical Science teacher
Participant 3	Female	45	Life Orientation teacher; SBST committee member
Participant 4	Male	54	SGB chairperson, Quality Learning and Teaching campaign member
Participant 5	Female	52	HoD for Physical and Technical Science teacher, Cleaning and Environment Committee
Participant 6	Male	48	Accounting teacher, Assessment Committee; Soccer
Participant 7	Female	37	Life science teacher; Assessment and Cleaning and Environment Committees
Participant 8	Female	29	English teacher
Participant 9	Male	35	English teacher
Participant 10	Female	19	Learner; RCL
Participant 11	Male	20	Learner – RCL – Chairperson
Participant 12	Female	41	Teacher – English; Assessment Committee member, Staff meeting secretary
Participant 13	Female	46	Deputy Principal; CAT Teacher; CPTD committee
Participant 14	Male	58	Principal
Participant 15	Female	53	HOD – Life Orientation, SBST Committee
Participant 16	Female	49	HOD – English

As depicted in table 6.1 above, 16 co-researchers were part of problem identification, data gathering, and data analysis. The group of co-researchers consisted of six members of the SMT, comprising the principal, two deputy principals, who also taught Physical and Technical Sciences, Mathematics and Computer Applications Technology (P2 and P13), and three HoDs. Seven teachers in the group were responsible for several subjects in the school. The reasons for inclusion of these teachers are presented in chapter 5. The chairperson of the SGB and two members

of the RCL were selected from a component of non-teaching staff in the school. This group consisted of 10 females and six males, between the ages of 30 and 60. In South Africa, teachers are, on average, 43 years old, and less than 35% are 50 years and above, according to OECD (2018). It was necessary to have different age groups with varying perspectives on the phenomenon under investigation. The lesser number of males represents the demographics of teachers in terms of gender in South African schools. In both primary and secondary schools, female teachers are in the majority, although the number of females in the latter schools has reduced. This is supported by UNESCO (2013), who indicates that 77% of primary school teachers and 55% of secondary school teachers are female. Gender inequality in terms of numbers had no effect in this research.

6.4 EMPIRICAL FINDINGS

The empirical research was conducted to gather three sets of data: first, on factors that promote or deter academic performance in the school physical environment; second, on the role of principals in promoting school physical environments; and third, on evaluations of the implemented strategies. Five themes are presented in this chapter: understanding promotion of HSE, factors that promote academic performance, factors that inhibit academic performance, role of the principal in SHP and strategies to support health promotion. The understanding in this research was that there are multiple pathways to academic success and meeting high academic standards and that the principal is at the centre of ensuring that these are met. Much less is known, however, about how factors in the school physical environment influence academic performance of learners and the role that principals can play in promoting these environments for higher academic achievement.

6.4.1 Understanding promotion of HSE

The question that the participants were responding to was: what is your understanding of healthy school environments? Participants understood promotion of healthy environments as involving a multiple of strategies. Among the strategies were cleanliness of the school and its surroundings.

A school has to be clean and healthy at all times as expected by the DBE (P14); keeping the school premises clean and hygienic (P16); about cleanliness of the yard, hygiene, clean classes, clean offices and learners who are taught how to keep the school clean (P13); keeping the school surroundings clean and in good order (P15); no pollution, no papers right around the school premises (P2); our offices and staffroom kept clean all the times (P2); classrooms clean and healthy (P15); each HoD has a block of classes where he/she checks if classes are swept and scrubbed on Fridays (P14); keep kitchen and utensils clean (P15); visit the kitchen every hour to check on cleanliness of the pots, floors, attires and the whole setup when they dish up food for learners (P5).

Participants understood promotion of healthy school environments as including cleanliness of the school. It seems that there must be ways of achieving and maintaining cleanliness, including monitoring. School health can be promoted by educating learners about appropriate hygienic culture, discussing healthy behaviour, and the practice and monitoring to maintain a clean school and its surroundings (WHO, 2018) (§ 2.2.2). A clear focus on keeping the school clean can contribute to the ethos and culture of the school and positive learning experience. As much as the modus operandi of a school is teaching, without a clear focus on clean, hygienic surroundings effective teaching can be constrained, A whole school approach is needed to influence the beliefs and attitudes of the school community members, Mental models comprise attitudes, beliefs, perceptions, and opinions of how decisions are taken and acted upon. Negative mental models about keeping schools clean can affect teaching and

learning. Such mental models become barriers to change rather than enablers (§ 4.3.5).

The promotion of healthy environments was also about clean and functioning toilets with water and toilet facilities, as indicated by participants below:

Toilets must be clean at all times (P13); they must be functional and in good condition (P2); availability of water and functional toilets (P16); bathrooms with running water, toilet paper, soap and any sanitation facility needed by learners (P2).

These statements support those above by adding toilets, water, and availability of bathrooms necessities. The WASH (water, sanitation and hygiene) infrastructure is important in school health promotion. In schools, sanitation includes availability of bathrooms and water but also encompasses good hygienic practices (WHO, 2016) (§ 2.2.2). WASH is a critical precondition for providing a safe school environment that supports high-quality education. Schools as organisations must consistently create an environment where people are engaged in their work and committed to the vision of the organisation and learning (McGowan, 2014:299) (§ 4.2.3). Providing WASH infrastructure safeguards learners' health and conducive learning environments,

The school surroundings were regarded as important in ensuring that the environment was healthy:

... the groundsman is cutting grass (P14); the grounds must have well cut grass and no holes (P15); it looks so untidy when there are papers right around the school premises (P2); you see a lot of papers and other rubbish like chips and sweets plastics lying around (P2); surroundings must not have papers all over the place (P15); dustbins are needed to monitor and control littering (P16).

As regards cleaning the surroundings, there must be a responsible person who is dedicated to perform tasks that ensure cleanliness. It is also clear that without dustbins that are accessible to learners and teachers, littering cannot be avoided. As said above, learners cleaned the classes. Ogbeba and Muluku (2013) indicate that learners should be taught personal hygiene and ways of cleaning their school and how to use

cleaning material (§ 2.2.2). It is important to have a plan, people and resources to keep the school clean, Teachers and learners can clearly plan their targets as implementers, success criteria, and actions (Woods & Martin, 2016) (§ 4.4.1). It is also the commitment of the school community that can sustain the cleaning initiatives,

The cleanliness of the surroundings must be supervised and monitored by adults in order to be sustainable.

In environmental committee we have planned programmes of health promotion (P5); meetings are held to report on challenges in blocks and classes (P14); class teachers supervise cleaning (P14); learners scrub and polish classes every Friday (P14); learners clean the school after school and teachers rotate in supervising them as punishment (P5).

Participants indicated that the Environment Committee had plans and programmes to keep the school clean. The Committee involved teachers to supervise learners when they cleaned. Teachers show their involvement by providing resources such as time and by making sure that they were dependable and available to offer support in the supervision and running of health promotion programmes (Yeager et al., 2016) (§ 2.4.2.3). It is the responsibility of the principal to set up and support committees. This is in line with Kools and Stoll (2016) who consider the leadership role of school principals as a key element in setting the direction and ensuring the conditions for fully achieving the assumed goals of an organisation (§ 4.4). Health committees have members whose responsibility is to ensure that health programmes are implemented. The committee members establish shared objectives and implement them to reach these goals, A shared vision is important in schools because shared visions serve to amplify success, increase participation, and erode the divide between leaders and staff members (§ 4.3.3).

Learning cannot be effective in unsafe areas.

It is significant that there is safety in the school (P16); we remove all the hazardous objects in the surrounding (P2); learners cannot learn properly in an

unsafe environment (P16); school buildings are secured and do not pose danger to learners, secure buildings have doors and windows which are not broken (P2).

Promotion of healthy environments is also about safety for learners and the school community. Unsafe schools pose danger to the school community. As indicated elsewhere in this chapter, there are precautionary measures that are taken to ensure safety, human and material resources are also provided. Safety in schools is necessary to support the academic success of each child, giving them the opportunity to learn and achieve in a safe and nurturing environment (Ferreira, 2015) (§ 2.3.4). This research indicates that measures to ensure safety are multi-pronged. Moreover, literature indicates a strong link between safety and the wellbeing of the school community. However, participants in this research did not highlight the importance of the community and other external structures in their initiatives. Their focus tended to be internally, within the school. A school is a microsome of the society it serves. It relies on the support of its community to thrive. It seems that the participants did not perceive their school as part of other systems that can form part of the implementation of strategies to ensure safety. In systems thinking, the school is looked at as a system that is interconnected with different parts of life that intersect and influence each other (Waldy, 2009) (§ 4.3.2.1). Systems thinking offers an opportunity to enhance the quality of collaborations to create a sense of commitment among school members and enable them to achieve more together than they would as a school (§ 4.3.2.1).

- **Benefits of a healthy school physical environment**

The participants mentioned several benefits to the school, the teachers and learners, and to teaching and learning. The benefit that is presented below is to teaching and learning.

Benefits of a healthy school physical environment are seen in happy teachers and in learner performance.

Teachers who are happy perform well and that is reflected from the learners they teach through marks and vice versa (P14); it will curb absenteeism of learners (P16); less absenteeism allows teachers to finish the syllabus and learners to be taught all content (P2); a good workplace environment plays a role in motivating us (P14); it motivates us and makes us to keep on doing good work (P14); learners and teachers become relaxed in a clean environment, relaxation leads to better performance (P15); learners, who stay in healthy places become healthy, happy and perform well (P5); a dirty and unhealthy physical space can cause stress and anxiety (P13).

Participants asserted that healthy environments reduced absenteeism and teachers finished the syllabus. A healthy milieu motivates learners, relaxes teachers, keeps learners healthy, and happiness leads to better performance, whereas a dirty and unhealthy milieu causes stress and anxiety. It is important that participants regarded promotion of healthy environments as contributing to academic performance of learners. This is in line with at least two pillars of total quality management: focus on customers (learners); and continuous improvement (Prestiadi et al., 2019) (§ 4.4.2). In addition, a school as a learning organisation is a place where people continually expand their capacity to create results, they truly desire (§ 4.4.2).

The school also benefits from a healthy environment regarding its reputation:

Parents and the community become proud about the school (P13); learners love their school and become proud of it (P16); the school is liked by many even the district office which brings teachers from other schools to come and copy good things, we are a model school (P5); school principals from other can learn, take advice (P13); people who visit the school comment on the clean and good looking school and give praise (P15); when the school becomes orderly the behaviour of learners changes (P16); respected for its cleanliness, working systems of promotion of HSPE and it becomes a model school (P13).

Parents and the community became proud of the school. Learners loved their school, and the district office trusted the school and brought other schools and principals for mentoring. Passers-by and visitors commented on the cleanliness and beauty of the school. The school was respected for its cleanliness and seemed to be having a working system of promotion of HSPE, although there was a lack of focus on other aspects. In this situation, reputation emerged based on respect, perceptions, and reflections of all stakeholders (both internal and external) regarding the school. Schools are accountable to their communities. When schools are reputable, trust develops between the schools and their communities. A good reputation improves motivation and brings more support, success and results in high teaching quality, which is usually accompanied by high levels of learner academic performance (Badri & Mohaidat, 2014) (§ 3.2.2.3). Parent trust in the school may lead to better academic performance. It therefore is important for a leader to develop ways of thinking to provide maximum service to learners, teachers, the community, and parents (Prestiadi et al, 2019) (§ 4.4.3). The interconnectedness and relationships between the different systems must be respected at all times in order for the school to remain legitimate.

- **Benefits to learners**

Participants mentioned benefits they considered as important for learners:

The school develops learners who are responsible, clean and cooperative (P15); growing to become accountable adults, needs teaching, training and compliance to given orders like promoting clean environments (P15); There is a relationship between the cleanliness of the environment and cognitive development of learners (P15); a clean school brings a sense of peace (P13).

Participants believed that as learners cooperate in receiving training, they become responsible and accountable. Learners will be adults who will be able to promote clean environments. Participants saw a relationship between a clean environment, an environment with beautiful, green spaces and availability of sport grounds and facilities

as indicated in the foregoing paragraphs and mental and emotional health of learners. These are two individual benefits that are highlighted in this study: enhanced academic performance and mental and emotional health.

6.4.2 Factors that enhance academic performance

The results of the empirical investigation on factors that enhanced academic performance yielded four factors: beautiful surroundings; cleanliness of the school; availability of resources; and school safety. These aspects are discussed below.

6.4.2.1 Beautiful school surroundings

The aspects that were indicated as making the surroundings beautiful and welcoming included green grass and lawns, trees, flowers, and a water feature. Figures 6.1 and 6.2 below depict features of natural environments that were regarded as conducive to teaching and learning.



Figure 6. 1: School entrance with flowers and trees Figure 6. 2: Green grass and Trees

The first figure shows the entrance of the school as one of the factors that promote academic performance if it is attractive and welcoming. The second figure displays surroundings that have trees and lawns. We said the following about our photos:

... the school entrance which is very welcoming because it is always neat and clean. The photo shows the green grass and beautiful flowers next to the administration block. The grass is ever green and flowers bloom seasonally (P1); the school entrance is welcoming and people are at ease when they enter

the school (P12); there is a clean and welcoming front view of the school (P11); around the school there is green grass and green trees, they also bring beauty to the school and the shade to learners during break time. Grass is neatly cut, and learners play safely (P3); trees also bring the beauty in the school. Nature is good to watch especially after hard work. If we are healthy, we will teach well, and learners will learn and get good levels (P9).

Participants mentioned several important factors about the school entrance, including that it was welcoming, neat, clean, and attractive. According to literature, such an entrance can serve two purposes. First, the appearance of an organisation may attract learners by convincing them of the study environment (Šontaitė & Kristensen, 2009) (§ 3.2.2.3). High enrolment is important, especially in township schools to ensure continuity. Second, the trees, flowers and the green grass contribute to beautifying the school, bringing aesthetics, often limited to the beauty of nice or artistic objects (Šontaitė & Kristensen, 2009) (§ 3.2.2.3). Beauty of schools in this research was associated with a natural environment that included natural elements. Such an environment with green spaces may promote health and well-being of teachers and learners, as was mentioned by us in the statements below. Therefore, quality in education requires a commitment to create an environment that is attractive and allows staff and learners to do their best work (§ 4.4.2).

It was further revealed that the welcoming and clean entrance has benefits to the school, teachers and learners, as indicated in the statements below:

The entrance attracts people who pass by the school and parents wish to bring their children into the school. This nature brings a desire to be part of the school and relate to the beauty. Learners become proud and become motivated to work hard and not disappoint the stakeholders who try their utmost best to make the school look homely. Learners like the school and perform well in their schoolwork. Learners stand and sit under the trees when it is hot. If learners are exposed to extreme heat, they become sick, and this affect their marks and levels at school (P1); one becomes proud of his or her school then learners develop the love and respect for the school. If they respect the school they

listen, comply and show interest in their schoolwork. Teachers too, develop love for their working environment (P12); the view makes one see the conducive learning environment especially learners and parents. Teachers are eager to go to work daily because the school is not stressing but motivating (P11).

We indicated that a clean and welcoming school entrance entices passers-by and brings about the desire for them to be part of the school. This is important for schools in townships, as they compete for learners whose parents would rather take them to Model C schools in town. Molina-López et al. (2018) support this and point out that competition between schools has a positive effect on the academic performance of learners (§ 3.2.2.3). Increase in enrolment is often a result of the good reputation of a school. Literature indicates that a good reputation improves motivation and brings more support, success and results in high teaching quality, which is usually accompanied by high levels of learner academic performance (Badri & Mohaidat, 2014) (§ 3.2 2.3). Parents and community members who are attracted to a school may easily participate in its activities, as they may associate themselves with reputable schools rather than those with a bad reputation. Parental involvement has been demonstrated as a key factor in academic performance. It seems that a focus on aesthetic environment of a school might play a strategic role in achieving quality teaching and learning. Therefore, success is determined by increased organisational competitiveness (Wilkens et al., 2004) (§ 4.2.2).

Participants 6, 7 and 12 also attested to the benefits of a welcoming environment by saying the following:

Some of us sometimes take learners outside the classroom and teach them under the tree shade. Different learning environment motivates learners to participate more. When they participate more their marks improve. It lowers stress, promotes outdoor learning and also encourages usage of teaching resources (P6); the green environment activates thinking. If learners are outside and playing or seated under the tree, they refresh by looking at the tree branches leaves and different types and different colours of flowers (P7); in line

with the beautiful entrance are trees which provide shade for learners and teachers' cars. We get oxygen from these trees which is good for our health. If we are healthy, we will teach well and learners will learn and get good levels (P12).

The participants mentioned an environment that provides an opportunity to diversify settings for teaching. Not teaching learners only in classrooms was indicated as both refreshing and distressing. An outdoor environment that reduces stress is conducive to teaching and learning and may enhance learning. Chawla et al. (2014) support this and claim that green grounds help learners to find peace from stress (§ 2.2.2.). Teachers also need a favourable environment to do their work effectively. Teaching learners outside under the shade on hot days can activate thinking and provide oxygen. Learners need active minds to engage with the content that is taught; such engagement may assist with participation and understanding. Engagement in learning plays a key role in academic success (DBE, 2018) (§ 3.3.2.2). It is important for teachers to understand the significance of diversifying teaching setting. It is the responsibility of an organisation to create such settings that support and enhance school programmes (Sole et al., 2010) (§ 4.2.3).

Closer to the administration block, there was a water feature that some researchers took pictures of. This water feature was regarded as important in contributing to the beautiful surroundings. The picture below shows the water feature.



Figure 6. 3: Water feature

The figure above depicts a small pond with a small bridge that is meant for crossing over the pond. The pond is painted blue, with a small body of still water that is formed naturally when it rains. The edging stones provide an outstanding pond decoration. The participants expressed the contribution of this water feature to academic performance, as they mentioned below:

There is a water fountain in front of the administration block which helps teachers and learners to relax and relieve tension. One just stands or sit and watch water as it flows over the stones. The sound that the water in the fountain makes soothes and calms you bringing symbol of joy, peace, stress reduction, improves concentrations. Your mind is refreshed and activated, and you can go back to work and be more productive (P5); the water fountain has water and beautiful stones that one would love to look at. Walking next to this beautiful place makes me relax, walk slowly or stop walking (P9); the school entrance has a fountain that circulates water. It has a gush of water that cascades and making a fragile sound. It brings pleasing and satisfying effect to attract attention. It disperses the cool air and brings cooling comfort. We urbanised people, experience the pleasure feeling of natural flowing water. This fountain inspires reflection and is a source of beauty (P8).

Participants described the water fountain as a tension and stress reliever to both teachers and learners. It was indicated as having the ability to improve concentration, refresh and activate the mind and consequently, increase productivity. People see this feature as they enter the gate and can be drawn to it as they move towards the buildings. As this water feature is part of the school environment, literature attests that the latter can make learners more comfortable and more focused on their academic activities, which results in high academic performance (Kweon et al. 2017) (§ 2.3). It is interesting that a water feature can be regarded as a factor guiding mood, relaxation, alertness, and concentration. This can be attributed to the fact that water gives our brains and our senses a rest from overstimulation. For schools as organisations to learn, relax, concentrate and react effectively in uncertain and dynamic environments,

they have to develop processes, strategies and structures that allow easing sensation (Chen-Levi et al., 2021) (§ 4.2.3).

6.4.2.2 Cleanliness of the school and its surroundings

Participants mentioned several areas at the school they regarded as clean and therefore contributing to academic performance of learners. The two photos below are about cleanliness of the passages between classes and of school premises.



Figure 6. 4: Passage between classes Figure 6. 5: Clean school premises

Figure 6.4 shows a passage that was indicated as clean. The passage seems to be narrow; it is not part of the build, but it has rooms on both sides. It looks like a passage that could easily be neglected. Figure 6.5 displays an area outside of the classroom. Researchers who commented about the cleanliness of these areas mentioned the following:

I see the corridor between the administration block and the classes which is always clean and open to allow the flow of learners and teachers (P1); the foyer is very clean and welcoming. The dust bins and the system that is used by the school to keep the school clean really works. Late comers are recorded every morning and serve their punishment after school by cleaning the surroundings with the supervision of teachers. The sense of cleanliness is instilled to the learners when they first arrive at school to do grade eight (P5); the school entrance which is very welcoming and clean. Learners become proud of their school on the first day till the time that they finish matric (P4); the paving is always very clean. We don't litter (P11); learners are taught responsibility to

keep their surroundings clean and the cleanliness responsibility is transferred to their schoolwork (P2).

Researchers mentioned several areas in addition to those that are shown in the pictures above. The positive effect of clean surroundings was associated with learners being proud of the school. It was also mentioned that a clean environment was welcoming. Ogbeba and Muluku (2013) indicate that cleanliness has an important impact on the academic performance of learners (§ 2.2.2). The school used certain strategies to keep the school clean: ensuring that teachers and learners were involved; and having dustbins. According to the World Health Organisation (2018), teachers promote cleanliness by educating learners on how to clean and how to maintain cleanliness (§ 2.2.2). It seems that learners were exposed to situations where they were informed about the importance of cleanliness of the environment and of cleaning. Learning in learning organisations takes place when all individuals, at all levels, partake in learning about the importance of a concept, with the expectation that more learning would assist an organisation to be more effective (Argote, 2012) (§ 4.2.2). Literature also links cleanliness of a school and its surroundings with attitude and dedication. It is a mental model that can shape the attitude and dedication of individuals in ensuring that cleanliness is maintained in schools. Mental models influence how people take actions based on judgements (Senge, 2012) (§ 4.3.5).

The next two photos are about the importance of clean classrooms and toilets.



Figure 6. 6: Clean classroom toilet wall



Figure 6. 7: Clean

The first figure shows a classroom with desks and chairs, while the second depicts a toilet wall. The two areas were indicated as clean. Researchers 2 and 4 attested to the importance of cleanliness of classrooms and toilets by indicating the following:

The school has workshops as it is a technical high school. Classes are very conducive for teaching and learning. Learners and teachers enjoy working in clean classes that have all the needed equipment and furniture to use when teaching (P2); learners' toilets are clean and smell good (P7); the school has ladies who clean the toilets every day. The cleaning of the toilets is the SGB's project who hire and pay parents who clean toilets. Before the start of the cleaning project, teachers complained of learners who do not come to school especially girls when they are in their periods (P10); their absenteeism is now better. They come regularly to school, don't miss classes and we get reports that they perform better in their schoolwork (P4).

In addition to the toilet walls, researchers also mentioned the technical workshops and classrooms, which were indicated as clean and conducive to teaching and learning. There were people responsible for cleaning the toilets, who were hired for the job. This strategy may sustain the project of cleaning toilets, as it seems to be more reliable than depending on learners. The participants' utterances revealed that environmental sanitation cannot be fully achieved without the contribution of individuals in maintaining cleanness and ensuring a hygienic environment. Involving parents is one way of ensuring effective management of toilet facilities (OFSTED, 2009) (§ 2.2.2). Moreover, systems thinking was used to keep toilets clean in the school. Systems thinking enables school members to achieve more together than they would as individuals (§ 4.3.2.1). It was reported that absenteeism and class attendance of female learners were improving. Absenteeism and non-attendance of classes have a negative impact on academic performance. Extreme absenteeism, in turn, is an indication of ongoing school attrition, which ultimately leads to failure and permanent dropout from school (Cabus & De Witte, 2015) (§ 3.3.1). The principal as a team leader works with people

and optimises the contribution from all stakeholders to achieve success in attaining higher school performance (§ 4.4.2).

6.4.2.3 Availability of resources

Participants confirmed the availability of resources such as the library, kitchen, toilets with basins, water, rubbish bins, and mobile classrooms. The following two photos depict the library and the kitchen that was used to cook food for the school nutrition programme.



Figure 6. 8: Library



Figure 6. 9: Kitchen

The first picture shows a library with shelves full of books. The second figure depicts a kitchen where food was prepared for vulnerable learners. There are several pots on the stand – this shows that the school catered for many learners. The provision of food to poor learners in the school was in line with the Policy on Nutrition, which indicates that a separate room in a school should be reserved for school nutrition. Researchers indicated the following about these two important rooms:

The kitchen is very clean and spacious and the pots, buckets, food containers and plates are clean and in good condition. Cooks also called food handlers are always clean; learners always look forward to break time. Some learners eat for the first and last time at school. It is food from school which give them energy to concentrate in classes. In the kitchen they use gas stoves, gas bottles are put and locked inside the cages (P3); the kitchen is very clean. Food cooked in that kitchen contributes to the health of learners. Learners eat food during

break and become active in classes. There are learners who stay alone at their homes and struggle to make ends meet, they get breakfast every morning before the school starts. Learners perform better in their schoolwork because of the feeding scheme. The system has curbed the problem of dodging and not coming back to classes after break. If learners dodge, they miss classes and they end up performing badly (P5); the school supports learners with food at lunch time. Learners eat vegetables, not unhealthy food from the tuck shop (P8).

Participants mentioned a variety of resources available in their school for ensuring that the school nutrition programme is effective. They mentioned a spacious kitchen, food handlers, electricity, gas stoves, and all other kitchen utensils. Such items are important so as to make sure that learners get meals that enable them to concentrate in class. Studies conducted in Africa attest to the benefits of school nutrition programmes. Chinyoka (2014), Omuemu and Ogboghodo (2020) and Okafor et al. (2020) found that hungry and undernourished learners are less able to learn and concentrate and revealed a positive relationship between school nutrition and academic performance (§ 2.4.2.2.1). Expressions of the participants revealed that the school nutrition programme served two purposes: to promote academic performance; and to assist with food security. The intended outcomes of school nutrition in South Africa, as in many developing countries, are twofold: to curb food insecurity; and to encourage children back to school, improve academic performance and keep them enrolled (Devereux et al., 2018) (§ 2.4.2.2.1). This programme also depends on collaboration of different government departments to be efficient. Moreover, the school must work with the community and parents to provide the school nutrition programme effectively. Human actors in the organisation interact with each other and often depend on each other in the usage of the resources at their disposal to harness learners with school (§ 4.2.3). Furthermore, systems thinking has to do with interconnectedness, linking the school as an organisation to communities (§ 4.3.2.1).

The library is full of different types of books. Learners are allowed to borrow books from the library and use them as references when they write

assignments, for enrichment and to prepare for their assessments. The use of the library will make learners perform better academically (P5); Learners and teachers use the school library for preparations, assignments and getting books to read for enjoyment. There are novels, plays and short stories for enjoyment. Learners who read perform well in class (P13).

The availability of a library that learners can borrow books from to enrich their minds, find references and do assignments, is important for an improved academic performance. A library provides the ideal environment and vital information resources for learners to develop and sustain good study habits necessary for excellent academic performance. Libraries provide space for children to learn, offer a quiet area for learners to study, and encourage them to read (Ahlfeld, 2019) (§ 2.2.2). A fully functional library would be an asset in learning organisations through which a competitive edge can be achieved. A learning organisation inputs new knowledge through continuous learning and imbed this knowledge in systems and practices (Coldwell & Fried, 2011) (§ 4.2.2). Libraries are valuable assets and sources of relevant information for a learning organisation.

Ablution facilities, such as bathrooms, basins and a water tap, were available in the school. The following photos confirm the accessibility of these resources.

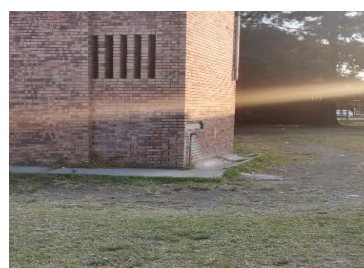


Figure 6. 10: Basins Figure 6. 11: Bathroom for learners Figure 6. 12: Water tap

The first picture shows a basin for washing hands in the toilet. The basin had two taps, but only the cold water tap was working; the other one was not connected to hot water.

The second picture depicts a bathroom for learners while the third displays a water tap that is against the wall. This is what we had to say about water taps and sanitation:

Bathrooms are very clean, having running water to flush and basins for hand washing. Untidy and filthy bathrooms make learners sick (P5); our school bathrooms are very tidy and user friendly (P10); there is water and sanitation bucket for menstrual disposal. These girls cannot leave school early or absent themselves because of lack of facilities and privacy. When we live a healthy lifestyle and our minds become healthy (P11); the toilets are very clean too, they have running water and leakages are fixed immediately. They are user friendly (P13).

Participants spoke of the availability of clean, tidy and user-friendly bathrooms with running water, basins and sanitation buckets. The availability of these resources is good for teaching and learning. When children have access to safe water, toilets and soap for handwashing at school, they have a better environment to study, to learn, and to realise their full potential (Sommer, 2010) (§ 2.3.1.2). The bathroom facilities were maintained and kept in good working condition. When these facilities are neglected by not being maintained, their condition deteriorates, and eventually they will be in a bad state. According to Enefu *et al.* (2017), school maintenance contributes to the organisation's instructional effectiveness and improves the cleanliness of structures (§ 2.4.2.2.4). Bathrooms were clean and had running water for flushing and washing hands. Having clean water and sanitation means being able to avoid exposure to countless diseases. However, participants pointed out that there was only one water tap in the school yard. Availability of drinking water can increase learners' overall water consumption and maintain hydration. The issue of taps becomes key in a school that has more than 1 500 learners sharing one tap. There must be sufficient water collection points and water-use facilities in the school to allow convenient access for personal hygiene and cleaning (SASA, 1996a) (§ 2.2.2). Girls were able to use toilets which had bins for menstrual disposal. Measures that enable women and girls to continue attendance in educational environments are essential to achieving the MDGs of universal education and promoting women's gender equality and

empowerment. A lack of water and sanitation facilities to manage menstruation in schools may lead to discomfort and avoidance of school during menstruation, as indicated by participants. During menstruation periods, girls may routinely stay home when they are menstruating, compromising their education (Ogbeba & Muluku, 2013) (§ 2.3.1.2). Principals must be mindful of aspects that hinder academic performance of learners. There is, therefore, a need for a school as an organisation to continuously transform itself in order to meet its strategic objectives (§ 4.2.3). Transformation is possible with the use of systems thinking (§ 4.3.2).

In the statements below, researchers commented on running water for drinking.

Once there is no running water it becomes difficult, and they absent themselves from school or request to go home early and miss classes. That leads to poor performance (P5); a water tap is very useful to the learners. In the mornings and during break learners fill their bottles with water to drink in classes. They are not allowed to go to the tap during class time. Water makes learners not to be hydrated and tired. They can concentrate and participate in class. This strategy helps them to perform well in class especially in summer when temperatures are very high (P7).

Participants mentioned availability of water and a water tap that was accessible to learners. This keeps learners hydrated, even during high summer temperatures. According to Popkin et al. (2010), drinking water should be available throughout the school day, and children should be encouraged to drink it to stay hydrated (§ 2.2.2). Filling up water bottles in the morning and during break help them to concentrate, participate in class and avoid roaming outside classes during tuition time. Lack of running water in a school is detrimental to teaching; in this case, as mentioned above, there was a limited number of access points for water. Some learners would be reluctant to go to a tap that is far away from their class to get water. The negative consequence is that teachers and learners use teaching and learning hours to go look for water (Ogbeba & Muluku, 2013) (§ 2.3.1.2). The school had this one tap for years. Even if there was awareness of how this affects teaching and learning, there was no

clear strategy on how to resolve this issue. The occupants of a school need to learn to be aware of the resources at their disposal and how to harness them for the good of the school (§ 4.2.3).

One of the most important services a school can provide is pure, clean and clear drinking water for students and staff. Drinking taps for schools are an absolute necessity. For schools as organisations to learn and react effectively in uncertain and dynamic environments, they must develop processes, strategies and structures that allow school-improvement processes, such as availing necessary resources to avoid wasting teaching and learning time (Chen-Levi et al., 2021) (§ 4.2.3).

Furthermore, the school had dustbins all around the premises to keep the school clean as well as mobile classrooms which solved the overcrowding problem. The photos below confirm this.



Figure 6. 13: Dustbin classroom



Figure 6. 14: Mobile

Figure 6.13 shows a dustbin outside a classroom. The dustbin has a lid and is closed to make sure that dirty and decaying waste is kept separate from the rest of the clean surroundings. Figure 6.14 shows a mobile prefabricated classroom with a door and windows. Mobile classrooms are commonly used in South African schools to curb overcrowding and provide learning spaces in schools that have a shortage of classrooms. Participants who took photos of dustbins and mobile classrooms had the following to say in this regard:

Dustbins are scattered all over the school, every block has a dust bin and learners are advised to throw rubbish in them. The availability of the dust bins makes the school to look good and clean. Healthy environments bring healthy minds (P3); waste is thrown inside to keep premises clean (P6); learners know that they cannot throw papers on the floor because dustbins are all over the school and learners can see them easily. Learners who behave badly are punished after school. They avoid cleaning every day by changing the wrong behaviour. They end up coming early in the morning, write homework, respect teachers and concentrate on their schoolwork (P8); a neat school shows that we are determined to learn (P10); cleanliness is a priority in our school. Learners have no excuse for throwing dirt on the ground. Teachers encourage learners to present neat schoolwork. We encourage them to be clean even in their books, love their schoolwork (P9); the rate of littering in our school is very low (P13).

Researchers indicated availability of dustbins, which helped keep the school clean. Availability of such resources is not enough if learners are not taught about the importance of keeping the school clean. Schools need to come up with plans that are sustainable to have clean classrooms and surroundings. Three strategies are used: educate learners about cleanliness; make dustbins available and accessible; and punish learners who misbehave. It is up to the teacher to build a school and classroom culture that values the school, teaching responsibility, accountability and cleanliness to prevent clutter (Mapotse & Mashiloane, 2017) (§ 2.3.1). It is important to note that there is responsibility and accountability for keeping the school clean. Theory indicates that it is leaders with personal mastery who take responsibility and accountability for their actions who inspire others to do the same (§ 4.3.1.1). Furthermore, in an organisational structure, people are organised, their tasks are divided and coordinated, and plans are in place to keep the organisation running properly (Mintzberg, 2009) (§ 4.2.3).

The statements below are based on figure 6.14 above (a mobile classroom).

Mobile classes are a solution to overcrowding. It is better to teach a manageable number of learners in one class to give individual attention to each and every learner in order to get good results (P3); learners from overcrowded classrooms are shared to these mobile classes. This improves performance of learner (P9); overcrowding prohibits effective learning and teaching; learners do not behave well and perform badly overcrowded classrooms. In manageable classes, learners participate and those with learning barriers can also be accommodated (P12).

It seems that the availability of mobile classes at the school solved the problem of overcrowding. Mobile classes are beneficial in that they allow for individual attention to learners, and as a result, learners perform better, bad behaviour is reduced, and teaching and learning becomes effective. Freeman *et al.* (2014) claim that a smaller number of learners in a class is associated with more interaction, and Ballen *et al.* (2017) mention benefits especially for at-risk learners (§ 2.3.1.1). It is important for a school to be able to come up with strategies to deal with problems it is facing to ensure effective teaching and learning. One of the characteristics of a school as a learning organisation is utilisation of all the possible resources to help it achieve its goals (Hughes & Byrd, 2015) (§ 4.2.3). The use of mobile classes curbs overcrowding and contributes to achievement of goals.

Participants indicated that in their school, there was a playground where learners played for enjoyment and kept fit. Also, there was a gym area that learners used free of charge.



Figure 6. 15: Playground

The first figure shows an open field where learners could play during breaks and after school. In the second picture, outdoor gym fitness equipment can clearly be seen at the back of a block of classrooms. This equipment was outside on the playground where it was accessible to learners whenever they needed to use it during the day. Participants had the following to say about the playground:

The playground is covered with grass all the time, it is also used during Life Orientation periods for physical activities and for learners to play during recess. We believe that healthy bodies create healthy minds. Learners play sports such as soccer and netball in the playground. They practise and play friendly matches with learners from other neighbouring schools (P1); the body needs exercise to perform to its maximum. Learners develop their sport skills which boost their confidence and motivate them to work harder in other areas. Learners who play sport master the spirit of competition and develop emotionally. Learners can use these skills in class activities. They will show confidence, be motivated, control their emotions and have healthy competition with their class mates for them to excel in their class work (P2); our playgrounds are well-maintained (P4); learners who take part in sports improve their grades, manage their time better and have positive attitudes (P6); their minds are activated when they play, they can perform better academically (P7); learners learn to socialise with other, share their expertise and develop leadership skills (P5); If learners are physically healthy they perform well in class (P9); learners learn to be responsible, accountable and make choices they can also manage their time accordingly, however, not all learners take part in sports (P8); we boost our brains by playing in the playground during break because after school we do extra classes (P11).

Researchers mentioned having a playground that was well kept. They indicated the benefits as threefold: direct link to performance by creating healthy minds, positive attitude, motivation, confidence, time management, responsibility, and accountability; decision-making; and ability to have healthy competition. Literature attests that

physical activity contributes to academic performance. Physical activity contributes to intellectual development and hence, academic achievement because the functions of the mind and the physical body are one entity (Akomolafe & Adesua, 2016) (§ 2.3.3). The benefits also involve personal gains, including healthy bodies and the ability to socialise and develop leadership skills. Although social and emotional skills are non-cognitive, they are believed to significantly influence learning and performance. Chawla et al. (2014) regard playgrounds as helping learners in building body fitness and social relationships (§ 2.2.2). Although not all learners take part in sports, they all partake in physical activity during Life Orientation periods. Learners can be active in times when they do certain exercises in Life Orientation; however, this may not be enough, as this is based on a limited time and what must be taught. In South Africa, disadvantaged schools in township and rural areas lack basic sports and recreation facilities and sports equipment; so, development of sports skills and talent suffers tremendously because learners only take part in sports during Life orientation periods (Walter, 2011) (§ 2.2.2). In sports facilities, the capability of group members increases through team learning in a way that its resulting outcomes would be desirable to everyone (Bui et al., 2016) (§ 4.3.4).

Researchers who commented about availability of gym facilities in the school indicated the following:

In the gym facilities, learners exercise for free especially those who do not afford personal gym facilities. They use gym for relaxation. If learners relax physically and do exercises, their minds are sharpened, and their academic levels improve (P2); learners are allowed to do exercises using the gym machines. The more learners exercise the better they perform (P3); most learners come from families where they cannot afford gym. They become refreshed and perform well in their work (P13).

There are not many high schools in South Africa with gym facilities; it is commendable that the participating school had one that was available to learners free of charge. The availability of these facilities may bring about a sense of pride, respect, and love for

the school, while at individual level, learners benefit in terms of physical fitness and mental health. Sports facilities are important settings for the promotion of children's physical activity, and they provide regular opportunities for children to be active and develop love for sports and school (De Meester, 2014) (§ 2.2.2). Participating in sport activities might accelerate team learning when learners interact and share ideas. Team learning assists in bringing members of an organisation together, sharing love for and pride of the organisation, and creating new understanding within the structure of the organisation (§ 4.3.4.1).

The sickroom was also indicated as available for learners who got sick at school; the following figure bears evidence.



Figure 6. 17: Sickroom for learners

In the picture above, there is a room with a bed, a basin for washing hands, a shelf and a dust bin. On top of the shelf there is a first-aid kit and medicine. This is a sickroom that was used by learners when they got sick at school. The bed has a blanket without a pillow. The following utterances from researchers are about the availability of the sickroom.

A sickroom is where we sleep and relax when we are sick or not feeling well. This room has first aid equipment like bandages, tablets and rubbing stuff. There is a bed, and it is very clean. One teacher looks after a sick learner and takes her/him back to class when feeling better or call the parents or the

ambulance when necessary (P10); we are lucky to have the sickroom in our school; learners are well looked after in this room. Learners get first aid help like headache tablets or bandages for minor injuries (P5).

The availability of a sickroom may be an advantage for learners who fall sick at school. It could also be an indication that the school cares about its learners and endeavours to treat them well. This shows proactiveness of the school pertaining to issues of health of learners. The primary focus of an operational sickroom is to create a health service environment conducive to learning about health and illness, developing lifetime skills in self-help and self-care, creating a friendly atmosphere, and involving learners and staff in taking pride in their school health services centre (Ager, 2013) (§ 2.2.2). A sickbay is a support structure for learners and teachers, it indicates a caring environment. Learning organisations need to create spaces that support people to learn (§ 4.2.1).

6.4.4.4 Safety of the school community and their belongings

Participants indicated that safety measures were adhered to in the school. These safety precautions were associated with academic performance. They mentioned the availability of a security office, an assembly point, and lights around the school. Measures were taken to safely lock electric boxes and a gas cylinder. The following three photos depict the gas cylinder, electric box, and lighting.



**Figure 6. 18: Gas cylinder Figure 6. 19: Electric meter box
Figure 6. 20: Lights**

The first figure shows a steel cabinet at the back of a block of classrooms. The gas cylinder that was used for cooking by the food handlers was stored in this cabinet. The steel cabinet had a door that could be opened when the cylinder was replaced and closed when it was not used. The second figure shows a red built-in wall cabinet at the front of a block of classrooms. The doors of the meter box cabinet were closed and locked by means of a safety padlock.

Participants 3, 6, 9 and 10 contributed these photos, and this is what they said:

The gas bottles (cylinders) are safely stored outside the kitchen in a cage. Learners, food handlers and teachers are safe from being injured. Gas is very dangerous, if it catches fire, it can cause a disaster which can disturb teaching and learning (P3); electric boxes are always locked and no one can unlock them except the representatives from the company, which donated them. Our learners and teachers are safe on the school campus. Since our school is a technical high school, technical appliances or equipment like motors are also safely locked in cabinets (P6); there are lights, inside and outside the classes. In the evenings the whole school lights up brightly, this helps to prevent burglaries. It once happened that the robbers entered the school and stole forty computers from the computer centre. Learners who were doing CAT suffered a lot because they had to wait for the school to buy new computers. This had a negative effect on the school results (P6).

The utterances of the participants are about precautionary measures that were taken by the school to protect learners and the school community. Learners and the school were protected from fires that could be caused by leaking gas cylinders. This could mean that the school understood the risks of working with gas and the possible negative consequences for the school in general and teaching and learning. Safe schools are a prerequisite for learning, while unsafe schools can negatively affect learners' well-being and educational success (Schiel, 2021) (§ 2.2.2). It is the responsibility of the school and in particular, the principal, to protect the school community from risks. This is a difficult task even for the most experienced principals,

it calls for a leader with a clear vision. As a visionary leader, the principal develops ways of thinking (Prestiadi et al., 2019 (§ 4.4.3) to provide maximum safety services to learners, teachers, general workers and parents.

Electrical meter boxes that are open and left unattended are a danger to the school community. It is one thing to teach learners about the dangers of electric boxes and another to show them how to ensure safety in this regard. Learners can be electrocuted if measures are not taken to make safety a priority. It is important for schools to put measures in place for risk reduction. Adherence to safety measures foster an optimal learning environment in which learners feel safe and supported and are in a better position to prosper in terms of academic performance (Cardinal, 2021) (§ 2.2.2). School safety is a contextual factor that can, if not addressed, constrain teaching and learning. Organisational theory suggests that school contexts affect learner attainment through a variety of indirect and direct passages (§ 4.2.3). Schools with higher quality school contexts have learners who experience larger achievement gains (§ 4.2.3).

Having lights at the back and in classrooms is a measure that was taken by the school to ensure that the school was not dark at night. Having no lights could enable and attract thugs to the school. Lack of school safety can lead to academic performance that is not on a par with the goals and aspirations of the school (Ncontsa & Shumba, 2013) (§ 2.2.2). The precaution that was taken by the school to have lights was preventative and proactive to safeguard teaching and learning processes.

Participants provided photos of the school gate, the control room for security, and a CCTV camera which they regarded as safety features that enabled the school to take safety measures.



Figure 6. 21: School gate Figure 6. 22: Control room Figure 6. 23: CCTV camera

Figure 6.21 shows the gate that was used by learners and staff members to enter and exit the school. This was the front gate of the school. The second picture displays the control room for security, which was just next to the gate, as the security had to control access to the school. This room was very small, meant for one or two security guards. The third picture reveals a CCTV camera that was installed in the corner of the block of classes. This CCTV camera was fitted outside to monitor the perimeter of the school premises. Researchers had this to say about these pictures:

The school gate is always locked. All learners are safe inside the school, and they are relaxed as they learn. They don't think of being harassed and put to danger as it happens in other schools (P6); the security officers use the security room to increase safety in the school. If the school is safe, learners and teachers perform their work freely and they produce good results (P2); CCTV cameras are put in all the classes to monitor attendance of learners and teachers. Teachers who frequently not attend classes can be traced and learners who are absent. Poor attendance has proved to be the contributing factor towards poor academic performance (P6).

The gate – which was always locked, except when learners entered the school in the morning and when they leave in the afternoon – possibly gave learners a sense of safety. Feeling safe is important for learners to relax and concentrate in class. The availability of security guards and a CCTV camera at the school added to the perceptions of safety. Participants mentioned how feeling unsafe and burglaries could

negatively impact teaching and learning. This is in line with Senge (2006) who considers the leadership role of school principals as a key element in setting the direction and ensuring the conditions for fully achieving the assumed goals of an organisation (§ 4.4).

Researchers indicated the availability of an assembly point that was used for emergency evacuations:



Figure 6. 24: Emergency assembly area

The figure above displays an emergency assembly area at the back of a block of classrooms. The board has arrows and a sign -emergency assembly point. This is what we had to say about the emergency assembly point and assembly:

Safety is guaranteed at school. We all know that in times of emergency we run to the assembly point in. In the assembly area we hold our assembly every Monday, the word of God is shared, and we start the week motivated and inspired to work even harder. The school is in the process of putting shelter on top (P10); the assembly area is used for events such as memorial services and entertainment which help them to connect with each other and the school. The area is indicated with a sign and all learners know that it is the assembly point in cases of danger (P9); learners receive spiritual upliftment which make them

to be grounded and disciplined and perform good in class. Learners gather together on emergency cases such as fire (P12).

Another safety measure in addition to the above-mentioned was the availability of an assembly point. Participants mentioned the different uses of the assembly point, including during emergencies. The availability of a location that had been designated as an emergency assembly area can be applauded. Having an emergency assembly area is a prerequisite for emergency preparedness.

The other assembly area was used for prayers, motivation, entertainment, and memorials. The Department of Education (2008) addresses aspects of safety and security of schools by presenting regulations for safety measures at public schools and giving directives relating to ensuring safety in schools (§ 2.2.2).

One researcher also mentioned the importance of safety of teachers' cars. The following photo bears witness to this.



Figure 6. 25: Teachers' cars at school

The figure above shows several cars that were parked outside. There was no shelter or shade, as the trees could be seen in the background but nearer to the cars. One researcher had this to say about the picture:

We know that our cars are always under the shade. If you do not want to use the car ports, there are big, beautiful trees under which we park our cars. We know that our cars are safe. We teach with relaxed minds knowing that our cars are safe. We hear that in some of the schools, cars are stolen during working hours. In ours it has never happened (P8).

Teachers' cars are their possession, which they value and love. Having a car makes it possible for them to arrive to school on time and start with their duties without stress. Feelings of safety of their cars can contribute to their effectiveness in their teaching, as their attention would not be divided because of fear that bad things would happen to their cars. Teachers would feel appreciated if their cars had shelter and were safe. It is important that the principal develops and maintains a shared vision to appreciate every human resource in the school – teachers, the SMT, and learners. This is supported by Senge (2006), who states that when a leader pays attention to the feelings and interests of their employees, employees show high levels of energy and commitment to their leaders and thus are more likely to pay back by contributing positively to team learning (§ 4.3.1.1).

6.4.3 Factors that deter academic performance

The following were mentioned as factors that inhibited academic performance: broken facilities; dirty toilets; lack of resources; and littering. These factors are presented in the subsubsections below.

6.4.3.1 Broken facilities

The facilities that were indicated as broken included windowpanes in classrooms and furniture, as indicated in the figures below. Broken furniture is regarded as bad because learners can use it to play and fight. Old furniture did not look good, as it was piles up behind the school. In some cases, this furniture could be repairable. The following pictures depict the state of broken furniture and windows:



Figure 6. 26: Broken tables and chairs



Figure 6. 27: Broken windows in classrooms

The first picture shows broken tables and orange plastic chairs outside at the back of a building. Some chairs were piled up against a tree behind the building. The second picture shows a three-storey building with blocks of classrooms. At the back of the building, broken windows can be seen. Below are the utterances of the participants on broken facilities.

It is difficult to concentrate when you feel cold. Learners freeze in winter which leads to them catching flu, absenteeism and poor levels (P6); windows are welded and do not open. When it is very hot in summer learners can't open windows and it becomes stuffy and very hot in classes. These conditions make teaching and learning difficult and affect learners' performance (P1); imagine in winter when learners are in a class without a door. It becomes cold, they cannot concentrate and they fail (P5); when it is windy or cold learners suffer a lot, the school repairs them every year but still learners break them or sometimes wind when left open after school (P7); in winter the classes become cold and some learners get sick, absent themselves from school and get bad results (P10); when it is cold we suffer a lot and lose concentration when teachers teach (P11); through lack of discipline learners break windows literally and intentionally but sometimes windows are left open after school and wind breaks them. Rain enters the classrooms, and it is cold in winter. Learners easily catch cold and can't focus in class if it is very cold, freezing (P13).

Participants alluded to the negative impact of broken windows on teaching and learning. They indicated that learners could not concentrate in class when they felt cold. These conditions also impacted on their health. It is extremely difficult for learners to concentrate in a cold windowless classroom in winter (Wolhuter & Russo, 2013) (§ 2.3.1.1). Principals are team leaders and managers, The management role affords them the ability to avail human resources, or the facilities and infrastructure needed by the school (Mulyasa, 2016) (§ 4.4.3); by so doing, they act as effective mobilisers.

Many participants attested to the negative impact that broken windows could have on teaching and learning. Although most participants associate broken windows with lack of concentration, some acknowledged the effect on the health of learners. The latter leads to absenteeism, which is not good for academic performance.

Researchers also indicated the negative impact of having broken furniture lying around in the school. This is what they said:

Broken furniture that lie outside the classes and look very untidy and bad (P1); These conditions can be corrected, the school must have a place where broken furniture is stored to avoid causing danger to learners (P1); broken furniture is scattered all over the place. There is shortage of furniture as the one that is broken is not fixed. Learners fight for chairs and desks. This situation affects their results a lot (P9); the broken doors and furniture can be of danger to learners because there are learners who like to fight and who can use the broken chairs, tables or doors to fight. When fights break up schooling is disrupted. A lot of time can be spent solving these problems which can lead to a drop in academic performance (P10).

It seemed that the broken furniture at the school was not properly disposed of. The fear of the participants on this matter was on lack of safety which could lead to disruption of classes. Fights are not rare in high schools, especially in schools located in townships. Participants indicated the possibility of using broken furniture as weapons. Weapons are not allowed in schools; however, if learners can use furniture as weapons, this could contribute to violence. The Department of Education (2008) addresses aspects of safety and security of learning institutions by giving directives relating to dangerous objects on school premises to indicate that the safety of teachers and learners in a school is of paramount importance (§ 2.2.2). Although the participants indicated that the school take precautionary measures to ensure safety, it seems that there are some aspects of safety that are neglected. This situation is not favourable for effective teaching and learning. Such a situation contradicts

Chenoweth's (2010) statement that speaks of principals who support learners in the learning environment and then create environments that support learning for all (§ 4.4.2)

6.4.3.2 Dirty toilets and lack of sanitation facilities

Dirty toilets that were not maintained were indicated as a hindrance to academic performance. The toilets were reportedly in a bad state, without toilet facilities. The figures below provide proof of this.



Figure 6. 28: Dirty toilet falling ceiling board



Figure 6. 29: Toilet with broken ceiling

The first picture shows a flushing toilet, as it has a cistern. The floor is dark and dirty; the dirt could be seen on the white tiles nearer to the floor. There were writings on the white door. The second picture shows the top part of a toilet that had a broken ceiling. Researchers had the following to say about the toilets:

The toilets have falling ceiling boards, dirty floors and written walls. They are not safe because a piece of ceiling can fall over a learner and cause disaster (P5); the toilets are dirty and smelly, they are terrible, the seats are falling. There is no privacy as there are no doors in some toilets. Girl learners also decide not to come to school when they menstruate. Missing classes result in bad performance (P11); sanitation is very important in schools. Toilets for learners do not have toilet paper. Some learners cannot afford to buy or bring toilet paper

to school, at their homes they use papers which they cannot bring at school. This condition makes learners to be absent when they have stomach problems (P6); all the toilets have no toilet paper, soap or warm water. Learners bring their own. You feel bad for learners who come from underprivileged families. Hard papers block the toilets and cause more problems. Once blocked toilets smell which is unhealthy and may cause sickness (P9); some toilets work but have no water and toilet paper. The closure of toilets causes stampede in other toilets. Learners wait in the que for a long time which disturbs class attendance, teaching and learning and performance (P12).

Participants believed that the terrible state of the toilets and lack of sanitation had a direct impact on teaching and learning. It reportedly affected class attendance. Lack of privacy and unfriendly bathroom facilities can make it difficult for girls to attend school. Absenteeism, going home early, and poor class attendance negatively affect performance, while healthy lifestyles create healthy minds. Subrahmanyam (2016) believes that frequent absence from school leads to poor performance and failure (§ 3.3.1). A dysfunctional context undermines the efforts of ensuring that effective teaching and learning takes place and reduces learner achievement. This is confirmed by the organisational theory, in that a bad school organisational context promotes absenteeism on the part of teachers, and this leads to non-completion of the syllabus and poor learner performance (§ 4.2.3).

In the paragraphs above, researchers alluded to toilets that were clean with running water and bathroom facilities. It seems that there was inconsistency and contradictions regarding the issue of toilets. This could be attributed to selective reporting where some would prefer to portray positive factors, possibly to suppress negative factors of the same issue. What is interesting is that the researchers who reported on the issue of toilets provided evidence in the form of photos. It may be concluded that in the same school, there were toilets that were clean, while others were neglected.

6.4.3.3 Lack or shortage of resources

The facilities that were indicated as scarce were water taps and car shelters. The figure below shows one of the two taps that all learners in the school used to drink from and wash hands.



Figure 6. 30: Water tap

The picture above shows a tap outside, at the back of a building. The pipe for the tap was against a brick wall. This is what the researchers said about the tap:

... the taps don't have drains; it is difficult to access water because shoes become wet. Learners are only allowed to go to the taps during breaks and after school. The water issue disturbs us mentally (P10); the taps have clean water but there are no proper drains. Water flows all over the place. There is mud next to the tap, you struggle when you need water. Water is important and learners need to drink water especially during summer (P6); the tap is very short and difficulty to use. Some learners take water from the kitchen or staffroom, but this is not allowed (P9); the school has only two taps with an enrolment of more than one thousand seven hundred learners (P12).

Learners need water, especially in summer, but it becomes difficult for them to access taps because of lack of a proper drainage system. Nahvi et al. (2018) confirm that it is

important to maintain a proper drainage system, because healthy living is guaranteed if good drainage is properly managed (§ 2.2.2). The shortage of taps in the school also added to the problem of access to water. Water is important in a school for learners to drink and wash their hands. Without water, the health of learners is compromised. SASA (1996a) indicates that schools must have sufficient water supply for drinking, personal hygiene and for food preparation and must have water collection points and facilities that allow convenient access (§ 2.2.2). Lack of focus on provision of basic needs such as water taps is a gross oversight of the school managers. It is also a situation that reveals a negative mental model. The managers might be thinking that adding taps is the responsibility of the Department of Education. However, a positive mental model would pay attention to how one can make the system work by detecting anomalies (§ 4.3.5.1). Such mental models need to change for the school to function effectively.

Researchers also attested to lack of parking space for their cars, as indicated in the figure below.



Figure 6. 31: Parking ground

The picture above shows several cars parked outside. Others are parked under a tree. The researchers mentioned the following about the picture:

The school is having a very limited parking space for cars. Most teachers park their cars under the trees or direct on the sun. The situation creates anger among the teachers, and they fight over parking space. You do not teach to

your best ability if your personal stuff like your car is not well looked after and bask in the sun (P2); only the SMT and some of the senior staff teachers have parking space allocated to them. Visitors and departmental officials park under the trees and the entrance driveway is small, this can cause accidents during morning rush (P8).

As the parking space was very limited, it affected teachers whose cars were parked in areas that were not designated for parking. The participants indicated that the lack of parking affected their teaching, as they would be worried about their cars that were in the sun the whole day everyday instead of focusing on teaching learners. Another challenge was that the situation caused conflict among teachers. Conflict about parking space may strain relationships and spill over to teaching and learning situations. The aim of health-promoting schools is to achieve healthy lifestyles for the whole school population through developing supportive environments that are conducive to promoting health and effective learning (Kwatubana, 2018) (§ 2.4.1). Teachers work in teams; it becomes important that they have good relationships. The theory of learning organisations indicate that positive working relations can lead to greater teamwork (§ 4.3.4).

It is important to safeguard relationships in a school. This issue does not concern instruction; however, it may affect instruction if it is not attended to. Moreover, in the foregoing paragraphs, researchers regarded the lack of parking as a safety issue. In different terms, inclusive leadership is not only concerned with instruction but is characterised by continuous support to followers, open communication, helping, and showing concern for others' interests (Carmeli et al., 2010; Hollander, 2009) (§ 4.3.4.1)

Some participants mentioned problems regarding mobile classes. As much as they were earlier indicated as useful to curb overcrowding of classrooms, they were also highlighted as creating challenges, as indicated below:



Figure 6. 32: Mobile classroom

Figure 6.32 above shows a prefabricated white mobile class erected next to a block of brick-and-mortar classrooms. The mobile class had three windows at the back, which seemed to be smaller than those of the classroom building next to it. This is what the researchers had to say about the mobile class:

The mobile classes are very hot. The windows are not as big as classrooms made of brick and mortar, the air is not enough. Learners become tired and sleepy especially after break. Their participation become limited because of heat that can affect performance (P5); teachers also attest to the environment that is not conducive for teaching in the mobile classes (P1); the mobile classrooms are useful for space purposes but not at all conducive for teaching and learning. They are hot and stuffy; learners just sleep and fail to focus. Learners in better classrooms are privileged and can perform better (P6).

The mobile classes are a temporary solution for schools. As indicated earlier, they are supplied by the Department of Education to curb overcrowding and make sure that learners are at least taught while other plans are implemented. The participants' complaints about these classrooms were on their negative impact on teaching and learning which was caused by lack of ventilation and heat. Lack of concentration and fatigue were attributed to these two aspects. Learners who do not concentrate in class cannot perform well in their studies. Van Wyk and Van Der Westhuizen (2015) also believes that overcrowded classrooms contribute to a poor learning environment because of the lack of space and fresh air, which could lead to a lack of attention and

even create stress in learners (§ 2.3.1.1). To curb the situation, Hallinger (2020) suggests strong organisational managers that should be effective in supporting staff by allocating budgets and resources, to maintain positive working and learning environments (§ 4.4.2).

Researchers also attested to the unavailability of a food garden. Their concern was for learners who came from food-insecure backgrounds. The figure below was presented to show a space that could be utilised for vegetable produce.



Figure 6. 33: Food garden space

The picture above shows an open field at the back of the school. This area seemed to be neglected, as the grass had grown wild. It is a wide area that has the potential to be turned into a vegetable garden. Researchers said the following about the field:

There is an empty space that can be used for planting vegies. The school has learners whose socio-economic status is bad. They can benefit from the vegies planted at school. It is very difficult to teach learners who are hungry because they get food at school, but some don't have food in their homes (P3); many years back this empty space was used as a garden. If it can be started again, learners from poor backgrounds can benefit a lot. When you are full you concentrate better in class and perform well (P4).

It is not rare to find food gardens in public schools in South Africa. In some instances, schools are assisted by the community to starting and maintain such gardens. The Department of Education encourages schools to have food gardens to supplement feeding schemes and to have fresh produce that poor learners can benefit from. In addition, Calamidas et al. (2020) affirm that vegetable gardens provide fresh produce to needy learners (§ 2.4.2.2.3). The field above presented an opportunity for the school to supplement food that was provided to learners and to provide them with fresh vegetables that were produced at their own school. As many benefits to food supply and nutrition are indicated in the literature, it is key for a school to pursue such initiatives. This calls for an inclusive leader who is open to hearing new ideas, is attentive to new opportunities to improve work processes, and is open to discuss desired goals and new ways to achieve them (Aboramadan et al., 2021) (§ 4.3.4.1).

6.4.3.4 Lack of waste management system

The lack of a waste management system was indicated by the researchers as one of the factors that worked against academic performance. They presented the following picture as proof.



Figure 6. 34: Dumping area

Figure 6.34 shows an area where waste was dumped. This area was at the back of the classrooms. Paper and waste were scattered on the ground. Researchers had this to say about dumping of waste:

At the back of the school, there is a large dumping place. The school has to build a proper dumping place where papers will not fly all over the place and which can be controlled and monitored. It does not look good, smells bad and that garbage kills the environment and affect the ecosystem (P6); there are places in the school that are left dirty because they are not at the front view of the school. These places give our school a bad image (P7); all the dirty places are at the back of the school and because they are not see[n] by everyone we forget to take action. This state is not good at all and hazardous to learners' health (P4); dumping areas like the one at the back, looks unhealthy, brings insects and bad smell. Dirt might cause infections to learners; it creates an environment that demotivates learners and teachers and I don't care attitude (P9).

Although the school was clean and inviting from the front, it seemed that the back was neglected due to the lack of a waste management system. Cleanliness and hygiene can be promoted in class and in the school environment regardless of location (WHO, 2018) (§ 2.2.2). Unclean surroundings are said to have a negative impact on learners' health and motivation. Lewin (2009) mentions poor health and lack of motivation as emerging from unconducive places at school (§ 3.3.1). Change processes need to be adopted to turn the situation around, Waste management is a challenge for schools. There is a need to understand its importance in a school and how it can be done. In such situations, team learning becomes imperative. In team learning members share ideas. learn together to deal with the malaise of their organisation (§ 4.3,4).

6.4.4 Role of the principal in promoting healthy school physical environments

Below are the results of the research conducted by means of individual face-to-face interviews with six participants, which were all members of the SMT. The six members comprised of the principal, two deputy principals, and three HoDs. The profiles of these participants were presented in table 6.1. As indicated in the previous chapter, not all

participants participated in the individual interviews due to the nature of data that were gathered in this phase.

The interview data yielded four themes: how participants understood promotion of healthy physical environments; perceptions on how physical environments affect academic performance of learners and the benefits for the school; the role of principals; the challenges that the principal is faced with when playing the role; and the strategies employed for mitigating challenges.

6.4.5 Role of the principal in the promotion of healthy school environments

Participants were responding to the question: what is the principal's role in the promoting HSE? Participants reported several roles and responsibilities that principals should play to ensure that healthy school environments are promoted and sustained.

The first entails establishment of committees that focus on school health promotion:

The principal has to establish an environment committee and assign heads of committees (P2); each committee must have a policy that is functional and not a paper with a set of rules (P14); helps in drawing of the policy and the year plan (P5); the committee has an action plan, names of teachers who are members for accountability (P14); the principal work closely with the SBST and the environment committee to promote the importance of looking after school resources and gardens (P15).

Participants saw the need for the principal to start committees and place leaders. Each committee should have a clear functional policy, not a paper with rules. The principal should help committees to design policies and a year plan. This should include a necessary action plan, and names of teachers who will be responsible for the tasks. The principal must work and guide the SBST and environment committees. This is a whole school approach that involves members of the school community. Setting up such structures facilitates the implementation of programmes which may lead to efficiency and effectiveness. The school principal sets an improvement goal by starting

committees and involving teachers and teacher leaders to collectively promote HSPE (Goddard et al., 2015) (§ 3.5.2). In committees, teachers work in teams. In these teams, teachers learn from each other and work collaboratively towards a common goal. Team learning implies the continual enhancing of collective capacities and the improving of team effectiveness (Senge, 2009). In teams there is a team leader who must give guidance and direction on how strategies have to be implemented. In this study the participants regard the principal as a team leader. In innovations such as SHP the principal and teachers become change agents. A change agent is anyone who has the skill and power to stimulate, facilitate and coordinate the change effort (Lunenburg, 2010) (§ 4.4.1).

The second role entails supporting the committees, teachers and initiatives that are meant to promote a healthy environment.

He has to appreciate whatever good gesture put by teachers to motivate and encourage them to do more, recognise the teachers' efforts and their co-operation in activities (P13); support them to perform to their potential (P14); making decisions on hiring people who clean the toilets (P5); draws budget for maintenance plan (P2); provides physical and financial recourses like equipment and pays for school facilities maintenance (P2); provide finances for the promotion of HSPS, be part of each and every committee, know what happens in each committee including the environmental and beautification committee (P13); provides equipment needed (P5); appreciation plays a big role in motivation, appreciate the good work done by teachers, learners parents and community members (P14); support the teachers' ideas which makes them trust him more (P16).

The principal must praise all the good work done by teachers. The principal must also support, encourage and recognise teachers' efforts and co-operation. The principal should allow teachers to make suggestions. The principal should budget and allocate finances appropriately. Moreover, the principal, as part of all committees, should know everything happening in the committees. Principals in South African schools must pay

attention to nurturing collaborative relationships, supporting school programmes and promoting teacher professional development due to the dominant collective culture and policy request (DBE, 2021) (§ 3.5.2). In supporting committees and individual teachers that are part of them, the principal is also championing the vision of a healthy school environment. The principal fosters a shared vision to achieve the goals (Pawirosumarto et al., 2017) (§ 4.4.3). The leader must stay close to the team when cascading the vision as they are responsible for assessing the impact of the cascading process (§ 4.3.3.1)

The third role is about empowerment of teachers that are to champion the cause of health promotion:

If I empower members of the SMT and committee leaders, the school will run smoothly (P14); he inducts teachers on the maintenance of the physical environment and maintenance of the school facilities (P2); I tell committee leaders that healthy relationships, good communication skills and professionalism are key in running successful committees (P14); teachers can have skills to work with people and communication (P16).

The role of the principal is to empower the SMT and committee leaders to maintain school facilities so that the school is orderly. Participants emphasised healthy relationships, good communication skills and professionalism to run committees successfully. School principals plan to see their vision turn to reality by being good managers who know how to develop and empower subordinates to make decisions on their behalf (Setiawati et al., 2017) (§ 3.5.3). The visionary role of a principal may be accomplished through multiple strategies. It is for that reason that principals have to practice inclusive leadership which according to Korkmaz et al. (2022) is ethical, empowering, purposeful, and process-oriented (§ 4.3.4.1).

The fourth is about providing leadership:

It starts with me, I have to be a leader to bring change, like being approachable and earn respect (P14); a good leader transforms the school, teachers and learners will follow suit be exemplary (P16); the principal has to lead by example

by being involved in the health programmes (P13); the principal has to be part of planning (P5); a good communicator, problem solver in order to transform the school to a healthy one (P16).

The participants believed that leadership starts with the principal who should be exemplary the school community. The principal must be approachable. Transformation comes from a good leader, and teachers and learners follow. The principal must be involved in health programmes and be a problem-solver, a communicator, and a good planner to transform the school. A principal who applies transformational leadership may provide opportunity to their staff, teachers and learners to achieve more in whatever they do and grow the school to a new level (Rhodes et al., 2009) (§ 3.5.5). A school principal must model the behaviour that they want to see in others. A role model is an individual who displays certain behaviours or has achieved certain success that other people look up to and wish to imitate (Bush, 2018) (§ 4.4.4). Leaders with personal mastery can be able to model what they truly desire based on their vision for the school. These are leaders who concentrate all their efforts on developing their personal and professional skills and capabilities (Settaraming et al., 2012:7) (§ 4.3.1).

The sixth role pertains to the principal as a leader in collaborations with the community

Involving parents and community leaders is very important (P14); inviting the so-called known community leaders, make and have a good relationship with them (P14); the community watch and report any threatening actions, which happen after school and at night. They have my cell phone number (P14); the principal develops support system for vulnerable learners by building relationships with the community (P15); enforces involvement of parents, teachers and the community in the promotion of healthy environments (P16).

The principal should work with teachers, parents, the community and community leaders to promote HSPE. The community should love the school, trust the principal

and be guards afterhours. The principal should develop a support system and build relationships with the community. Krichesky and Murillo (2011) propose that during times of working for school improvement, it is important to develop collaborative work habits in which principals, teachers, parents, community leaders and learners reflect together about challenges and possible action plans to follow (§ 3.5.4). This role is aligned to vision strategy cascading and systems thinking. With regards to the former, principals build shared vision by using practices of co-orientation, formational communication and collaboration to empower stakeholders to contribute to the goals (Stoll & Kools, 2017) (§ 4.3.3.1). The latter pertains to their capability to identify systems and be able to mobilise them to the benefit of health initiatives in their schools. This has to do with capacity building.

The seventh role is monitoring health programmes

It is the role of the principal to monitor the execution of tasks and committees' schedules (P2); acts on reports given to him by the deputy principals, HOD's and teacher heads (P2); the systems make it easy for the principal to monitor implementation of decisions (P5).

Principals should monitor the implementation of activities. They should work hand in hand with their deputy principals, HoDs, and teachers. The systems allow the principal to monitor easily. Monitoring programmes strengthen reflective practice and enable the practitioner who is the principal and their management team to remove themselves from the proximity of being directly involved in the decision or action and to put their actions into a context that provides a fuller appreciation of all the circumstances that led to that decision or action (Baker et al., 2017) (§ 3.5.4). For schools as organisations to learn and react effectively in uncertain and dynamic environments, they should develop monitoring processes, strategies and structures that allow school-improvement processes (Chen-Levi et al., 2021) (§ 4.2.3). Monitoring enables reflective practices to occur. Reflective processes according to Fullan (2011), are linked to constant learning that allows the attitudes, values and beliefs of an institution to change

(§ 3.4.4). Without monitoring and reflection on decision-making and implementation, strong and effective schools cannot be realised.

6.4.5 Strategies to support involvement in the promotion of HSPE

The data presented in this section was gathered from participants responding to the question: what can be done to effectively promote healthy school physical environments for better learner academic performance? Researchers alluded to the fact that a clear strategy needs to be developed to ensure that health promotion was sustained.

Cleaning material is always available (P14); classes have dust bins with a green liner (P13); people responsible for keeping records of the cleaning material and equipment. The principal knows that he buys cleaning materials twice a year and two brooms for each class. He also buys garden equipment. Teachers don't run short of cleaning soap or polish (P13); the CCTV in the principal's office allows the principal to see everything around the school, including learners who bunk classes to do wrong things (P16).

There are four important points that are raised here: organising resources; providing support; having control and monitoring measures in place. All three of these tasks pertain to management processes. This research differentiates between managerial and leadership roles of a principal. Management means running the school along the desired educational policies. Managers adhere to procedures that are stipulated by the Department of Education. The managerial tasks according to Burhanuddin and Aspland (2016) are routine administrative procedures to improve the quality of teaching and learning (§ 4.4.2). Participants expect principals as managers to be playing this role for the promotion of healthy environments to be effective.

One researcher indicated using a strategy of learning from other schools:

We sometimes sit with the staff members and choose one top school from the internet then we watch and observe their surroundings, and how they do things

in keeping the school neat, clean and performing well. As much as this works it would be better if we visit the best schools and talk teachers about their experiences. We take notes on their best practices (P14).

The participant refers to capturing and sharing of best practices between schools. Schools can learn about effective efforts for addressing and dealing with issues in SHP. This can be helpful in avoiding repeating the same mistakes and being stuck in ineffective measures. This suggestion affirms that there is a necessity for collaborations across professional and institutional boundaries (Dassanayake et al., 2017) (§ 2.4.1). This suggestion acknowledges team learning as important in schools. In team learning, teams learn from others, exchange and share ideas (§.4.3.4).

Participants stated organising trips to relaxed environments where team strategies can be planned:

In 2020, we arranged a staff trip to Cape Town where we did planning for 2021, it was good to be in a relaxed environment after a year's hard work. The trips have to be scheduled each year (P5). Being away from the school and learners even if it for few days can help teachers to reflect and focus (P14).

The suggestion by the two participants is about allowing time and space for strategic planning and reflection. Both these factors are important in school health promotion. Without thorough planning programmes are doomed to fail. The same can be said about lack of reflection. Reflection plays a major role in modifying practices and motivation (Bonell et al., 2013) (§ 2.4.1). The strategic planning sessions can allow for mentoring, reflecting on practice and providing pointed feedback (§ 4.4.2). What is clear in this suggestion is the importance of planning and monitoring of school health programmes and communication about strategies.

Another strategy that was suggested is that of involving the school community in prize-giving functions:

In our yearly prize-giving functions, we invite community leaders that we work with and acknowledge their work in front of every one including parents and district officials (P14); the principal invites the community leaders who work with the school in functions like prize giving and parents' day (P16); the leaders are introduced and praised in front of the whole school which motivates other leaders and parents (P16); in order for this strategy to work the principal has to maintain good relationship with community members so that they participate in school activities (P2).

Another strategy to encourage staff and community is to invite all community leaders and acknowledge the good work of those who participate in school activities. This initiative can motivate and encourage other members of the community to engage in school activities. Principals should create a strong relationship with school neighbours for them to watch the school in return. Community structures who partner with schools play a key role in improving the health of learners and should be appreciated and cherished for their good work (ISHP, 2012) (§ 2.4.2.5). The strategy also creates an opportunity for collaboration with the community and maintaining good communication relationships (Horng & Loeb, 2010) (§ 4.4.2). This is just one of the strategies that can be used by the schools to garner support from communities.

6.4.6 Data from evaluation of action plans

The action plans that were developed in February 2020 and implemented from March to May 2021 and evaluated in June 2021. This study continued with PAR to assess the degree to which the implementation of the interventions adhered to the procedures originally decided on by the co-researchers. Prior to the development of intervention strategies, certain criteria and processes to set priorities were used. A process is a series of actions or steps taken to achieve a particular end (MacMillan Dictionary, 2002). The process followed was participatory and inclusive of all co-researchers, as they represented teachers, the SMT, the SGB and learners who were affected by or concerned with the issue of learner academic performance. Priority, according to

MacMillan Dictionary (2002), refers to something that is more important than other things and that needs to be done or dealt with first; this concept also refers to criteria as principles or standards by which something may be judged or decided. As mentioned in chapter 5, we came together as researchers to identify areas of concern or priority areas based on the findings on their investigations. This section reports on the evaluations of different projects that were implemented. Researchers did not wait until the end of the projects to evaluate them, although there were set dates for finalisation of evaluations. In the focus group sessions on feedback on the interventions, researchers drew conclusions about the usefulness of the problem-solving strategies.

A **formative evaluation** was used during the early stages of developing and implementing the interventions. The aim of the formative evaluation was to understand the need for the intervention, to define the intervention and to evaluate the feasibility of adopting a proposed intervention (Trochim & Donnelly, 2007). Three categories of needs were developed: those that would take a shorter time to implement; those that would take longer; and those that were perceived as the responsibility of the Department of Education (participants had no capacity to tackle these). The items that were regarded as detrimental to learner performance, which needed to be fixed, were divided into three classifications: those that were believed to have a negative impact on (a) buildings; (b) surroundings; and (c) each aspect of the school environment that was prioritised was assigned to responsible persons as well as the timeframe for completion of the responsibility assigned as indicated in § 5.3. Three criteria were used to examine the set of issues, namely: aspects that needed (1) maintenance through norms and standards (schools get funding from the Department for maintenance and school administration); (2) those that needed donations from business entities; as well as (3) those that could be addressed without funding.

6.4.6.1 Interventions focusing on factors that affect performance in buildings

We came up with five aspects that we prioritised and developed strategies to solve them, including repairing broken windows and painting the school. Both these aspects were addressed through the Norms and Standards fund, which is the money that is allocated to the school to run its daily expenses.

- ***Repairing broken windows***

The participants prioritised the repair of broken windowpanes, because the winter season (May, June, and July) was approaching, and both learners and teachers could be exposed to the extremely cold environment. Both these factors could deter learner academic performance, as indicated by participants (§ 6.4.2.1). Two co-researchers (P6 and P7) were tasked with the responsibility of repairing the broken windows using the Norms and Standards fund. The repairs were scheduled for March 2021, just before winter started. The counting of broken windows to be repaired was important in order for them to get a quotation for the repairs. There were 55 broken windows at the school, with an estimated cost of R68.00 for each window; the total cost was R3,740.00. The budget for this project was approved at the end of January, the project started towards the end of February in 2021. There were no delays; parents volunteered to fix the windows, and the project was finalised timeously as was planned.

The evaluation visit by the team of researchers took place on March 2021. The figure below bears evidence of the repairs:



Figure 6. 35: Repaired windows

The figure above portrays the windows of classes after the repair of windowpanes. Participants shared their views on the effects of this intervention on performance. Participants believed that *“the absenteeism rate experienced each year in winter will be curbed as the classroom will be warmer”*. Thus, participants believed the repaired windows would have a positive impact on teaching and learning. As literature indicates, it is extremely difficult for learners to concentrate in a cold, windowless classroom in winter (Wolhuter & Russo, 2013) (§ 2.3.1.1), hence Sommer (2010) believes that it is advisable to repair broken windows so that this problem fixed as soon as possible (§ 2.3.1.1).

- **Painting of the school**

The team of researchers prioritised the painting of the school for two reasons: to have a calming effect that improves learning; and to arouse enthusiasm. Co-researcher P2 was tasked with the responsibility of working with the SGB in planning to paint the school. The school bought painting equipment, such as buckets of paints, painting brushes, turpentine, etc. There was an agreement with the principal and the SGB that the school be painted in July during Mandela Day celebrations. This project plan linked well with the school’s itinerary on school improvement. On 18 May 2021, the painting was done and completed without paying for labour, as parents who were skilled in painting were invited to volunteer their expertise. The figure below attests to the fact that the school managed to paint the school.

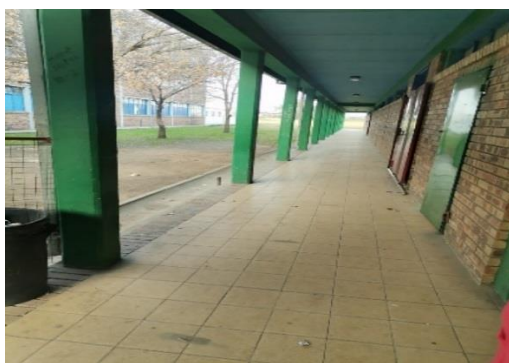


Figure 6. 36: Painted pillars



Figure 6. 37: Painted

The figures above display the school outside, with pillars painted in different colours. The school has pillars in the veranda in front of the classrooms. It is these pillars that the participants decided to paint as the building is made up of face brick which was not plastered. Students in each block were given an opportunity to choose the colours they would like to have in the pillars in front of their classrooms. After the painting was done the school looked clean and beautiful. Participants indicated that *“the freshly painted pillars make the school look inviting and sets a good impression”*. The painting of the pillars was used as a stimulus. Literature indicates that stimulus caused from the physical elements of a space affect peoples’ behaviour and attention (Duyan & Unver, 2016). It was believed that the freshly painted pillars will stimulate learners’ motivation for learning.

6.4.6.2 Interventions focusing on factors affecting performance in school surroundings

Four projects were planned that focused on the school surroundings and green spaces. Participants were unanimous on the effect of the surroundings and green spaces on mental health, which is key for better performance. Two of the projects could not be done without the assistance of the community, and the other two projects were done at school by learners and teachers. Learners built the cage in which they could store broken furniture.

- ***Building the cage for broken furniture***

The team of researchers prioritised the building of the cage for broken furniture for two main reasons: broken chairs and tables were strewn at the back of the school yard; the scattered broken furniture had a negative impact on the cleanliness efforts of the school community. Co-researcher P5 was tasked with the responsibility of building the cage for the broken furniture. The plan was to use the Norms and Standards fund, but after we had obtained extra money from donations, we changed our plans and decided to buy iron sheets for the cage, using the extra money from donations. The total cost

of the iron sheets, including other building material, was R7,230.00. The building of the cage was scheduled for 27 March to 04 April 2021, during the holidays. This time was planned to accommodate learners who were to help with the building of the cage. Grade 11 Civil Technology learners were chosen by the teacher for this activity. The Civil Technology teacher had to consider and apply all prerequisites according to OHSA (Act 85 of 1993). The application of OSHA pertaining to personal safety included: correct clothing; head protection; and eye and ear protection. The school had all the tools that were needed to build the cage. The project started in September 2019 and was concluded five days later than the expected time due to heavy rains. During the evaluation visit on 12 April 2021, the cage was finished and ready to store broken furniture. The figure below bears evidence of the cage storage:



Figure 6. 38: Cage for broken furniture

The figure above portrays the cage that was built for broken furniture. The evaluation of this project was based on two factors participants deemed as important: capacity of the cage; and security. Capacity was important in that participants wanted a storage that would last years before they should build another. It was also important to think of ways that would prevent the storage from filling up within a year or two. It was decided that the Grade 11 Civil Technology learners and their teacher fix the furniture that was not badly damaged so that it can be taken back to classes for use. The cleanliness of the surroundings' where broken furniture is neatly packed and stored was good for teaching and learning.

- **Maintenance of green spaces**

This project was not based on the data that were gathered by means of photovoice; instead, the focus group session, during which plans were developed, led participants to engage in an environmentally responsible manner. Participants reflected on the condition of the school surroundings at the beginning of each year and after school holidays when they would find the school surroundings in a mess, with very long grass. Based on the reflection, they prioritised maintenance of green spaces. The school should always maintain green spaces, with the aim of improving school learners' mental development and improving the beauty of the school. We discussed the matter and came to an agreement that after the school holidays of every term, the school should hire garden services who would maintain the school surroundings. This was a term maintenance plan that included mowing and hedging. P2 and P13 were selected to lead this project. The principal, the SGB and the SMT bought the idea which was put in place. They came with big tractors and enough manpower to clean the premises. The school used the Norms and Standard fund to hire the garden services, and it was agreed that this project would be budgeted for every year as from 2020. The team of researchers visited the school to evaluate the project in June 2021.



Figure 6. 39: Well-maintained lawns

The figure above portrays a lawn in front of the administration building. Although the grass is no longer green as the picture was taken in June at the start of Winter, the grass in the lawns is neat, it shows that the lawns are maintained.

- **Waste management on school premises**

We prioritised waste management on the school premises by indicating that it might be a health hazard and portray a bad image of the school, consequently demoralising learners and teachers. To curb the problem of littering on the school premises, we considered digging a dumping hole on the school premises. The hole would have been beneficial in terms of manure for the school garden, but we were advised not to do it because the hole would not be safe for learners. We decided to ask for a donation for dumpsters from local firms. Researchers that were responsible for this project approached three companies that were identified as potential donors. After two months after they submitted the requests to the companies, SASOL responded positively by agreeing to donate a dumpster. SASOL delivered the dumpster on 15 April 2021 and took upon itself to empty the dumpster once a week. The figure below attests to the fact that the school managed to get a dumpster.



Figure 6. 40: Dumpster donated by SASOL

The figure above shows a learner throwing papers into the dumpster. The principal made teachers aware of the dumpster and that learners had to be motivated to throw papers in it instead of littering. During the discussions, researchers mentioned that

one dumpster was not enough; there was a need to continue with this project even after the finalisation of the research. This initiative was also indicated as indirectly affecting academic performance, as it was linked to clean surroundings that were perceived as motivating. This confirmed by Ogbeba and Muluku (2013) who assert that hygiene and cleanliness in schools help to ensure a better learning environment for learners and healthier school buildings (§ 2.2.2).

- **Starting a vegetable garden**

We prioritised using the empty space behind the school to start a vegetable garden. The school vegetable would provide vegetables for needy learners and also be used in the National School Nutrition Programme. The vegetables would provide nutrition to vulnerable learners. P1 and P3 were selected to lead this project. I went with them to visit the Department of Agriculture to request for assistance. The representative from the Department of Agriculture informed us that they no longer gave out seeds or garden tools to schools. They only promised to provide training for people who would be directly involved in the garden project, which were one school gardener, two teachers from the Environment Committee, and one volunteer who resided in the neighbourhood. The two teachers were to work with the learners, draw up a programme of duties per grade and monitor their activities and the timing of garden visits, which were once per week for each class. The grades were to be scheduled for different days, Tuesdays and Thursdays. The volunteer was an unemployed man who had been part of other projects at the school. He could enter the school, even during school holidays. It was necessary to add more volunteers to ensure sustainability of the project. We consulted the EPWP office and made an agreement with them that every time, when necessary, we shall request some people for labour. The volunteer and the workers from EPWP were to work in the garden at list twice per week, on Mondays and Fridays. This arrangement reduced costs, as there was no need to pay for labour, and ensured regular maintenance of the garden.

The Department of Agriculture came on 10 October 2020 to train the team on how to start the garden and important things to consider before starting the garden. The

official from the Department advised that we had to apply for a borehole, which they erected free of charge. We applied for the borehole with the hope to get it soon. The project co-coordinators, P1 and P3, worked out the quotation for the seeds, plantlets, fertiliser and garden tools. The total cost was R2,600.00. The project started on 22 March 2021. This project was continuing at the time of the study, as there were plans in place to develop it.

Unlike other projects, the garden initiative demanded more time in terms of planning. Certain issues had to be considered: sustainability of the project; management after the finalisation of the research; and leadership of collaborations. We asked ourselves the following questions: Who would use the garden? How would learners be involved? Who would be responsible for scheduling meetings inside and outside the school, such as liaising with the official from the Department of Agriculture? The newly developed garden is shown in the figure below:



Figure 6. 41: Garden project



Figure 6. 42: Planted food garden

In evaluating the starting and processes of the garden project, researchers deliberated on several issues. First, the garden project included both community members and learners. Grades 9 and 10 learners were involved. These classes were to alternate in manning the garden. This group agreed on an abbreviated name, BaiT – which stands for “Baithaopi” – which is a South Sotho word for volunteers. The involvement of learners in these grades was strategic; the idea was to make them feel important to

raise their motivation about schooling for them to improve academically, as scholars assert that school gardens enhance academic performance (Devereux et al., 2018) (§ 2.4.2.2.1). This was a great opportunity for both teachers and learners to learn together, how to start a vegetable garden, which plants should be planted in each season of the year and how to grow healthy crops. In that case collective knowledge can be generated. “Collective knowledge includes a shared idea of the situation and its risks, a shared idea of the team goal that follows from this situation, and a shared idea of how to act towards this goal together in an efficient manner” (Allen *et al.*, 2018:505) (§ 4.3.4).

Again, as in the case of littering, there was an opportunity to infuse knowledge and action in this project. It was assumed by the researchers that involving learners in these grades in a subject that would not be assessed, performed in a relaxed manner, would provide an opportunity for them to de-stress. This is corroborated by Bell et al. (2018) who believe that access to green space and being involved in nature activities improve the mental well-being of children and have restorative and relaxing properties, enabling escape from stressful situations (§ 2.3.2).

6.4.6.3 Intervention focusing on school safety

We prioritised arranging safety training for teachers and learners. The aim of prioritising safety was to protect learners, teachers, and all school employees. P8 and P9 were selected to lead this project.

- **School-safety training**

A nurse from the clinic was invited to train two teachers who served in the Safety Committee and one administrator/clerk. The administrator requested to be trained as a person who is first to be approached when accidents happen. It is the administrator’s responsibility to write incidences in the incidents register. The nurse trained them on basic first aid. The school had a sickroom and a health kit, but no teacher knew how

to use the equipment. The figure below depicts the topics for the training. The first-aid training session was presented in May 2021.



Figure 6. 43: Poster on first-aid training

The figure above shows a poster that I developed based on the training that was presented by a local nurse in the school. In the figure there are pictures based on safety tips for learners. The pictures are also a reminder of what the teachers should do in case where learners fall sick at school.

The last training that the two teachers and the administrator attended was in 2014, they needed a refresher course after all those years. The participants indicated that there was new information they received in the training. This information pertained to measures to deal with COVID-19. The washing of hands and informing learners about the dangers of COVID-19 were emphasised. The participants indicated that *"the training equipped us with skills that we need to assist learners"*. The participants were

also confident that they will be “*able to take care of learners who fall sick at school*”. Literature indicates that to ensure that teachers execute their role in school health promotion effectively, training and supervision of, and support for, health promotion staff are essential (§ 2.4.2.3).

In summary, the interventions focused on three aspects: cleanliness and environmental aesthetics, nutrition and safety. Most interventions were on cleanliness of the surroundings and environmental aesthetics. The building of the cage for storing broken furniture, waste management, maintenance of lawns, repair of broken windows and the painting of the pillars in different bright colours all speak to cleanliness, beauty, attractiveness, and appeal. Although the vegetable garden also contributes to the green spaces, it was intended to support the school nutrition programme, while the training on first aid was to equip teachers with skills to administer first aid to learners who are injured or sick. As alluded earlier, a plethora of research attest to the link between cleanliness of school surroundings and motivation for learning; environmental aesthetics and mood, mental health and relaxation; and feeling of safety and caring and mental health and relaxation. However, in this study the link between these aspects and academic performance was not tested as the focus was on developing the interventions. It would have taken longer to complete the study if the interventions were tested.

6.5 Conclusion

This chapter presented the results of data that were gathered using multiple data gathering strategies, as discussed in chapter 5. Three main themes were presented and discussed. Each of these themes had several sub-themes which inductively derived from the empirical data. Senge’s theory of learning organisations provided a grounding base for the analysis of results. The last section of this chapter elaborated on the data that were gathered during and after interventions had been implemented. The co-researchers were confident that they would support the initiatives in order to

sustain them for the benefit of the school and its community and specifically learner academic performance.

The lesson that the co-researchers learned from the evaluation of projects was that value was not limited to evaluating projects but that there were important evaluation variables they had to consider in their own efforts to study interventions delivered to the school – variables beyond the typical administrative criteria of concern. The study participants identified social connections, empowering relationships with staff, and enjoyment of activities as important evaluation criteria. The next chapter focuses on findings of the empirical research.

CHAPTER 7

DISCUSSION OF FINDINGS

7.1 Introduction

The purpose of this chapter is to discuss, interpret and describe the significance of the study findings considering what is already known about healthy school physical environments (HSPE) and academic performance. In this chapter, a new understanding of or fresh insights into the problem are also explained. The discussion connects with the introduction by way of the research questions posed in chapter 1. The primary research question and secondary questions are presented below:

What healthy physical school environment features can be used by the principals to improve the academic performance of learners?

The secondary questions were as follows:

- What does a healthy school physical environment entail?
- What do school principals regard as the essence of learner academic performance?
- What factors in the school physical environment deter academic performance of learners?
- What factors in the school physical environment enhance academic performance of learners?
- What leadership roles do school principals play in the promotion of healthy school environments for the enhancement of learner academic performance?
- How can a theory-based, empirically derived framework for principals to promote healthy school physical environments to enhance learner academic performance in schools be presented?

The following findings are based on the research questions above.

7.2 What a healthy school physical environment entails

The data to answer this question emerged from the interviews. The participants were asked what they understood about healthy school environments (§6.4.1). The finding reveals that a healthy school environment comprises different components of the environment pertaining to aesthetic surroundings, well-kept buildings, cleanliness of surroundings and buildings, and availability of playground, sports facilities and safety.

7.2.1 Environmental aesthetics and academic performance

The finding in this study is that an HSPE comprises environmental aesthetics, which include flowers, trees, green grass, and attractive features, such as a water pond. These aspects were indicated as making the surroundings beautiful and welcoming (§ 6.4.1.1). Beautiful features at a school create a welcoming atmosphere to passers-by. Such environments with green spaces may promote health and well-being of teachers and learners (§ 6.4.1.1). Participants mentioned several important factors about the school entrance, including that it was welcoming, neat, clean, and attractive (§ 6.4.1.1). Environmental aesthetics give an impression of a school and what it is about. If school surroundings are beautiful and welcoming, they may have an impact on positivity and learners' attitude towards learning and set a tone for learning. The research findings discussed below corroborate this study finding. The first two studies link green school grounds with health benefits, while the last two studies associate green spaces with academic performance.

Bell and Dymont (2008), in their research study in schools in Australia, explored the power and potential of green schoolgrounds to promote health and well-being and to be an integral element of multifaceted, school-based health promotion strategies. Specifically, they collated recent research to examine green school grounds as places where the interests of educators and children's health advocates can meet, inform and support one another. It was found that green school grounds can make a significant

contribution to multiple health objectives. Greening represents an opportunity for health-promoting schools to move beyond the traditional focus on health-related curriculum and to adopt an approach that addresses the physical and social school environment as well as the need for community participation in health promotion. Likewise, Derr and Rigolon (2016) conducted a study on participatory schoolyard design for health and well-being. This was a case study of a participatory planning and design process to expand nature play opportunities on a schoolyard in Colorado, USA. Interviews with professionals were used to identify themes, programmes and policies at municipal, state and international levels that promote children's informal play in urban green spaces. Findings indicate that informal play in nature is fundamental to children's health and well-being, providing physical, social and psychological benefits.

In a study that examined links between student performance and high school landscapes, Matsouka (2010) focused on all grades and 219 District of Columbia (DC) public schools. The study findings revealed that the physical environment, particularly natural features, could promote academic performance in a high school setting. In addition, large areas of landscape lacking natural features are negatively related to these same test scores and college plans. These featureless landscapes included large areas of campus lawns, athletic fields, and parking lots. Wu et al. (2014) linked student performance in Massachusetts elementary schools with the "greenness" of school surroundings using remote sensing. Overall, the study results supported a relationship between the "greenness" of the school area and school-wide academic performance.

The two studies above associate green spaces and environmental aesthetics with physical, emotional and psychological health. Many studies have highlighted the importance of health in academic performance. In fact, it is impossible for learners to learn well and perform at their best if their health is not improved. Such surroundings are, therefore, imperative for supporting teaching and learning. Although the last two studies were conducted in two different contexts – elementary and high schools – the

finding is similar in that it points to improved academic performance due to the availability of green spaces.

7.2.2 Clean classrooms and clean surroundings

In this study, it was revealed that clean classrooms and clean surroundings are conducive to learning. Learners and teachers become relaxed in a clean environment, and relaxation leads to better performance (§ 6.4.1.2). Clean conditions promote a healthy environment. As environmental aesthetics, cleanliness of a school is seen from the outside even before a person enters the school premises. This means that a person can get an impression and judgement on the school based on the cleanliness or filthiness of its surroundings. Moreover, keeping the school and its surroundings clean could be key to maintaining mental and physical well-being of the school community.

In a study conducted by Moon et al. (1999) on helping schools to become health-promoting environments, 71% of the respondents identified the main components of a healthy school as including a clean environment. A study by Bipath (2002) found that the cleanliness of schools is also an important aspect of school environments. No recent studies were found that link cleanliness of school surroundings to school health promotion. It seems that as much as the cleaning of schools is vitally important, it is underemphasized in recent research,

7.2.3 Availability and use of special buildings

In the current study, it was found that the availability of special buildings such as a kitchen and a sickroom, which are key to health promotion, supported academic performance. Participants confirmed the availability of resources such as a kitchen and a sickroom (§ 6.4.1.3). Such buildings allow for provision of special services to the school and learners. The availability and use of a kitchen ensure that learners get cooked food daily, while the sickroom is for learners who become ill at school.

The sickroom (or a sickbay) is often associated with a school-based health delivery facility. In the absence of such facilities at their school, learners are left without convenient, easily accessible healthcare services. Most schools in South Africa have sickrooms; however, the facilities are basic in that they only have beds for learners to rest when they are unwell or injured. The lack sickbay equipment and are under-resourced. The availability of a sickroom facility is important in addressing the health issues of learners. It is also an indication of preparedness for injuries and illnesses and readiness to address health issues.

The kitchen is used to prepare meals for learners at school, which is a component of a healthy school environment. In most schools, classrooms that are not used for teaching are converted to kitchen facilities – this means that schools do not have to make major changes to their infrastructure in order to have a kitchen facility. However, the absence of such a facility can prohibit healthy eating. Thus, the kitchen is as important as the meals. There should be a suitable room where meals are prepared, containing all necessary equipment that would enable food preparation and serving. There are learners who depend on such meals at school.

7.2.4 Availability of a playground and gym facilities

This study indicated that the availability of a playground and gym facilities contributed to an HSPE. The playground was indicated as well-maintained, with neatly cut green grass (§ 6.4.1.3). The availability of a playground can help learners to play and be active. A playground is linked to formal and informal physical activity in research. This means that, if it is available and user-friendly, learners can use it during their spare time to play.

Moreover, the availability of a playground provides learners with an opportunity to be physically active. Teachers have space to promote physical activity. Thus, the effective use of a playground can contribute to the health of learners. A study by Haug et al. (2010) on the characteristics of an outdoor school environment associated with

physical activity showed that outdoor facilities at secondary schools are associated with learners' daily physical activity participation during school breaks. Easy access to permanent sports facilities may motivate learners to make use of such facilities during breaks, thereby improving their fitness levels or as a means of recreation.

The permanent sports facilities in this research included gym equipment; no other sports facilities and equipment were mentioned by participants. In such a case, learners do not have options, as the equipment only caters for those who want to be physically fit. A study by Pule et al. (2014) attest to lack of sports facilities in schools in South Africa. Pule et al.'s findings indicated that children's participation in school sports was constrained by restricted sports participation opportunities and grossly inadequate sports facilities and equipment.

7.2.5 Safety as a healthy school environment issue

The findings showed that safety matters in academic performance. Participants in this study attested to safety measures that were taken at the school, such as having a school gate which is always locked and monitored, an assembly point with a visible sign used for emergency exits, and a locked electricity box and locked cabinet for gas cylinders used for cooking (§ 6.4.1.4). Participants mentioned that safety measures were adhered to at the school. It is important to note that the participants felt safe due to the safety measures that were taken by the school. The feeling of safety was associated with academic performance and well-being.

The finding on the school's obligation to ensure safety for the school community is corroborated by that of Nhlapo and Kwatubana (2021), who highlighted that all responsibility for health and safety of the school community lies with the school. Policies on school safety are clear as regards the responsibility of the school to safeguard the lives of the school community. By providing safety, the school is fulfilling its obligation of delivering an environment conducive to the provision of quality teaching and learning.

It is also important to note that feelings of unsafety affect mental health. For instance, Nijs et al. (2014) conducted a study on whether perceived school safety is related to mental health problems. Mental health problems were defined using the clinical cut-off of the self-reported Strengths and Difficulties Questionnaire. Findings indicated that, overall, participants perceived that school safety was a strong, simple and intuitive risk factor for mental health problems. It is important that teachers and learners feel safe in the school.

7.3 The essence of learner academic performance

Data on the essence of learner academic performance were gathered by means of photovoice guided by questions on factors that promote or deter academic performance in the physical school environment. It was found that academic performance is affected by physical school environment such as school buildings, school premises, availability of resources, availability of water and sanitation, and school safety. These aspects of the school physical environment can positively or negatively affect academic performance. Studies that support this finding are discussed in sections 7.4 and 7.5 below.

This revelation is important for education. Literature attributes factors that affect academic performance to those that are personal (internal) and external. External factors are associated with the socio-economic situation of the learner, family and peers. Regarding to factors related to school, relationships with teachers, teacher competency and school location are highlighted in many studies. Association of school physical environments with academic performance becomes imperative to design an accurate system based on the understanding of the factors that contribute to academic performance in school environments.

7.4 Factors that deter academic performance of learners in the school physical environment

It was found that some factors in the school's physical environment did not promote academic performance. Factors that deter the academic performance of learners are those that affect learning negatively, which make learners not to perform well and according to expectation. The aspects that supported this finding included buildings that were not conducive to teaching and learning, the unavailability of a vegetable garden, conditions that created conflict and a shortage of resources.

7.4.1 Buildings that were not conducive to effective teaching and learning

The findings show that infrastructure can affect academic performance. At the school under investigation, there were classrooms with broken windows and doors, mobile classes with no ventilation, doorless dirty toilets and a falling ceiling (§ 6.4.2.3) which were indicated as having a negative impact on the academic performance and health of learners. The negative impact on teaching and learning was attributed to lack of ventilation, heat and cold. In such learning environments, learners may lose focus, and their performance be negatively affected.

The finding in this research that poor infrastructure has a negative impact on academic performance is corroborated by many studies. Khumalo and Mji (2014), in a study conducted in South Africa, explored the views of Mathematics and Science school educators about the impact of poor infrastructure in their work environment. By infrastructure, the authors meant libraries, laboratories and classrooms. The results showed that educators painted a bleak picture regarding poor infrastructure provisioning and the proper functioning of their schools. Moreover, a study by Maxwell and Schechtman (2012) on the role of objective and perceived school building quality in student academic outcomes and self-perception was conducted in California. Public school students in two high schools and in three middle schools were interviewed about their school and their self-perception. A trained researcher assessed objective

school building quality. Academic performance was measured by classroom grades (GPA [grade point average]) and state-wide standardised test scores. The findings confirmed the relationship between school building quality and academic performance.

Even studies in which data were collected through a literature search corroborated the finding on infrastructure and academic performance in this study. A finding that poor buildings affect learner performance was also reported in a study by Ohakamike-Obeka (2016). This study was on school learning environment and student attitude and achievement in the English language. The finding indicated that dilapidated classrooms with cracked walls and leaking roofs contributed to a negative attitude among the learners and poor achievement in the English language. As in this study, poor ventilation was also found as having an impact on teaching and learning, which consequently affected academic performance, in a study by Fisk (2017). Fisk (2017) investigated a ventilation problem in schools through a literature review. Findings from the latter study showed that performance generally improved a few percent – to as much as 15% – with increased ventilation rate and lower CO₂ concentration.

7.4.2 Unavailability of a vegetable garden

It was revealed in this study that a food garden may contribute to academic performance; the absence of such a garden may negatively affect learner performance. In the participating school, there was no food garden. There was an empty space available at the schools which could be used to start a garden (§ 6.4.2.3). It is not rare to find food gardens at public schools in South Africa. In schools, there are needy learners; they attend school without food, which leads to them performing poorly academically. To curb the high rate of absenteeism, missing of classes, and lack of concentration in class, the Department of Education motivates schools to have food gardens to supplement the food that is supplied to them. In addition, poor learners receive fresh vegetables from the school garden to improve their nutrition; in this case, the food garden contributes to food security.

Studies conducted in South Africa have found that there are schools that do not have food gardens. Laurie et al. (2017) conducted a study on the assessment of food gardens as a nutritional tool in primary schools in South Africa with 10 purposively selected primary schools in each of the nine provinces (n=90). In this study, 66 (73%) schools had a food garden, whereas 24 (27%) did not have a food garden. Problems experienced with gardens were mostly lack of funds (59%), tools and infrastructure (47%), garden workers (53%) and technical support (50%). Not having a food garden that produces fruit and vegetables that can supplement a feeding scheme deprives learners of fresh, nutritious produce that is needed for healthy nutrition.

Learners are also deprived of an opportunity to develop certain skills when involved in garden projects in schools where there are no gardens. For instance, Bowker and Tearle (2007) in their study investigated the impact of the early stages of an international project, Gardens for Life (GfL), on children's perceptions of school gardening and on their learning. The project involved 67 schools in England, Kenya and India and focused on the growing of crops, recognising the importance of both the process and product of this activity in the different countries. Data gathering was supported by contextual observation, interviews and children's drawings to aid interpretation and understanding. The study showed a positive impact on learning and on the perceptions of children towards school gardening in all three countries.

Moreover, nature-based learning is regarded as important for academic performance. Camassoa and Jagannathanb (2018) conducted a study titled *Improving academic outcomes in poor urban schools through nature-based learning*. They used an experimental design – the pilot NtN programme in New Brunswick, NJ, was assessed in one elementary school for a period of four years. The evaluation revealed that NtN learners (n=18) consistently outperformed a control group (n=34) in mathematics and science, with the differences in science reaching statistical significance. Their findings showed that success emanates from a conscious effort to teach science and mathematics as an extension of ecological intelligence.

7.4.3 Conditions that create conflict

This study revealed that a certain aspect in the school environment was a source of conflict – a situation that may affect relationships and eventually, teaching and learning. Participants expressed that the lack of parking affected their teaching, as they would be worried about their cars that were in the sun all day, everyday instead of focusing on delivering subject content to learners. Another challenge was that the situation caused conflict among teachers (§ 6.4.2.3). Some conditions triggered conflict amongst teachers, which led to tension and negativity. The conflict in this research was triggered by lack of resources (parking space) which is needs-based. Angry teachers do not teach well, and learner performance becomes negatively affected.

In a study on the impact of conflict on the teaching–learning process in schools, Thapa (2015) found that when teachers work in a conflicting situation, they may lose professional motivation. This may be because their focus is on the source of conflict rather than on their professional duties. Shanka and Thuo (2017) conducted a study titled *Conflict management and resolution strategies between teachers and school leaders in primary schools of Wolaita Zone, Ethiopia*. The findings indicated that school leaders need to understand sources of conflicts and have mechanisms in place for staff to voice their concerns. The source of conflict in this study was interpersonal between teachers. If teachers must contend with this before they get to class, it may affect them emotionally and psychologically, and by the time they start with their duties, they are already distracted.

Lack of resources as a trigger for conflict in schools is supported by many authors. The research that found limited resources as a cause of conflict between teachers include that of Catana (2016), du Plessis and Cain (2017) and Isabu (2017).

7.4.4 Shortage of facilities (dumping space, storage, and water taps)

It was discovered in this study that lack of waste management, lack of storage for broken furniture and few taps could affect academic performance. Although the school was reported as clean and inviting in front, the back seemed to be neglected (§ 6.4.2.1). Waste management is a concern in schools. The participants in this study were perturbed about waste disposal, as waste was disposed of at the back of the school in an open space. The school where this research was conducted was large with an enrolment of more than 1 800 learners. Production of solid waste in such a school could be far more than in schools with a smaller number of learners.

Ampofo's (2020) study corroborates the finding of the current study. Ampofo's study focused on waste-disposal management practices in selected senior high schools within the Wa Municipality of Ghana. The purpose of the latter study was to examine waste-disposal management practices in three selected senior high schools in Ghana. The findings indicated that different kinds of solid wastes are generated in senior high schools within the Wa Municipality of the Upper West Region of Ghana. It was found that waste was disposed of in open spaces. The study further revealed that students, teachers and school management were worried about the waste disposal situation in senior high schools in the Wa Municipality.

The shortage of taps in the school also added to the problem of access to water (§ 6.4.2.3). Water is a necessity for drinking and hygiene purposes in schools. Learners spend most of their time in school; therefore, it is important that they have access to water. As the participating school was built long ago, it could happen that the two-water tap catered for fewer number of learners and as the enrolment increased, more water taps were not added.

The problem of shortage of water taps in schools is corroborated by a study conducted in Vhembe district of Limpopo. The study was conducted by Sibiya and Gumbo (2013) on the Knowledge, Attitude and Practices (KAP) Survey on water, sanitation and

hygiene in selected schools in Vhembe district. The study found that in all rural schools in the district, only one water tap was located at the centre of the school premises, which was not enough for the whole school community.

Akhihiero (2011) conducted a study titled “*effect of inadequate infrastructural facilities on academic performance of students of Oredo Local Government area of Edo State*”. The study was conducted in Nigeria. Educational facilities or school infrastructure are those material things that facilitate teaching and learning processes in schools. These include school buildings, equipment which include teaching aids, books, typewriters, computers science and laboratory equipment, etc. Findings indicate that no effective education will take place where there is no provision of school facilities for effective teaching and learning.

7.4.5 Lack of maintenance of facilities

This study also showed that there was lack of maintenance in the school. The reasons indicated included limited finances to run programmes and maintenance of facilities and limited support for health-promotion activities and facility maintenance provided by the district (§ 6.4.3). Lack of maintenance may lead to dilapidation of buildings. SGBs are mandated to focus on maintenance of school facilities. However, it seems that this important task is neglected in many schools.

Several studies attest to lack of maintenance in schools, of which some indicate that this affects academic performance. Mojela (2013) conducted a study on maintenance of public-school infrastructure in South African schools in the Gauteng Province. A questionnaire was designed to collect data from nine schools in the East Rand. This study found that there are several factors that lead to the state of dilapidation of public schools, including: insufficient maintenance funds; lack of clear national policies on the standard of public-school infrastructure; lack of ownership by teachers, learners and the community; no playgrounds for learners, etc.

Association between lack of maintenance and academic performance was confirmed by Audu et al.'s (2013) study on *Facilities provision and maintenance: necessity for effective teaching and learning in technical vocational education*. A literature review was conducted to collect data. The findings indicate availability and maintenance of school facilities would enhance teaching and learning and improve TVE students' academic performance and the acquisition of practical skills for gainful employment in industries or related organisations so that they could contribute to the development of their immediate society and the nation at large.

A dilapidating school that lacks maintenance may have depressed learners and may contribute to learners' lack of motivation to learn and attend classes. Although there are clear policies in South Africa regarding maintenance of buildings, there is a general lack of focus on this important task.

7.5 Factors that enhance academic performance of learners

In this study, several factors in the school physical environment were perceived to enhance academic performance. These factors contribute positively to learner academic performance. These factors were also called academic enhancers in this study. These enhancers included environmental aesthetics, a clean school and its surroundings, availability of special buildings, playground and sports facilities, and safety. These enhancers are discussed below.

7.5.1 Environmental aesthetics

It was revealed in this study that green grass, trees, flowers, and a water pond (§ 6.4.1.1) contributed to making the surroundings beautiful and welcoming. These beautiful surroundings were perceived as benefitting the school, teachers and learners by improving concentration among learners. The beautiful surroundings were said to be reducing stress. Concentration and reduced stress levels may contribute to academic performance.

Other studies also attest to the link between green spaces and academic performance. Browning and Rigolon (2019) investigated school green space and its impact on academic performance. They identified 13 peer-reviewed articles that examined associations between academic outcomes, types of green spaces, and distances in which green spaces were measured around schools. Their findings indicated that tree cover near schools, green window views, college preparatory exams and end-of-semester grades were the most promising indicators of a beneficial link between school green space and academic performance.

Kweona et al. (2017) focused on the link between school environments and student academic performance in the USA; they examined the relationship between green spaces, students' socio-economic factors and their academic performance by using spatial measurements in geographic information system (GIS). The study included 219 District of Columbia (DC) public schools. School environment measurements (land cover), school demographic data (number of students, student–teacher ratio, and free lunch enrolment) and school performance data (DC Comprehensive Student Assessment in Mathematics and Reading) were collected and georeferenced. GIS was used to integrate spatially dependent information on student and environmental factors with the land cover data. The findings from this study indicated that schools with more trees had a higher percentage of proficient or advanced scores in Mathematics and Reading standardised tests.

7.5.2 Cleanliness of the school and its surroundings

It was revealed in the current study that cleanliness of the school and its surroundings are associated with academic performance. Cleanliness of the school and its surroundings may reduce absenteeism, dropout and non-attendance of classes if they make learners love their school and be proud of it. Cleanliness motivates learners and has a positive impact on their academic performance.

This finding was corroborated by that of Ogbeba and Muluku (2013), who investigated the influence of a clean school environment and standard classroom size and facilities on students' achievement in Biology in Gwagwalada Area Council of Fct-Abuja. The sample consisted of 300 SS2 biology students from six senior secondary schools. Two research questions and two hypotheses were formulated to guide the study. The research questions were answered using the mean and standard deviation scores, while the hypotheses were tested at 0.05 significant level using a t-test. It was found that a clean school environment and standard classrooms and size significantly influenced students' achievement in Biology, $0.005 < 0.05$ and $0.001 < 0.05$, respectively.

A study conducted in South Africa by Uleanya (2020) explored the connection between cleanliness, security and the learning abilities of learners. In this study, an attempt was made to investigate the relationship between cleanliness in the classroom, the school environment, learners' habits and their academic performances. A qualitative method was adopted for the study, using purposive sampling of three rural and three urban schools in KwaZulu-Natal province of South Africa. The findings of the study suggest that cleanliness is a contributory factor that enhances the learning abilities of learners. Cleanliness, which is upheld more in urban high schools compared to rural-based high schools, contributes to boosting teaching and learning activities as well as the academic performances of learners.

7.5.3 Availability of special buildings

The finding in this study was that having special buildings in a school may benefit teachers and learners. The special buildings in this study included the library, kitchen, and the sick room. The availability of a library from which learners could borrow books to enrich their minds, find references and do assignments was important for an improved academic performance (§ 6.4.1.3). It is believed that if physical facilities are available and judiciously used to meet the needs of learners, this could invariably facilitate their interest in learning and lead to high performance.

The finding that special buildings play a role in academic performance is confirmed by Akomolafe and Adesua's (2016) study. Akomolafe and Adesua (2016) examined the relevance of physical facilities in enhancing the level of motivation and the academic performance of senior secondary school students in South-West Nigeria. By physical facilities, they meant to the school plant – that is, the school buildings, classroom, library, laboratories, and toilet facilities. The findings showed there was a significant relationship between physical facilities and students' level of motivation and academic performance. The availability and effective utilisation of school physical facilities play a significant role in enhancing students' academic performance, while inadequacy of such physical facilities could contribute to poor student academic performance.

As mentioned earlier, kitchens are important in schools that are beneficiaries of the School Nutrition Programme that is provided by the Department of Education to all schools that reside in poor communities. Some studies associate feeding schemes with improved academic performance. A study by Maijo (2018) conducted to assess the impact of a school feeding programme on pupils' academic performance in Mlunduzi ward, Tanzania, revealed that learners improved in an examination during the school feeding programme. Several other studies conducted across Africa also confirm the link between school feeding schemes and school attendance and multiple academic outcomes among socio-economically disadvantaged children (Bukari et al., 2022; Desalegn et al., 2021; Metwally, 2020).

7.5.4 Availability of playground and gym facilities

The finding in this study shows an association between availability of playgrounds and gym facilities and academic performance. Participants in this study mentioned having a well-kept playground (§ 6.4.1.3). Learners were allowed to do exercises using the gym machines. The more learners exercise, the better they perform in class (§ 6.4.1.3). Playgrounds and gyms provide physical and mental development and promote academic performance. The main benefit for learners in this school was the availability of built gym facilities which were accessible to them whenever they needed

to use them. Accessibility of built gym facilities may positively impact on learners' level of physical activity and academic performance.

The study of Bolarinwa (2020) supports this finding. Bolarinwa (2020) investigated the influence of sports on the academic performance of secondary school students in Ekiti State, Nigeria. A simple random sampling technique was used to select a total of 150 students. Furthermore, a self-structured closed-ended questionnaire was employed as research instrument. The findings indicated that sports influence the educational aspiration of secondary school students.

7.5.5 School safety as contributory factor

The study findings revealed that safety of the school community and their belongings contributes to academic performance. Participants indicated that safety measures were adhered to in the school. These safety precautions were associated with academic performance. Participants mentioned the availability of a security office, an assembly point, lights around the school, and that measures had been taken to safely lock electric boxes and a gas cylinder (§ 6.4.1.4). Teachers and learners relax when they know that their school is safe, and a relaxed mood in class and around the school improves concentration in teachers and learners and make them work towards their expectation. Being relaxed and having a sense of safety may lead to improved academic performance.

The link between school safety and academic performance is validated by Kutsyuruba et al. (2015) in their review of literature. They explored the relationship between school climate, school safety, student academic achievement and student well-being. The authors used technical reports that addressed the following aspects: (a) school climate as a social construct and its connection with school safety; (b) the conditions that contribute to an environment in which students feel safe; (c) the characteristics of particular groups of students who feel unsafe; and (d) the impact of a negative school environment on student achievement – ultimately, secondary school completion and

student well-being. The findings of this review suggested that positive school climate, a safe school environment and student well-being are significant and strongly interrelated antecedents of meeting students' academic, emotional and social needs. Another study by Graham et al. (2021) analysed safety actors associated with Mathematics achievement in South African schools. Secondary data analysis was used for the quantitative phase of the study. The sample consisted of 519 schools, 543 Mathematics and Science teachers and 20 829 learners. For the qualitative phase of said study, six principals and 12 Mathematics teachers were interviewed. The findings showed that participants believed that school safety concerns were associated with learners' mathematics achievement.

Masitsa (2011) examined the safety of teachers and learners in township secondary schools in the Free State province, South Africa. The study sample consisted of 396 teachers who were randomly selected from 44 township secondary schools across the province. The results of the analysis revealed that both teachers and learners were not safe in their schools, be it during or after school hours. Many studies in South Africa indicate that secondary schools are not safe. Such studies refute the finding of this study where participants indicated feeling safe in the school.

7.6 Roles school principals play in the promotion of healthy school environments to enhance academic performance of learners

The findings on the leadership roles of principals covered provision of leadership of school health promotion, collaborations and partnerships, and managerial roles. The findings indicate that the participants were aware of the roles of the principal in the promotion of healthy school physical environments. Role awareness is important, particularly in school health promotion, as it is difficult for principals to enact responsibilities and tasks if they are not aware of their functions.

Kwatubana et al. (2021) aimed to investigate how principals understood their role in school health promotion in South Africa. The authors conducted semi-structured

interviews with six school principals. Their findings indicated that despite the inability of schools in poor communities to implement effective school health programmes, the principals of the sampled schools were aware of their roles.

7.6.1 Leadership in school health promotion

Participants reported several roles and responsibilities that principals should play to ensure that healthy school environments are promoted and sustained. The first entails providing leadership; the second involves influencing staff members by means of communication and motivation; the third role entails role modelling; and the fourth creating a vision. The participants believed that leadership started with the principal (§ 6.4.3).

As regards providing leadership, it was revealed that principals led the promotion of healthy school environments in the school by focusing on vision-sharing (§ 6.4.1.4). Leadership is crucial to realising school improvement. Leadership in this sense means engaging by setting direction on how health promotion can be conducted in a school. Literature indicates that direction setting is key in school health promotion. One of the direction setting practices in school leadership, according to Sun and Leithwood (2015), is developing a shared vision and building goal consensus. Practices in vision sharing include identification, development and articulation of a shared vision that is appealing and inspiring to staff; and reaching consensus among the school community about a shared goal.

The study that supports this finding emphasises the importance of vision sharing. The purpose of the exploratory study that was conducted by Mclsaac et al. (2015) was to describe a provincial case study of HPS implementation using theoretical components identified in the literature. This was a collective case study approach using qualitative research methods. The results revealed that higher-level visioning and school-level leadership were critical in sustaining the adoption and implementation of HPS across schools and appeared to enable and integrate organisational processes – such as

distributed leadership and a collaborative school culture – to enhance HPS implementation at school level.

When influencing, the principal must constantly motivate staff members to work towards the set goals. Principals motivate their staff by praising all the good work done by teachers and by recognising their efforts. The principal must appreciate whatever good gesture made by teachers to motivate and encourage them to do more (§ 6.4.3). Motivation and appreciation can result in effectiveness in the implementation of health programmes. It is believed that the ways in which leadership tasks are enacted may be the most important when it comes to influencing what teachers do. There are numerous ways of influencing people, one of which is motivation and appreciation of teachers' efforts, which was found in this study.

A study was conducted by Cebeci and Çağanağa (2019) on the effects of motivation of school administrators on human resources management. These researchers employed a qualitative research method to sample 10 school administrators. Their findings indicated that increasing motivation had positive effects on relationships between administrators and employees and this led to willingness to work and productivity. Another study by Karslıa and Iskender (2009), which examined the effect of motivation provided by administration on the job satisfaction of teachers and their institutional commitment, revealed that administration motivated teachers positively and teachers were committed to the institution.

The principal must be a problem-solver and a communicator to transform the school (§ 6.4.3). Healthy relationships, good communication skills and professionalism to run committees successfully were emphasised. Communication is an important process in schools and the principal's roles indicated in this study involve the use of communication to develop shared meanings, the effective use of information, and creation and communication of visions so as to enhance academic performance. Habaci et al.'s (2013) study on effective communication in educational administration attests to the importance of communication. Data collected through a literature review

showed that communication has great value for humans in all areas of social life and that people who communicate effectively can convey their thoughts properly and thus create a more sophisticated life setting. A study by Brinia et al. (2022) revealed that the degree of teacher satisfaction from communication can determine its effectiveness.

With reference to role modelling, the principal should be exemplary and be involved in health programmes (§ 6.4.3). There is also a well-established consensus on the vital role of principals, both as active participant stakeholders in making health-promotion change in schools and their role in ensuring its sustainability. Teachers look up to the principal for guidance and motivation. Principals should be hands-on regarding the implementation of programmes and health behaviour and attitude. Supporting this finding, the study by Storey et al. (2016) showed that the principal must be an active member of the implementation team, not simply a passive supporter of other school-health champions.

7.6.2 Leadership in collaborations and partnerships

The second finding is that the principal should provide leadership in collaborations and partnerships. It was revealed that these collaborations are important for health promotion. The principal should take the lead in strengthening collaboration with the community, creating a support system and building sustainable relationships (§ 6.4.3).

Several studies support the importance of principals in providing leadership in collaborations for health promotion. This finding is confirmed by Kwatubana et al. (2021), who reported that grant support to forge strong partnerships between home and school is an important facet of effective health promotion. It is important to build partnerships with community members, especially in schools in disadvantaged communities where resources are scarce. A study by Mclsaac et al. (2015) showed that although school characteristics – like staff allocation, physical location and resources – are important, these barriers can be mitigated by building organisational capacity and establishing a supportive school community culture.

Moreover, in the study by Kwatubana et al. (2021), it was found that principals were aware of their role in networking and nurturing existing intersectoral collaborations, developing partnerships and networks in their communities. It is important to note that strengthening collaborations between schools and communities may provide much-needed support in terms of knowledge and understanding of health promotion in a school. In communities there are non-governmental organisations and community members that engage in health-related initiatives and campaigns who can advise schools on their initiatives. A study by McIsaac et al. (2015) on *Culture matters: a case of school health promotion in Canada* revealed that sustaining the positive effects of a health-promoting school would require continuous engagement and collaboration with multiple stakeholders to embed health promotion in school community norms.

7.6.3 Managerial role

The third finding regarding the roles of the principal involves their managerial role. Their managerial role included planning, organising, guiding and monitoring (§ 6.4.3).

In relation to planning, there was a plan in place to buy cleaning equipment such as brooms, feather dusters, mops, hard brooms, soap, polish, etc., for every class (§ 6.4.3). Good planning improves academic performance, because each activity has a due date and a responsible teacher who ensures accuracy in all the activities. Studies that confirm the importance of planning in school health promotion activities include that of Kremser (2011) on phases of school health promotion implementation through the lens of complexity theory. This was a case study of a school in Austria. Results showed four chronologically overlapping implementation phases (i.e., starting health promotion; deciding what to do; planning health promotion projects; doing health promotion) at different system levels. Planning is one of the implementation phases of school health initiatives. In the absence of planning, implementation can be haphazard and uncoordinated, which can result in ineffectiveness in application.

In respect of organising, the principal should set up structures and provide support to the set structures that are meant to promote healthy environments. Participants in this study saw the need for the principal to start committees, be committee leaders and to have a clear functional policy, not paper with rules (§ 6.4.3). It is the role of the principal to establish structures in school that help to promote a healthy school. The principal should do this by establishing committees that focus on school health promotion. Establishing a structure that would be responsible for health programmes is key in ensuring effectiveness of the implementation of initiatives. Cheung et al. (2017), in their study on barriers and facilitators to sustaining school health teams in coordinated school health programmes, also found that engaging staff who were committed and passionate about students' health and wellness was a critical facilitator of the school health team's success. Thus, it is important that principals are aware of the expertise and interests of their staff members so that they do not establish committees that are doomed to fail. Additionally, it is necessary to have existing cooperation structure and to be able to count on coordination within the team.

Furthermore, it is important for principals to set up committees to distribute leadership. School health promotion cannot be the sole responsibility of the principal. This finding is supported by Harris (2012), who conducted research on distributed leadership in schools and explored the implications arising from the model of leadership for those in formal leadership positions. The study drew upon a wide range of literature to explore available empirical evidence on distributed leadership and organisational outcomes. The findings from the study suggested that principals needed to relinquish power and authority; that there was an inevitable shift away from leadership as position to leadership as interaction; and that, principals would need to build a high degree of reciprocal trust to successfully negotiate the fault lines of formal and informal leadership practice. In this case, there is available evidence that highlights the potential of distributed leadership to make a difference to organisational change and improvement; the same can be expected in school health promotion.

The principal must support committees and members in the performance of tasks related to school health promotion. The principal must support, encourage and recognise committee members' efforts and co-operation (§ 6.4.3). Support from the principal encourages members and make them work harder and meet required standards in school health promotion. Provision of support may be associated with caring leadership, as teachers are not left to struggle on their own but are supported by the principal. Kwatubana (2018) conducted a study in South Africa titled *Caring principal leadership for the support of teachers leading committees for promotion of healthy school environments*. This study was conducted in schools in two provinces in South Africa with principals, SMT members and leaders of health committees. This qualitative study included two rural and two township schools. The research findings revealed signs of caring leadership in the actions and interactions of the principals and teachers, principals and community members, and principals and other external stakeholders. This research also highlighted an important element of support – that of interaction. That would mean that in order for principals to support teachers in their endeavours, they have to communicate with them in order to understand their support needs.

Another study that endorses the importance of support in the promotion of healthy environments is that of Larsen and Samdal (2008), who examined principals' role in implementing and sustaining a social skills programme that was widely disseminated in Norwegian primary schools. Principals from successful schools maintained a focus on the programme through giving feedback and supporting teachers, constantly reminding teachers of the need to continue with the programme, or familiarising new teachers with the programme. It is important to note that teachers need support for them to stay focused in the implementation of health programmes. Without a clear focus and motivation, programmes may fail and learners who are beneficiaries of such suffer.

The principal should also know and provide resources that are necessary to meet the target goal (§ 6.4.3). Activities become successful if all the resources are available, as

objectives can be met. The shortage of resources was indicated as having a negative impact on the academic performance of learners. It is important to note that the issue of provision of resources was indicated as a managerial role. A study conducted by Estrada et al. (2020) showed that lack of resources impedes the implementation of school health programmes and activities. It is, therefore, important for school principals to attend to this important matter for sustainability of implementation of health programmes.

In guiding, the principal must focus on professional development and empowerment of teachers. The role of the principal is to empower the SMT and committee leaders on the maintenance of facilities (§ 6.4.3). Empowerment sharpens skills; this may improve and develop confidence in teachers. Teachers are a key factor in school health promotion. A study by Young et al. (2013) indicated that the level and quality of the preparation of teachers to implement health promotion in teacher education were central to school health promotion. In addition, teachers should attend workshops to gain knowledge and understanding of school health promotion. The principal can facilitate such workshops so as to empower teachers.

Guiding also pertains to decision-making. As a manager, the principal should make decisions of the actions that must be taken in health promotion programmes (§ 6.4.3). Making decisions is one of the most important roles of a principal. Decision-making is the process resulting in a conscious selection between several alternative possibilities in order to achieve a desired state in a given environment (Robbins & Judge, 2012; Yukl, 2013). In school health promotion, principals have numerous decisions to make, such as the programmes that must be implemented, how they should be executed, who should be responsible, how they can be sustained, etc. It is in such decisions that principals can guide teachers in their tasks on health promotion.

In support of the above findings, Marume et al. (2016), in a study on decision-making in schools, found that decision-making was one of the basic elements of administrative behaviour, which means optimally choosing one alternative from various alternatives

available and this is essentially problem-solving in nature. As decision-making in its nature is complex, it may affect teachers and health programmes if principals do not devote their full attention to all the relevant information needed for optimal results. This notion is supported by Aboudahr (2018), who conducted a study on the effects of principals' decision-making styles on teachers' performance in selected secondary schools of Gharbia Governorate, Egypt. The study population consisted of 251 teachers, and a simple random sampling technique was used to select 100 teachers to participate. Findings revealed that principals' rational and intuitive decision-making styles had a moderate effect on teachers' performance, whereas avoidance decision-making style had minimal effect on teacher performance.

Concerning monitoring, it is the principal's role to monitor the implementation of all activities. The principal monitored the implementation of activities, and the systems allowed the principal to monitor easily (§ 6.4.3). The principal should monitor and evaluate if activities are done according to the policy and plan of action. Monitoring ensures quality and success. In support of this finding, Ndungu et al. (2015), in their study on the influence of monitoring and evaluation on effective teaching and learning in secondary schools in Githunguri district, found that monitoring and evaluation by principals were imperative for effective teaching and learning in secondary schools.

7.7 Strategies to promote healthy school environments

The first finding indicates that the principal should play the role of being a manager by organising resources; providing support; controlling and monitoring the promotion of healthy environments to be effective (§ 6.4.5).

Aziz et al. (2021) in a study titled: *managing health-promoting school for sustainability development*, confirm the finding of this study. The purpose of their study was to reveal the project of healthy school management in public junior high schools in Jambi. A qualitative naturalistic approach was used where observation, in-depth interviews, document studies, and focus group discussion were employed as data gathering techniques. Findings indicated that the management of the healthy school program

was preceded by formulating the vision, forming teamwork, implementing by concerning the health school standards and finally monitoring and empowering learners as school ambassadors.

The second finding indicates that capturing and sharing of best practices between schools can promote healthy school environment (§ 6.4.5). Schools can learn about effective efforts for addressing and dealing with issues in SHP (§ 6.4.5).

Validating this finding, the results of a study conducted by Khairuddin et al. (2020) on knowledge sharing among teachers revealed that sharing best practices can encourage teachers to communicate effectively as a community of practitioners.

The third finding shows that allowing time and space for strategic planning and reflection is a strategy that promotes healthy environments (§ 6.4.5).

Myende and Bhengu (2015) confirm the importance of strategic planning in school activities. They further emphasise eminence of strategic planning for continued school functionality. Schlebusch and Mokhatle (2016) in their study strategic planning as a management tool for school principals found that strategic planning ensures that the school is associated with the changing internal and external environment. Both studies highlight the significance of including the school management team members and the school governing body in the processes.

The finding on reflection and use of reflective practices in school health promotion is supported by Rowling and Samdall (2011). In their study titled: *filling the black box of implementation for health-promoting schools*, they accentuate reflective practice and dialogue as integral in achieving the whole school change that underpins health-promoting schools.

The fourth finding pertains to inviting community leaders and members and acknowledging the good work of those who participate in school activities (§ 6.4.5).

Many studies attest to the importance of community involvement in school health promotion. This attestation is not surprising as community engagement is indicated as one of the pillars of school health promotion by the World Health Organisation. Studies (McIsaac et al., 2017; van Dongen et al., 2019) indicate that sustaining the positive effects of HPS will require continuous engagement and collaboration with multiple stakeholders to embed health promotion into school community norms.

7.8 Conclusion

This chapter elaborated on the discussion of findings based on the research questions posed in chapter 1. This chapter established that many components make up a healthy school physical environment. Academic performance can be affected by the school physical environment. Thus, school physical environment may either enhance or deter the academic performance of learners. In this research, new enhancers and curtailers of learner academic performance were found. The principal is placed at the centre in ensuring that healthy school environments are promoted to enhance academic performance. The roles of school principals were regarded as multipronged when it comes to leadership as it relates to school health promotion inside and outside school premises. The next chapter presents a theory-based, empirically derived framework that was developed using the findings of this research and Senge's theory of learning organisations.

CHAPTER 8

THEORY-BASED FRAMEWORK FOR PRINCIPALS IN ENHANCING LEARNER ACADEMIC PERFORMANCE

8.1 Introduction

In the preceding chapter, I discussed the research findings based on the results presented in chapter 6. I start this chapter by revisiting the various models and frameworks developed by different researchers that address the issue of learner academic performance. The reasons advanced for taking this route were: 1) to learn lessons about learner academic performance from these models/frameworks; 2) to identify the approaches used by these researchers to addressing issues of academic performance that impact learners. Thereafter, I developed a theory-based framework that school principals can apply to enhance learner academic performance. This framework is empirically derived – thus, the findings of this study were drawn upon to develop the framework. Senge's theory of learning organisations was used to ground this research and provide a solid theoretical foundation for the framework.

Various authors, models and frameworks have been developed with the aim to address learner academic performance. For example, the Leadership Improvement for Student Achievement (LISA) theoretical framework (2007); Learning-Centered Leadership Framework (2006); and the Essential Supports Framework (2010). These models and frameworks approach academic performance from different perspectives. For example, some approach it from learners' or educators' perspective, while others approach it from the perspective of contexts. The following section discusses the frameworks and models on academic performance that have been developed to assist schools.

8.2 Discussion of academic performance frameworks and models

Numerous models and frameworks have been developed that aim to address the academic performance of learners in schools. Nevertheless, only three of these frameworks/models are discussed below. The following reasons are advanced for the selection of these frameworks:

- a) they are applicable in the secondary school context;
- b) they focus on the academic performance of learners;
- c) they focus on education leadership and management; and
- d) They contain valuable information that can be applied in the promotion of healthy school environments that can enhance learner academic performance.

It was important to identify functional elements of successful models before developing a framework for this research. I had to study existing interventions and analyse the critical features of each model that addressed the issue of academic performance. The evaluation of the frameworks was directed by the following: aspects or a combination of features that were used in the model; theories that guided the development of the model (the theory behind the change of identified conditions); the contexts for which the models were developed; and client characteristics. The model that is discussed below answers the question as to how a leadership framework, directly or indirectly, affects student achievement at the lower secondary level of education in seven European countries. Four frameworks are discussed: the Leadership Improvement for Student Achievement (LISA) theoretical framework; the Learning-Centered Leadership (LCL) framework; and the Essential Supports Framework (ESF).

8.2.1 The Leadership Improvement for Student Achievement (LISA) theoretical framework

The LISA theoretical framework was proposed by Pashiardis (2006). The overall purpose of LISA is to explore how school leadership, directly or indirectly, affects

student achievement at the lower secondary level of education. Leadership practices were used to formulate LISA.

The framework covers five leadership styles that school principals usually employ in their work in schools. In this study, a leader is someone who has the capacity to impact others and to change their conduct towards accomplishing a common objective using a specific style (Kaleem, 2016). The five leadership styles in this framework are as follows: (1) instructional; (2) structuring; (3) participative; (4) entrepreneurial; and (5) personnel development. Each leadership style consists of specific behaviours or practices that are likely to be exhibited by school principals. In the LISA framework, it is acknowledged that school leaders do not operate in a vacuum, but their actions greatly depend on their perceptions of the context in which they work, which is how they (principals) interpret the external environment and legal framework that relate to their practices. The context is divided into two main levels: (1) system-level variables, which include patterns of centralisation/decentralisation as well as patterns of evaluation and accountability arrangements in each individual country; and (2) school-level variables, which involve variables pertaining to the characteristics of the school as well as demographic information. To ensure learner academic performance, the framework proposes that school leadership has in all its school forms a great influence on school quality. School leaders have an indirect influence. These variables and leadership styles are discussed hereunder.

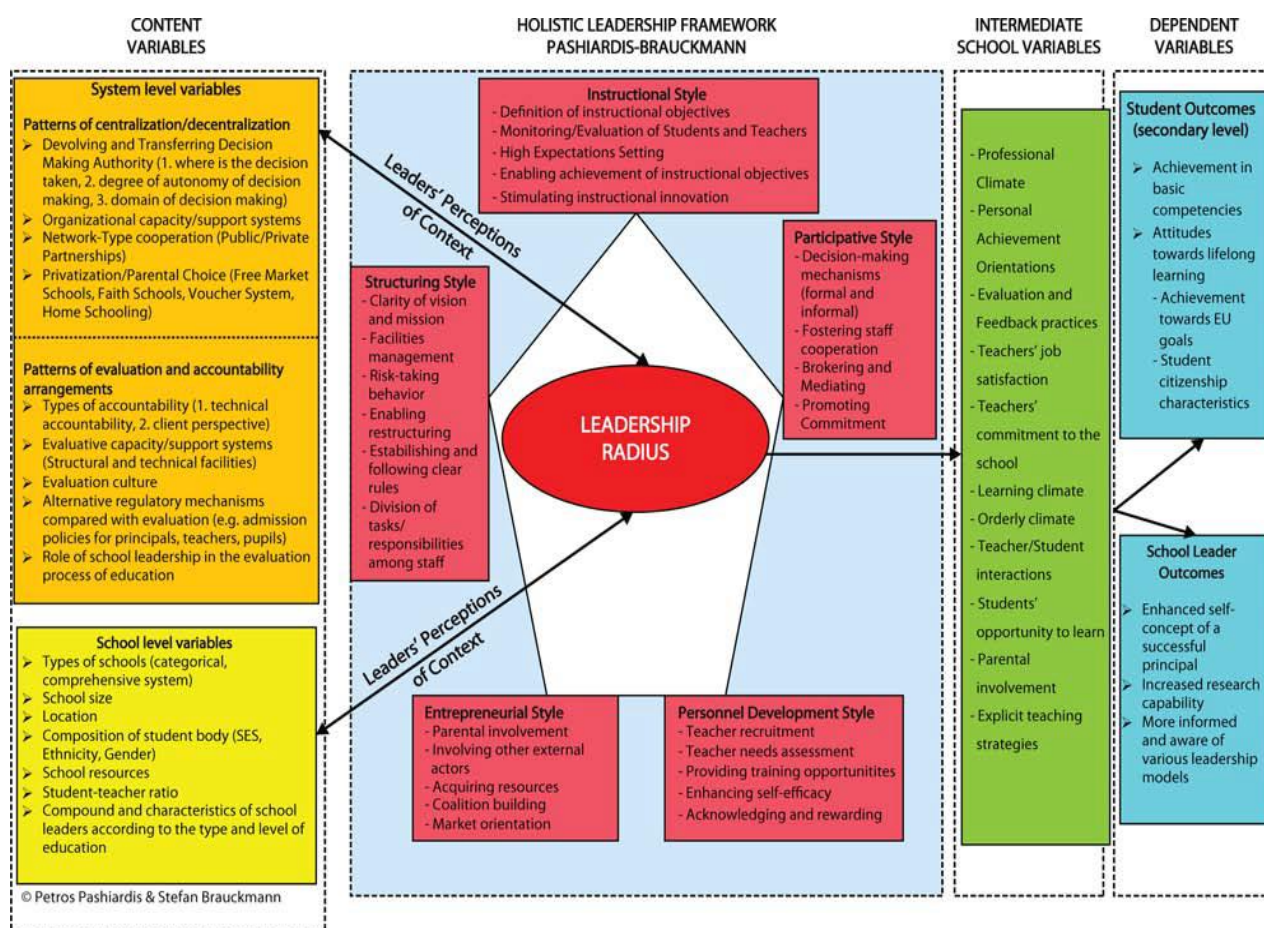


Figure 8. 1: The Leadership Improvement for Student Achievement framework

The framework presents in detail the dependent variables. These variables entail both student and school leader outcomes. With regards to Student outcomes focus on achievement in basic competences and on attitudes towards life-long learning and citizenship. They provide a brief description of each leadership style as conceptualised in the Pashiardis–Brauckmann framework.

- **Instructional style**

This leadership style has a strong focus on the improvement of the quality of teaching and learning. According to Hallinger (2005), school principals lead through building a learning mission, aligning teaching and learning activities with the defined purposes. In addition, effective instructional leaders develop a climate of high expectations for

teaching and learning (Hallinger, 2005; Nettles & Herrington, 2007) and engage in monitoring and evaluation activities (Nettles & Herrington, 2007; Waters et al., 2003). Finally, effective school leaders are constant stimulators of instructional innovation. According to Waters et al. (2003), the “optimizer role” adopted by school leaders contributes to an increase in student achievement.

- **Structuring style**

The structuring style of leadership entails providing direction and co-ordination for the school. Research shows that principals’ vision positively affects their instructional and strategic behaviour (Kruger et al., 2007), task-focused goals, and the use of innovative and professional teaching practices (Barnett & McCormick, 2004). Moreover, the leadership responsibility of establishing standard procedures and routines to secure order and discipline is positively associated with an increase in student achievement. According to Pashiardis (1998), effective structuring leaders manage all school facilities effectively and efficiently supervise maintenance to ensure clean, orderly and safe buildings and grounds.

- **Participative style**

The participative style recognises that leaders can organise management activities through others in many ways according to their own preferences, the types of people with whom they are working, and the culture of the organisation in which they work (Pashiardis et al., 2003). For example, Pashiardis (1995) found that elementary school principals in Cyprus considered their active involvement in decision-making and team building as the most important component of leadership effectiveness. Furthermore, Mulford and Silins (2003) drew the conclusion that effective school principals promote administrative team leadership and teacher leadership, which, in turn, affect student outcomes through the mediating effects of organisational learning and teachers’ work. As a result, the members of the school develop greater commitment to accomplish organisational goals (Leithwood et al., 2004).

- **Entrepreneurial style**

The entrepreneurial style concerns the creative utilisation of external networks and resources to aid the implementation of the school mission. Effective school leaders create partnerships with parents and the wider community of the school. A positive climate between parents and the school is conducive to learning. Children improve their behaviour in school once they sense that their parents have close interaction with their teachers and the principal. One of the components of effective leadership is the external awareness and engagement of the wider environment of the school (Dinham, 2005). External networks are also likely to secure adequate resources for school activities. The external environment includes other schools and systems, the community, society, business, and government. The entrepreneurial style communicates the school vision to the external community, influence motivations and, in turn, shape classroom practice and student learning.

- **Personnel development style**

Developing school personnel is a major area through which school leaders can influence school performance outcomes. One of the ways “principals shape school conditions and teaching practices is through their beliefs and actions regarding teacher professional development” (Youngs & King, 2002:644). In this effort, they provide intellectual stimulation and individual support to the staff as well as appropriate best practice models (Leithwood et al., 2006). A school leader creates a culture of professional development “by passing through relevant information, by allowing teachers to participate in in-service training, by buying relevant professional journals, by discussing interesting innovations at meetings” (Clement & Vandenberghe, 2001). Knowledge gained from professional development creates confidence which leads to positive achievement.

8. 2. 2 Learning-Centered Leadership (LCL) framework

Murphy et al. (2006) developed the LCL framework in 2006. The framework is part of the larger *Vanderbilt Assessment of Leadership in Education* (VAL-Ed) project. A framework is an assessment tool for school leaders. The framework emerged from a review of studies that examined the influence of leadership on student achievement

(Hitt & Tucker, 2016). The LCL framework was developed to inform the crafting of a new evaluation system for school leaders and school leadership teams – the VAL-Ed.

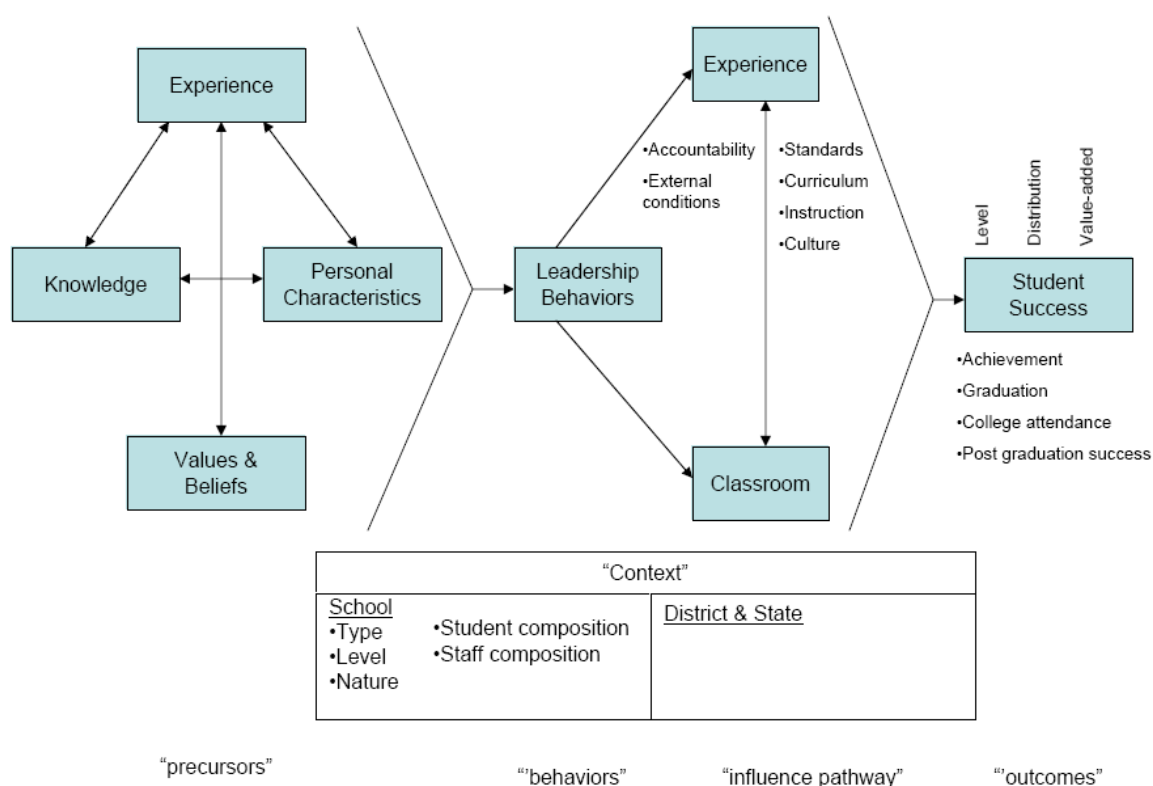


Figure 8. 2: The Learner-Centered Leadership framework

Figure 8.2 shows that leadership behaviours are heavily shaped by four major conditions: previous experiences of a leader; the knowledgebase the leader accumulates over time; the types of personal characteristics a leader brings to the job and set of values; beliefs that help define a leader, consistent with the best literature in the field (Leithwood et al., 2003).

8.2.3 Essential Supports Framework

Penny Bender Sebring and Nicholas Montgomery developed the ESF in 2010 in Chicago. This framework is a product of the University of Chicago Consortium on Chicago School Research (CCSR). Essential supports are most likely to develop in

schools where mutual trust suffuses the working relationships across the school community. At about the same time and at the invitation of the Chicago Public Schools' superintendent, CCSR researchers joined educators and school reformers in Chicago to develop a system-wide guide for school improvement. From those early discussions with Chicago educators, examinations of extant research, and mounting surveys and field studies of schools, a grounded theory of school organisation was developed and improved – the framework of the Five Essential Supports for School Improvement and the Larger Community Context. The framework was intended to serve as both a clinical guide to practitioners and theoretical guide for validation research. The developed framework established the importance of five organisational domains in improving student outcomes in public elementary schools. These five essential supports highlighted the combined importance of school leadership, professional capacity, parent–community ties, a student-centred learning environment, and instructional guidance. Figure 8.3 shows the five essential supports and how they link to each other:

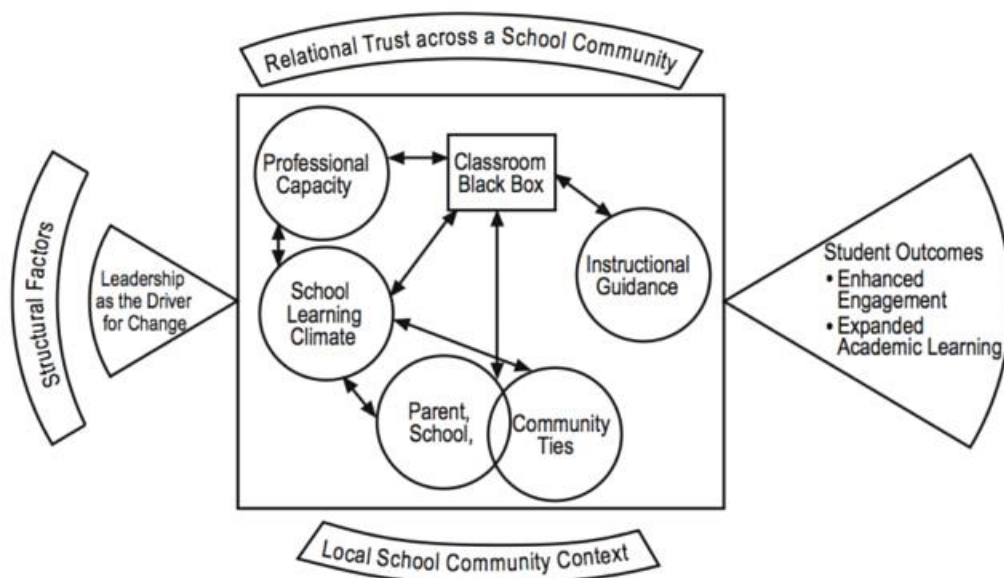


Figure 8. 3: Essential Supports Framework (Sebring & Montgomery, 2010)

Figure 8.3 above indicates the five essential support domains that are the pillars of the framework. Each of these domains is discussed below. It is important to indicate that the value of these supports lies in their integration and mutual support. Additionally, the ESF rests on the assumption that there is a vital connection between a school organisation and what happens in the classroom. Although teachers in their own classrooms have the most direct responsibility for improving student achievement, the broader school organisation also must be structured in a way that supports teachers in their efforts to enhance student learning (Elmore et al., 1996; Newmann & Associates, 1996).

- **Effective leadership**

The ESF asserts that local leadership is the first essential support for school improvement. Local leaders must stimulate and nourish the development of four additional core organisational supports, namely: professional capacity of the school and staff; parent–community ties; a student-centred learning climate; and the instructional core. Effective leadership requires taking a strategic approach to enhancing performance of the four other domains while simultaneously nurturing the social relationships in the day-to-day work of schooling and their improvement. School leaders advance their objectives to improve instruction (Elmore, 2002), while simultaneously seeking to develop supportive followers for change. Dimensions that improve instruction in this domain include inclusive leadership, which focuses on instruction, school, parents, community influence and strategic orientation. In the process, they cultivate other leaders, teachers, parents, and community members who can take responsibility for and help expand the reach of improvement efforts (Spillane, 2006).

- **Professional capacity**

Professional capacity encompasses the quality of the human resources recruited and maintained in a school (Darling-Hammond, 1997), the quality of ongoing professional development focused on local improvement efforts (Smylie et al., 2001), the base beliefs and values that reflect teacher responsibility for change (Rowan, 1990), and

the presence of a school-based professional community focused on the core problems of improving teaching and learning (McLaughlin & Talbert, 2006). The four elements of professional capacity are mutually reinforcing and together promote both individual and collective growth. This domain consists of dimensions which include quality of human resources, values and beliefs about teacher responsibility for change, quality of professional development, and professional community.

- **Parent–community ties**

Parent–community ties result from school staff reaching out to parents and the community to engage them in the processes of strengthening student learning (Epstein, 2011). It also means that schools draw on a network of community organisations to expand services for students and their families. The local community and its history also play a critical role in the development of essential supports and students' opportunities to learn (Bryk et al., 2010). The parent–community ties domain involves teachers who learn about student culture and local community, where staff engage parents and the community in strengthening student learning. When the school has a strong relationship with parents and the community, learners experience support and work hard to put the school and the community on the map.

- **Student-centred learning climate**

Providing a student-centred learning climate requires a safe and orderly environment that is conducive to academic work. Clear, fair and consistently enforced expectations for student behaviour ensure that students receive maximum instructional time. It is important for a school environment to press towards academic achievement and to couple this with deep personal concern for students. In this domain, safety and order are emphasised, pressing towards academic achievement, coupled with personal concern for students.

- **Instructional guidance**

Instructional guidance refers to the orientation, organisation and co-ordination of the curriculum within and across grades (Kim et al., 2021). Without such curriculum alignment, schools run the risk of weakening students' learning opportunities and

achievement through delays, repetitions and skips in core knowledge and skills (Smith et al., 1998). It is widely agreed that to prepare students for further schooling, specialised work and responsible civic participation, teachers must move beyond the basic skills and ask students to do intellectually challenging work (Levy & Murnane, 2005). Instructional guidance involves different dimensions, such as ambitious instruction, curricular alignment, and intellectual challenge.

8.3 A THEORY-BASED FRAMEWORK FOR THE PROMOTION OF HEALTHY ENVIRONMENTS TO ENHANCE THE ACADEMIC PERFORMANCE OF LEARNERS

This empirical study was conducted with the aim to develop a framework for principals to promote healthy school environments to enhance academic performance. This research underscores the importance of school leadership in creating a conducive learning environment that enhances academic performance. I recognise that the act of leadership is not static and that it responds to various learning environments. This theory-based framework draws upon Senge's theory of learning organisations. I used this theory as lens to understand the results presented in Chapter 6. In that regard, the theory addressed the issue of sense-making in this research. The table below shows the themes as indicated in Chapter 6 and Senge's disciplines that they were associated with.

Table 8. 1: Senge's disciplines and themes

	Learning Organizations	Schools as Learning Organizations	Personal Mastery	Systems Thinking	Shared vision	Team Learning	Mental Models	
Understanding School health promotion								
		X X		X X	X		x	
Factors that promote academic performance								
Beautiful surroundings	X	X						
Cleanliness school surroundings	X			X	x		X	
Resources		X X	X	X	x	x	X	
Safety		X	X		x			

Factors that deter academic performance								
Dirty toilets		X						
Lack of the resources						X X X	X	
waste management						X X		
Roles of the principal								
	X		x		X	x	X	
Strategies to support school health promotion								
						X		

The table above shows five themes: understanding school health promotion, factors that promote academic performance, factors that deter academic performance, roles of a principal and strategies to support school health promotion. These themes were analysed using Senge's theory. This table illustrates the disciplines that were used to analyse each theme.

Drawing on these findings, I developed a framework for principals to promote healthy environments that maximise academic performance by identifying actions and “bundles of activities” (Leithwood, 2012:5) in which principals should engage to influence positive student outcomes, particularly learning. Thus, this theory-based framework focuses on practice. The role of principals is integrated with the disciplines of Senge's theory, as discussed in the following sections.

I regard the framework as a key contribution to the body of knowledge. I propose that using a scientific theory to develop a framework for principals to promote healthy school environments can provide: (a) a diagnostic approach allowing principals to use the theory to better understand the current status of their school environments as well as the factors that enhance or constrain the academic performance of learners to inform future efforts; (b) and a mechanism for principals, SMTs and education officials in schools to carry out theory-based monitoring and evaluation to enhance the academic performance of learners. The framework is presented in figure 8.4 below.

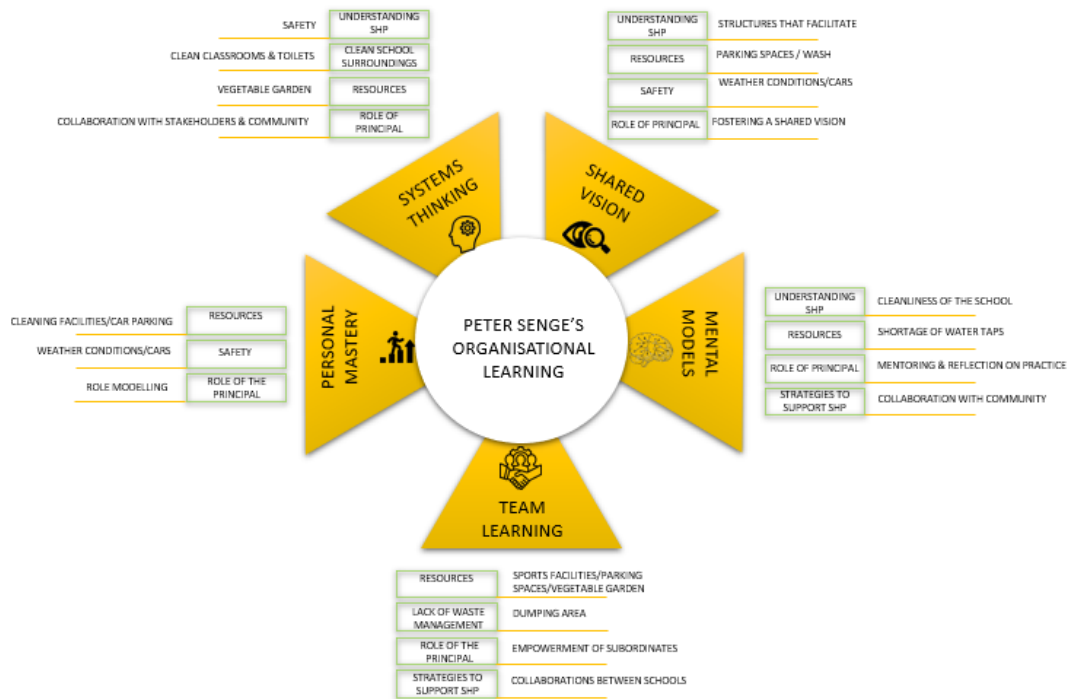


Figure 8. 4 Framework for Principals to promote healthy school physical environments (Adapted from Senge's organizational learning model)

This is followed by a discussion of what the framework entails.

8.3.1 Personal mastery

Personal mastery is associated with learning at an individual level. Personal mastery starts with a personal vision, which is regarded as a picture of the future that will be reached by a person. Having a personal vision is the first step to achieving success. Personal vision indicates that individuals know themselves and what they want in life. A person develops skills and knowledge through learning. Interest in learning is for personal growth and personal development. Individuals want to be masters in the field(s) they choose. Personal mastery enables a person to learn and develop skills and abilities that lead to knowing and mastering personal principles that guide and direct decision-making. The figure below shows the association between personal mastery, the aspects of the school environment that enhance or reduce academic performance and the role of a principal.

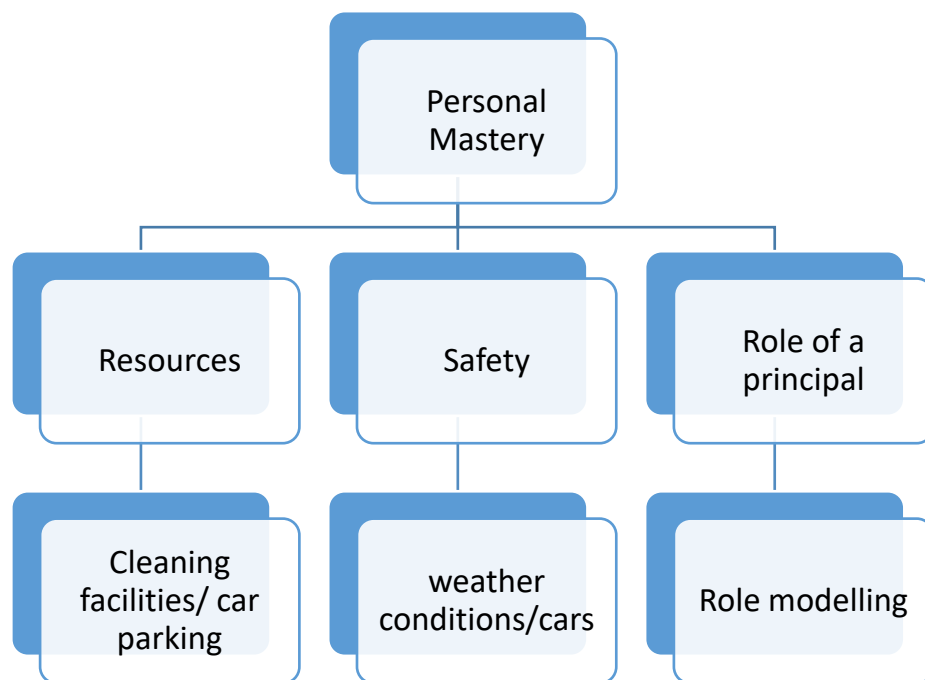


Figure 8. 5: Personal mastery, aspects of a school physical environment and role of a principal

Success in providing resources that will keep a school clean start with personal mastery. The school principal and teachers become connected with themselves first before connecting with what has to be done. This can start with a personal vision of how the school a principal is leading should be in terms of cleanliness. The vision includes the goal of keeping the school clean. It is only then that a principal can contribute positively to the school programmes that can lead to clean schools. Individual learning becomes important in understanding and developing cleaning strategies that are sustainable. In that case, understanding best practices in keeping the school and its surroundings clean become important. School leaders with self – mastery will come up with strategies to keep the school clean which includes plans that will sustain cleaning programmes. Instilling a sense of cleanness to learners and teachers encompasses the values that a person with personal mastery has. People emulate what others do, especially if they can benefit from the action. School leaders

with personal mastery take responsibility and accountability for their actions and inspire others to do the same.

Principals with high personal mastery have self-belief and motivation. They always believe that they will succeed in whatever they do. Such principals work towards achieving a personal vision which at the end benefits the school. Similarly, positive thinking, one's values and principles and commitment to achieving goals of having a clean school become the driving forces that enable one to do more and better. The cleaning plans and programmes become functional and sustainable because a principal has a vision, knowledge, skills and values. It is believed that learning of others from a person with personal mastery is not a guarantee, but without a person with personal mastery in a school, the school as an organisation would not learn and there would be no growth and no clean school.

A school principal with self- mastery understands the importance of providing parking spaces for teachers 'cars. There are teachers with a high sense of personal mastery. They come to school with their cars striving to arrive early for them to pursue the core vision of teaching learners and bring change in the school. This is possible because teachers with a high level of personal mastery are continually expanding their ability to create the results in life that they truly seek. These teachers will not rest until their vision of bringing transformation in the school is achieved. Provision of parking spaces motivates the teachers while enabling them to be more responsible and dedicated. Holding steady to the vision of improving learner academic performance, teachers will come early and leave late if their cars are under shelter.

Safety of teachers' cars is of paramount importance. The principal without personal mastery will fail to see a connection between provision of parking spaces and teacher performance. While teachers are in classes teaching, thinking of their cars that are affected by weather conditions, concentration might be affected. Teachers' cars are their possession, which they value and love. Teachers would feel cared for if their cars

are under the shelter and were safe. Lack of parking spaces limit ability to attain a vision.

Personal mastery involves role modelling. A principal with a high sense of personal mastery can influence the behaviour of other teachers. Teachers will see him performing transformational actions and join or emulate him in running programmes that promote healthy school environments. Leadership starts with a principal who should be exemplary to the school community. The principal should be involved in health programmes and be a problem-solver, a communicator, and a good planner to transform the school. A principal who has high personal mastery applies transformational leadership and provide opportunity for teachers and learners to achieve more in whatever they do and grow the school to a new level.

Personal mastery enables a person to learn to create new realities for the school – the future that the school would like to have. A principal with personal mastery can come up with new ways of running the school. The principal would also be committed to their school, show love for the school, and always seek to learn more to develop themselves to the benefit of the school. In short, the principal learns and develops to be the expert in school management. The principal who has personal mastery has the choice of sharing the known skills and knowledge by modelling actions thereby empowering the school community members. A principal models appropriate action in a manner that demonstrates to the staff that they consider and practise what they preach. For that reason, a principal takes the lead in striving to see success in the school.

Personal mastery assists in developing and increasing personal performance of the principal, which further determines school success. The vision of being the best principal can benefit a school in many ways. It is only when the personal vision is aligned with a school's vision that effectiveness can be optimised. Personal vision and organisational vision can, therefore, be considered as underwriting building elements of the leadership construct. Personal vision does not enable others to act, as it is about one's personal future dreams. However, principals can have a personal vision of the

kind of school they aspire to work in. They show in their actions and teachers may copy their actions. Principals with personal mastery can model what they truly desire based on their vision for the school. These are principals who concentrate all their efforts on developing their personal and professional skills and capabilities.

8.3.2. Shared vision

As indicated above, a shared vision can emerge from a personal vision. A shared vision is an answer to the question “What do we want to create?” Shared visions are pictures that people in the school carry. These pictures create a sense of unity that enables a team to work towards a common goal. A vision is truly shared when two or more people have a similar picture. When people share a vision, they are connected and bound by a common goal.

In a school, a shared vision changes peoples’ relationships with the school. It is no longer *their* school, but it becomes *our* school. A shared vision is the first step in allowing people who mistrusted each other to begin to work together. In schools, there was an era of “top–down visions” that would come from, for example, “the principal” and were not shared by the rest of the staff members who had to carry out their tasks without questioning. Top management would even write their own vision for the whole school. In such situations, the vision did not build on peoples’ personal visions. Team members would half-heartedly perform tasks that were related to such visions because of a vision that was not aligned with theirs. The origin of the vision is not more important than the process whereby the vision comes to be shared. It becomes a shared vision when it connects with the personal visions of all staff at the school. The figure below shows the association between shared vision, the aspects of the school environment that enhance or reduce academic performance and the role of a principal.

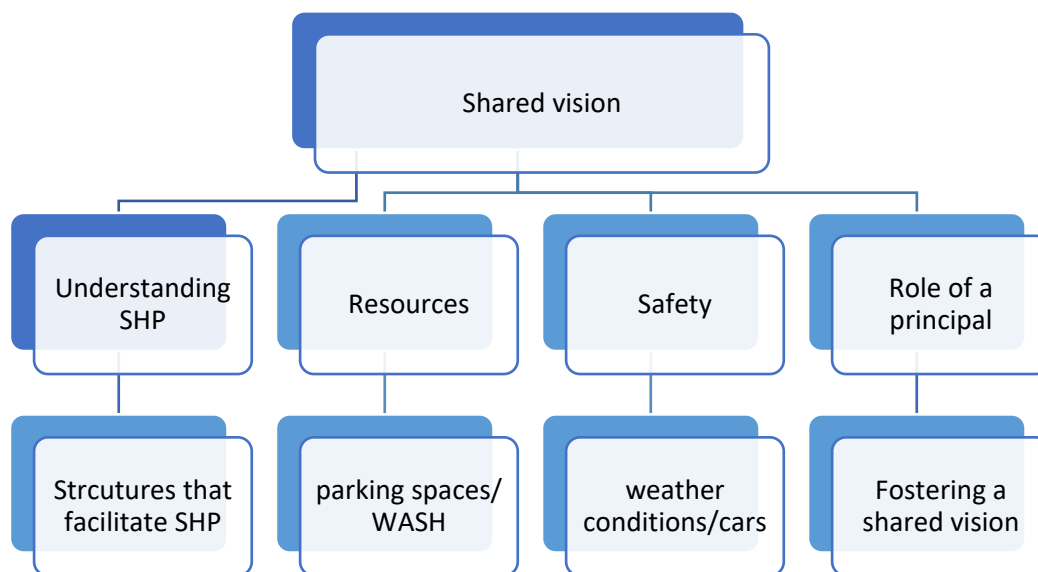


Figure 8. 6: Shared vision, aspects of a school physical environment and role of a principal

Shared vision is crucial in learning, as it provides a general guide on knowledge needs. For example, if the shared vision of a school is that of a **safe school**, then all members of the school community would focus on safety measures and proper safety actions to promote and practise safety. This broad direction helps to determine the types of knowledge that are needed and the types of knowledge acquisition and dissemination activities that should be encouraged. This is because a shared vision helps to set the broad outlines for strategy development and leaves the specific details to emerge later.

Shared vision would also ensure that only relevant and appropriate knowledge is acquired and subsequently circulated within the school to achieve the shared goals. Using the example of a **safe school**, knowledge acquisition and dissemination can focus on the understanding of policies and the legal framework pertaining to safe schools. Knowledge and understanding of policies are not sufficient; they can be strengthened by learning from best practices, especially on risk reduction measures.

At the operational level, the school community should decide on safety plans and structures that would ensure that the desired goals are met – a **safe school**. These include creation of clear guidelines and rules for the entire school and agreed-upon school disciplinary systems. It is important to note that every action may not be exactly on target, but all actions would be pointed in the right direction – that of having a **safe school**. Another benefit of having a shared vision is that the school community can make decisions that are related to the interaction or co-operation of other agents to produce a combined effect greater than the sum of their separate effects with the school's outcomes. It is often suggested that police should be included in school safety initiatives.

Understanding of the promotion of healthy schools by the school community involves structures that facilitate school health promotion. In schools such structures include committees that are set-up to focus on implanting health programmes. It is important for these structures to share the same vision with the principal and the whole school community. Committee members have several roles and responsibilities that they play to enforce school health promotion. A shared vision is vital in school health promotion as it can serve to intensify success, increase participation, and erode the divide between the principal and teachers. It is a principal's responsibility to foster the development and spread of a common vision of a **safe and healthy school**. In this case, the school management team does not have to make decisions on its own regarding issues of health and safety in the school if the whole school community has a clear idea of the school's goals and outcomes. Therefore, shared vision replaces other forms of control as the driver of consistency of purpose within a school.

The principal as a visionary leader should have a clear vision that he will share with the team members. The vision should bring different ways of perceiving plans and goals to the learners, parents and teachers. Developing a shared vision is participative and collaborative. From this perspective, the school community members (teachers, learners, administrators, non-teaching staff, and parents) can come up with individual visions for the school. Leadership in development and building of a vision is key. The

principal's vision drives teachers' behaviour and response to health promotion actions. The principal must ensure participation of all interest groups to secure a buy-in of all stakeholders. A collaboratively developed vision considers the school's unique strengths, weaknesses and needs. A shared vision reflects the hopes, needs and efforts of the entire school community. It serves as an anchor for all that the school does to support learners academically, socially and emotionally. A shared vision considers the desires of parents and the community because teachers understand the community, its strengths and weaknesses. Principals understand teachers and teachers understand their learners; they, therefore, know what would be best for their school which is the shared vision for the school.

The main shared vision in a school is to see learners performing well. Lack of **resources** hinders the achievement of such a goal. There are specific actions that are taken by the school to achieve a shared vision. These actions should include ensuring that there are resources to support self-review and development planning. In this research such resources include parking space for teachers' cars and making water, sanitation, and hygiene (WASH) available. Sanitation includes availability of bathrooms and water but also encompasses good hygienic practices. WASH is a critical precondition for providing a healthy school environment that supports high-quality education. It is a role of a principal to consistently create an environment where people are engaged in their work and committed to the vision of the school. Providing WASH safeguards learners' health and conducive learning environments.

8.3.2 Systems thinking

Systems thinking is the ability to understand systems and how they work. Someone who is a systems thinker can identify systems parts and see the relationships among the components. They understand different components of each and how these link to other parts to form a system. Systems thinking is about the continual linkage between acquired knowledge and individual expertise. An individual's ideas would lead to organised perception of work functions and performances. Systems thinking

also involves sensible thinking expressed through a thinking pattern and language, and this outcome effectively changes an organisation's work system to concur with real situations of a wider context. In the school context, systems include parents, communities, and government departments at the local, provincial and national levels. Systems thinking can be used to address school problems. Although some believe that schools can solve the problems they face, the fact that schools are connected to other systems that can have either a positive or negative effect on their activities cannot be denied. Moreover, the use of systems thinking in an organisation can be related to capacity building.

The figure below shows the association between systems thinking, the aspects of the school environment that enhance or reduce academic performance and the role of a principal.

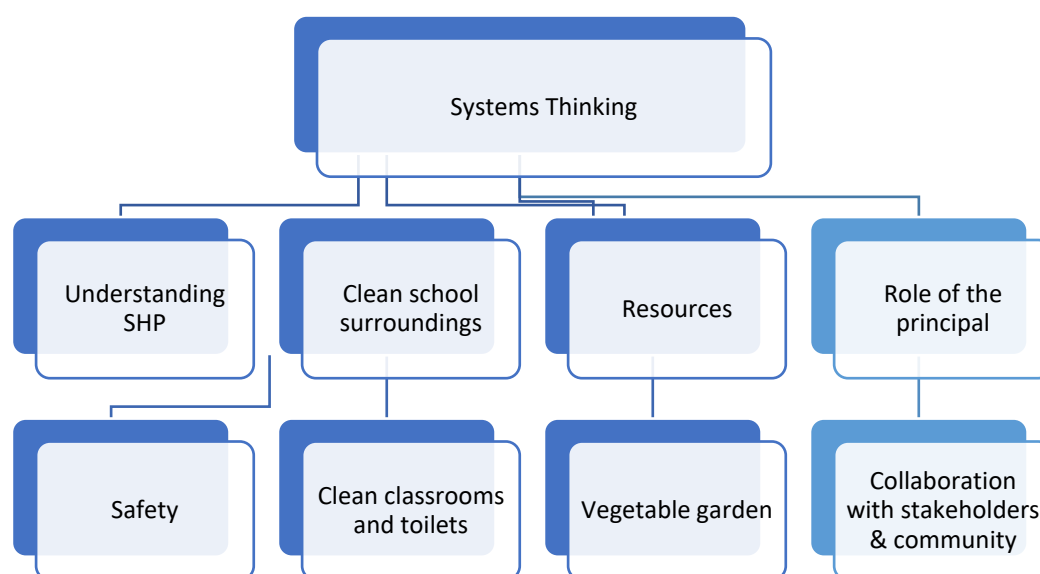


Figure 8. 7: Systems thinking, aspects of a school physical environment and role of a principal

Promotion of healthy school environments is a multi-pronged approach involving numerous of strategies. Among the strategies is **cleanliness of the school** and its surroundings. When the school is clean, learners can focus on their education and teachers on teaching and learning processes. Although each school has its own ways

and programmes in place of maintaining cleanliness, systems thinking is needed to safeguard sustainability of such plans. On special days such as Mandela day, parents, community leaders, teachers and learners all join for the spring cleaning of the school. The school can involve the companies and businesses around the school when extra resources are needed. Involving community structures in such campaigns capacitates the school to deliver effective health programmes to the benefit of the school community.

Another academic reducer that can be addressed by systems thinking is that of a lack of a food garden. **School food gardens** in South Africa play an important role in providing fresh vegetables for learners at school and in providing vegetables for needy learners. In South Africa, the DBE is responsible for the NSNP. The NSNP has three sub-programmes, of which is Sustainable Food Production in Schools (SFPS). The other two sub-programmes are the feeding programme which provides meals to learners, and nutrition education promoting healthy lifestyles and eating. This food production programme includes the vegetable garden, which promotes the implementation of sustainable food production initiatives to provide knowledge and transfer skills to schools and communities, simultaneously improving household food security. Schools face multiple challenges in the implementation of garden programmes, however, mainly related to limited resources such as funding, personnel, and time. These conditions highlight the importance of developing a broad support base for the school garden programme among the school community as well as external stakeholders. Thus, systems thinking is key in terms of operations and organisational development.

First, in the initial stage, the school principal should form a committee that will run the garden project and assign duties to each committee member. This committee becomes a supportive organisational structure for the school garden. The committee members must have a passion for the project. A garden committee makes decisions about the structure of the garden, what it will be used for, and how it will operate. There are several roles that such a committee plays in ensuring that the garden project

operates. These include fund-raising or requesting donations from neighbouring businesses, planting, watering, weeding, etc. It is important that the principal build relationships with the businesses. The Committee can liaise with the Department of Agriculture for support, advice and ideas. The Garden Committee is key and the backbone of the project. The Committee plans activities, monitors progress and sustainability, and plays a leading role in the project.

The committee members need training on basics as to how to start and grow a vegetable garden, such as what vegetables to grow, and when to plant certain plants. Vegetables need good soil for healthy growth and harvests. Well-prepared soil is the foundation of the entire garden; thus, training also includes soil preparation, bed preparations, transplanting seeds, composting, and weeding. The Department of Agriculture can visit the school on invitation to assess, evaluate and advise on the development of the garden.

Second, the principal must consider the challenge of human resource – people who will work in the garden for sustainable results. It is advisable to invite parents and neighbours of the school to be part of the planting and to help with the maintenance of the garden. Lack of interest usually develops in neighbours who help the school while they do not have children attending in the same school. In this case, the principal can engage the local municipality and request human resource services or manpower. The local municipality can provide manpower from the Expanded Public Works Programme (EPWP). The EPWP is one of government's medium- to long-term strategies to reduce unemployment and alleviate poverty through the creation of work opportunities using labour-intensive methods. One of the EPWP programmes is the Cleaning and Greening Programme, which was identified as one area of expansion in the environment and culture sector. The Cleaning and Greening Programme aims to assist municipalities to beautify and green parks, specifically where municipalities are unable to provide such services. The overall objective is to alleviate poverty in areas where there are high levels of unemployment by employing community members in this programme. The Programme has expanded its scope to the cleaning of stadia,

beautification of parks, cleaning of taxi ranks, and cleaning of public buildings. As schools are public buildings, they qualify to benefit from such programmes and services.

Those in the EPWP are paid by government. Therefore, the school is not responsible for their remuneration. The committee can work with them through their co-ordinator from the local municipality. The co-ordinator of the EPWP can frequently monitor the performance of the members. The policy of the EPWP states that their members work 12 days a month, which is three days a week. They sign attendance forms every day when they report for duty. The EPWP can be viable for schools, as its members reside within the ward in which the project is to be implemented. In the event that there are insufficient participants in the municipality ward, participants may be drawn from neighbouring wards (close to the project site). Once the request is made to the local municipality and correct procedures have been followed, the Department of Public Works through the local municipality provides all the necessary equipment, such as spades, forks, wheelbarrow, refuse bags, etc., and clothing, which includes boots, overalls, and gloves.

Limited number of water taps for drinking and washing hands has been indicated as an academic performance reducer in this study. In schools there is also a lack of water for gardening. UNICEF insists on ensuring that safe water, sanitation and hygiene help children to survive and thrive. It is important that schools have water available for learners. Schools are designed and built with the necessary infrastructure, which includes water. Schools are further built to accommodate a certain number of learners; however, when enrolment increases, there is no addition to the infrastructure. This is the situation with many schools in South Africa. It is thus the prerogative of the principal to take cognisance of changing times and situations in their schools. Nowadays, people are aware of the importance of drinking water and handwashing to eliminate viruses. A limited number of water taps can inconvenience the whole school community. After the outbreak of COVID-19, schools and the Department of Education were taken by surprise, as availability and accessibility of water became key in

determining the opening and closure of schools. Systems thinking is imperative in resolving such issues.

Water for irrigation, which is very expensive. The Department of Agriculture does help schools with bore holes. The school should apply to the Department of Agriculture for a bore hole. These are provided according to the waiting list and the quality or sustainability of vegetable gardens. The issue of shortage of water can also be addressed by harvesting water for the garden. This strategy is cost-effective as the school will not pay for water. Rainwater harvesting is a method of collecting rainwater by tanks for later use, as opposed to letting water flow from the tap and swirl down the the drainage and sewer systems. School buildings, with their inherently long and wide rooftops, are ideal for collecting rainwater, provided there is at least one gutter for channelling the rainwater to a downspout that leads to a rainwater tank. There is usually enough space for numerous large water tanks in schools.

Rainwater harvesting systems for schools have benefits such as being great for educating children about the benefits of conservation of natural resources. The school saves money by not wasting water and helps to encourage an environmentally responsible attitude. It would be cheaper if schools in townships used harvested water for irrigating their school vegetable gardens, flowers and grass, sports fields, and toilets. Rainwater harvesting would reduce the risk of flooding and has a positive effect on surface water drainage. A few strategically placed water tanks on a school property could be very helpful in the event of a fire.

Infrastructure. Renovation is the type of maintenance to restore an asset, which has deteriorated to an unacceptable condition, to its original, “as new” condition. Classrooms with falling ceiling boards, broken windows and doors, removed electricity plugs, and peeling floor tiles can pose a danger to learners. These conditions are not good for teaching and learning and, at the same time, can be of danger to teachers and learners. It is not acceptable to teach learners in a classroom that is not conducive and that can pose a danger to learners.

The preparation of renovating the building starts with planning. It is important that the school has a functional maintenance plan. The principal allocates duties to all members of the steering committee. They plan funding and find donors from local companies and businesses. Because they tabulate all the work that needs to be done, it is easy for companies to choose what they decide to help with. For example, one company chooses to repair electric plugs, while the other chooses to replace ceiling boards, etc.

One of the reasons why school buildings dilapidate is that broken facilities are left unrepaired for long periods of time. If the school, for example, can repair one broken windowpane at a time and not wait for all the windows to be without panes before starting to repair, schools would not dilapidate. Being proactive can save time, money and unnecessary frustrations. It is the duty of SGBs to lead the project of renovation. Maintenance policies state that schools should be proactive and not wait for the building to be dilapidated before renovations start. The school should plan innovative ways of renovating because finances are usually insufficient. Teachers should understand that the renovation would benefit them all and not only the principal. The success of the renovation depends on the support by the whole staff, the SMT and the SGB because of the goal they foresee and the benefit to the school and its community.

Understanding of healthy school environments includes awareness that healthy environments need to be safe. Promotion of healthy environments is also about safety for learners and the school community. Unsafe schools pose danger to the school community. There are precautionary measures that are taken in schools to ensure safety, human and material resources are also provided. Safety in schools is necessary to support the academic success of each child, giving them the opportunity to learn and achieve in a safe and nurturing environment. A school represents the society that it serves. It relies on the support of its community to thrive. The school is part of other systems that can form part of the implementation of strategies to ensure safety. In systems thinking, the school is looked at as a system that is interconnected

with different parts of life that intersect and influence each other. Systems thinking offers an opportunity to enhance the quality of collaborations to create a sense of commitment among school members and enable them to achieve more together than they would as a school.

In the promotion of healthy school, **the principal should work with** teachers, parents, the **community and community leaders**. The community should love the school, trust the principal and be part of the school initiatives that protect learners and teachers. This can be done if the principal develops a support system and build relationships with the community, focuses on collaborative work habits in which principals, teachers, parents, community leaders and learners reflect together about challenges and possible action plans in place. The principals should build communication and collaboration to empower stakeholders to contribute to the goals of the school. It is thus, important for the principal to be able to identify systems and be able to mobilise them to the benefit of health initiatives in the school.

8.3.4 Mental models

Mental models are values, beliefs, pictures and images which are deeply rooted in people's minds and have the ability to influence how they understand the world and actions around them. They are a series of assumptions about how the world works. Unconsciously, people create stories about other people, schools and the world, which drive how they do things. Everyone has mental models to make sense of the complex world in which people live. Mental models bring traditions about important school issues to the surface. Mental models, if unexamined, limit the school's range of action to what is comfortable and familiar, meaning that people become comfortable with usual ways of doing things and become reluctant to change or try other options. The essence of mental models is to reflect on how people think and act – they dictate how people understand their world. The figure below shows the association between mental models, the aspects of the school environment that enhance or reduce academic performance and the role of a principal.

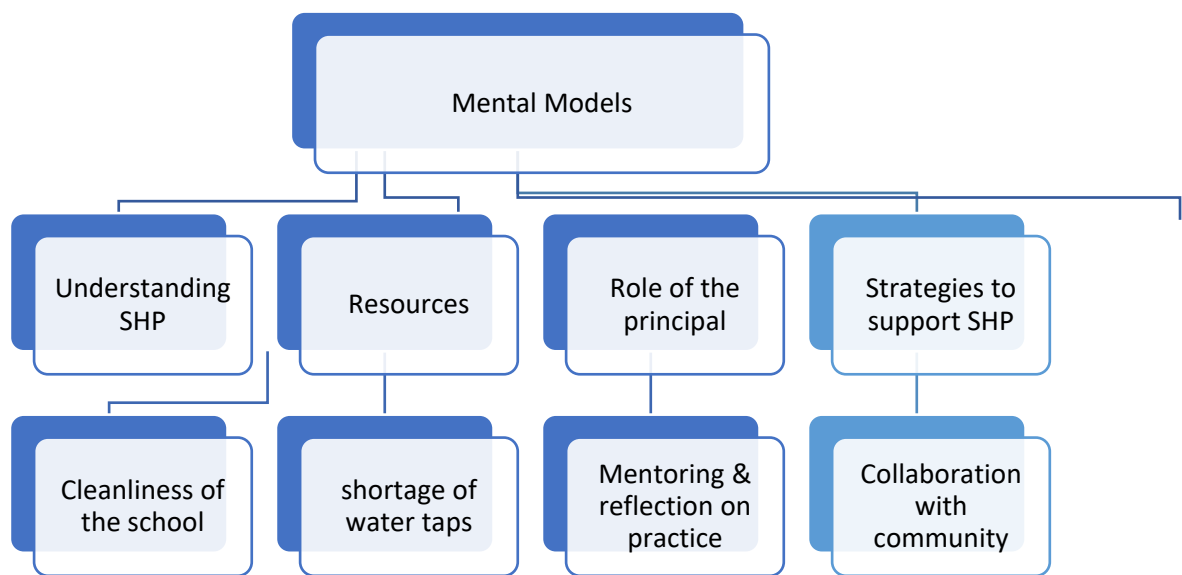


Figure 8. 8: Mental models, aspects of a school physical environment and role of a principal

Promotion of healthy school environments includes cleanliness of a school and its surroundings. The school needs to have ways of achieving and maintaining cleanliness, including monitoring. School health can be promoted by teaching learners about appropriate hygienic culture, discussing healthy behaviour, and the practice and monitoring to maintain a clean school and its surroundings. A clear focus on keeping the school clean can contribute to the ethos and culture of the school and positive learning experience. It is known that the main function of the school is practising teaching and learning but failure to keep focus on clean, hygienic surroundings effective teaching and learning cannot be fruitful. As earlier alluded, a whole school approach is needed to influence the beliefs and attitudes of the school community members. Moreover, positive mental models are important in keeping a clean environment. Mental models comprise attitudes, beliefs, perceptions, and opinions of how decisions are taken and acted upon. Negative mental models about keeping

schools clean can affect teaching and learning. Such mental models become barricades to change rather than enablers of teaching and learning.

The way to break these negative mental models is to challenge beliefs through being aware of the negative thinking and negative reasoning. This can be done by inquiring into others' thinking and points of view through dialogues to challenge own thinking. Other schools will share information on strategies they follow in keeping their schools clean. The point of departure can be to compare these strategies and the ones used in the school. When the principal and staff members can become aware of own negative mental models, and what led them to this way of thinking, they can plan to change. Challenging beliefs and assumptions is never easy, but can be achieved. It is the role of the principal and the staff to change the way of thinking and plan to engage in new activities that will make the school clean.

Applying positive mental models in practising cleanliness in the school can benefit learners, teachers, schools and the entire community. Teachers and learners should change their attitude towards cleanliness. When the school community has positive mental models about keeping the school clean, learners will not be forced to clean; teachers will not be compelled to supervise cleaning. No one will feel bad about cleaning because there is a clear understanding of the benefits of keeping the school clean. A clean school which is the consequence of positive mental models, motivates learners and creates a good reputation about the school.

In most schools in the Free State province where I collected data, there is enough running water for drinking and for use in the bathrooms. The challenge occurs when learners must use taps, there is one or two taps for drinking water in each school. The enrolment is very big and increasing yearly. The principal and the staff should change their way of thinking and not expect or wait for the department of education to provide more taps in the school. Even though the school where the research was conducted was built by the DBE, the school should prioritise and understand the importance of having more taps. It is a negative mental model to expect the Department of Basic

Education to increase the number of taps in a school. A changed mental model will manifest when a school takes responsibility and comes up with a plan to increase the number of water taps in the school. Changing mental models and the way of thinking towards taking responsibility will benefit the school and reduce long queues during break. Teachers and the school community need to learn to be aware of the resources at their disposal and how to harness them for the good of the school.

The strategy to encourage staff and community entails changing their way of thinking. Inviting all community leaders and acknowledging the good work of those who participate in school activities motivates and encourages the community to be engaged in the school activities. The negative mental models can make schools to work in isolation and not involve community leaders. Principals should create strong relationships with school community members. Community structures who partner with schools play a key role in improving the health of learners and should be appreciated and cherished for their good work. The strategy also creates an opportunity for collaboration with the community and maintaining good communication relationships. This is just one of the strategies that can be used by the schools to garner support from communities.

8.3.5 Team learning

Team learning is the process of aligning and developing the capacity of a team to create the results that its members truly desire. Team learning builds on the personal expertise of individuals, who bring their expertise to the team for the success of the team. Again, team learning builds on the vision that is shared by all members. Individual learning should benefit the team and change the team to be a learning team. Team learning is a skill developed for group problem-solving and learning.

Team learning is vital because teams, not individuals, form the basis of the school, and since most of the activities at school level are team-based and are performed in groups. For teams to be effective, they must consist of individuals who have new ideas

and are creative. Team learning occurs with the aim of improving team effectiveness. In a school context, a team learning process occurs when teachers share ideas, learn together, and eventually work together to change the school. By sharing ideas, they actively help teach each other. The results of team learning include connection with each other, their work, and their community in a process of understanding and learning together. The figure below shows the association between team learning, the aspects of the school environment that enhance or reduce academic performance, the role of a principal and strategies to support SHP.

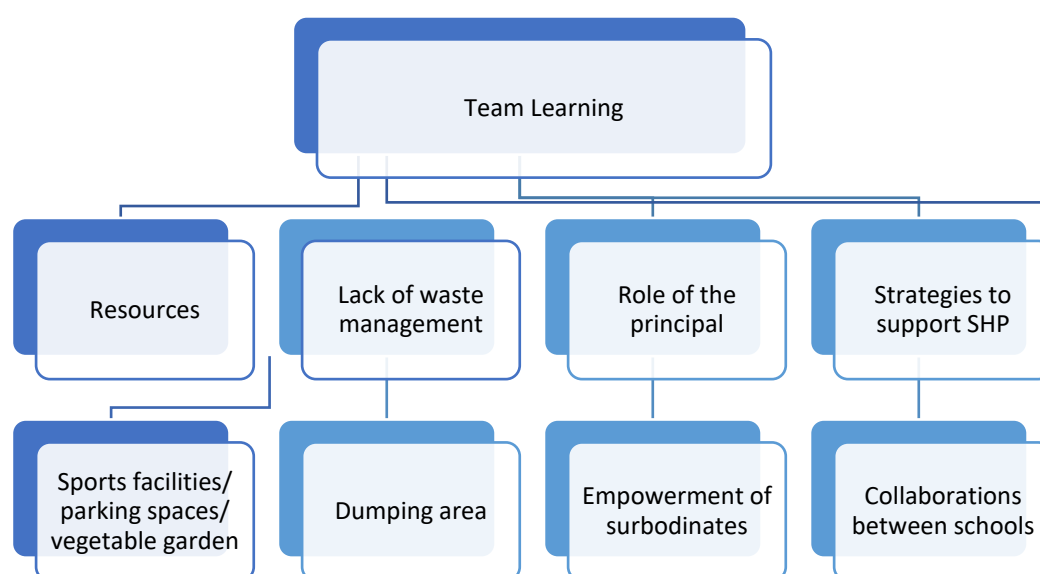


Figure 8. 9: Team learning, aspects of a school physical environment, the role of a principal and strategies to support SHP

Waste management. The Constitution of South Africa is clear on the mandate of schools to ensure a safe environment which is not detrimental to human health. Thus, the objectives of the schools are to create environments that are safe and not harmful to the health of the school community; and they should enhance environmental awareness education and encourage public involvement and create a sustainable culture in the handling, disposal and management of waste. However, schools fall short in executing these duties because of a lack of clear policies and directives on waste management and waste disposal. Waste disposal is an activity of disposing

waste in a located waste-disposal site. Correct disposal methods are applied. Schools dump waste in areas where waste becomes unhealthy to teachers and learners. This is usually in an open area at the back of classrooms. Even when schools have dustbins all over the school premises and sanitary buckets in girls' bathrooms, the challenge is disposing such waste. Waste management is a significant element of environmental protection.

The first strategy can include a waste-awareness programme. Awareness is the state or ability to be conscious of events and situations. Education and awareness are crucial and should be a key part of any school's waste-management strategy. Education promotes awareness and knowledge on environmental issues, changes the attitude of teachers and learners, generates critical thinking, and increases awareness about environmental problems and their solutions through the provision of required skills and knowledge. Lack of basic environmental knowledge leads to poor decision-making. Thus, knowledge is seen an important component in determining a person's understanding of environmental issues and, therefore, environmental awareness, which would lead to good practice.

Commitment, sound environmental practice, and attitude towards the environment remain the responsibility of individuals. Knowledge about waste management can enable teachers and learners to demonstrate high levels of good practices and responsibility regarding environmental matters. It is imperative to translate all knowledge, awareness and attitude into practice, because without effective practice, results would not materialise in the solving of complex, integrated problems such as waste management.

The Waste Management Department in South Africa is responsible for kerbside refuse – a service provided to households, typically in urban and suburban areas, which entails collecting and disposing of household waste and recyclables, litter picking, removal of illegal dumping spots, landfill site management, and street cleaning. Schools also get services from their municipality, but still, waste is collected once per

week, which still leaves the school with waste challenges. This means that additional measures are needed to curb waste accumulation.

Municipalities have several initiatives to improve waste-management services, such as conducting waste-awareness education programmes as well as clean-up campaigns, which involve environmental groups and corporates. Schools can benefit by working closely with the municipalities. Moreover, the DBE and the Department of Environmental Affairs have inter-governmental projects, which include education and awareness programmes, to promote environmental awareness. The aim is to educate teachers and learners on how to design better waste-management systems and to encourage them to be more responsible. Another objective is to change the mindset of teachers and learners on waste practices.

The second strategy pertains to equipment that is needed for waste management. As much as dustbins are needed, they fill up within a day or two in large schools. Larger containers, such as dumpsters, are, therefore, important in containing waste. The National Department of Environmental Affairs also provides dumpsters through municipalities.

The third strategy, which is about waste segregation, is related to the school community, including learners, teachers, and food handlers. In waste segregation, people separate dry and wet, glass, plastics and metal, degradables and non-degradables. The Environment Committee can provide labelled bins, which would assist school community members as they throw away their waste. School should form partnerships with recycling companies that collect recyclables from the school when the depot bins are full. The system would reduce the waste that is sent to landfills but would earn some money in recycling loads.

The school can start a compost depot using food waste and degradables, which would help in the vegetable garden. Compost depot is the process of breaking down organic waste (e.g., food scraps, grass clippings, and dried leaves) into a rich soil amendment. This helps keep yard waste where it is supposed to be and produces a high-quality, nutrient-rich product that is used to keep gardens healthy and beautiful. Food scrap

which is used in the compost depot comes from the NSNP kitchen. Food is cooked in schools every day; there are a lot of vegetable peels and food leftovers that can be thrown in the compost depot. Food handlers can throw food and vegetable peels in big refuse bags or containers, then delegate learners to take the peels and food to the depot every day. South Africa has thousands of schools; if this system can be applied in all of them, the country's waste trail can be reduced. Waste management succeeds because of team learning. In practicing waste management teams of teachers are trained on different levels for best achievement. It starts with awareness training, waste segregation and compost depot.

It is important to have a playground that is well-kept. The benefits are threefold: direct link to performance by creating healthy minds, positive attitude, motivation, confidence, time management, responsibility, and accountability; decision-making; and ability to have healthy competition. Physical activity contributes to intellectual development and hence, academic achievement because the functions of the mind and the physical body are one entity. The benefits also involve personal gains, including healthy bodies and the ability to socialise and develop leadership skills. They socialize as they play and have different roles. Team learning takes place as learners are taught as team and play as a team. Playgrounds help learners in building body fitness and social relationships. Learners take part in sports, and all partake in physical activity during Life Orientation periods and on their free time. Learners can be active in times when they do certain exercises in Life Orientation; however, this may not be enough, as this is based on a limited time because they are taught many aspects during LO. In sports facilities, learners develop skills and capabilities obtained from team learning. Sport skills increase through team learning in a way that its resulting outcomes would be desirable to everyone.

In **starting processes of the garden** project, the environmental committee, volunteers and learners become part of the project. The involvement of learners in these grades is strategic; the idea is to make them feel important to raise their motivation about schooling for them to improve academically. This is a great opportunity for both teachers and learners to learn together, how to start a vegetable

garden, which plants should be planted in each season of the year and how to grow healthy crops. The Department of Agriculture leads the training. In that case collective knowledge is generated. Team learning occurs in theory and practically when garden members start planting, looking after the vegetables, weeding, harvesting and preparing the garden for the new planting season.

Limited **parking space** affects teachers whose cars are parked in areas that were not designated for parking. Lack of parking space have an impact on their teaching, as they would be worried about their cars that were in the sun the whole day everyday instead of focusing on teaching learners. Another challenge is that the situation causes conflict among teachers. Conflict about parking space strains relationships and spills over teaching and learning in classrooms. The aim of health-promoting schools is to achieve healthy lifestyles for the whole school population. Teachers work in teams in their workshops and trainings in different subjects. It becomes important that they have good relationships. Team learning needs people who are free and have no anger or ill feelings. Provision of enough parking spaces will curb this situation.

The role of the principal is to empower the SMT and committee leaders to maintain school facilities so that the school is orderly. Healthy relationships, good communication skills and professionalism are very important for the successful running of committees. School principals plan to see their vision turn to reality by being good managers who know how to develop and empower subordinates. The principal needs to organize special trainings and workshops where teachers, committee leaders and SMT are empowered. Team learning will benefit them all and the school. The visionary role of a principal may be accomplished through multiple strategies is ethical, empowering, purposeful, and process oriented.

Collaboration is an important strategy in the promotion of healthy schools. Principals collaborate with other schools. They share best practices in their schools. They learn about effective efforts for addressing and dealing with issues in SHP. This can be helpful in avoiding repeating the same mistakes and being stuck in ineffective

measures. Principals share their good and bad experiences. They can do this by holding workshops and trainings. Teachers and committee leaders can also collaborate. This suggestion affirms that there is a necessity for collaborations across schools. This suggestion acknowledges team learning as important in schools. In team learning, principals and teachers learn from others who are experts, exchange and share ideas on the promotion of healthy schools.

8.4 Conclusion

I started this chapter by revisiting the various models and frameworks developed by different researchers that address the issue of learner academic performance. I then presented a table which depicts a summary of the connections between themes and concepts that were developed during data analysis. It was important to exhibit the theory and data in a balanced manner to avoid too much emphasis on one at the expense of the other. I then proposed a theory-based framework that school principals can apply to enhance learner academic performance. This framework is empirically derived; thus, it emerged from the findings of this study. All five disciplines of Senge's theory of learning organisations were used to form the basis for the framework for principals to promote healthy school physical environments that may enhance academic performance. The next chapter presents summaries, conclusions and recommendations.

CHAPTER 9

SUMMARIES, CONCLUSIONS AND RECOMMENDATIONS

9.1 Introduction

In the preceding chapter, I gave a detailed account of the frameworks and models that have been developed over the years on learner academic performance. The chapter culminated in the development of a theory-based framework for principals for the promotion of healthy school environments to enhance learner academic performance. This chapter concludes the research project. Conclusions are drawn on the whole investigation in terms of the research questions posed in chapter 1. A discussion on the problems and significance of the study is presented. Finally, recommendations are made for implementation of the framework and for further research.

9.2 Summary of chapters

Chapter 1 was an introductory chapter, orienting the reader to subsequent chapters of the thesis. The background to the study and the problem statement were based on the academic performance of learners in South African schools. Guidance was provided to the reader as to the contents of the study.

Chapter 2 started off by defining the concept of *school physical environment* and *healthy school physical environments* to paint a clear picture of what the two concepts entail. The elaboration on health promotion included what the essence of health promotion is and how promotion of healthy schools takes place. The chapter concluded with the role of the school principal in school health promotion.

Chapter 3 focused on the status of learner academic performance in South Africa. The essence of learner academic performance was elucidated. Statistics on learner academic performance were presented, followed by intervention strategies that can be employed to improve academic performance. The role of the school principal in enhancing the learner academic performance was discussed.

In chapter 4, Senge's theory of learning organisation was presented. The rationale for the use of the theory, the conditions for learning organisations to learn, and the importance of transforming schools into learning organisations were explained in detail. The chapter concluded by explaining the essential disciplines of Senge's theory of learning organisation, namely systems thinking, mental models, building shared vision and team learning, and personal mastery. All five disciplines of Senge's theory were pivotal in the development of the theory-based framework for principals to promote healthy environments for better academic performance (see chapter 8).

Chapter 5 began with a discussion on the emancipatory paradigm and a qualitative research design. Emancipation in this study was on liberation from constraints of not being able to take action to solve problems that the school was facing regarding physical environments. It is interesting to note knowledge contribution to the field by researchers from ground level. The various processes of the PAR strategy of inquiry were elaborated on in relation to the implementation of PAR in the current study. Information on site selection and sampling was included to provide readers with a better understanding of the research site and the sample chosen. How data gathering methods were employed in the study was discussed. Data that were gathered by means of multiple data gathering methods were analysed using thematic analysis and were triangulated. The chapter concluded with a discussion about measures to ensure trustworthiness and ethical aspects.

Chapter 6 commenced with background information on the school that participated in this research and characteristics of the participants to provide context for this study. Data analysis yielded themes, namely factors that enhance academic performance of learners, factors that deter academic performance, and the role of school principals in enhancing learner academic performance. The chapter ended with a presentation of the research results of intervention strategies and action plans that were conducted by us, the researchers.

In chapter 7, the findings of the empirical data were presented. The findings revealed that there were factors in the school physical environment that promoted or

constrained the academic performance of learners. It was further revealed that the principal was aware of his role in school health promotion.

Chapter 8 was about developing and presenting a framework for principals to promote healthy school environments for enhanced learner academic performance. To this end, various models and frameworks on academic performance were presented to recognise their existence and also to learn lessons from such models. I came up with a framework that would be easy for principals to understand and apply and suitable for schools in townships. Thus, a theory-based framework for principals on the promotion of healthy school environments for better learner academic performance was developed. The framework is empirically derived. The framework is based on the five disciplines of Senge's theory of learning organisations and important factors from the findings of the empirical research.

The next section pertains to the problems that were encountered when conducting this research and their consequences and impact on the finalisation of this study.

9.3 Discussion of problems

Two problems that could have negatively affected the study were identified. However, a disastrous outcome was curbed by managing these problems in order for them not to have a negative impact on the research results.

Data gathering preparations started in the third term of 2019. In the fourth term, data could not be collected because of the regulations which were in accordance with the permission granted by the Free State Department of Education. The DBE in the province does not allow data to be gathered during the fourth term. This meant that we had to gather data at the beginning of 2020.

The second problem pertained to the COVID-19 lockdown in March 2020. When schools finally opened, there were strict regulations in place which hindered the continuation of the process. The finalisation of data gathering started in February 2021 until the end of September 2021. To accelerate the process, I had to request the

participants to make use of weekends if this was practically possible for them. Thus, the research study was not affected.

9.4 Conclusions

Based on the findings of this study, certain conclusions can be drawn as per the following headings:

9.4.1 What a healthy school physical environment entails

A healthy school physical environment comprises environmental aesthetics, well-kept buildings, cleanliness of surroundings and buildings, and availability of a playground and sports facilities. These components contribute to a healthy physical environment in as far as they were perceived to advance emotional, physical and psychological well-being. The aspects of a healthy school environment in this study were in the physical school environment. This study did not change the conception of a healthy school physical environment and the manner in which it is understood in the literature.

9.4.2 The essence of learner academic performance

Learner academic performance in this study pertained to the aspects of the school physical environment that were perceived to impact it positively or negatively. Studies conducted on academic performance have focused on personal factors, external factors, and school factors. This study added to the research on learner academic performance and school physical school environments. This addition pertains to school factors- enhancers and reducers of academic performance in the school physical environment.

9.4.3 Factors that enhance learner academic performance

There are factors in the school environment that are perceived to affect learner academic performance. Briefly, learner academic performance is accelerated by certain factors in the school physical environment that are conducive to teaching and learning. Environmental aesthetics in the form of beautiful greening, the cleanliness of

the school surroundings, safety, availability of special buildings, a playground and gym facilities are vital in promoting learner academic performance. New knowledge is added by this study - there is no study in South Africa thus far that found the connection between environmental aesthetics/greenness/green spaces and learner academic performance.

9.4.4 Factors that deter learner academic performance

There are factors in the school environment that are perceived to have an adverse effect on the learner academic performance. A school environment characterised by buildings that are not conducive to effective teaching and learning, unavailability of a vegetable garden, conditions that create conflict, shortage of facilities (dumping space, water taps) and lack of maintenance may deter learner academic performance. This finding is not new; however, it adds to the literature school physical environment and academic performance.

9.4.5 Roles school principals play in the promotion of healthy school environments to enhance academic performance of learners

School principals are at the forefront of initiatives that promote healthy school environments. They play a crucial role in promoting healthy environments that will enhance learner academic performance. Success in the promotion of healthy school environments depends on principals' leadership in health promotion, collaborations and partnerships with the school community, and in their managerial role. Principals' role is to provide direction and guidance on how healthy school environments can be promoted to enhance academic performance. They also play a leading role in developing structures that would ensure sustainability of implementation of health programmes. Functionality of committees is assured when members are empowered, motivated and supported. Principals' managerial role pertains to planning, organising and monitoring health promotion programmes.

9.6 Recommendations for implementation

The recommendations are grounded on important aspects that were revealed by the findings of this research and the principles of Senge's theory, namely building shared vision, team learning, systems theory, mental models and personal mastery. The recommendations presented hereunder are intended to address problems and challenges that might arise when implementing the framework and how they can be dealt with. This section is an extension of the framework that was presented in chapter 8.

9.6.1 Personal mastery

As regards addressing the issues in schools that might deter learner academic performance, it is recommended that the principal should have personal mastery. The principal who has personal mastery has personal vision, learns for personal growth, and is committed and guided by certain principles and values. It is recommended that principals should learn, grow and develop a high level of self-mastery. It is important for principals to learn to improve their knowledge and skills. When they have more knowledge and skills, they can organise and lead programmes better. In the case where teachers find themselves in situations that lead to conflicts, it helps to have a principal who has self-mastery. Such a principal would be able to identify sources of conflict that might impede teaching and learning and strain relationships. There are certain skills and knowledge that are needed to manage conflict. Additionally, thinking systematically about challenges at school is key. A principal must think about processes that enabled that outcome to happen for them to come up with strategies to resolve it.

Moreover, challenges of committees that are not functional may be resolved by a principal who has a clear personal vision with regards to school health promotion. This vision must be shared with all staff members. This process involves finding common ground and broadening understanding of all those involved. The principal may solve the challenge by choosing committee leaders according to their expertise. The

committee leaders must be encouraged to challenge the status quo to push barriers that constrain promotion of healthy environments in the school.

9.6.2 Shared vision

This study recommends that shared vision should be applied to allow the school community to channel their effort towards the achievement of the shared goals.

It is the duty of the principal to encourage teachers to perform their duties with the school goal in mind. For example, in the case of solving the problem of waste management, all teachers must all understand the vision behind having a clean school. It is when the school community share the same vision that they would support all the activities that can lead to effective waste management in the school.

The challenge that usually surface in vision sharing is that some teachers will not support the school vision if they know the person who came up with it, no matter how good it might be. They may come up with excuses in order not to participate in activities that are meant for achievement of such a goal. In this case, it is the role of the principal to identify such behaviour and redirect and steer teachers towards a common goal that would benefit the school community rather than individuals. It is of vital importance that the principal quickly intervenes where there is a challenge to curb the spread of negative attitudes.

9.6.3 Team learning

It is recommended that team learning be applied to allow members of the school community to learn together. However, if poorly applied, it could result in the development of problems that would hinder effective learning. For example, during team learning, some members of teams may tend to undermine the contributions of others. Such tension can affect relations among staff members, and the situation can force other members to withdraw from the learning team. In the planning stage, the learning team should talk about the importance of learning together. Ground rules should be set on how members should conduct themselves during team learning

sessions. In addition, principals should arrange emotional management training for staff members.

Knowledge sharing is important in team learning. Relevant knowledge is shared among stakeholders through organised trainings and workshops. Information, ideas, suggestions should be shared and distributed accordingly. The SMT can decide on a plan that will work such as organising discussion sessions for teachers in their different committees, subject departments or as staff to deliberate on an issue that affect learners and staff members.

Knowledge management involves skilled methods of managing knowledge in the school. Knowledge management is divided into different categories namely knowledge representation, knowledge communication, use of knowledge, and development of knowledge. Knowledge representation occurs in the beginning when knowledge is identified, prepared, documented, and actualized. The main goal is to transform knowledge which enhances the distribution. The school principal should identify relevant knowledge that needs to be distributed to parents, learners, or teachers. The principal will prepare and document the knowledge to be distributed. The next step will be for the principal to communicate the knowledge. It is vital that the principal decides on the best forms of communicating knowledge.

Knowledge must be used for people to benefit from it. The usage of knowledge is vital because it shows the effectiveness of the preceding actions – knowledge development and knowledge management. When teachers, parents or learners use the knowledge that has been developed, it indicates that the principal succeeded in managing knowledge. The process of using these skilled methods of knowledge management should be followed to make sure that goals are achieved in the school.

9.6.4 Systems thinking

To promote a healthy school physical environment, it is recommended that systems thinking be applied in addressing issues of shortage of facilities and resources, waste management and maintenance of infrastructure. In this study, I chose to use systems

thinking with the aim of pulling expertise from other systems outside the school premises to capacitate the school community. Through systems thinking, members of the school community would engage holistically with the various aspects of the school environment in a school system to address the challenges faced by the school.

The problem that is often encountered with schools working with communities is shifting of responsibility. The school is accountable to ensure that physical environments are conducive to teaching and learning and ultimately promote the academic performance of learners. Schools should have plans in place of managing activities and programmes. Schools should lead all the programmes even though the community is assisting. The school is accountable for the activities not the community. To make an example with the case of safety the schools should make sure that all the safety measures are applied like having a fence, locked gate, alarm system etc. before expecting the police and school neighbours to guard the school.

9.6.5 Mental models

In maintaining safe schools, I recommend application of mental models. When staff members decide on changing their negative mental models, their internal mental representations about general aspects of the school change and become positive. Negative mental models may pertain to failure by staff members and learners to adhere to all safety measures because they do not see the necessity at the time. Failure to understand that compliance with measures in policies pertain to the safety of all school community members is detrimental to teaching and learning and academic performance.

It will be difficult to work with people who have negative mental models in promoting healthy environments in a school. The school principal cannot change every teachers' negative mental models, but it is best to create a culture of learning in a school and a safe environment for information sharing. Each teacher must know and be part of the development plans at school. It will be beneficial to give recognition and acknowledgement to those whose mental models changed from being negative to positive.

In changing negative mental models about cleaning of school surroundings the school principal can drive teamwork and collaboration through reflective conversations and dialogue. The principal should discuss priorities and progress and keep giving positive support. This indicates that the principal should engage in conversations with teachers to understand their thought processes.

9.6 Summary of contributions

I regard the framework developed in this study as an invaluable contribution to the body of knowledge. Using a scientific theory to develop a framework that provides a diagnostic approach would enable principals to use theory to better understand the current status of their school environment as well as the factors that enhance or deter learner academic performance and also inform future efforts. This framework becomes a mechanism for principals, SMTs, and education officials dealing with learner academic performance in schools to carry out the theory-based implementation, monitoring and evaluation of initiatives and programmes that are intended to enhance learner academic performance from a health-promotion perspective.

The study can be of great value because:

- It creates awareness among school principals, educators, education planners, and the public of the various factors of the school physical environment that impact learner academic performance. Through this awareness, stakeholders can develop an increased commitment towards addressing aspects of school environments that affect learner academic performance.
- It contributes to the limited body of research in the field of school leadership support for learner academic performance and the promotion of healthy school physical environments. The results of this study serve as an eye-opener to school principals that they should play an active role in enhancing learner academic performance by providing the necessary support that would make teachers thrive in their jobs.
- The framework developed for the promotion of healthy school environments informs school principals on the steps to be followed in executing their role.

9.7 Suggestions for future research

In my engagement in this research project, I have learnt that most studies conducted dealt with academic performance in general. Therefore, I deemed it imperative to approach it from different perspectives. Consequently, I recommend that further research be conducted on:

- The importance of school environmental aesthetics in learner academic performance. Further research on this topic would enable the school community to gain a better understanding of environmental aesthetics that promote learner academic performance.
- The importance of waste management in township schools in learner academic performance. This would enable school principals, SGBs and the DBE to understand the impact of proper waste management on enhancing learner academic performance, thereby striving to provide knowledge and skills of school waste management.
- Finally, importance of personal mastery in school health promotion.

REFERENCES 1

- Abdikadir, IF. (2013). School Management: Characteristics of Effective Principal. *Global Journal of Human Social Sciences, Linguistics & Education*, 13 (13)
- Aboramadan, M., Dahleez, K. A., & Farao, C. (2021). Inclusive leadership and extra-role behaviors in higher education: does organizational learning mediate the relationship?. *International Journal of Educational Management*, 36 (4): 397-418.
- Aboudahr, S. M. F. M. (2018). Analysis of principals decision making styles on teachers performance in selected secondary schools of Gharbia Governorate. [*Academic Journal of Economic Studies*](#), 4:91-95
- Abraham, A., Sommerhalder, K. & Abel, T. (2010). Landscape and well-being: a scoping study on the health-promoting impact of outdoor environments. *International Journal of Public Health*, 55: 59–69.
- Adamowitsch, M., Gugglberger, L., & Dür, W. (2017). Implementation practices in school health promotion: findings from an Austrian multiple-case study. *Health Promotion International*, 32(2): 218–230.
- Adams & Bell, S. L., Westley, M., Lovell, R., & Wheeler, B. W. (2018). Everyday green space and experienced well-being: the significance of wildlife encounters. *Landscape Research*, 43(1): 8-19.
- Adeyemi, T.O. & Bolarinwa, R. (2013). Principals' leadership styles and student academic performance in secondary schools in Ekiti State, Nigeria. *International Journal of Academic Research in Progressive Education and Development*, 2(1):187-198.
- Adjibolosoo, S. V., Ofori, B. D., Adongo, P. B., Afranie, S., & Yirenya-Tawiah, D. R. (2020). The influence of culture on open defaecation in some basic schools in selected districts in Ghana: A preliminary study. *PloS one*, 15(10): 1-15.
- African News Agency (ANA) (2020). NSC exam results: General information. *African News Agency*
- Ager, A. (2013). Annual Research Review: Resilience and child well-being – public policy implications. *Journal of Child Psychology and Psychiatry*, 54: 488-500.
- Agolla, J. E., & Ongori, H. (2009). An assessment of academic stress among undergraduate students: The case of University of Botswana. 67-70

- Ahlfeld, K. (2019). They Paved Paradise: School Librarians and School Libraries Are Disappearing and We Won't Know What We've Lost Until It's Gone, *Journal of Library Administration*, 59(8): 927-938.
- Ahmed, N., Flisher, A. J., Mathews, C., Mukoma, W., & Jansen, S. (2009). HIV education in South African schools: The dilemma and conflicts of educators. *Scandinavian Journal of Public Health*, 37(2): 48-54.
- Ahn, S., & Fedewa, A. L. (2011). A meta-analysis of the relationship between children's physical activity and mental health. *Journal of Pediatric Psychology*, 36(4):385-397
- Aitken, M., Haggett, C., & Rudolph, D. (2016). Practices and rationales of community engagement with wind farms: awareness raising, consultation, empowerment. *Planning Theory & Practice*, 17(4): 557-576.
- Akhihero, E. T. (2011). Effect of inadequate infrastructural facilities on academic performance of students of Oredo Local Government Area of Edo State. *The Nigerian Academic Forum*, 20(1): 1-6.
- Akomolafe, CO. & Adesua, VO. (2016). The Impact of Physical Facilities on Students' Level of Motivation and Academic Performance in Senior Secondary Schools in South West Nigeria. *Journal of Education and Practice*, 7 (4): 38-42.
- Albury, C., Pope, C., Shaw, S., Greenhalgh, T., Ziebland, S., Martin, S., ... & Pilbeam, C. (2021). Gender in the consolidated criteria for reporting qualitative research (COREQ) checklist. *International Journal for Quality in Health Care*, 33(4):1
- Alexander, G. K., & Grannum, D. R. (2021). School Garden Benefits: Health Promotion and Environmental Conservation. *NASN School Nurse*, 37(2): 79-82.
- Algahtani, A. (2014). Are leadership and management different? A review. *Journal of Management Policies and Practices*, 2(3): 71-82.
- Algi, S., Rahman, A. & Anuar, M., (2014). The relationship between personal mastery and teachers' competencies at schools in Indonesia. *Journal of Education and Learning*, 8(3): 217-226.
- Algi, S., Rahman, A., Anuar, M. & Tahir, L.M., (2012). The New Role of Principals in Improving Teachers' Personal Mastery at Schools in Indonesia. *Journal of Education and Learning*, 6(2): 73-80.
- Al-Jammal, K. & Ghamrawi, N. (2013). Teacher professional development in Lebanese schools. *Basic Research Journal of Education Research and Review*, 2(7): 104-128.
- Alkire, S., Santos, M. E., Seth, S., & Yalonetzky, G. (2010). Is the Multidimensional Poverty Index robust to different weights? *Oxford Poverty and Human Development Initiative's (OPHI)*:1-6.

- Allensworth, E. M., Healey, K., Gwynne, J. A., & Crespin, R. (2016). High School Graduation Rates through Two Decades of District Change: The Influence of Policies, Data Records, and Demographic Shifts. Research Report. *University of Chicago Consortium on School Research*. Chicago.
- Allen, J. A., Reiter-Palmon, R., Crowe, J., & Scott, C. (2018). Debriefs: Team learning from doing in context. *American Psychologist*, 73: 504–515.
- Al-Mahdy, Y. E. H., Emam, M. M., & Hallinger, P. (2018). Assessing the contribution of principal instructional leadership and collective teacher efficacy to teacher commitment in Oman. *Teaching and Teacher Education*, 69: 191-201.
- Alsaudi, F. (2015). Effect of the school facilities factor and sport activities factor on parents in terms of private and public schools choice at Riyadh City Saudi Arabia. *Universal Journal of Educational Research*, 3(12): 1054-1069.
- Álvarez-Pérez, D., Vila-Vázquez, G., Castro-Casal, C., & Río-Araújo, D. (2018). Promoting the sustainability of organizations: Contribution of transformational leadership to job engagement. *Sustainability*, 10(11): 4109.
- Alvoid, L. & Black Jr, W.L. (2014). The changing role of the principal: how high-achieving districts are recalibrating school leadership. Center for American Progress, USA.
- Amlaner, B. (2015). School climate study in greater Atlanta schools of the Georgia-Cumberland Conference. Thesis of Doctor of Education In Educational Leadership. Kennesaw State University.
- Ampofo, J. A. (2020). Implications of poor waste disposal management practices on senior high schools within the Wa Municipality of Ghana. *International Journal of Applied Research in Social Sciences*, 2(3): 53-70
- Amsterdam, C. (2010). School Infrastructure in South Africa: Views and experiences of educators and learners. In Conference Paper: International Conference on Education, 2010 May.
- Andrews, D.& Osman, R. (2015). Redress for academic success: possible lessons for university support programmes from a high school literacy and learning intervention. *South African Journal of Higher Education*, 29(1): 354-372.
- Angus, L. (2015). School choice: Neoliberal education policy and imagined futures. *British Journal of Sociology of Education*, 36(3): 395-413.

- Anijovich, R. & Cappelletti, G. (2018). Awakening reflection in teacher training: effective devices. *International Journal of Technology and Educational Innovation*, 4 (1): 24-35.
- Anney, V. N. (2014). Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria. *Journal of Emerging Trends in Educational Research and Policy Studies*, 5(2): 272-281.
- Archambault, L., Kennedy, K. & Bender, S. (2013). Cyber-truancy: Addressing issues of attendance in the digital age. *Journal of Research on Technology in Education*, 46(1): 1-28.
- Argote, L. (2012). *Organizational learning: Creating, retaining and transferring knowledge*. Springer.
- Argyris, C., & Schon, D. (1978). *Organizational learning: A theory of action perspective*. Reading, MA: Addison Wesley
- Argyris, C. (2008). *On Organizational Learning* (2nd ed). Oxford: Blackwell Publishing.
- Arnaiz-Sánchez P, de Haro R, Alcaraz S & Mirete Ruiz, A.B. (2020). Schools That Promote the Improvement of Academic Performance and the Success of All Students. *Frontiers in Psychology*, 10: 1-10
- Arnold, D. & Wade, J. (2015). A definition of systems thinking: A systems approach. *Procedia Computer Science*, 44: 669-678.
- Asif, M., & de Vries, H. J. (2015). Creating ambidexterity through quality management. *Total Quality Management & Business Excellence*, 26(11-12): 1226-1241.
- Asiabaka, I.P. (2008). The need for effective facility management in schools in Nigeria. *New York Science Journal*, 1(2): 10-21.
- Asiyai, R. I. (2012). Assessing school facilities in public secondary schools in Delta State, Nigeria. *African Research Review*, 6(2): 192-205.
- Aşcı, H. B., Tan, F. Z., & Altıntaş, F. (2016). A strategic approach for learning organizations: Mental models. *Procedia-Social and Behavioral Sciences*, 235: 2-11.
- Asumeng, M.A. & Osae-Larbi, J.A. (2015). Organization development models: a critical review and implications for creating learning organizations. University of Ghana, 26-43

- Atamturk, N. (2018). Parental construction of school quality when making school choice. *Quality & Quantity*, 52(1): 599-607.
- Audu, R., Umar, I. Y., & Idris, A. M. (2013). Facilities Provision and Maintenance: Necessity for Effective Teaching and Learning in Technical Vocational Education. *Journal of Research & Method in Education (IOSR-JRME)*, 3(1): 28-32
- Aziz, A., Rahayu, T., Habibah, G., & Istofa, D. N. (2021), March). Managing Health-Promoting School for Sustainability Development. In *2nd Southeast Asian Academic Forum on Sustainable Development (SEA-AFSID 2018)* (pp. 302-306). Atlantis Press.
- Baafi, R.K.A. (2020). School Physical Environment and Student Academic Performance. *Advances in Physical Education*, 10: 121-137.
- Badri, M.A. & Mohaidat, J., (2014). Antecedents of parent-based school reputation and loyalty: an international application. *International Journal of Educational Management*, 28(6): 635-654
- Baines, E. & Blatchford, P. (2011). Children's games and playground activities in school and their role in development. In A. D. Pellegrini (Ed.), *The Oxford Handbook of the Development of Play*. New York: Oxford University Press.
- Baker, S., Fergusson, L., & van der Laan, L. (2019). Reflective practice and work-based research: a description of micro-and macro-reflective cycles. *Reflective Practice*, 20(2): 289-303.
- Ballen, C. J., Aguillon, S. M., Awwad, A., Bjune, A. E., Challou, D., Drake, A. G., ... & Cotner, S. (2019). Smaller classes promote equitable student participation in STEM. *BioScience*, 69(8): 669-680.
- Banerjee, S. C., & Greene, K. (2016). Substance abuse prevention message generation: Engaging adolescents in health message planning and/or production of health promotion messages. In *Oxford Research Encyclopedia of Communication*.
- Barlow, J., Johnston, I., Kendrick, D., Polnay, L., & Stewart-Brown, S. (2006). Individual and group-based parenting programmes for the treatment of physical child abuse and neglect. *Cochrane Database of Systematic Reviews*, John Wiley & Sons, Ltd.
- Barrett, K. L., Jennings, W. G., & Lynch, M. J. (2012). The relation between youth fear and avoidance of crime in school and academic experiences. *Journal of School Violence*, 11(1): 1-20.

- Barnett, K., & McCormick, J. (2004). Leadership and individual principal teacher relationships in schools. *Educational Administration Quarterly*, 40(3): 406-434.
- Bashore, L., Alexander, G.K., Jackson, D.L. & Mauch, P. (2017). Improving health in at-risk youth through Photovoice. *Journal of Child Health Care*, 21(4): 463-475.
- Basten, D. & Haamann, T. (2018). Approaches for Organizational Learning: A Literature review. *SAGE*, 4(0):1-20
- Bates, A.W. (2015). Teaching in a digital age: *Guidelines for designing teaching and learning*. B Campus, Ontario
- Baum S, Ma J, Pender M, et al. (2017). Trends in student aid 2017. *The College Board*. New York:
- Bebell, D. & Stemler, S., (2013). *School Mission Statement: the Values, Goals, and Identities in American Education*. Routledge.
- Behrendt, M. & Machtmes, K. (2016). Photovoice as an evaluation tool for student learning on a field trip. *Research in Science & Technological Education*, 34(2): 187-203.
- Belanger, M., Townsend, N. & Foster, C. (2011). Age-related differences in physical activity profiles of English adults. *Preventive Medicine*, 52(3-4): 247-249.
- Bell, E. E. (2008). Exploring employee perception of the work environment along generational lines. *Performance Improvement*, 47(9): 35-45.
- Bell, A.C. & Dymment, J.E. (2008). Grounds for health: the intersection of green school grounds and health-promoting schools. *Environmental Education Research*, 14(1): 77-90.
- Bell, A. C., & Dymment, J. E. (2010). Grounds for health: The intersection of green school grounds 690 and health-promoting schools. *Environmental Education Research*, 14(1):77-90.
- Bell, F. (2016). Looking beyond place branding: the emergence of place reputation. *Journal of Place Management and Development*. 9(3): 247-254
- Bell, S. L., Westley, M., Lovell, R., & Wheeler, B. W. (2018). Everyday green space and experienced well-being: the significance of wildlife encounters. *Landscape Research*, 43(1): 8-19.

- Bengesai, A.V. & Nzimande, N. (2020). The association between family structure changes and high school completion in South Africa. *Social Sciences*, 9(8): 133.
- Bergmark, U. & Westman, S. (2016). Co-creating curriculum in higher education: Promoting democratic values and a multidimensional view on learning. *International Journal for Academic Development*, 21(1): 28-40.
- Bergold, J. & Thomas, S. (2012). Participatory research methods: A methodological approach in motion. *Historical Social Research/Historische Sozialforschung*, 37(4): 191-222.
- Berry, M. A. (2002). Healthy School Environment and Enhanced Educational Performance: The Case of Charles Young Elementary School, Washington, DC.
- Berry, B., Wang, C., & Swearer, S. M. (2013). The critical role of school climate in effective bullying prevention. *Theory into Practice*, 52(4): 296-302.
- Bhebhe, S., & Nyathi, W. (2019). Instructional leaders' strategies for maintaining high performance in high schools: A case of high performing high schools in the Kingdom of Eswatini. *International Journal of Home Science*, 5(1): 250-256.
- Bhujel, C.B. (2021). The Role of Principal in Improvement of School Performance: A Qualitative Study in Community School of Nepal. *Research Journal of Education*, 7(1): 1-10.
- Bipath, K. (2002). Differentiating between functional and dysfunctional schools. Unpublished M.Ed Dissertation. Rand Afrikaans University, Johannesburg, South Africa.
- Bird, J.J., Wang, C., Watson, J.R. & Murray, L. (2009). Relationships among principal authentic leadership and teacher trust and engagement levels. *Journal of School Leadership*, 19(2): 153-171.
- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: a tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research*, 26(13): 1802-1811.
- Björklid, P. & Nordström, M. (2007). Environmental child-friendliness: collaboration and future research. *Children Youth and Environments*, 17(4): 388-401.
- Björklid, P. & Gummesson, M. (2013). *Children's independent mobility in Sweden*:
- Blair, D. (2009). The child in the garden: An evaluative review of the benefits of school gardening. *The Journal of Environmental Education*, 40(2): 15-38.

- Boberg, J.E. and Bourgeois, S.J., (2016). The effects of integrated transformational leadership on achievement. *Journal of Educational Administration*, [54 \(3\)](#)
- Bockelmann, T.L. (2020). The effects of a shared vision of teacher leadership on classroom teachers' instruction. *The Interactive Journal of Global Leadership and Learning*, 1(3): 8.
- Bolarinwa, O. M. (2020). Influence of Sports on Academic Performance of Secondary School Students in Ekiti State, Nigeria. *International Review of Social Sciences and Humanities*, 2(1): 240-248.
- Bolatova, Z.; Tussupova, K.; Toleubekov, B.; Sukhanberdiyev, K.; Sharapatova, K.; Stafström, M. (2021). Challenges of Access to WASH in Schools in Low- and Middle-Income Countries: Case Study from Rural Central Kazakhstan. *International Journal of Environmental Research Public Health*, 18(18)
- Bond-Barnard TJ, Fletcher L. & Steyn, H. (2018). Linking trust and collaboration in project teams to project management success. *International Journal of Managing Projects in Business*. 11(2): 432-457.
- Bonell, C., Wells, H., Harden, A., Jamal, F., Fletcher, A., Thomas, J., ... & Moore, L. (2013). The effects on student health of interventions modifying the school environment: systematic review. *Epidemiol Community Health*, 67(8): 677-681.
- Boot, N., van Assema, P., Hesdahl, B. & de Vries, N. (2010). Professional assistance in implementing school health policies. *Health Education*. 110(4) :294-308.
- Bowker, R., & Tearle, P. (2007). Gardening as a learning environment: A study of children's perceptions and understanding of school gardens as part of an international project. *Learning Environments Research*, 10(2): 83-100.
- Boyer, D. P. (2012). *A study of the relationship between the servant leader principal on school culture and student achievement in the lower Kuskokwim school district*. (Unpublished doctoral dissertation). Grand Canyon University, Arizona
- Bradbury, H. (Ed.). (2015). *The Sage handbook of action research*. Sage.
- Bradbury-Jones, C., & Taylor, J. (2015). Engaging with children as co-researchers: challenges, counter challenges and solutions. *International Journal of Social Research Methodology*, 18(2): 161-173

- Brandli, L. L., Salvia, A. L., Rocha, V. T. D., Mazutti, J., & Reginatto, G. (2020). The role of green areas in university campuses: Contribution to SDG 4 and SDG 15. In *Universities as Living Labs for Sustainable Development*, 47-68. Springer, Cham.
- Branson, R.A., Marbory, S., Brown, A., Covington, E., McCauley, K. & Nash, A. (2013). A Pilot Study: An Exploration of Social, Emotional, and Academic Factors Influencing School Dropout. *Researcher: An Interdisciplinary Journal*, 26(2).
- Bratman, G.N., Daily, G.C., Levy, B.J., & Gross, J.J. (2015). The benefits of nature experience: Improved affect and cognition. *Landscape and Urban Planning*. 138: 41–50.
- Brauckmann, S., & Pashiardis, P. (2011). A validation study of the leadership styles of a holistic leadership theoretical framework. *International Journal of Educational*, 25(1).
- Braun, D. (2008). The relationship among essential school leadership preparation practices, principal leader behaviour, school learning environment, and student achievement in elementary and middle schools in Rhode Island. (Doctoral dissertation)
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2): 77-101.
- Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Rome.
- Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology*, 9(1): 3.
- Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behavior and Human Decision Processes*, 97(2): 117-134.
- Brown, R. R., Rogers, B. C., & Werbeloff, L. (2016). Moving towards Water Sensitive Cities: A Guidance Manual for Strategists and Policy Makers. *Clayton Victoria, Australia*. 52
- Browning, M.H. & Rigolon, A., (2019). School green space and its impact on academic performance: A systematic literature review. *International Journal of Environmental Research and Public Health*, 16(3): 429.
- Brühwiler, C., & Blatchford, P. (2011). Effects of class size and adaptive teaching competency on classroom processes and academic outcome. *Learning and Instruction*, 21(1): 95-108.

- Brandli, L. L., Salvia, A. L., Rocha, V. T. D., Mazutti, J., & Reginatto, G. (2020). The role of green areas in university campuses: Contribution to SDG 4 and SDG 15. *Universities as Living Labs for Sustainable Development* :47-68. Springer, Cham.
- Brydon-Miller, M. & Maguire, P. (2009). Participatory action research: Contributions to the development of practitioner inquiry in education. *Educational Action Research*, 17(1): 79-93.
- Bryk, A. S., Gomez, L. M., & Grunow, A. (2011). Getting ideas into action: Building networked improvement communities in education. *Frontiers in Sociology of Education*, 127-162.
- Bryk, A. S., Sebring, P. B., Allensworth, E., Luppescu, S., & Easton, J. Q. (2010). Organizing schools for improvement: Lessons from Chicago. Chicago, IL: University of Chicago Press.
- Bui, H., & Baruch, Y. (2010). Creating learning organizations: a systems perspective. *The Learning Organization*, 17(3).
- Bui, H. T., & Baruch, Y. (2012). Learning organizations in higher education: An empirical evaluation within an international context. *Management Learning*, 43(5): 515-544.
- Bui, H., Baruch, Y., Chau, V. S., & He, H. W. (2016). Team learning: The missing construct from a cross-cultural examination of higher education. *Asia Pacific Journal of Management*, 33(1):29-51.
- Bui, H. T., Ituma, A., & Antonacopoulou, E. (2013). Antecedents and outcomes of personal mastery: cross-country evidence in Higher Education. *The International Journal of Human Resource Management*, 24(1): 167-194.
- Bukari, C., Aning-Agyei, M. A., Kyeremeh, C., Essilfie, G., Amuquandoh, K. F., Owusu, A. A., ... & Bukari, K. I. (2022). Effect of COVID-19 on household food insecurity and poverty: Evidence from Ghana. *Social Indicators Research*, 159(3): 991-1015.
- Burhanuddin, C. & Aspland, T. (2016). The principal as a team leader with a vision for improving school effectiveness. *Journal of Basic and Applied Scientific Research*, 6(1): 8-14.
- Bunar, N. & Ambrose, A., (2016). Schools' choice and reputation: Local school markets and the distribution of symbolic capital in segregated cities. *Research in Comparative and International Education*, 11(1): 34-51.
- Burnette, J.L., O'boyle, E.H., VanEpps, E.M., Pollack, J.M. & Finkel, E.J., (2013). Mind-sets matter: a meta-analytic review of implicit theories and self-regulation. *Psychological Bulletin*, 139(3):655-701
- Burton, P., & Leoschut, L. (2013). School Violence in South Africa. *Results of the 2012 National School Violence Study, Centre for Justice and Crime Prevention, Monograph series, Cape Town*.

- Bush, T. (2014). Instructional and transformational leadership: Alternative and complementary models? *Educational Management Administration & Leadership*, 42(4): 443-444.
- Bush, T. (2015). Instructional leadership in centralised systems: evidence from Greek high-performing secondary schools. *School Leadership & Management*, 35(3): 321-345.
- Bush, T. (2016). School Leadership and Management in England: The Paradox of Simultaneous Centralisation and Decentralisation. *Research in Educational Administration & Leadership*, 1(1): 1-23.
- Bush, T., (2018). Conceptions of the Leadership and Management of Schools as. *The SAGE Handbook of School Organization*, 51. Ebook.
- Bush, T. (2018). Preparation and induction for school principals: Global perspectives. *Management in Education*, 32(2): 66-71.
- Buvik, M.P. & Rolfsen, M. (2015). Prior ties and trust development in project teams—A case study from the construction industry. *International Journal of Project Management*, 33(7): 1484-1494.
- Cabus, S.J. & De Witte, K. (2015). Does unauthorized school absenteeism accelerates the dropout decision? Evidence from a Bayesian duration model. *Applied Economics Letters*, 22(4): 266-271.
- Cabrera D., Colosi L., & Lobdell C. (2008). Systems thinking. *Evaluation and Program Planning*, 31(3):299-310.
- Calamidas, E. G., Crowell, T. L., Engelmann, L., & Watkins-Jones, H. (2020). AtlantiCare healthy school edible garden startup grants: A content analysis of post-grant follow-up reports. *Health Education Journal*, 79(6): 671-685.
- Caldwel, R. (2005). Leadership and Learning: A Critical Re-examination of Senge's Learning Organization. *Systemic Practice and Action Research*. 18(4): 335-434.
- Camasso, M. J., & Jagannathan, R. (2018). Improving academic outcomes in poor urban schools through nature-based learning. *Cambridge Journal of Education*, 48(2): 263-277.
- Cappelletti, G. & Sajon, M.P. (2022). The reflective processes of principals as an engine of school change. *Reflective Practice*, :1-12.
- Carroll, J. W. (2011). As one with authority: Reflective leadership in ministry. *Wipf and Stock Publishers*. Ebook.
- Cardinal, H. (2021). Creating Safe and Inclusive Schools for LGBTQ Students. *BU Journal of Graduate Studies in Education*,13(2).

- Carmeli, A., Reiter-Palmon, R. & Ziv, E., (2010). Inclusive leadership and employee involvement in creative tasks in the workplace: The mediating role of psychological safety. *Creativity Research Journal*, 22(3): 250-260.
- Carnoy, M., Gove, A.K., Loeb, S., Marshall, J.H. & Socias, M., (2008). How schools and students respond to school improvement programs: The case of Brazil's PDE. *Economics of Education Review*, 27(1): 22-38.
- Castle J, Bialobrzeska M. (2009). School-based nutrition programmes: an intervention for mitigating the impact of HIV and AIDS on vulnerable learners. *SAIDE Newsletter*, 15(1)
- Catana, L. (2016). Conflicts between teachers causes and effects. *New Approaches in Social and Humanistic Sciences*, 89-93.
- Cebeci, O., & Çağanağa, Ç. K. (2019). Effects of Motivation of School Administrators on Human Resources Management. *Open Access Library Journal*, 6 (7): 1-17.
- Celik, A., Akgemci, T. & Akyazi, T.E. (2016). The relationship between shared vision and organizational climate in learning organizations: A study in the banking sector. *International Journal of Academic Research in Business and Social Sciences*, 6(2): 197-210.
- Chancharoen, D., & Cruthaka, C. (2021). The Learning Disciplines for Support Personnel to Build a Learning Organization of Ramkhamhaeng University. *Asian Journal of Education and Training*, 7(1):1-6.
- Chanthago P.J., Phrakrudhammapissamai, P. & Jantaragaroorn, C, (2020). Development of a Learning School in Wat Srichan School, Khon Kaen Province: A Participatory Action Research. *International Journal of Higher Education*. 9(1):11-21.
- Chandler, D. & Hwang, H. (2015). Learning Theory: A Model of Organizational Adoption Strategies at the Micro foundations of Institutional Theory. *Journal of Management*, 41(5): 446–1476.
- Chawla, L., Keena, K., Pevec, I., & Stanley, E. (2014). Green schoolyards as havens from stress and resources for resilience in childhood and adolescence. *Health & Place*, 28: 1-13.
- Chen, C. (2015). Impact of nature window view on high school students stress recovery. Doctoral thesis. University of Illinois at Urbana-Champaign.
- Chen, K.C. & Jang, S.J. (2010). Motivation in online learning: Testing a model of self-determination theory. *Computers in Human Behaviour*, 26(4): 741-752.
- Cheng, E. (2012). Knowledge strategies for enhancing school learning capacity. *International Journal of Educational Management*, 26(6): 577-592.
- Cheng, J.H., (2011). Inter-organizational relationships and information sharing in supply chains. *International Journal of Information Management*, 31(4):374-384

- Chen-Levi, T., Schechter, C. & Buskila, Y. (2021). Exploring Systems Thinking in Schools: Mental Models of School Management Teams. *International Journal of Educational Reform*, 30(2):116-137.
- Chenoweth, K. (2010). Leaving nothing to chance. *Educational Leadership*, 68(3): 16-21.
- Cheung, K., Lesesne, C. A., Rasberry, C. N., Kroupa, E., Fisher, D., Robin, L., & Pitt Barnes, S. (2017). Barriers and facilitators to sustaining school health teams in coordinated school health programs. *Health promotion practice*, 18(3): 418-427.
- Chigona, A., & Chetty, R. (2008). Sexuality out of control: An analysis of the educational policy on schooling teen mothers in the Western Cape. *Child Abuse Research in South Africa*, 9(1):15-26.
- Chinn, P. L., & Falk-Rafael, A. R. (2015). Peace and power: A theory of emancipatory group process. *Journal of Nursing Scholarship*, 47(1): 62– 69.
- Chinyoka, K., (2014). Impact of poor nutrition on the academic performance of grade seven learners: a case of Zimbabwe. *International Journal of Learning & Development*, 4(3):73-84
- Chiocchio, F., Forgues, D., Paradis, D. & Iordanova, I. (2011). Teamwork in integrated designprojects: Understanding the effects of trust, conflict, and collaboration on performance. *Project Management Journal*, 42(6): 78-91.
- Chipfakacha, R. (2019). Education and the development agenda: an analysis of factors influencing primary school learners' outcomes in Hwange and Binga Districts, Zimbabwe. *Africanus*, 49(2): 1-20.
- Choi, H.-H., van Merriënboer, J.J.G. & Paas, F. (2014). Effects of the Physical Environment on Cognitive Load and Learning: Towards a New Model of Cognitive Load. *Springer Science+Business Media*, 26:225–244
- Chu, K. W. (2016). Leading knowledge management in a secondary school. *Journal of Knowledge Management*. 20(5): 1104-1147.
- Clark, D. (2010). Selective schools and academic achievement. *The BE Journal of Economic Analysis & Policy*, 10(1).
- Clement, M. & Vandenberghe, R. (2001), How school leaders can promote professional development. An account from the field. *School Leadership & Management*, 21(1): 43-57.
- Cohen, J. (2009). Transforming school climate: Educational and psychoanalytic perspectives: Introduction. *Schools*, 6(1): 99-103.
- Coldwell, D.A.L. & Fried, A. (2011). Learning organizations without borders? A cross-cultural study of university HR practitioners' perceptions of the salience of Senge's five disciplines in effective work outcomes. *International Journal of Cross Cultural Management*, 12(1):101–114.

- Colective School Garden Network, (2015). Why school gardens? *Western growers foundation*. USA.
- Coleman, A. (2011). Towards a blended model of leadership for school-based collaborations. *Educational Management Administration & Leadership*, 39(3): 296-316.
- Collins, H. (2010). *Tacit and explicit knowledge*. Chicago: The University of Chicago Press.
- Cornell, D. G., & Mayer, M. J. (2010). Why do school order and safety matter? *Educational Researcher*, 39(1): 7-15.
- Coombes, E., Jones, A.P. & Hillsdon, M. (2010). The relationship of physical activity and overweight to objectively measured green space accessibility and use. *Social Science and Medicine*, 70: 816–822
- Coovadia, H., Jewkes, R., Barron, P., Sanders, D., & McIntyre, D. (2009). The health and health system of South Africa: historical roots of current public health challenges. *The Lancet*, 374(9692): 817-834.
- Cosner, S., Tozer, S., Zavitkovsky, P. & Whalen, S.P. (2015). Cultivating exemplary school leadership preparation at a research-intensive university. *Journal of Research on Leadership Education*, 10(1): 11-64.
- Cradock, A. L., Wilking, C. L., Olliges, S. A., & Gortmaker, S. L. (2012). Getting back on tap: the policy context and cost of ensuring access to low-cost drinking water in Massachusetts schools. *American Journal of Preventive Medicine*, 43(3): S95-S101.
- Cranston, J. (2011). Relational trust: The glue that binds a professional learning community. *Alberta Journal of Educational Research*, 57(1): 59-72.
- Cravens, X. C. (2008). The cross-cultural fit of the learning-centered leadership framework and assessment for Chinese principals (Doctoral dissertation).
- Creswell, J. W., Hanson, W. E., Clark Plano, V. L., & Morales, A. (2007). Qualitative research designs: Selection and implementation. *The Counseling Psychologist*, 35(2):236-264
- Creswell JW, Plano & Clark VL. (2011). Designing and conducting mixed methods research. Sage, Thousand Oaks, CA.
- Creswell, J. W. & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Cronin, M. A., Weingart, L. R., & Todorova, G. (2011). Dynamics in groups: Are we there yet? *Academy of Management Annals*, 5(1): 571-612.

- Cronk, R.; Jordanova, T.; Obando, W.; Medina, O.Z.; Kinoshita, R. & Bartram, J. (2015). Water, Sanitation, and Hygiene in Schools in Low Socio-Economic Regions in Nicaragua: A Cross-Sectional Survey. *International Journal of Environmental Research Public Health*, 12: 6197-6217
- Crossan, M. & Mazutis, D. (2008). Transcendent leadership. *Business Horizons*, 51(2): 131-139.
- Cunningham, J., Seaman, C., & McGuire, D. (2016). Knowledge sharing in small family firms: A leadership perspective. *Journal of Family Business Strategy*, 7(1): 34-46.
- Dadaczynski, K. & Paulus, P. (2015). Healthy principals–healthy schools? A neglected perspective to school health promotion. In *Schools for health and sustainability*, :253-273. Springer, Dordrecht.
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B. & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2): 97-140.
- Dassanayake, W., Springett, J., & Shewring, T. (2017). The impact on anxiety and depression of a whole school approach to health promotion: evidence from a Canadian comprehensive school health (CSH) initiative. *Advances in School Mental Health Promotion*, 10(4): 221-234.
- Davenport, T.H., (2015). Process management for knowledge work. In *Handbook on Business Process Management 1* :17-35. Berlin: Springer.
- Davis, B. W. (2010). The relationship of principal leadership style as it affects school climate and student achievement. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No: 3425719).
- Day, C. & Sammons, P. (2013). Successful leadership. *CFBT Education Trust*: University of Oxford Nottingham.
- DeChurch, L.A. & Mesmer-Magnus, J.R. (2010). The cognitive underpinnings of effective teamwork: a meta-analysis. *Journal of Applied Psychology*, 95(1): 32-53.
- Decuyper, S., Dochy, F. & Van den Bossche, P. (2010). Grasping the dynamic complexity of team learning: An integrative model for effective team learning in organisations. *Educational Research Review*, 5(2): 111-133

- Dee, J. R. & Heineman, W. A. (2016). Understanding the organizational context of academic program development. *New Directions for Institutional Research*, 168: 9-35.
- De Meester, F. (2014). *The contribution of physical environmental factors to explain physical activity in European adolescents* (Doctoral dissertation, Ghent University).
- de Meij, J. S., van der Wal, M. F., van Mechelen, W., & Chinapaw, M. J. (2013). A mixed methods process evaluation of the implementation of JUMP-in, a multilevel school-based intervention aimed at physical activity promotion. *Health Promotion Practice*, 14(5): 777-790.
- Denzin, N. K., & Lincoln, Y. S. (Eds.). 2011. *The Sage handbook of qualitative research*. Sage.
- Department of Basic Education (DBE). (2009) National School Nutrition Programme Annual Report 2009/2010I Pretoria: Government Printers
- Department of Basic Education (DBE). (2010). Action Plan to 2014: Towards the Realisation of Schooling 2025. Pretoria: Government Printers.
- Department of Basic Education (DBE). 2012. National Policy Pertaining to the Programme and Promotion Requirements of the National Curriculum Statement Grades R – 12. Pretoria. Republic of South Africa.
- Department of Basic Education (DBE). 2013. South African School and Administration Management System, Pretoria: Government Printers
- Department of Basic Education (DBE) 2014 Policy on Screening, Identification, Assessment and Support (SIAS). Pretoria: Government Printers.
- Department of Basic Education (DBE). (2015). Policy On the South African Standard for Principalship: Enhancing the Professional Image and Competencies of School Principals Pretoria: Government Printers.
- Department of Basic Education (DBE). 2015. National Senior Certificate school performance report Pretoria: Government Printers
- Department of Basic Education (DBE). 2016. *Report on dropout and learner retention strategy* Pretoria.
- Department of Basic Education (DBE) 2018. Annual Performance Plan. Pretoria
- Department of Basic Education (DBE) 2019. Annual Performance Plan. Pretoria

- Department of Basic Education (DBE). 2021. Importance of Principals. Pretoria.
- Department of Basic Education (DBE). (2021). NSC Examinations 2020: School Subjects Report. Pretoria
- Department of Education (DoE) (1998). Admissions Policy for Ordinary Public Schools. Gazette No 19377. Pretoria: Government Printers
- Department of Education. (2008). Implementation guidelines: Safe and caring child-friendly schools in South Africa. Pretoria: Government Printers.
- Derr, V., & Rigolon, A. (2016). Participatory schoolyard design for health and well-being: Policies that support play in urban green spaces. *Risk, Protection, Provision, and Policy* :145-167.
- Desalegn, T. A., Gebremedhin, S., Alemayehu, F. R., & Stoecker, B. J. (2021). The effect of school feeding programme on class absenteeism and academic performance of schoolchildren in Southern Ethiopia: A prospective cohort study. *Public Health Nutrition*, 24(10): 3066-3074.
- Deschesnes, M., Drouin, N., Tessier, C., & Couturier, Y. (2014). Schools' capacity to absorb a healthy school approach into their operations: Insights from a realist evaluation. *Health Education*, 114(3): 208-224
- Dettweiler, U., Becker, C., Auestad, B. H., Simon, P., & Kirsch, P. (2017). Stress in school. Some empirical hints on the circadian cortisol rhythm of children in outdoor and indoor classes. *International Journal of Environmental Research and Public Health Education*, 14(5): 475
- Devereux, S., Hochfeld, T., Karriem, A., Mensah, C., Morahanye, M., ... & Sanousi, M., (2018). School Feeding in South Africa. What we know, what we don't know. Food Security South Africa, working paper series. Center of Excellence in Food Security.
- De Vos, AS., Strydom, H., Fouche, CB. & Delport, C. (2011). Research at Grass roots: Cape Town Van Schaick
- De Witte, K. & Kortelainen, M. (2013). What explains the performance of students in a heterogeneous environment? Conditional efficiency estimation with continuous and discrete environmental variables. *Applied Economics*, 45(17): 2401-2412.

- Dickerson, D.E. & Ackerman, P.J. (2016). Risk-based maintenance management of US public school facilities. *Procedia Engineering*, 145: 685-692.
- Dietrich, P., Eskerod, P., Dalcher, D. & Sandhawalia, B. (2010). The dynamics of collaboration in multi-partner projects. *Project Management Journal*, 41(4): 59-78.
- Dimitrios, N.K., Sakas, D.P. & Vlachos, D.S., (2013). Analysis of strategic leadership simulation models in non-profit organizations. *Procedia-Social and Behavioral Sciences*, 73: 276-284.
- Dinham, S. (2005). Principal leadership for outstanding educational outcomes. *Journal of Educational Administration*, 43(4): 338-56.
- Domingo R.A. (2018). Teacher training and reflective practice: Experiential learning in the teaching profession. CINADE
- Doody, O., Slevin, E., & Taggart, L. (2013). Focus group interviews part 3: Analysis. *British Journal of Nursing*, 22(5): 266-269.
- Dooris, M. (2009). Holistic and sustainable health improvement: the contribution of the settings-based approach to health promotion. *Royal Society for Public Health*, 129(1): 29-36
- Doyle, L., McCabe, C., Keogh, B., Brady, A., & McCann, M. (2020). An overview of the qualitative descriptive design within nursing research. *Journal of Research in Nursing*, 25(5): 443-455.
- Driscoll, D. L. (2011). Introduction to primary research: Observations, surveys, and interviews. *Writing spaces: Readings on writing*, 2(2011): 153-174.
- Dudek, M. (2007). *Schools and kindergartens: A design manual*. Walter de Gruyter.
- DuFour, R. & Marzano, R.J. (2011). *Leaders of learning: How district, school, and classroom leaders improve student achievement*. Bloomington, IN: Solution Tree Press.
- Duignan, P. A. (2020). Navigating the future of learning: The role of smart technologies. In *Leading educational systems and schools in times of disruption and exponential change: A call for courage, commitment and collaboration*. Emerald Publishing Limited.
- Dunn, S. L., Arslanian-Engoren, C., DeKoekkoek, T., Jadack, R., & Scott, L. D. (2015). Secondary data analysis as an efficient and effective approach to nursing research. *Western Journal of Nursing Research*, 37(10): 1295-1307.

- Dunne, M., Sabates, R., Bosumtwi-Sam, C., & Owusu, A. (2013). Peer relations, violence and school attendance: Analyses of bullying in senior high schools in Ghana. *The Journal of Development Studies*, 49(2): 285-300.
- du Plessis, A., & Cain, G. (2017). Exploring perceived sources of conflict among educators in three Eastern Cape schools. *Journal of Education*, (70): 1-23.
- Duraku, Z.H. & Hoxha, L. (2021). Impact of transformational and transactional attributes of school principal leadership on teachers' motivation for work. In *Frontiers in Education*. 6: 195.
- Dymont, J.E., Bell, A.C., (2008). Grounds for movement: green school grounds as sites for prooting physical activity. *Health Education Research*, 23 (6): 952–962.
- Earthman, G. I. (2017). The relationship between school building condition and student achievement: A critical examination of the literature. *Journal of Ethical Educational Leadership*, 4(3): 1-16.
- Edmondson, A.C. & Nembhard, I.M. 2009. Product development and learning in project teams: The challenges are the benefits. *Journal of Product Innovation Management*, 26(2): 123-138.
- Education For All (EFA), 2011 Assessment: Quality Assurance and National Institute for Lifelong Learning Development, Department of Basic Education, Pretoria
- Egodawatte, G., McDougall, D. & Stoilescu, D. 2011. The effects of teacher collaboration in Grade 9 Applied Mathematics. *Educational Research for Policy and Practice*, 10(3): 189-209.
- Elghaffar, M.A.E. 2007. A practical guide for school buildings maintenance. *Ass. Univ. Bull. Environ. Res*, 4(10): 59-71
- Elhadary, T., Elhaty, I., Mohamed, A. & Alawna, M. 2020. Evaluation of Academic Performance of Science and Social Science students in Turkish Universities during COVID-19 Crisis. *Journal of Critical Reviews*, 7(11): 1740-1751.
- Elmore, R. (1996). Getting to scale with good educational practice. *Harvard educational review*, 66(1): 1-27.
- Elmore, R. F. (2002). Bridging the gap between standards and achievement: The imperative for professional development in education. Secondary lenses on learning participant book: *Team Leadership for Mathematics in Middle and High Schools*, X: 313-344

- Eloff, C.H., Oosthuizen, I.J. & Van Staden, J.G. (2010). 'An educator approach towards learner discipline as a pre-requisite in dealing with learner misconduct', *Tydskrif vir Christelike Wetenskap*, 46(1): 125–144.
- Epstein, Joyce L., Mavis G. Sanders, Steven B. et al. (2018). School, family, and community partnerships: Your handbook for action. *Corwin Press*, USA.
- Equal Education, (2013). Broken Windows Overview. Equal Education, February 18
- Eriksson, A., Jansson, B., Haglund, B. J. A. & Axelsson, R. (2008) Leadership, organization and health at work: a case study of a Swedish industrial company. *Health Promotion International*, 23: 127–133
- Estrada, A., Garber, P. A., & Chaudhary, A. (2020). Current and future trends in socio-economic, demographic and governance factors affecting global primate conservation. *Peer Journal Publishing*, 8: 1-38.
- Eyal, O. & Roth, G. 2011. Principals' leadership and teachers' motivation: Self-determination theory analysis. *Journal of Educational Administration*, 49(3): 256-275
- FAO. 2010. *World Food Summit Five Years Later, Related Events. School and Hospital Gardens*; FAO: Rome, Italy.
- Farhangpour, P., Mutshaeni, H. N., & Maluleke, C. (2019). Emotional and academic effects of cyberbullying on students in a rural high school in the Limpopo province, South Africa. *South African Journal of Information Management*, 21(1): 1-8
- Ferreira, J. (2015). *Managing and implementing occupational health and safety policies in selected Tshwane South primary schools, Gauteng Province* (Doctoral dissertation, University of South Africa).
- Finlay, Linda (2008). Reflecting on 'Reflective practice'. Practice-based Professional Learning Paper 52, The Open University.
- Fischer, L. K., Brinkmeyer, D., Karle, S. J., Cremer, K., Huttner, E., Seebauer, M., ... & Kowarik, I. (2019). Biodiverse edible schools: Linking healthy food, school gardens and local urban biodiversity. *Urban Forestry & Urban Greening*, 40: 35-43.
- Fisk, W. J. (2017). The ventilation problem in schools: literature review. *Indoor Air*, 27(6): 1039-1051.

- Fives, H., & Buehl, M. M. (2012). Spring cleaning for the “messy” construct of teachers’ beliefs: What are they? Which have been examined? What can they tell us? In K. R. Harris, S. Graham, T. Urdan, S. Graham, J. M. Royer, & M. Zeidner (Eds.), *APA educational psychology handbook, Vol. 2. Individual differences and cultural and contextual factors* :471–499.
- Foellmer, J., Kistemann, T., & Anthonj, C. (2021). Academic Greenspace and Well-Being—Can Campus Landscape be Therapeutic? Evidence from a German University. *Wellbeing, Space and Society*, 2,
- Food and Agriculture Organization [FAO]. (2005). Setting up and running a school garden. A manual for teachers, parents and communities. Rome.
- Francis, D.A. (2010). Sexuality education in South Africa: Three essential questions. *International Journal of Educational Development*, 30(3): 314-319.
- Francke, H., Sundin, O., & Limberg, L. (2011). Debating credibility: the shaping of information literacies in upper secondary school. *Journal of Documentation*, 67(4):675-694
- Frankena, T.K., van Schrojenstein Lantman–de Valk, H., Cardol, M., ... & Naaldenberg, J. (2019). Contributing to Inclusive Research Policy and Practice: A Synthesis of Four Inclusive (Health) Research Projects. *Journal of Policy and Practice in Intellectual Disabilities*, 16(4): 352-360.
- Freeman, S., Theobald, R., Crowe, A. J., & Wenderoth, M. P. (2017). Likes attract: Students self-sort in a classroom by gender, demography, and academic characteristics. *Active Learning in Higher Education*, 18(2): 115-126.
- Freeman, MC, Ogden S, Jacobson J, Abbott D, Addiss DG, Amnie AG, et al. (2013) Integration of water, sanitation, and hygiene for the prevention and control of neglected tropical diseases: a rationale for inter-sectoral collaboration. *PLoS Neglected Tropical Diseases*, 7(9):2439.
- Fullan, M. 2010. *All systems go: The change imperative for whole system reform*. Corwin Press.
- Fullan, M. 2011. *The six secrets of change: What the best leaders do to help their organizations survive and thrive*. John Wiley & Sons.
- Fullan, M., 2016. The elusive nature of whole system improvement in education. *Journal of Educational Change*, 17(4): 539-544.

- Fullan, M. & Gallagher, M.J. (2017). Transforming systems, deep learning and the equity hypothesis. Palo Alto, CA: Learning Policy Institute of *Qualitative Methods*, 17(1).
- Gan, Y. & Guo, J. 2022. Typological Classification of Adolescents Who Drop out of School in Rural China: Evidence from Hainan Province. *Journal of Child and Family Studies*, 1-12.
- Ganco, M., 2013. Cutting the Gordian knot: The effect of knowledge complexity on employee mobility and entrepreneurship. *Strategic Management Journal*, 34(6): 666-686.
- Garbett, A. (2020). Being for nature: Exploring the design of pedagogical greenspaces to support children's connection to nature in the urban context. Doctoral Thesis, Aalto University.
- Garfield, M.J. & Dennis, A.R., (2012). Toward an integrated model of group development: Disruption of routines by technology-induced change. *Journal of Management Information Systems*, 29(3): 43-86.
- Garganourakis, V., Dimopoulos, K. & Koutsampelas, C. (2022). School Reputation: An Analysis of an Elusive Term in the Greek Lower Secondary System through Parents' "Voices". *Journal of School Choice*, 1-21.
- Garvin, D. A., Edmondson, A. C. & Gino, F. (2008). Is yours a learning organization? *Harvard business Review*, 86(3): 109-120.
- Gauteng Department of Basic Education (GDBE), (2014). Draft Policy on School Safety. Pretoria
- Gauteng Department of Basic Education (GDBE), (2016). MEC speech: VUT and DBE Kick Off Matric Winter Camp, Johannesburg
- Gelfand, L. & Freed, E. C. (2010). Sustainable School Architecture: Design for Elementary and Secondary Schools, Wiley, Ebook.
- [Gerasimova](#), K. (2017). How To Challenge Your Mental Models And Think Differently. Gotham Culture LLC.
- Ghamrawi, N., 2013. Teachers helping teachers: A professional development model that promotes teacher leadership. *International Education Studies*, 6(4): 171-182.
- Ghana. 2010. Ministry of Local Government and Rural Development (MLGRD) Environmental Sanitation Policy (MLGRD) Ministry of Local Government, Rural Development. Ghana.

- Gharajedaghi, J. (2011). *Systems thinking: Managing chaos and complexity: A Platform for Designing Business Architecture*. Amsterdam: Elsevier.
- Giatti, L. L. (2019). Introduction: The Relevance of Participatory Approaches Towards Contemporary Dilemmas. In *Participatory Research in the Post-Normal Age*, Springer,:1-9.
- Goddard, Y., Goddard, R. & Kim, M., (2015). School instructional climate and student achievement: An examination of group norms for differentiated instruction. *American Journal of Education*, 122(1): 111-131.
- Graham, M. A., Mokgwathi, M. S., & de Villiers, J. J. R. (2021). Safety factors associated with Mathematics achievement in South African schools. *EURASIA Journal of Mathematics, Science and Technology Education*, 17(12).
- Graven, M. H. (2014). Poverty, inequality and mathematics performance: The case of South Africa's post-apartheid context. *ZDM Mathematics Education*, 46: 1039-1049.
- Gray, A., & Vawda, Y. (2014). Health policy and legislation. *South African Health Review*, 2014(1): 3-19.
- Greenberg, J. (2011). Organizational justice: The dynamics of fairness in the workplace. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology, Maintaining, expanding, and contracting the organization*. *American Psychological Association*, 3: 271–327.
- Griebler, U., Rojatz, D., Simovska, V. & Forster, R. (2017). Effects of student participation in school health promotion: a systematic review. *Health Promotion International*, 32(2): 195-206.
- Grossi, VK. Rechenburg, E. Enkhtsetseg, AS. & Oliver, S. 2016. The situation of water, sanitation and hygiene in schools in the Pan-European region. World Health Organization. Regional Office for Europe. <https://apps.who.int/iris/handle/10665/329523>
- Grover, H.M., Boberiene, L.V. & Limber, S.P. (2021). Are US schools places of community? Does it matter?. *American Journal of Orthopsychiatry*, 91(3): 332.
- Gruber, R., Somerville, G., & Finn, C. (2019). School-based sleep health education in Canada. *Sleep medicine*, 56: 9-15.

- Grunefeld H, van Tartwijk J & Jongen H. (2015). Design and effects of an academic development programme in leadership for educational change. *International Journal for Academic Development*, 20(4): 306–318
- Gubbels, J., van der Put, C.E. & Assink, M. (2019). Risk factors for school absenteeism and dropout: a meta-analytic review. *Journal of Youth and Adolescence*, 48(9): 1637-1667.
- Gugglberger, L. (2021). A brief overview of a wide framework—Health promoting schools: a curated collection. *Health Promotion International*, 36(2): 297-302.
- Guijt, I. (2014). Participatory approaches. *Methodological Briefs: Impact Evaluation*, Florence: UNICEF.
- Gümüş, S., Bellibaş, M. Ş., & Pietsch, M. (2022). School leadership and achievement gaps based on socioeconomic status: a search for socially just instructional leadership. *Journal of Educational Administration*, (ahead-of-print).
- Gurley, D.K., Peters, G.B., Collins, L. & Fifolt, M. 2015. Mission, vision, values, and goals: An exploration of key organizational statements and daily practice in schools. *Journal of Educational Change*, 16(2): 217-242.
- Gustafsson, J.E., Allodi Westling, M., Alin Åkerman, B., Eriksson, C., Eriksson, L., Fischbein, S., Granlund, M., Gustafsson, P., Ljungdahl, S., Ogden, T. & Persson, R.S. (2010). School, learning and mental health. A Systematic Review, 187
- Habaci, I., Çelik, E. E., Habaci, M., Adigüzelli, F., & Kurt, S. (2013). Effective communication in educational administration. *US-China Education Review*, 3(9): 690-702.
- Hall, G., & Hord, S. (2015). Implementing change patterns, principles, and potholes (4th ed.). Upper Saddle River, NJ: Person Education.
- Hallinger, P., & Heck, R. (2010). Collaborative leadership and school improvement: Understanding the impact on school capacity and student learning. *School Leadership and Management*, 30: 95-110.
- Hallinger, P., & Murphy, J. (1983). Instructional Leadership and School Socio-Economic Status: A Preliminary Investigation. *Administrator's Notebook*, 31(5): 1-4.
- Hallinger, P. & Murphy, J. (1985). Assessing the instructional management behaviour of principals. *The Elementary School Journal*, 86(2):217-247.

- Hallinger, P. (2018). Bringing context out of the shadows of leadership. *Educational Management Administration & Leadership*, 46(1): 5-24.
- Hallinger, P. (2020). Science mapping the knowledge base on educational leadership and management from the emerging regions of Asia, Africa and Latin America, 1965–2018. *Educational Management Administration & Leadership*, 48(2): 209-230.
- Hammerstein, S., König, C., Dreisörner T. & Frey, A. (2021). Effects of COVID-19-Related School Closures on Student Achievement-A Systematic Review. *Frontiers in Psychology*, 12.
- Handford, V. & Leithwood, K. (2013). Why teachers trust school leaders. *Journal of Educational Administration*, 194-196.
- Harrell, M. C., & Bradley, M. A. (2009). *Data collection methods*. Semi-structured interviews and focus groups. Rand National Defence Research Inst Santa Monica California.
- Harris, A. (2012). Distributed leadership: Implications for the role of the principal. *Journal of Management Development*, 31(1):7-17.
- Hartenberger, U., Lorenz, D., & Lützkendorf, T. (2011). A shared built environment professional identity through education and training. *Building Research & Information*, 41(1), 60-76.
- Harvey, T.R. & Broyles, E.A. (2010). *Resistance to change: A guide to harnessing its positive power*. R&L Education. *Journal of Management Development*, 31(1): 7-17.
- Hashimoto, Y., Ikemori, A., & Toda, Y. (2012). The Distribution of Clean-Up Jobs in Japanese Kindergarten Classrooms: An Exploratory Study of Young Children's Views on Sharing Work Responsibilities. *Asia-Pacific Journal of Research in Early Childhood Education*, 6(1): 141-159.
- Hatch, M.J. & Cunliffe, A.L. (2013). *Organization Theory: Modern, Symbolic and Postmodern Perspectives* 3rd Edition, Oxford: Oxford University Press.
- Haug, E., Torsheim, T., Sallis, J. F., & Samdal, O. (2010). The characteristics of the outdoor school environment associated with physical activity. *Health Education Research*, 25(2): 248-256.
- Haywood, X. & Pienaar, A.E. (2021). Long-Term Influences of Stunting, Being Underweight, and Thinness on the Academic Performance of Primary School Girls: The NW-CHILD Study. *International Journal of Environmental Research. Public Health*, 1 :8973.

- Hazel, C. (2010). Interactions between bullying and high-stakes testing at the elementary school level. *Journal of School Violence*, 9(4): 339-356.
- Hazzard, E.L., Moreno, E., Beall, D.L. & Zidenberg-Cherr, S. 2012. An evaluation of the California instructional school garden program. *Public Health Nutrition*, 15(2): 285-290.
- Heale, R., & Forbes, D. (2013). Understanding triangulation in research. *Evidence- Based Nursing*, 16(4): 98-98.
- Hemphill, S. A., Tollit, M., & Herrenkohl, T. I. (2014). Protective factors against the impact of school bullying perpetration and victimization on young adult externalizing and internalizing problems. *Journal of School Violence*, 13(1):125-145.
- Henderson, N., Benard, B. & Sharp-Light, N. eds. (2007). Resiliency in action: Practical ideas for overcoming risks and building strengths in youth, families & communities. Resiliency in Action Amazon Books.
- Henderson, M., Snyder, I. & Beale, D. (2013). Social media for collaborative learning: A review of school literature. *Australian Educational Computing*, 28(2)
- Henderson, L.J., (2019). Finding the sweet spot: Investigating the effects of relationship closeness and instrumental activities in school-based mentoring. *American Journal of Community Psychology*, 63(1-2): 88-98.
- Hendriks, MA. & Scheerens, J. (2013). Exploring Principals' Role in Providing Instructional Leadership in Rural High Schools in South Africa. *School Leadership & Management*, 33(4): 373-394
- Hergenrather, K. C., Rhodes, S. D., Cowan, C. A., Bardhoshi, G., & Pula, S. (2009). Photovoice as community-based participatory research: A qualitative review. *American Journal of Health Behavior*, 33(6):686-698.
- Hesse-Biber, S.N. and Leavy, P. (2010). The practice of qualitative research. Sage.
- Hitt, D.H. & Tucker, P.D., (2016). Systematic review of key leader practices found to influence student achievement: A unified framework. *Review of Educational Research*, 86(2) :531-569.
- Hlalele, D.J. (2010). Do learning skills acquired in the university access programme enhance participation in academic practice?. *South African Journal of Higher Education*, 24(1): 98-110.

- Hoberg, K. (2012). Experiential Learning for Humanitarian Logistics. *Humanitarian Logistics in Asia-Pacific: Challenges, Opportunities and Perspectives*, 19:61.
- Hollander, E.P. (2013). Inclusive leadership and idiosyncrasy credit in leader-follower relations. In M. G. Rumsey (Ed.), *The Oxford Handbook of Leadership*. *Oxford University Press*. :122–143.
- Honkanen, K., Poikolainen, J., & Karlsson, L. (2018). Children and young people as co-researchers—researching subjective well-being in residential area with visual and verbal methods. *Children's Geographies*, 16(2): 184-195.
- Honold, J., Lakes, T., Beyer, R., & van der Meer, E. (2016). Restoration in urban spaces: Nature views from home, greenways, and public parks. *Environment and Behavior*, 48(6): 796-825.
- Hornig, E., & Loeb, S. (2010). New thinking about instructional leadership. *Phi Delta Kappan*, 92(3): 66-69.
- Howard, S. K., Thompson, K., Yang, J. & Ma, J. (2019). Working the system: Development of a system model of technology integration to inform learning task design. *British Journal of Educational Technology*, 50(1): 326-341.
- Howie, E. K., & Pate, R. R. (2012). Physical activity and academic achievement in children: A historical perspective. *Journal of Sport and Health Science*, 160-169
- Hughes, C. & Byrd, M.Y., (2015). Learning in Organizations. In *Managing Human Resource Development Programs*. *Palgrave Macmillan*, New York. :59-73.
- Huguet, B. C. S. (2017). Effective leadership can positively impact school performance. *On the Horizon*, 25(2): 96-102.
- Hülsheger, U. R., Anderson, N., & Salgado, J. F. (2009). Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research. *Journal of Applied Psychology*, 94(5): 1128–1145.
- Humphries, B., & Truman, C. (2005). Arguments for an ‘emancipatory’ research paradigm. *Research and inequality*, 12-32.
- Hyett, N., Kenny, A., & Dickson-Swift, V. (2014). Methodology or method? A critical review of qualitative case study reports. *International Journal of Qualitative studies on health and well-being*, 9(1): 23606.

- Ibrahim, A.M.M. & Al-Mashhadany, A.A. (2012). Roles of educational leaders in inducing change in public schools: Al Ain as a case study. *International Journal of Arts & Sciences*, 5(5): 455-476.
- Ileoye, A. S. 2015. School environment and satisfaction with schooling among primary school pupils in Ondo State, Nigeria. *Journal of Education and Practice*, 6(12): 148-151
- Ingraham, K., Rosenberg PhD, M.S., Duerr, S.R., Ingraham, Bell, K. & Gould, A. (2021). Enhancing Classroom Management Skills: Efficacy of a Supplemental Multi-Platform Intervention for Preservice Teachers. *Excelsior: Leadership in Teaching and Learning*, 14(1): 4-19.
- Isabu, M. O. (2017). Causes and Management of School Related Conflict. *African Educational Research Journal*, 5(2): 148-151.
- Isyaku, S. Hafeez, H. Y., & Ndikilar, C. E. (2015). Analytical study of the van der pol equation in the autonomous regime. *Progress*, 11: 252-262.
- Jacobson, G., Riesch, S. K., Temkin, B. M., Kedrowski, K. M., & Kluba, N. (2011). Students feeling unsafe in school: Fifth graders' experiences. *The Journal of School Nursing*, 27(2): 149-159.
- Jacques, M., Chevalier, B., & Daniel, J. (2019). Participatory action research: Theory and methods for engaged inquiry. Routledge.
- Janson, C.A. & Xaba, M.I. (2007). The organizational culture of the school. (In Van der Westhuizen, P.C., ed. *Schools as organizations* 3rd ed. Van Schaik, Pretoria
- Jansen J. (2020). More eyes on COVID-19: Perspectives from Education Studies: Schools as organisations and the science of re-opening. *South African Journal of Science*, 8(7) :116.
- Jansson, M., Abdulah, M., & Eriksson, A. (2018). Secondary school students' perspectives and use of three school grounds of varying size, content and design. *Urban Forestry & Urban Greening*, 30: 115-123.
- Jansson, M., & Mårtensson, F., (2012). Green school grounds: a collaborative development and research project in Malmö, Sweden. *Children, Youth and Environments*, 22 (1): 260–269.
- Jaradat, M. & Mashhour, A. (2017). Strategic Leadership. "Ovidius" University Annals, *Economic Sciences Series*. XVII (1):325-329.

- Javed, B., Abdullah, I., Zaffar, M. A., ul Haque, A., & Rubab, U. (2019). Inclusive leadership and innovative work behavior: The role of psychological empowerment. *Journal of Management & Organization*, 25(4): 554-571.
- Jimoh, U. U., & Balogun, Q. B. (2022). Evaluation of Liveability Pattern of Selected Blighted Areas in Ibadan, Oyo State, Nigeria. *International Journal of Community Well-Being*, 5(1): 55-79.
- Johnson, L.M., Duffek, K. & Richards, J. (2008). *Creating outdoor classrooms: schoolyard habitats and gardens for the Southwest*. University of Texas Press. :14-17
- Johnson, AD., Clegorne, N. Croft, SJ. & Ford, AY. 2021. The Professional Learning Needs of School Principals. *Journal of Research on Leadership Education*, 16(4): 305–338
- Joint Committee on Health Education and Promotion Terminology. (2012) *American Journal of Health Education*, 43(Sup2): 1–19.
- Jones, M. I., & Lavallee, D. (2009). Exploring the life skills needs of British adolescent athletes. *Psychology of sport and Exercise*, 10(1): 159-167.
- Jones, N. A., Ross, H., Lynam, T., Perez, P., & Leitch, A. (2011). Mental models: an interdisciplinary synthesis of theory and methods. *Ecology and Society*, 16(1):46.
- Jones, E. M., Taliaferro, A. R., Elliott, E. M., Bulger, S. M., Kristjansson, A. L., Neal, W., & Allar, I. (2014). Feasibility study of comprehensive school physical activity programs in Appalachian communities: the McDowell CHOICES project. *Journal of Teaching in Physical Education*, 33(4): 467-491.
- Joseph-Antoine, M. N. N. N., Jules, A. K., Lambert, B. K., Bruno, L. D., Jean-Jacques, P., Aliocha, N. N., & Benjamin, L. M. (2021). Causes and Consequences of the Destruction of Green Spaces in the City of Kinshasa, the Democratic Republic of Congo.
- Jourdan, D., Gray, N.J., Barry, M.M., Caffé, S., Cornu, C., Diagne, F., El Hage, F., Farmer, M.Y., Slade, S., Marmot, M. & Sawyer, S.M. (2021). Supporting every school to become a foundation for healthy lives. *The Lancet Child & Adolescent Health*, 5(4): 295-303.
- Jourdan, D., Simar, C., Deasy, C., Carvalho, G. S., & McNamara, P. M. (2016). School health promotion and teacher professional identity. *Health Education*, 116(2): 106-122

- Kabisch, N., Kowarik, I., Laforteza, R., Rall, E. L., Niemela, J., Pauleit, S., ... & Scianatico, A. (2016). Functional Linkages Between Urban Green Infrastructure, *Biodiversity and Human Well-Being*, 10: 1-58
- Kaiser, K. (2012). Protecting confidentiality. *The SAGE handbook of interview research: The Complexity of the Craft*, :457-464.
- Kaleem, Y., Asad, S., & Khan, H. (2016). Leadership styles & using appropriate styles in different circumstances. Sir Syed University of Engineering and Technology, Karachi-Pakistan.
- Kallison Jr, J.M. & Stader, D.L. (2012). Effectiveness of summer bridge programs in enhancing college readiness. *Community College Journal of Research and Practice*, 36(5): 340-357.
- Kapur, R. (2018). Factors influencing the students academic performance in secondary schools in India. *University Of Delhi*.
- Karadag, E. (2020). The effect of educational leadership on students' achievement: a cross-cultural meta-analysis research on studies between 2008 and 2018. *Asia Pacific Education Review*, 21:49–64.
- Karakose, T. (2008). The Perceptions of Primary School Teachers on Principal Cultural Leadership. *Educational Sciences: Theory & Practice*, 8 (2): 569-579.
- Kareem, J. (2016). The influence of leadership in building a learning organization. *IUP Journal of Organizational Behavior*, 15(1):7.
- Karsli, M. D., & Iskender, H. (2009). To examine the effect of the motivation provided by the administration on the job satisfaction of teachers and their institutional commitment. *Procedia-Social and Behavioral Sciences*, 1(1): 2252-2257.
- Katz, V., Adnot, M., Dee, T., Katz, V. & Wyckoff, J. (2017). Teacher turnover, teacher quality, and student achievement in DCPS. *Educational Evaluation and Policy Analysis*, 39(1): 54-76.
- Kawulich, B. (2012). Collecting data through observation. *Doing social research: A Global Context*, 6(12): 150-160.
- Kearney, S., Leung, L., Joyce, A., Ollis, D., & Green, C. (2016). Applying systems theory to the evaluation of a whole school approach to violence prevention. *Health Promotion Journal of Australia*, 27(3): 230-235.

- Keller, C. (2018). AASL standards for supporting library evaluation: linking to building, district, and state levels. *Teacher Librarian*, 45(5): 17-21.
- Kelly, B. T. (2003). Focus group interviews. *Research in the college context: Approaches and Methods*, 49-62.
- Keppler, S.M., Smilowitz, K.R. & Leonardi, P.M. (2021). Contextual trustworthiness of organizational partners: Evidence from nine school networks. *Manufacturing & Service Operations Management*, 23(4): 974-988.
- Kezar, A. 2014. Higher education change and social networks: A review of research. *The journal of higher education*, 85(1): 91-125.
- Khamisa, N., Nanji, N., Tshuma, N., & Kagura, J. (2022). The relationship between menstrual hygiene management, practices, and school absenteeism among adolescent girls in Johannesburg, South Africa. *South African Journal of Child Health*, 16(1):1-6.
- Khan, M. A., & Law, L. S. (2015). An Integrative Approach to Curriculum Development in Higher Education in the USA: A Theoretical Framework. *International Education Studies*, 8(3): 66-76.
- Khan, S. N. (2014). Qualitative research method-phenomenology. *Asian Social Science*, 10(21): 298.
- Khairuddin, M., Abdullah, J., & Omar, H. M. (2020) Knowledge Sharing Among School Teachers. *International Research Journal of Education and Sciences (IRJES)*, 4(1)
- Khatri, K.K. (2020). Research Paradigm: A Philosophy of Educational Research. *International Journal of English Literature and Social Science*, 20(5): 1435-1440
- Khumalo. B & Mji, A. (2014). Exploring Educators' Perceptions of the Impact of Poor Infrastructure on Learning and Teaching in Rural South African Schools. *Mediterranean Journal of Social Sciences*, 5(20)
- Kindall, H.D., Crowe, T. & Elsass, A., (2018). The principal's influence on the novice teacher's professional development in literacy instruction. *Professional Development in Education*, 44(2): 307-310.
- Kiplagat, H., Khamasi, J. W., Jelimo, J., & Mokaya, A. C. (2017). Students' perspective on the impact of cleanliness of university facilities on academic achievement: A case of a public University in Kenya. *African Journal of Education, Science and Technology*, 3(3): 93-99.

- Knopf, J. A., Finnie, R. K., Peng, Y., Hahn, R. A., Truman, B. I., Vernon-Smiley, M., ... & Community Preventive Services Task Force. (2016). School-based health centers to advance health equity: A community guide systematic review. *American Journal of Preventive Medicine*, 51(1): 114-126.
- Knowles, J. G., & Cole, A. L. (2008). *Handbook of the arts in qualitative research: Perspectives, methodologies, examples, and issues*. Sage.
- Kobayashi, E., Sharp, S. F. & Grasmick, H. G. (2008). Gender and deviance: A comparison of college students in Japan and the United States. *Deviant Behavior*, 29(5): 413-439.
- Köhler, T. (2022). Class size and learner outcomes in South African schools: The role of school socioeconomic status. *Development Southern Africa*, 39(2): 126-150.
- Kools, M. & Stoll, L. (2016). What makes a school a learning organisation? Paris: OECD Publishing.
- Kools, M., George, B., & Steijn, B. (2020). Developing schools as learning organisations - "Why" and "how"? *European Journal of Education*, 55(1): 3-8.
- Korkmaz, A. V., van Engen, M. L., Knappert, L., & Schalk, R. (2022). About and beyond leading uniqueness and belongingness: A systematic review of inclusive leadership research. *Human Resource Management Review*, Available: <https://doi.org/10.1016/j.hrmr.2022.100894>
- Koroye, T. (2016). The influence of school physical environment on secondary school students' academic performance in Bayelsa State. *Asian journal of Educational Research*, 4(2):1-15
- Kosciw, J. G., Palmer, N. A., Kull, R. M., & Greytak, E. A. (2013). The effect of negative school climate on academic outcomes for LGBT youth and the role of in-school supports. *Journal of School Violence*, 12(1): 45-63.
- Kounen, S. & Carrasco, A. (2016). Parental preferences in school choice: Comparing reputational hierarchies of schools in Chile and Finland. *Compare: a Journal of Comparative and International Education*, 46(2):172-193.
- Kouzes, J.M. & Posner, B.Z. (2009). To lead, create a shared vision. *Harvard Business Review*, 87(1): 20-21.

- Kurland, H., Peretz, H., & Hertz-Lazarowitz, R. (2010). Leadership style and organizational learning: The mediate effect of school vision. *Journal of Educational administration*, 48(1):7-30
- Kraft, M.A., Marinell, W.H. & Shen-Wei Yee, D. (2016). School organizational contexts, teacher turnover, and student achievement: Evidence from panel data. *American Educational Research Journal*, 53(5): 1411-1449.
- Krebs, D., & Zvi, G. (2016). *The Genius Hour Guidebook: Fostering Passion, Wonder, and Inquiry in the Classroom*. New York: Routledge
- Kremser, W. (2011). Phases of school health promotion implementation through the lens of complexity theory: lessons learnt from an Austrian case study. *Health Promotion International*, 26(2), 136-147.
- Krippendorff, K. (2016). Misunderstanding reliability. *Methodology: European Journal of Research Methods for the Behavioral and Social Sciences*, 12(4): 139–144.
- Krüger, M. L., Witziers, B., & Sleegers, P. (2007). The impact of school leadership on school level factors: Validation of a causal model. *School Effectiveness and School Improvement*, 18(1): 1-20.
- Krupp, S., Schoemaker, P.J & Howland, S., (2013). Strategic leadership: The essential skills. *Harvard Business Review*, 91(1): 131-134.
- Kuponiyi, O.T. & Olorunfemi, E. A., (2016). School Health Services and its practice among public and private primary schools in western Nigeria: BioMed Central (BMC) Research; 9: 203.
- Kurland, H., Peretz, H. & Hertz-Lazarowitz, R., (2010). Leadership style and organizational learning: The mediate effect of school vision. *Journal of Educational Administration*, 48(1): 7-30
- Kutsyuruba, B., Godden, L. & Walker, K., (2020). The Effect of Contextual Factors on School Leaders' Involvement in Early-Career Teacher Mentoring: A Review of the International Research Literature. *Research in Educational Administration and Leadership*, 5(3): 682-720.
- Kutsyuruba, B., Klinger, D.A. & Hussain, A. (2015). Relationships among school climate, school safety, and student achievement and well-being: a review of the literature. *Review of Education*, 3(2):103-135.

- Kwatubana, S. (2014a). School Community Participation and School Health Promotion: Challenges and Opportunities. *Mediterranean Journal of Social Sciences*, 5(27): 1458-1466.
- Kwatubana, S. (2014b). Stakeholder perceptions of the determinants of reputation in South African public schools. *Mediterranean Journal of Social Science*, 5(20): 1439
- Kwatubana, S. (2018). Harmonising the efforts of school nurses and teachers in health promotion in schools. *Africa Education Review*, 15(1): 108-122.
- Kwatubana, S. (2018). Caring principal leadership for the support of teachers leading committees for promotion of healthy school environments. *New Trends and Issues Proceedings on Humanities and Social Sciences*, 5(3), 1-13.
- Kwatubana, S. & Bosch, M. (2019). The value of teaching practice as perceived by Postgraduate Certificate in Education (PGCE) students. *South African Journal of Education*, 39(2): 71-73
- Kwatubana, S., (2021). Indicators of personal mastery in the life narratives of principals of high-performing schools: an organisational perspective. *International Journal of Management in Education*, 15(3): 229-244.
- Kwatubana, S., Nhlapo, V.A. & Moteetee, N. (2021). The role of principals in school health promotion in South Africa: a qualitative study. *Health Education*, 122(3): 304-317
- Kweon, B. S., Ellis, C. D., Lee, J., & Jacobs, K. (2017). The link between school environments and student academic performance. *Urban Forestry & Urban Greening*, 23: 35-43.
- Lacireno-Paquet, N. & Brantley, C. (2008). Who chooses schools, and why. *Education Policy Research Unit and the Education and the Public Interest Centre, Arizona State University, USA*
- Laleka, S., (2019). Developing multilevel school leadership for instructional improvement in elementary schools of post-colonial Pakistan. *International Journal of Leadership in Education*, 22(2): 222-236.
- Lamas, HA. (2015). School Performance. *Journal of Educational Psychology* 3(1): 351-385
- Langberg, J. M., Epstein, J. N., Girio-Herrera, E., Becker, S. P., Vaughn, A. J., & Altaye, M. (2011). Materials organization, planning, and homework completion in middle-school students with ADHD: Impact on academic performance. *School Mental Health*, 3(2): 93-101.

- Larsen, T., & Samdal, O. (2008). Facilitating the implementation and sustainability of second step. *Scandinavian Journal of Educational Research*, 52(2): 187-204.
- Lau, S. S., & Yang, F. (2009). Introducing healing gardens into a compact university campus: design natural space to create healthy and sustainable campuses. *Landscape Research*, 34(1): 55-81.
- Laud, R., Arevalo, J., & Johnson, M. (2016). The changing nature of managerial skills, mindsets and roles: Advancing theory and relevancy for contemporary managers. *Journal of Management & Organization*, 22(4): 435-456.
- Laurie, S.M., Faber, M. & Maduna, M.M. (2017). Assessment of food gardens as nutrition tool in primary schools in South Africa. *South African Journal of Clinical Nutrition*, 30(4): 80-86.
- Lavie Alon, N. & Tal, T. (2015). Student self-reported learning outcomes of field trips: The pedagogical impact. *International Journal of Science Education*, 37(8): 1279-1298.
- Leavitt, H. J. (1964). Applied organization change in industry: structural, technical and human approaches. In J. G. March (Ed.), *Handbook of organisation*. Rand McNally and Company. Chicago, Illinois.
- Ledwith, M. (2005). Personal narratives/political lives: Personal reflection as a tool for collective change. *Reflective Practice*, 6(2): 255-262.
- Lee, C. L., Lu, H. P., Yang, C. & Hou, H. T. (2010). A Process-Based Knowledge Management System for Schools: A Case Study in Taiwan. *Turkish Online Journal of Educational Technology-TOJET*, 9(4): 10-21.
- Leedy, P.D. & Ormrod, J.E. (2019). Practical research. *Upper Saddle River: Pearson Prentice-Hall*. *Open Journal for Educational Research*, 3(2):67-80.
- Legard, R., Keegan, J., & Ward, K. (2003). In-depth interviews. *Qualitative research practice: A Guide for Social Science Students and Researchers*, 6(1): 138-169.
- Lehmann-Willenbrock, N. & Allen, J.A., (2018). Modeling temporal interaction dynamics in organizational settings. *Journal of Business and Psychology*, 33(3):325-344.
- Leithwood, K. & Azah, V.N., (2017). Characteristics of high-performing school districts. *Leadership and Policy in Schools*, 16(1): 27-53.

- Leithwood, K., Harris, A., & Hopkins, D. (2020). Seven strong claims about successful school leadership revisited. *School Leadership & Management*, 40(1): 5-22
- Leithwood, K., Harris, A., & Strauss, T. (2010). *Leading school turnaround: How successful leaders transform low-performing schools*. *Bossy Bass John Wiley & Sons*, San Frnsisco.
- Leithwood, K., Jantzi, D., Earl, L., Watson, N., Levin, B. & Fullan, M. (2004). Strategic leadership for large-scale reform: the case of England's National Literacy and Numeracy Strategy. *School Leadership & Management*, 24(1): 57-79.
- Leithwood, K., & Jantzi, D. (2006). Transformational school leadership for large-scale reform: Effects on students, teachers, and their classroom practices. *School Effectiveness and School Improvement*, 17(2), 201-227.
- Leithwood, K., Louis, K.S., Wahlstrom, K., Anderson, S., Mascall, B. & Gordon, M., (2010). How successful leadership influences student learning: The second installment of a longer story. In *Second international handbook of educational change*, Springer, Dordrecht,: 611-629..
- Leithwood, K., Sun, J. & McCullough, C. (2019). How school districts influence student achievement. *Journal of Educational Administration*, 57(5):519-539.
- Leo, U. & Wickenberg, P. (2013). Professional norms in school leadership: Change efforts in implementation of education for sustainable development. *Journal of Educational Change*, 14(4): 403-422.
- Leoschut, L., & Makota, G. (2016). The National School Safety Framework: a framework for preventing violence in South African schools. *African Safety Promotion*, 14(2): 18-23.
- Leuven, J., Rutenfrans, A., Dolfing, A., & Leuven, R. (2018). School gardening increases knowledge of primary school children on edible plants and preference for vegetables. *Food Science and Nutrition*, 6(7): 1960–1967.
- Lewin, K.M. (2009). Access to education in sub-Saharan Africa: patterns, problems and possibilities. *Comparative Education*, 45(2): 151-174.
- Lewis, S. (2015). Qualitative inquiry and research design: Choosing among five approaches. *Health Promotion Practice*, 16(4): 473-475.

- Li, W., Bhutto, T.A., Nasiri, A.R., Shaikh, H.A. & Samo, F.A., (2017). Organizational innovation: the role of leadership and organizational culture. *International Journal of Public Leadership*, 14(1):33-47.
- Liao, E., Yang, L., Wang, M., Drown, D. & Shi, J. (2013). "Team–member exchange and work engagement: Does personality make a difference?. " *Journal of Business and Psychology*, 28(1): 63-77.
- Lindemann-Matthies, P., Benkowitz, D., & Hellinger, F. (2021). Associations between the naturalness of window and interior classroom views, subjective well-being of primary school children and their performance in an attention and concentration test. *Landscape and Urban Planning*, 214: 104146.
- Littlechild, R., Tanner, D. & Hall, K. (2015). Co-research with older people: perspectives on impact. *Qualitative Social Work*, 14(1): 18-35.
- Liu, Y. & Werblow, J. (2019). The operation of distributed leadership and the relationship with organizational commitment and job satisfaction of principals and teachers: A multi-level model and meta-analysis using the (2013) TALIS data. *International Journal of Educational Research*, 96: 41-55.
- Liu, S. & Yin, H. (2020). How ethical leadership influences professional learning communities via teacher obligation and participation in decision making: A moderated-mediation analysis. *Educational Management Administration & Leadership*, Available: <https://doi.org/10.1177/1741143220975766>.
- Liu, Y., Li, L. & Huang, C. (2022). To what extent is shared instructional leadership related to teacher self-efficacy and student academic performance in China?, *School Effectiveness and School Improvement*. *Taylor and Francis* on line.
- Loffing, F., & Hagemann, N. (2016). Performance differences between left-and right-sided athletes in one-on-one interactive sports. In *Laterality in sports*. *Academic Press*: 249-277.
- Loftus, S., Higgs, J., & Trede, F. (2011). Researching living practices: Trends in creative qualitative research. In *Creative spaces for qualitative researching*, 1-12. Brill Sense.
- Lomas, G., Grootenboer, P. & Attard, C. (2011). The affective domain and mathematics education. In *Research in mathematics education in Australasia*. *Sense Publishers*, Rotterdam. 23-37.

- Lomos, C., Hofman, R. H., & Bosker, R. J. (2011). The relationship between departments as professional communities and student achievement in secondary schools. *Teaching and Teacher Education*, 27(4): 722-731.
- Loreman, T., Specht, J., McGhie-Richmond, D., Mirenda, P., Bennett, S., Gallagher, T., Young, G., Metsala, J., Aylward, L., Katz, J. & Lyons, W. (2016). Teaching in inclusive classrooms: Efficacy and beliefs of Canadian preservice teachers. *International Journal of Inclusive Education*, 20(1): 1-15.
- Loris, N. D. (2020). Assessing Themes in the Biden Energy and Environment Platform. *Heritage Foundation Backgrounder*, (3548).
- Lubis, W., (2020). Academic Supervision Analysis by School Supervisors in Increasing Teachers Professional Competence Senior High School 1 Sunggal District Medan City. *Atlantis Press North Sumatera Province Indonesia*
- Lucas, K., Kang, D., & Li, Z. (2013). Workplace dignity in a total institution: Examining the experiences of Foxconn's migrant workforce. *Journal of Business Ethics*, 114(1), 91-106.
- Luhn, A. (2016). The learning organization. *Creative and Knowledge Society*, 6(1):1-13.
- Lunenburg, F.C. (2010). Managing change: The role of the change agent. *International Journal of Management, Business, and Administration*, 13(1): 1-6.
- Lunenburg, F.C. (2010). Communication: The process, barriers, and improving effectiveness. *Schooling*, 1(1): 1-10.
- Loftus, S., Higgs, J., & Trede, F. (2011). Researching living practices: Trends in creative qualitative research. In *Creative Spaces for Qualitative Researching*, :1-12).
- Loso, J., Staub, D., Colby, S. E., Olfert, M. D., Kattelman, K., Vilaro, M., ... & Mathews, A. E. (2018). Gardening experience is associated with increased fruit and vegetable intake among first-year college students: A cross-sectional examination. *Journal of the Academy of Nutrition and Dietetics*, 118(2): 275-283.
- Mackenzie, K.D. & Barnes, F.B. (2007). The unstated consensus of leadership approaches. *International Journal of Organizational Analysis*, 15(2), 92–118.
- Mafora, P. (2013). Learners' and teachers' perceptions of principals' leadership in Soweto secondary schools: a social justice analysis. *South African Journal of Education*, 33(3).

- Magaña-Medina, D. E., Aquino-Zúñiga, S. P., Valdés-Cuervo, A. A., & Parra-Pérez, L. G. (2021). Transformational leadership and the learner-centred teaching approach. *South African Journal of Education*, 41(2): S1-S12.
- Mager, U. & Nowak, P. (2012). Effects of student participation in decision making at school. A systematic review and synthesis of empirical research. *Educational Research Review*, 7(1): 38-61.
- Mahlangu, V.P. (2014). The effects of toxic leadership on teaching and learning in South African township schools. *Journal of Social Sciences*, 38(3): 313-320.
- Mahlomaholo, S.& Nkoane, M. (2002). "The case for an emancipatory qualitative research s on assessment of quality." *Education as Change*, 6(1): 69-84.
- Maijo, S. N. (2018). Impact of school feeding programme on learners' academic performance in mlunduzi ward, Tanzania. *International Journal of Educational Studies*, 5(3): 125-13
- Makombe, G. (2017). An expose of the relationship between paradigm, method and design in research. *The Qualitative Report*, 22(12): 3363-3383.
- Malek, ME., Nyberg, G., Elinder, LS., Patterson & Norman, A. (2021). *Children's experiences of participating in a school-based health promotion parental support programme – a qualitative study*. BMC Pediatrics, 21:228.
- Malingkas, M., Senduk, J.F., Simandjuntak, S. & Binilang, B.B. (2018). The Effects of Servant Leader and Integrity of Principal Performance in Catholic Senior High Schools in North Sulawesi, Indonesia. *Journal of International Education and Leadership*, 8(1): 1-19.
- Manan, M. M. B. (2014). Leadership characteristics of excellent headmaster. *Journal of Education and Practice*, 5(23): 120- 124.
- Manrique, M.S. & Abchi, V.S. (2015). Teachers' practices and mental models: transformation through reflection on action. *Australian Journal of Teacher Education*, 40(6): 13-32.
- Manu, E., Ankrah, N., Chinyio, E. & Proverbs, D. (2015). Trust influencing factors in main contractor and subcontractor relationships during projects. *International Journal of Project Management*, 33(7): 1495-1508.
- Mapaya, M. D. (2019). *Management of safety concerns in rural primary schools of Maleboho West Circuit in Limpopo Province* (Doctoral dissertation).

- Maphoso L.S.T & Mahlo D. (2014). Basic Facilities and Academic Achievement: A Comparative Study between Boarding and Non-boarding Schools, *International Journal of Educational Sciences*, 6(2): 309-315
- Mapotse, T. A., & Mashiloane, T. K. (2017). Nurturing learners' awareness of littering through environmental campaigns: An action research approach. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(10): 6909-6921.
- Maringe, F., Masinire, A. & Nkambule, T. (2015). Distinctive features of schools in multiple deprived communities in South Africa: Implications for policy and leadership. *Educational Management Administration & Leadership*, 43(3): 363-385.
- Marishane, R.N. 2014. South African Standards for Principals: Connecting Theory, Policy, Practice and Context, *Journal of Social Sciences*, 49(2), 26-33,
- Markwell, K. & Somerset, S. (2009). Impact of a school-based food garden on attitudes and identification skills regarding vegetables and fruit: a 12-month intervention trial. *Public Health Nutrition*, 12(2), 214-221.
- Martin, J., McCormack, B., Fitzsimons, D., & Spirig, R. (2014). The importance of inspiring a shared vision. *International Practice Development Journal*, 4(2).
- Martinez SM, Webb K, & Frongillo EA. (2018). Food insecurity in California's public university system: What are the risk factors? *Journal of Hunger & Environmental Health* 13(1): 1–18.
- Marume, A., Nyandoro, G., Mutingwende, I., Tshabalala, M., Gozho, T., Paul, N., ... & Mduluza, T. (2016). Evaluation of specific antibody responses to selected malaria vaccine candidates in Zimbabwean children. *Clinical Nursing Studies*, 4(1): 16-23.
- Masitsa, M. G. (2011). Exploring safety in township secondary schools in the Free State province. *South African Journal of Education*, 31(2):163-174
- Mason, H.D. (2017). Sense of meaning and academic performance: A brief report. *Journal of Psychology in Africa*, 27(3): 282-285.
- Mason, L., Ronconi, A., Scrimin, S. & Pazzaglia, F. (2021). Short-Term Exposure to Nature and Benefits for Students' Cognitive Performance: a Review. *Educational Psychology Review*, 1-39.

- Matsekoleng, T. K. (2017). *Learners' environmental awareness, effects on home and school practices towards littering: An action research case* (Doctoral dissertation).
- Matsuoka, R. H. (2010). Student performance and high school landscapes: Examining the links. *Landscape and Urban Planning*, 97: 273-282.
- Mawela, A. & Van den Berg, G. (2020). Management of school nutrition programmes to improve environmental justice in schools: a South African case study. *South African Journal of Clinical Nutrition*, 33(2):30-35
- Maxwell, L. E., & Schechtman, S. L. (2012). The role of objective and perceived school building quality in student academic outcomes and self-perception. *Children Youth and Environments*, 22(1): 23-51
- Mayer, M. J., & Furlong, M. J. (2010). How safe are our schools?. *Educational Researcher*, 39(1): 16-26.
- Mazur, B., & Mazur-Malek, M. (2017). Towards corporate wellness: Health culture and wellness programs. *Journal of Intercultural Management*, 9(3): 45-61.
- McGowan, H. (2014). Framing the vision for engagement. *Design Management Review*, 25(1): 22-32.
- Mchunu, S., & Le Roux, K. (2010). Non-participation in sport by black learners with special reference to gender, grades, family income and home environment. *South African Journal for Research in Sport, Physical Education and Recreation*, 32(1): 85-98.
- McIntyre, A. (2007). *Participatory action research*. Sage Publications
- McIsaac, J. L. D., Read, K., Veugelers, P. J., & Kirk, S. F. (2017). Culture matters: a case of school health promotion in Canada. *Health Promotion International*, 32(2): 207-217.
- McIsaac, J.L., Storey, K., Veugelers, P.J. & Kirk, S.F. (2015). Applying theoretical components to the implementation of health-promoting schools. *Health Education Journal*, 74(2): 131-143.
- McLaughlin, M. W., & Talbert, J. E. (2006). *Building school-based teacher learning communities: Professional strategies to improve student achievement*. Teachers College Press, 45 New York

- McNally, S.A. & Slutsky, R. (2017). Key elements of the Reggio Emilia approach and how they are interconnected to create the highly regarded system of early childhood education. *Early Child Development and Care*, 187(12): 1925-1937.
- Meier, C., & West, J. (2020). Overcrowded classrooms—the Achilles heel of South African education?. *South African Journal of Childhood Education*, 10(1): 1-10.
- Melchar, D.E. & Bosco, S.M., (2010). Achieving high organization performance through servant leadership. *The Journal of Business Inquiry*, 9 (1): 74-88.
- Mertens. DM. (2015). Mixed Methods and Wicked Problems. *Journal of Mixed Methods Research*. 9(1):3-6.
- Metwally, A. M., El-Sonbaty, M. M., El Etreby, L. A., Salah El-Din, E. M.,... & Monir, Z. M. (2020). Impact of National Egyptian school feeding program on growth, development, and school achievement of school children. *World Journal of Pediatrics*, 16(4): 393-400.
- Mevorach, M. & Strauss, S. (2012). Teacher educators' in-action mental models in different teaching situations. *Teachers and Teaching*, 18(1): 25-41.
- Mfaku, A. (2019). Urban agriculture a livelihood strategy for food security in the Cape Flats: A case study of community-based and home food gardens in Khayelitsha, Cape Town.
- Michel, R. E., Lorelle, S., & Atkins, K. M. (2017). LEAD with data. *Professional School Counseling*, 21(1b):217-226
- Miller, T., Birch, M., Mauthner, M. & Jessop, J. (eds). (2012). Ethics in qualitative research. Sage,
- Milne, E.J. & Muir, R., (2019). Photovoice: A Critical. The SAGE handbook of visual research methods. SAGE, Luliang, China.
- Minkler, M., Pies, C., & Hyde, C. A. (2012). Ethical issues in community organizing and capacity building. *Community organizing and community building for health and welfare*, 110.
- Mintzberg, H., (2009). *Managing*. Berrett-Koehler Publishers.
- Mirvis, P., Googins, B. & Kinnicutt, S. (2010). Vision, mission, values. *Organizational Dynamics*, 39: 316- 324.

- Mishra, M. & Pandey, A. (2018). The impact of leadership styles on knowledge-sharing behavior: a review of literature. *Development and Learning in Organizations: An International Journal*, 33(1): 16-19.
- Mishra, R.C. & Pathak, K. (2012). *Maintenance engineering and management*. PHI Learning Pvt. Ltd.
- Mitchell, BD. (2008). A quantitative study on positive school culture and student achievement on a criterion-referenced competency test. PhD thesis, University of Phoenix, ProQuest LLC, Parkway
- Mogren, A., Gericke, N., & Scherp, H. Å. (2019). Whole school approaches to education for sustainable development: A model that links to school improvement. *Environmental Education Research*, 25(4): 508-531.
- Mojela, T. W. (2013). *Assessment of the effectiveness of public schools infrastructure maintenance system in the Gauteng province*. University of Johannesburg (South Africa).
- Moletsane, R., & Venter, C. (2018). The 21st century learning environment tools as electronic waste. In *Proceedings of the world congress on engineering and computer science*, 1: 188-192).
- Molina-López, M. M., Sanz-Magallón, G., & García, M. C. (2018). Estimation of the school competition level in the region of Madrid and its effects on academic performance. *Revista de Education*. 382: 199–224.
- Moloi, K. C. (2010). How can schools build learning organisations in difficult education contexts?. *South African Journal of Education*, 30(4): 621-633.
- Morrison, S. A., Brown Thompson, C., & Glazier, J. (2022). Culturally responsive teacher education: do we practice what we preach?. *Teachers and Teaching*, 28(1): 26-50.
- Moses, J.O. & Villodas, M.T. (2017). The potential protective role of peer relationships on school engagement in at-risk adolescents. *Journal of Youth and Adolescence*, 46(11): 2255-2272.
- Moon, K. H., Jeon, Y. R., Lee, C. S., & Han, S. W. (2012). Evaluation of performance of korean existing school buildings with masonry infilled walls against earthquakes. *Journal of the Earthquake Engineering Society of Korea*, 16(6): 37-46.

- Moon, A. M., Mullee, M. A., Rogers, L., Thompson, R. L., Speller, V., & Roderick, P. (1999). Helping schools to become health-promoting environments—an evaluation of the Wessex Healthy Schools Award. *Health Promotion International*, 14(2): 111-122.
- Mouton, N., Louw, G.P. & Strydom, G. (2013). Critical challenges of the South African school system. *International Business & Economics Research Journal (IBER)*, 12(1): 31-44.
- Mowla, Q. A., & Islam, M. S. (2013). Natural drainage system and water logging in Dhaka: measures to address the problems. *Journal of Bangladesh Institute of Planners*, 6: 23-33.
- Moynihan, S., Jourdan, D., & McNamara, P. M. (2016). An examination of health promoting schools in Ireland. *Health Education.*, 116(1):16-33.
- Msezane, S. B. (2014). An exploration of the impact of environmental education innovation on students in sustaining land resources: A case of Mkhondo village. MEd dissertation. Pretoria: University of South Africa
- Msezane, S. B., & Mudau, A. V. (2014). Reconnoitering the stimulus of environmental education in reducing improper solid waste disposal: a case of St Marcia School in the Mkhondo village in Mpumalanga in South Africa. *Journal of Human Ecology*, 48(3): 367-374.
- Mtapuri, O. Kekana, L. & Thabethe, N. (2015). Developing a new procurement model for the National School Nutrition Programme in Limpopo, National School Nutrition Programme in Limpopo, South Africa. *Loyola Journal of Social Sciences*, XXIX(2): 167-186
- Mukoma, W., Flisher, A. J., Ahmed, N., Jansen, S., Mathews, C., Klepp, K. I., & Schaalma, H. (2009). Process evaluation of a school-based HIV/AIDS intervention in South
- Mulford, B. & Silins, H. (2003). Leadership for organizational learning and improved student outcomes – what do we know? *Cambridge Journal of Education*, 33(2):175-95.
- Mullis, I. V. S., Martin, M. O., Foy, P., Kelly, D. L., & Fishbein, B. (2020). TIMSS (2019) International Results in Mathematics and Science. *TIMSS & PIRLS International Study Center website*
- Mulyasa, E. (2016). Improved Quality Management Based Learning for Preparing the Character of Graduates in Response to Globalization Era. *International Journal of Education and Research*, 4(11): 385-393.

- Murillo Torrecilla, F.J. (2011). Make education an area based on scientific evidence. *REICE: Ibero-American Electronic Journal on Quality, Effectiveness and Change in Education*, 116(1):16-33
- Murphy, J. (1990). Principal instructional leadership. *Advances in educational administration: Changing perspectives on the school*, 1(Part B): 163-200.
- Mushtaq, I. & Khan, S.N. (2012). Factors affecting students' academic performance. *Global journal of Management and Business Research*, 12(9): 17-22.
- Mytton, O. T., Townsend, N., Rutter, H., & Foster, C. (2012). Green space and physical activity: an observational study using Health Survey for England data. *Health & Place*, 18(5): 1034-1041.
- Nahvi, A., Daghighi, A., & Nazif, S. (2018). The environmental impact assessment of drainage systems: a case study of the Karun river sugarcane development project. *Archives of Agronomy and Soil Science*, 64(2): 185-195.
- Najmaei, A. & Sadeghinejad, Z. (2019). Inclusive leadership: a scientometric assessment of an emerging field. In *Diversity within Diversity Management*. Emerald Publishing Limited.
- Naz, A.; Khan, W.; Khan, Q.H.M.; Daraz, U. & Mujtaba, B. (2013). "Teacher's Questioning Effects on Students Communication in Classroom Performance". *Journal of Education and Practice*. 4(7):148-158.
- Ncontsa, V. N., & Shumba, A. (2013). The nature, causes and effects of school violence in South African high schools. *South African Journal of Education*, 33(3): 1-15.
- Ncube, F., Kanda, A., Muzeketwa, D., Chiripamberi, V. & Madondo, M.C. (2022). Risk factors for food poisoning among self-catering university students. *International Journal of Environmental Health Research*, 32(1): 29-39.
- Ndhlovu, T., Bertram, C., & Mthiyane, N. (2010). *Creating People-Centred Schools: School Organization and Change in South Africa*. South African Institute for Distance Education. <https://www.amazon.com/Creating-People-centred-Schools-Organization-Education/dp/0195717066>

- Ndungu, B. W., Gathu, A. & Bomett, J. E., (2015). Influence of Monitoring and Evaluation by Principals on Effective Teaching and Learning in Public Secondary Schools in Githunguri District. *Journal of Education and Practice*, 6(9): 10 – 17.
- Nejad BA Abbaszadeh MMS Hassani M, & Bernousi I (2012). Study of the Entrepreneurship in Universities as Learning Organization Based on Senge Model, *International Education Studies*, 5 (1): 67-77.
- Nelson, R., Ehren, M. & Godfrey, D. (2015). Literature review on internal evaluation. *London: Institute of Education*.
- Nettles, S. M., & Herrington, C. (2007). Revisiting the importance of the direct effects of school leadership on student achievement: The implications for school improvement policy. *Peabody Journal of Education*, 82(4): 724-736.
- Newman, L., & Dale, A. (2013). Celebrating the mundane: Nature and the built environment. *Environmental Values*, 22(3): 401-413.
- Newmann, F. M., Marks, H. M., & Gamoran, A. (1996). Authentic pedagogy and student performance. *American Journal of Education*, 104(4): 280-312.
- Ngcobo, T. & Tikly, L.P. (2010). Key dimensions of effective leadership for change: A focus on township and rural schools in South Africa. *Educational Management Administration & Leadership*, 38(2): 202-228.
- Nhlapo, V.A. (2020). The leadership role of the principal in fostering sustainable maintenance of school facilities. *South African Journal of Education*, 40(2): 1-9
- Nieuwenhuis, J. 2020. Analysing qualitative data. In K. Maree (Ed.), *First steps in research*. Pretoria: Van Schaik.
- Nijs, M. M., Bun, C. J., Tempelaar, W. M., de Wit, N. J., Burger, H., Plevier, C. M., & Boks, M. P. (2014). Perceived school safety is strongly associated with adolescent mental health problems. *Community Mental Health Journal*, 50(2), 127-134
- Nissilä, S.P. & Karjalainen, A., (2020). Development of Pedagogical Thinking and Awareness in Higher Education Social Contexts—Longitudinal study on teacher growing process. Available: <http://urn.fi/urn:nbn:fi-fe2020091870039>.

- Northern Cape Department of Basic Education (NCDBE), (2018), MEC speech: Matric intervention strategies. Kimberly. Northern Cape Department of Basic Education
- Nuchso, N., Tuntivivat, S. & Klayklung, P. (2016). The effect of learning organization and servant leadership on child-centered teaching behavior with the mediating role of knowledge sharing in education of Chanthaburi Diocese schools. *International Journal of Humanities, Arts and Social Sciences*, 2(5):181-188.
- Nurcahyo, F.A. Heryati, A.N., Nurahaju, R. & Nurcholis, G. (2019). Effect of safety climate on safety behavior in employees: The mediation of safety motivation. *Psikohumaniora: Jurnal Penelitian Psikologi*, 4(2):191-200.
- Nurlinda, M. Rahman, A. & Salija, K. (2019). Parents' perceptions and beliefs towards bilingual education at Madania preschool in Makassar. THESIS Faculty of Language and Education, State University of Makassar, St. Gunungsari Baru. Bonto Langkasa, Makassar, Indonesia
- Nyamwaya, D., & Cossa, O. (2009). Effectiveness of health promotion interventions in Africa: examples from school health. In *Evidence of Health Promotion Effectiveness in Africa* (pp. 85-99). African Institute for Health & Development, Nairobi.
- Nykiforuk, C. I., Vallianatos, H., & Nieuwendyk, L. M. (2011). Photovoice as a method for revealing community perceptions of the built and social environment. *International journal of qualitative methods*, 10(2): 103-124.
- Nzimande, W.M., (2020) *Sailing in turbulent conditions: principals' leadership experiences about turning around underperforming schools in deprived contexts* (Doctoral dissertation).
- Occupation Health and Safety Act .(1993). The Independent Journal of Teaching and Learning, *The Journal of Independent Teaching and Learning*, 15(2)
- O'Connell, P.K. (2014). A simplified framework for 21st century leader development. *The Leadership Quarterly*, 25(2):183-203.
- Office for Standards in Education, Children's Services and Skills (OFSTED) (2009), The importance of cleanliness, Midsomer Norton,
- Ogbeba, J. & Muluku, A. (2013). Influence of Clean School Environment and Standard Classroom Size and Facilities on Students' Achievement in Biology in Gwagwalada Area Council of Fct-Abuja. *International Journal of Case Studies*, <https://ssrn.com/abstract=2869580>

- Okafor, AM., Oda, EO. & Onodigbo (2020). Dietary diversity: Association with Academic Performance and Anthropometric Indices of Rural Nigerian School Children. *Pakistan Journal of Nutrition*. 19(2): 61-67.
- Okeke, C. I., & Mtyuda, P. N. (2017). Teacher job dissatisfaction: Implications for teacher sustainability and social transformation. *Journal of Teacher Education for Sustainability*, 19(1): 54..
- Okiror, J.J., Matsiko, B.F. & Oonyu, J. (2011). Just How Much Can School Pupils Learn from School Gardening? A Study of Two Supervised Agricultural Experience Approaches in Uganda. *Journal of Agricultural Education*, 52(2): 24-35.
- Okolo, C. V., Edeme, R. K., & Emmanuel, C. (2018). Economic analysis of capital expenditure and infrastructural development in Nigeria. *Journal of Infrastructure Development*, 10(1-2): 52-62.
- Okonofua, J.A., Walton, G.M. & Eberhardt, J.L. (2016). A vicious cycle: A social–psychological account of extreme racial disparities in school discipline. *Perspectives on Psychological Science*, 11(3): 381-398.
- Oladunni, O. A., & Femi-Oladunni, O. (2018). Impact Assessment of Cassava Cottage Industry Project on Rural Farmers in Nigeria (A Case Study of Kogi State). *International Journal of Current Research in Life Sciences*, 7(09): 2722-2724.
- Olagunju, A. M., & Adejare, A. S. (2011). Interactive effect of brain-based instructional strategy and mathematics anxiety on students' attitude to senior secondary school Mathematics. *African Journal of Educational Management*, 13(1): 147-162.
- Oldewage-Theron, W., Egal, A. & Moroka, T. (2015). Nutrition knowledge and dietary intake of adolescents in Cofimvaba, Eastern Cape, South Africa. *Ecology of Food and Nutrition*, 54(2): 138-156.
- Ogbeba, J., & Muluku, A. (2013). Influence of clean school environment and standard class room size and facilities on students' achievement in Biology in Gwagwalada Area Council of Fct-Abuja. *International Journal of Case Studies*, 21-26
- Ohakamike-Obeka, N. (2016). The school learning environment and students' attitude and achievement in English language. *Research on Humanities and Social Sciences*, 6(2): 31-37.

- Olumeri, F. & Olaleye, F.O. (2013). Improving teacher performance competency through effective human resource practices in Ekiti State secondary schools. *Singaporean Journal of Business Economics, and Management Studies*, 1(11): 2.
- Omuemu, V. O., & Ogboghodo, E. O. (2020). Nutritional Factors and Academic Performance of Primary School Children in an Urban City in Southern Nigeria. *Journal of Health and Medical Sciences*, 3(3): 310-321
- Ongori, H., & Agolla, J. E. (2008). Occupational stress in organizations and its effects on organizational performance. *Journal of Management Research*, 8(3): 123-135.
- Onyekwere, M. & Ubong, J. (2019). Principals' Role On The Effective Management Of Educational Facilities In Public Senior Secondary Schools in East Senatorial District Of Rivers State.
- Oplatka, I. & Nupar, I. (2012). The components and determinants of school reputation: Insights from parents' voices. *Education and Society*, 30(1): 37-52.
- O'Reilly, K. & Marx, S. (2011). How young, technical consumers assess online WOM
- Organisation for Economic Cooperation and Development (OECD). (2018) Economic survey of South Africa (Online). <http://www.oecd.org/economy/south-africa-economic-snapshot/>
- Oyinlade, OA., Ogunkunle, OO. & Olanrewaju, DM. (2014). An evaluation of school health services in Sagamu, Nigeria. *Nigerian Journal of Clinical Practice*, 17(3): 336-341.
- Ozer, E.J. (2007). The effects of school gardens on students and schools: Conceptualization and considerations for maximizing healthy development. *Health Education & Behavior*, 34(6): 846-863.
- Pain, R., Finn, M., Bouveng, R., & Ngobe, G. (2013). Productive tensions—engaging geography students in participatory action research with communities. *Journal of Geography in Higher Education*, 37(1): 28-43.
- Papageorgiou, E. (2017). Accounting students' profile versus academic performance: A five-year analysis. *South African Journal of Higher Education*, 31(3): 209-229.
- Parmer, S.M., Salisbury-Glennon, J., Shannon, D. & Struempfer, B. (2009). School gardens: an experiential learning approach for a nutrition education program to increase fruit and vegetable

- knowledge, preference, and consumption among second-grade students. *Journal of Nutrition Education and Behavior*, 41(3): 212-217.
- Parnwell, RN. (2015). Influence of school infrastructure on academic performance in Public primary schools in Ruiru location-Meru county, Kenya.
- Pashiardis, P. (1995). Cyprus principals and the universalities of effective leadership, *International Studies in Educational Administration*, 23(1): 16-26.
- Pashiardis, P. (1998). Researching the characteristics of effective primary school principals in Cyprus: A qualitative approach. *Educational Management & Administration*, 26(2): 117-30.
- Pashiardis, P., Thody, A., Papanaooum, Z. & Johansson, O. (2003). European Educational Leadership. A Search for Consensus in Diversity. *Digiword Limited*, Nicosia.
- Pashiardis, P. (2005). Managing education matters. *Commonwealth Council for Educational Administration and Management (CCEAM)*, 8 (1): 1-2.
- Pate, R. R. (2009). A national physical activity plan for the United States. *Journal of Physical Activity and Health*, 6(2): S157.
- Patterson, K.D., Gondo, M., & Palacios, S.T., (2013). Mindfulness and the development of a readiness for change. *Journal of Change Management*, 13(1): 36-51.
- Patton, K., Parker, M. & Tannehill, D. (2015). Helping teachers help themselves: Professional development that makes a difference. *NASSP bulletin*, 99(1): 26-42.
- Pawirosumarto, S., Sarjana, P. K., & Gunawan, R. (2017). The effect of work environment, leadership style, and organizational culture towards job satisfaction and its implication towards employee performance in Parador Hotels and Resorts, Indonesia. *International Journal of Law and Management*, 59(6):1337-1358
- Pedler, M. & Burgoyne, J. (2017): Is the learning organisation still alive?, *The Learning Organization*, 24(2): 119-126.
- Peixoto, F., Monteiro, V., Mata, L., Sanches, C., Pipa, J. & Almeida, L.S., (2016). "To be or not to be retained... that's the question!" Retention, self-esteem, self-concept, achievement goals, and grades. *Frontiers in Psychology*, 7: 1-13
- Phillips, C., & Bellinger, A. (2011). Feeling the cut: Exploring the use of photography in social work education. *Qualitative Social Work*, 10(1): 86-105.

- Pienaar, A.E. (2019). 'The association between under-nutrition, school performance and perceptual motor functioning in first-grade South African learners: The North-West Child Health Integrated with Learning and Development study', *Health SA Gesondheid* 24(0)
- Pokharel, M.P. & Choi, S.O. (2015). Exploring the relationships between the learning organization and organizational performance. *Management research review*, 59(6):1337-1358.
- Polovina, N., Gundogan, D. & Radulović, M. (2021). Visions of personal future among adolescents with different orientations toward educational mobility: the case of Serbia. *Revija za sociologiju*, 51:e1-e30.
- Ponzi, L.J., Fombrun, C.J. & Gardberg, N.A. (2011). RepTrak pulse: Conceptualizing and validating a short-form measure of corporate reputation. *Corporate Reputation Review*, 14(1): 15-35.
- Pope, E.M. (2020). From participants to co-researchers: Methodological alterations to a qualitative case study. *The Qualitative Report*, 25(10): 3749-3761.
- Popkin, BM. D'Anci, KE & Rosenberg, IH. 2010. Water, hydration, and health, *Nutrition Reviews*, 68(8): 439–458
- Potgieter-Groot, L., Visser, M. & Lubbe-de Beer, C. (2012). Emotional and behavioural barriers to learning and development in the inclusive education classrooms in South Africa: Developing a training programme for teachers. *Journal of Child & Adolescent Mental Health*, 24(1): 59-71.
- Powell, D. (2019). *Schools, corporations, and the war on childhood obesity: How corporate philanthropy shapes public health and education*. Routledge.
- Prestiadi, D., Zulkarnain, W. & Sumarsono, R.B. (2019). Visionary leadership in total quality management: efforts to improve the quality of education in the industrial revolution 4.0. In *The 4th International Conference on Education and Management (COEMA)* :202-206). Atlantis Press.
- Public Service Commission. (2008). Report on the evaluation of the national school nutrition programme (NSNP). Pretoria:
- Pule, R. E. J., Drotsky, G. A. P., Toriola, A. L., & Kubayi, N. A. (2014). Barriers to sport participation among learners at public township schools in Tshwane, South Africa. *African Journal for Physical Health Education, Recreation and Dance*, 20(4): 1414-1423.

- Putri, M. S., & Susanna, D. (2021). Food safety knowledge, attitudes, and practices of food handlers at kitchen premises in the Port 'X' area, North Jakarta, Indonesia 2018. *Italian Journal of Food Safety*, 10(4).
- Qila, VE. & Tyilo N. (2014). Implementing National School Nutrition Programme (NSNP): How Involved are the Stakeholders? *Mediterranean Journal of Social Sciences*, 5(27): 381-390.
- Rajasekar, S., Philominaathan, P., & Chinnathambi, V. (2013). Research Methodology. <http://arxiv.org/pdf/physics/0601009.pdf>
- Ramirez-Gomez, S. O., Brown, G., & Fat, A. T. S. (2013). Participatory mapping with indigenous communities for conservation: challenges and lessons from Suriname. *The Electronic Journal of Information Systems in Developing Countries*, 58(1): 1-22.
- Rasul, G., Saboor, A., Tiwari, P. C., Hussain, A., Ghosh, N., & Chettri, G. B. (2019). Food and nutrition security in the Hindu Kush Himalaya: Unique challenges and niche opportunities. In *The Hindu Kush Himalaya Assessment*, :301-338. Springer, Cham.
- Redding, S. (2011). The school community: Working together for student success. *Handbook on Family and Community Engagement*, : 15-20.
- Reeves, D. B. (2009). *Leading change in your school: How to conquer myths, build commitment, and get results*. Association for Supervision and Curriculum Development (ASCD) Alexandria USA
- Reeves, M. A., Baldridge, B. J., Beck, N., & Medina, J. C., (2017). Toward a new understanding of community-based education: The role of community-based educational spaces in disrupting inequality for minoritized youth. *Review of Research in Education*, 41(1): 381-402.
- Rehman, R. R., & Waheed, A. (2012). Transformational leadership style as predictor of a decision making styles: Moderating role of emotional intelligence. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 6(2): 257-268.
- Rendall-Mkosi, K., Perez, A.M., Ayo-Yusuf, O.A., Hofman, K., Kalideen, S., Maker, A., ... & Saloojee, Y. (2013). Establishing a health promotion and development foundation in South Africa. *South African Medical Journal*, 103(3): 147-149.
- Rendall-Mkosi K, Wenhold F & Sibanda, (2013). Case study of the National School Nutrition Programme in South Africa. Pretoria: Partnership for Child Development;

- Retna, K. S., & Ng, P. T. (2011). Communities of practice: dynamics and success factors. *Leadership & Organization Development Journal*, 32(1): 41-59.
- Reynolds, D., Teddlie, C., Chapman, C., & Stringfield, S. (2015). Effective school processes. In *The Routledge international handbook of educational effectiveness and improvement* (pp. 77-99). Routledge.
- Rhodes, C. & Brundrett, M. (2009.) Leadership development and school improvement. *Educational Review*, 61(4): 361-374.
- Richesky, G.J., & Murillo, F.J. (2011). Professional learning communities: An improvement strategy for a new conception of school. REICE: Ibero-American Journal on Quality, *Effectiveness and Change in Education*, 9(1): 65-83.
- Riesch, S. K., Jacobson, G., Temkin, B. M., Kedrowski, K. M., & Kluba, N. (2011). Students feeling unsafe in school: Fifth graders' experiences. *The Journal of School Nursing*, 27(2): 149-159.
- Rigby, J.G. (2015). Principals' sense making and enactment of teacher evaluation. *Journal of Educational Administration*, 53(3): 374-392.
- Riley, E., Capps, N., Ward, N., McCormack, L., & Staley, J. (2021). Maintaining Academic Performance and Student Satisfaction during the Remote Transition of a Nursing Obstetrics Course to Online Instruction. *Online Learning*, 25(1): 220-229.
- Rinaldi, M., Marland, M., & Wybourn, S. (2012). Annual Report 2011–2012: South West London Recovery College. *London: Mental-health NHS Trust*.
- Rindova, V. P., Williamson, I. O., & Petkova, A. P. (2010). Reputation as an intangible asset: Reflections on theory and methods in two empirical studies of business school reputations. *Journal of Management*, 36(3): 610-619
- Rivas, A. (2020). Educational change and innovation: the crucial questions. XII Latin American Education Forum 2017. Santillana Foundation.
- Robbins, S. P., & Judge, T. A. (2012). *Organizational Behavior* (15th ed.). Upper Saddle River, NJ: Prentice Hall.
- Robinson, H.S. & Scott, J. (2009). Service delivery and performance monitoring in PFI/PPP projects. *Construction Management and Economics*, 27(2): 181-197.

- Roderick, M., Easton, J. Q., & Sebring, P. B. (2009). The Consortium on Chicago School Research: A New Model for the Role of Research in Supporting Urban School Reform. *Consortium on Chicago School Research*. Chicago
- Roe, J. & Aspinall, P. (2011). The restorative outcomes of forest school and conventional school in young people with good and poor behaviour. *Urban Forestry & Urban Greening*, 10(3): 205-212.
- Rohiat, S. (2021). January). Vision Development of Principals to Support Achievement of Innovative Leaders. In *Proceeding The First International Conference on Government Education Management and Tourism*, 1(1): 691-700.
- Rosenberg, E. (2020). Eco-schools as education for sustainable development in rural South Africa. In *Green Schools Globally* (pp. 289-307). Springer, Cham
- Rowan, B. (1990). Chapter 7: Commitment and control: Alternative strategies for the organizational design of schools. *Review of Research in Education*, 16(1):353-389.
- Rowling, L., & Samdal, O. (2011). Filling the black box of implementation for health-promoting schools. *Health Education*, 111(5): 347–362.
- Ruggiero, S., Martiskainen, M., & Onkila, T. (2018). Understanding the scaling-up of community energy niches through strategic niche management theory: Insights from Finland. *Journal of Cleaner Production*, 170: 581-590.
- Sabates, R., Westbrook, J., Akyeampong, K.& Hunt, F., (2010). School drop-out: Patterns, causes, changes and policies. United Nations Educational, Scientific and Cultural Organisation (UNESCO): Paris, France.
- [SABC News](#). (2019). Poor infrastructure impacts North West school's academic performance. SABC.
- Salisbury, F. & Sheridan, L. (2011). Mapping the journey: Developing an information literacy strategy as part of curriculum reform. *Journal of Librarianship and Information Science*, 43(3): 185-193.
- Salkind, N. J. (2010). Naturalistic inquiry. *Encyclopedia of Research Design*, 2: 880-885.
- Santos, C. M., & Passos, A. M. (2013). Team mental models, relationship conflict and effectiveness over time. *Team Performance Management*, 19(7/8): 363-385

- Sautner, B. (2008). Inclusive, Safe and Caring Schools: Connecting Factors. *Developmental Disabilities Bulletin*, 36: 135-167.
- Savelsbergh, C. M., van der Heijden, B. I. & Poell, R. F. Sidani, Y. M., & Rowe, W. G. (2018). A reconceptualization of authentic leadership: Leader legitimation via follower-centered assessment of the moral dimension. *The leadership quarterly*, 29(6): 623-636
- Sawyer, S. M., Afifi, R. A., Bearinger, L. H., Blakemore, S.-J., Dick, B., & Ezeh, A. C. (2012). Adolescence: a foundation for future health. *Lancet* (London, England), 379: 1630–1640.
- Schechter, C., Shaked, H., Ganon-Shilon, S. & Goldratt, M. (2018). Leadership metaphors: School principals' sense-making of a national reform. *Leadership and Policy in Schools*, 17(1):1-26.
- Schiell, J. (2021). Characteristics of School Safety and ACT Test Performance. ACT Research. Issue Brief. *ACT, Inc.*
- Schippers, M. C., Edmondson, A. C., & West, M. A. (2014). Team reflexivity as an antidote to [team information-processing failures](#). *SAGE*, :45(6): 731-769
- Schlebusch, G., & Mokhatle, M. (2016). Strategic planning as a management tool for school principals in rural schools in the Motheo District. *International Journal of Educational Sciences*, 13(3): 342-348.
- Schleicher, A. (2012). *Preparing teachers and developing school leaders for the 21st century: Lessons from around the world*. Paris: OECD Publishing.
- Schleicher, A. (2016). Teaching excellence through professional learning and policy reform. *Lessons from Around the World, International Summit on the Teaching Profession*. OECD Library.
- Scott, W.R., (2013). *Institutions and organizations: Ideas, interests, and identities*. Sage Publications.
- Scribner, S.M.P., Crow, G.M., López, G.R. & Murtadha, K. (2011). “Successful” principals: A contested notion for superintendents and principals. *Journal of School Leadership*, 21(3): 390-421.

- Seashore L.K., Dretzke, B. & Wahlstrom, K. (2010). How does leadership affect student achievement? Results from a national US survey. *School Effectiveness and School Improvement*, 21(3): 315-336.
- Sebring, P. B., & Montgomery, N. D. (2014). The five essential supports for school improvement: Mobilizing the findings. *Pensamiento Educativo: Revista de Investigación Educativa Latinoamericana*, 51: 63–85.
- Selamat, N., Samsu, N.Z. & Kamalu, N.S.M. (2013). The impact of organizational climate on teachers' job performance. *Educational Research Journal*, 2(1), 2013: 71-82
- Selcuk, S. (2017). Predictive maintenance, its implementation and latest trends. *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, 231(9): 1670-1679.
- Senge PM (1990). *The Fifth Discipline: The Art & Practice of the Learning Organization*. New South Wales.
- Senge PM (1996) Leading learning organizations. *Training & Development* 50(12): 36–37.
- Senge PM (2000) Systems change in education. *Reflections* 1(3): 52–59.
- Senge, P. (2006). *Schools That Learn: A Fifth Discipline Fieldbook for Educators, Parents, and Everyone who cares about Education*. USA: Nelda Cambron-McCabe.
- Senge (2012). Creating the school of the future: education for sustainable society. *Leader to Leader*, 65: 49-44.
- Serfontein, J.J., (2009). *The impact of strategic leadership on the operational strategy and performance of business organisations in South Africa* (Doctoral dissertation, Stellenbosch: University of Stellenbosch).
- Setiawati, L., Christiananta, B. & Elitan, L. (2017). The Effect of Organizational Service Orientation, Strategic Leadership And Strategic Competence on the Organizational Performance of Private University. *International Journal of Advanced Research* 5(2): 1992-2002
- Settaraming, Rahman MAA, & Tahir LM. (2012). The New Role of Principals In Improving Teachers' Personal Mastery at Schools in Indonesia. *Journal of Education and Learning*, 6(2): 73-80.

- Shaked, H. & Schechter, C. (2014). Systems school leadership: Exploring an emerging construct. *Journal of Educational Administration*, 52(6): 792-811.
- Shaked, H, & Schechter, C. (2016). Sources of Systems Thinking in School Leadership. *Journal of School Leadership*, 26(3):468-494.
- Shaked, H. & Schechter, C. (2019). Exploring systems thinking in school principals 'decision-making. *International Journal of Leadership in Education*, 22(5):573-596.
- Shanka, E. B., & Thuo, M. (2017). Conflict Management and Resolution Strategies between Teachers and School Leaders in Primary Schools of Wolaita Zone, Ethiopia. *Journal of Education and Practice*, 8(4): 63-74.
- Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22(2): 63-75.
- Shenton, A. K. (2012). Strategies for ensuring trustworthiness: Qualitative research projects Division of Information and Communication Studies. *School of Informatics Northumbria University, Newcastle upon Tyne: Lippitonman Building*.
- Shohet, I.M. & Straub, A. (2013). Performance-based-maintenance: a comparative study between the Netherlands and Israel. *International Journal of Strategic Property Management*, 17(2): 199-209.
- Shotsberger, P. & Freytag, C. (2021). How Shall We Then Care? A Christian Educator's Guide to Caring for Self, Learners, Colleagues, and Community. *International Journal of Christianity & Education* 25(2): 240–241
- Showman, A., Cat, L. A., Cook, J., Holloway, N., & Wittman, T. (2013). Five essential skills for every undergraduate researcher. *Council on Undergraduate Research Quarterly*, 33(3): 16-21.
- Sibanyoni, J. J., & Tabit, F. T. (2017). Assessing the food safety attitudes and awareness of managers of school feeding programmes in Mpumalanga, South Africa. *Journal of Community Health*, 42(4): 664-673.
- Sibiya, J. E., & Gumbo, J. R. (2013). Knowledge, attitude and practices (KAP) survey on water, sanitation and hygiene in selected schools in Vhembe District, Limpopo, South Africa. *International Journal of Environmental Research and Public Health*, 10(6): 2282-2295.

- Sidani, Y. M. & Rowe, W. G. (2018). A reconceptualization of authentic leadership: Leader legitimation via follower-centered assessment of the moral dimension. *The leadership Quarterly*, 29(6): 623-636.
- Simon, N.S. & Johnson, S.M. (2015) Teacher Turnover in High-Poverty Schools: What We Know and Can Do. *Teachers College Record*: 117:1-36
- Simovska, V., (2008). Learning in and as participation: a case study from health-promoting. Springer Link: 61–80
- Simovska, V. & Jensen, B.B. (2009). Conceptualizing participation. *The health of children and young people*, :11.
- Simovska, V. (2012). What do health-promotion, schools promote? Processes and outcomes in school health promotion. *Health Education*.112(2): 84-88.
- Simovska, V., Nordin, L. L., & Madsen, K. D. (2015). Health promotion in Danish schools: local priorities, policies and practices. *Health Promotion International*, 31(2): 480-489.
- Skallerud, K. (2011). School reputation and its relation to parents' satisfaction and loyalty. *International Journal of Educational Management*, 25(7): 671-686
- Smylie, M. A. (2014). Teacher evaluation and the problem of professional development. *Mid-Western Educational Researcher*, 26(2).
- Soh, K. L., Davidson, P. M., Leslie, G., & Rahman, A. B. A. (2011). Action research studies in the intensive care setting: a systematic review. *International Journal of Nursing Studies*, 48(2): 258-268.
- Sole, F., Carlucci, D. & Schiuma, G. (2010). Understanding organisational knowledge-based value creation dynamics: A systems thinking approach. In *Business performance measurement and management* (pp. 327-341). Berlin: Springer,.
- Somerset, S. & Markwell, K. (2009). Impact of a school-based food garden on attitudes and identification skills regarding vegetables and fruit: a 12-month intervention trial. *Public Health Nutrition*, 12(2): 214-221.
- Sommer M. (2010). Putting menstrual hygiene management on to the school water and sanitation agenda. *Waterlines Practical Action Publishing*, 29(4):268–78.

- Song, J. H., Chermack, T. J. & Kim, W. (2013). An analysis and synthesis of DLOQ-based learning organization research. *Advances in Developing Human Resources*, 15(2): 222-239.
- Song, JIH. & Chermack, T.J. (2008). A Theoretical Approach to the Organizational Knowledge Formation Process: Integrating the Concepts of Individual Learning and Learning Organization Culture. *SAGE*, 7(4):424-442.
- Šontaitė, M., & Kristensen, T. (2009). Aesthetics based corporate reputation management in the context of higher education. *Organizacijų vadyba: sisteminiai tyrimai*, 51: 129-146.
- South Africa .(1996b) The Constitution of the Republic of South Africa Pretoria: Government Printer
- South Africa1(996a). The South African Schools Act. No. 84 of 1996. Pretoria: Government Printers.
- South Africa (1996). National Education Policy Act. Act. 27 of 1996. Pretoria: Government Printers.
- South Africa (1997). The National Building Regulations and water service act 108. Pretoria: Government Printers
- South Africa (2008) South African Human Rights Commission (SAHRC) Pretoria: Government Printers
- South Africa. (2008). Implementation guidelines: Safe and caring child-friendly schools in South Africa. Pretoria: Government Printers.
- South Africa. (2008). Report on the evaluation of the school nutrition programme (NSNP). Pretoria: Department of Basic Education
- South Africa. (2010). Nutrition education manual vol 1: educators. national school nutrition programme. Pretoria: Department of Basic Education
- South Africa (2011). NEIMS (National Education Infrastructure Management System) Department of Basic Education reports, Pretoria: Government Printers
- South Africa, (2011). Horticulture manual for schools: a guide to establish and sustain food gardens. Pretoria:.

- South Africa, (2012). Guidelines Relating to Planning for Public School Infrastructure Pretoria: *Department of Basic Education Government Printers*
- South Africa, (2012). Integrated school health policy. South African Departments of Health and Basic Education. Pretoria
- South Africa, (2014). Gauteng School Infrastructure Maintenance Guidelines. Gauteng Department of Education.
- South Africa, (2014). National School Nutrition Programme. NSNP report. Department of Basic Education.
- South Africa, (2016). National School Nutrition Programme. NSNP report. Department of Basic Education.
- South Africa, (2015). Schools Administration and Management Systems. Department of Basic Education.
- South Africa, (2016). South African Standards for Principalship. Pretoria: Government Printer
- South Africa, (2020). Statistics South Africa (SSA): General household survey, Pretoria
- South Africa, (2022). Statistics South Africa (SSA): General household survey, Pretoria
- South African Human Rights Commission (SAHRC) (2021) *Beyond the classroom: Why school reform has failed and what parents need to do*. Pretoria: Government Printers
- South African Council of Educators (SACE) (2021) Teachers' Safety and Security in South African Schools: A Handbook Centurion, *MIET AFRICA*, Johannesburg
- Spaull, N. (2013). Poverty & privilege: Primary school inequality in South Africa. *International Journal of Educational Development*, 33(5): 436-447.
- Specht, M. & Katz, M. (2015). Tap it again, Sam: Harmonizing personal environments towards lifelong learning. *International Journal of Advanced Corporate Learning*, 8(1): 16-23.
- Spillane, J. P. (2006). Distributed leadership. San Francisco: Jossey-Bass
- Steck, A. K., & Perry, D. (2018). Challenging heteronormativity: Creating a safe and inclusive environment for LGBTQ students. *Journal of School Violence*, 17(2): 227-243.

- Steininger, T. (2010) The Learning Organization from the Perspective of the Evolutionary Epistemology, *Jägerhausgasse, Austria*
- Steinmayr, R.; Heyder, A.; Naumburg, C., Michels, J., & Wirthwein, L. (2018). School-related and individual predictors of subjective well-being and academic achievement. *Front. Psychology*, 9: 2631
- Stenström, C., Norrbin, P., Parida, A. & Kumar, U. (2016). Preventive and corrective maintenance–cost comparison and cost–benefit analysis. *Structure and Infrastructure Engineering*, 12(5): 603-617.
- Stokvik, H., Adriaenssen, D. & Johannessen, J.A., (2016). Tacit knowledge, organizational learning and innovation in organizations. *Problems and Perspectives in Management*, 14(3): 246-255.
- Stoll, L., & Kools, M. (2017). The school as a learning organisation: a review revisiting and extending a timely concept. *Journal of Professional Capital and Community*, 2(1):2-17
- Stouten, J., Rousseau, D.M. & De Cremer, D. (2018). Successful organizational change: Integrating the management practice and scholarly literatures. *Academy of Management Annals*, 12(2): 752-788.
- Stroet, K., Opdenakker, M.C. & Minnaert, A. (2015). Need supportive teaching in practice: A narrative analysis in schools with contrasting educational approaches. *Social Psychology of Education*, 18(3): 585-613.
- Storey, K. E., Montemurro, G., Flynn, J., Schwartz, M., Wright, E., Osler, J., ... & Roberts, E. (2016). Essential conditions for the implementation of comprehensive school health to achieve changes in school culture and improvements in health behaviours of students. *BMC Public Health*, 16(1): 1-11.
- Subrahmanyam, G. (2016). Gender Perspectives on Causes and Effects of School Dropouts from Primary and Secondary Education in Developing Countries—An Overview. Stockholm: Swedish International Development Cooperation Agency
- Sugiyama, T., Francis, J., Middleton, N. J., Owen, N., & Giles-Corti, B. (2010). Associations between recreational walking and attractiveness, size, and proximity of neighbourhood open spaces. *American Journal of Public Health*, 100(9): 1752-1757.

- Sun, J., & Leithwood, K. (2015). Direction-setting school leadership practices: A meta-analytical review of evidence about their influence. *School effectiveness and school improvement*, 26(4), 499-523. Africa. *International Journal of Environmental Research and Public Health*, 10(6): 2282-2295.
- Suprpto, Y., Rifai, M., Faizah, F. & Setiawan, A. (2020): The Role of Information Technology Knowledge and Online Learning on Learning Environmental Changes in Vocational Education. In *2020 Third International Conference on Vocational Education and Electrical Engineering (ICVEE)*: 1-4.
- Tarnanen, M., Kostianen, E., Kaukonen, V., Martin, A. & Toikka, T. (2021). Towards a learning community: understanding teachers' mental models to support their professional development and learning, *Professional Development in Education*, :1-5
- Taylor, C. M., Cornelius, C. J. & Colvin, K. (2014). Visionary leadership and its relationship to organizational effectiveness. *Leadership & Organization Development Journal*, 35(6): 566-583
- Taylor, A. (2016). The politics of educational reform in Alberta. In *The Politics of Educational Reform in Alberta*. University of Toronto Press.
- Terre Blanche, M., Durreheim, K., Painter, D. (2006). Research in Practice Applied Methods for the Social Sciences: Cape Town Lebone Publishing Service
- Thambi, M. & O'Toole, P. (2012). Applying a knowledge management taxonomy to secondary schools. *School Leadership & Management*, 32(1): 91-102.
- Thapa, T. B. (2015). Impact of conflict on teaching learning process in schools. *Academic Voices: A Multidisciplinary Journal*, 5: 73-78.
- Themane, M., & Osher, D. (2014). Schools as enabling environments. *South African Journal of Education*, 34(4): 1-6.
- Thomas, A. (2010). Rapid: Reputation based approach for improving intrusion detection effectiveness. In *2010 Sixth International Conference on Information Assurance and Security* 118-124). IEEE.

- Thompson, C. & Stapley, S. (2011). Do educational interventions improve nurses' clinical decision making and judgement? A systematic Review. *International Journal of Nursing Studies*, 48(7): 881-893.
- Ting, S.H. & Lee, D.P.Y. (2019). Determinants of primary school choice in Malaysia: School proximity and ethnicity-related reasons. *Journal of School Choice*, 13(2): 228-254.
- Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative Inquiry*, 16(10): 837-851.
- Tran, T. B. H., & Choi, S. B. (2019). Effects of inclusive leadership on organizational citizenship behavior: the mediating roles of organizational justice and learning culture. *Journal of Pacific Rim Psychology*, 13: e17
- Trends in International Mathematics and Science Study TIMSS. (2019). Boston College: TIMSS & PIRLS International Study Center.
- Tsavga, J. C. (2011). The effect of environment on the academic performance of students in Tarka Local Government Area of Benue State. An unpublished PGDE project, Makurdi, Benue State University.
- Tschannen-Moran, B. & Tschannen-Moran, M. (2010). *Evocative coaching: Transforming schools one conversation at a time*. John Wiley & Sons.
- Tschannen-Moran, M. & Gareis, C.R. (2015). Faculty trust in the principal: An essential ingredient in high-performing schools. *Journal of Educational Administration*. 53(1): 66-91
- Tshatshu, U. J. (2016). *Strategies to Deal with Poor Learner Safety in the North-West Province Township Secondary Schools: Towards the Development of a School Safety Strategy* (Doctoral dissertation, Bloemfontein: Central University of Technology, Free State).
- Tuck, E. (2011). Neoliberalism as nihilism? A commentary on educational accountability, teacher education, and school reform. *Journal for Critical Education Policy Studies*, 11(2): 324-347.
- Tucker, P.D., Anderson, E., Reynolds, A.L. & Mawhinney, H. (2016). Analysis of evidence supporting the Educational Leadership Constituent Council 2011. *Educational Leadership Program*, 119

- Tundzi, K.S.V., (2008). *AN Investigation Of School Gardens In The Curriculum: Contextualising The Biodiversity Discourse In The National Curriculum Statement-A Case Study Of Mount Zion Junior Secondary School* (Doctoral dissertation, Rhodes University).
- Turunen, M., Toyinbo, O., Putus, T., Nevalainen, A., Shaughnessy, R., & Haverinen-Shaughnessy, U. (2014). Indoor environmental quality in school buildings, and the health and wellbeing of students. *International journal of Hygiene and Environmental Health*, 217(7): 733-739.
- Uleanya, C. (2020). Influence of Cleanliness on Learners Learning Capabilities and Academic Performances: A South African Perspective. *Universal Journal of Educational Research*, 8(11): 5934-5942.
- Uleanya, C., Khumalo, P. N., Momah, E., & Ndlovu, B. B. (2019). Influence of leadership styles on the success of secondary education in Africa: a case study of Nigeria and South Africa. *African Journal of Gender, Society & Development*, 8(1): 213.
- Uline, C., & Tschannen-Moran, M. (2008). The walls speak: The interplay of quality facilities, school climate, and student achievement. *Journal of educational Administration*. 46(1): 55-73
- Urquiola, M. (2016). Competition among schools: Traditional public and private schools. In *Handbook of the Economics of Education* 5: 209-237. Elsevier.
- Usaini, M. I., Abubakar, N. B., & Bichi, A. A. (2015). Influence of school environment on academic performance of secondary school students in Kuala Terengganu, Malaysia. *The American Journal of Innovative Research and Applied Sciences*, 1(6): 203-209.
- Usman, H. B., AlSahafi, A., Abdulrashid, O., Mandoura, N., Al Sharif, K., Ibrahim, A., ... & Shamia, M. (2018). Effect of health education on dengue fever: a comparison of knowledge, attitude, and practices in public and private high school children of Jeddah. *Cureus*, 10(12).
- Utami, R. H., Kurniawan, R., & Magistarina, E. (2021). Internet-related Behavior and Mind Wandering. *Jurnal RAP*, 12(1): 48-56.
- Valentine, J.W. & Prater, M. (2011). Instructional, transformational, and managerial leadership and student achievement: High school principals make a difference. *NASSP bulletin*, 95(1): 5-30.

- Van Cauwenberghe, E., Maes, L., Spittaels, H., Van Lenthe, F.J., Brug, J., Oppert, J.M. & De Bourdeaudhuij, I. (2010). Effectiveness of school-based interventions in Europe to promote healthy nutrition in children and adolescents: systematic review of published and 'grey' literature. *British journal of nutrition*, 103(6): 781-797.
- Van den Berg, V. Salimi, R. de Groot, RHM., Jolles, J., Chinapaw, MJM. & Singh, AS. (2017). "It's a Battle . . . You Want to Do It, but How Will You Get It Done?": Teachers' and Principals' Perceptions of Implementing Additional Physical activity in School for Academic Performance. *International Journal of Environmental Research and Public Health*, 14(10): 1160
- Van den Berg, M., van Poppel, M., van Kamp, I., Andrusaityte, S., Balseviciene, B., Cirach, M., ... & Maas, J. (2016). Visiting green space is associated with mental health and vitality: A cross-sectional study in four european cities. *Health & Place*, 38: 8-15.
- Van den Broucke, S., Jooste, H., Tlali, M., Moodley, V., Van Zyl, G., Nyamwaya, D. & Tang, K.C. (2010). Strengthening the capacity for health promotion in South Africa through international collaboration. *Global Health Promotion*, 17(2): 6-16
- Van Der Berg, S., Wills, G., Selkirk, R., Adams, C. & Van Wyk, C. (2019). The cost of repetition in South Africa. Department of Economics University of Stellenbosch, Stellenbosch
- Van der Haar, S., Segers, M., & Jehn, K. A. (2013). Towards a contextualized model of team learning processes and outcomes. *Educational Research Review*, 10: 1-12.
- Van der Westhuizen, P.C. & Mentz, P.J. 2007. *An ontological perspective on the school as an organisation*. Na: 63-146.
- Van Dierendonck, D., (2011). Servant leadership: A review and synthesis. *Journal of Management*, 37(4): 1228-1261.
- Vangrieken, K., Dochy, F., Raes, E. & Kyndt, E. (2015). Teacher collaboration: A systematic review. *Educational Research Review*, 15: 17-40.
- Van Dongen, B. M., Ridder, M. A. M., Steenhuis, I. H. M., & Renders, C. M. (2019). Background and evaluation design of a community-based health-promoting school intervention: Fit Lifestyle at School and at Home (FLASH). *BMC Public Health*, 19(1): 1-11.
- Van Mieghem, A., Verschueren, K., Donche, V., & Struyf, E. (2020). Leadership as a lever for inclusive education in Flanders: A multiple case study using qualitative comparative analysis

- (QCA). *Educational Management Administration & Leadership, Professional Development in Education*, 1-14.
- van Sluijs, E., Coombes, E., & Jones, A. (2013). Is environmental setting associated with the intensity and duration of children's physical activity? Findings from the SPEEDY GPS study. *Health & Place*, 20: 62-65.
- Van Wyk, A., & Van der Westhuizen, P. C. (2015). Resistance to change in impoverished schools of a South African province. *Problems and Perspectives in Management*, 13(4): 172-180.
- Van Zanten, A. (2013). A good match: Appraising worth and estimating quality in school choice. Constructing quality: *The classification of goods in markets*, Ebook. 77-99.
- Varrati, A. & Smith, A. (2008). Principals as mentors in teacher education: How preservice teachers' voices informed practice. *Academic Leadership: The Online Journal*, 6(4): 12.
- Verhelst, D., Vanhoof, J., Boeve-de Pauw, J., & Van Petegem, P. (2020). Building a conceptual framework for an ESD-effective school organization. *The Journal of Environmental Education*, 51(6):400-415.
- Verhoeff, R.P., Knippels, M.C.P., Gilissen, M.G. & Boersma, K.T., (2018). The theoretical nature of systems thinking. Perspectives on systems thinking in biology education. *Frontiers in Education*, 3:40: 1-11
- Vilarinho, S., Lopes, I. & Oliveira, J.A. (2017). Preventive maintenance decisions through maintenance optimization models: a case study. *Procedia Manufacturing*, 11: 1170-1177.
- Visser, M., Reddy, V., Winnaar, L., Arends, F., Juan, A. L., Prinsloo, C., & Isdale, K. (2016). TIMSS 2015: Highlights of mathematics and science achievement of grade 9 South African learners. DBE / IEA /Human Science Research Council
- Vithal R. (2016). Growing a scholarship of teaching and learning institutionally. *Studies in Higher Education*, 43(3): 468–483.
- Waldy TG (2009). Learning organisations and transfer: Strategies for improving performance. The learning organisations. *The International Journal of Knowledge and Organisational Learning Management*, 16: 58–68.
- Walker, K. (2010). A systematic review of the corporate reputation literature: Definition, Measurement, and Theory. *Springer Link*, 12: 357–387

- Walter, C. M. (2014). Promoting physical activity: a low cost intervention programme for disadvantaged schools in Port Elizabeth, South Africa: physical activity. *African Journal for Physical Health Education, Recreation and Dance*, 20(21): 357-371.
- Walton, G. M., & Brady, S. T. (2017). The many questions of belonging. In A. J. Elliot, C. S. Dweck, & D. S. Yeager (Eds.), *Handbook of competence and motivation: Theory and application* (272–293). The Guilford Press.
- Walumbwa, F.O., Mayer, D.M., Wang, P., Wang, H., Workman, K. & Christensen, A.L. (2011). Linking ethical leadership to employee performance: The roles of leader–member exchange, self-efficacy, and organizational identification. *Organizational Behavior and Human Decision Processes*, 115(2): 204-213.
- Wang, Y., Xia, M., Guo, W. *et al.* (2022). Academic performance under COVID-19: The role of online learning readiness and emotional competence. *Current Psychology* (2022).
- Wang, Y., Shi, A., & Ding, N. (2022). The effect of game–based immersive virtual reality learning environment on learning outcomes: designing an intrinsic integrated educational game for pre–class learning. *Interactive Learning Environments*, 30(4): 721-734.
- Ward, J. S., Duncan, J. S., Jarden, A., & Stewart, T. (2016). The impact of children's exposure to greenspace on physical activity, cognitive development, emotional wellbeing, and ability to appraise risk. *Health & Place*, 40: 44-50.
- Watson T, Malan H, & Glik D. (2017). College students identify food literacy as a key strategy to address food insecurity on campus. *California Agriculture* 71(3): 130–138.
- Weare, K. (2010). Promoting mental health through schools. *Promoting Health and Wellbeing Through Schools*, 24-41.
- Webber, C., & Robertson, J. (1998). Boundary breaking: An emergent model for leadership development. *Education Policy Analysis Archives*, 6: 21-21.
- Wells, N. M., Myers, B. M., Todd, L. E., Barale, K., Gaolach, B., Ferenz, G., ... & Falk, E. (2015). The effects of school gardens on children's science knowledge: a randomized controlled trial of low-income elementary schools. *International Journal of Science Education*, 37(17): 2858-2878.

- Wen, H. (2014). The nature, characteristics and ten strategies of learning organization. *International Journal of Educational Management*, 28(3): 289-298.
- Van der Riet, M. (2008). Participatory research and the philosophy of social science: Beyond the moral imperative. *Qualitative Inquiry*, 14(4): 546-565.
- Weybright, E.H., Caldwell, L.L., Xie, H., Wegner, L. & Smith, E.A. (2017). Predicting secondary school dropout among South African adolescents: A survival analysis approach. *South African Journal of Education*, 37(2): 1-11.
- Wiek, A., & Iwaniec, D. (2014). Quality criteria for visions and visioning in sustainability science. *Sustainability Science*, 9(4): 497-512.
- Wiese, C.W. & Burke, C.S., (2019). Understanding team learning dynamics over time. *Frontiers in Psychology*, 10: 1417.
- Wiles, J. & Bondi, J. (2007). Curriculum Development a Guide to Practice. Upper Saddle River: Pearson Printice Hall.
- Wilkins, U., Menzel, D. & Pawlowsky, P. (2004). Inside the black-box: Analysing the generation of core competencies and dynamic capabilities by exploring collective minds. An organisational learning perspective. *Management Review*, 15(1): 8-26.
- Wilkinson, S., Kena, G., Musu-Gillette, L., Robinson, J., Wang, X., Rathbun, A., Zhang, J., Barmer, A., Velez, E.D., Nachazel, T & Dziuba, A. (2015). The condition of education. *National Center for Education Statistics*, 144.
- Williams, R. (2010). Students' roles in maintaining quality and in enhancing learning: is there a tension? *Quality in Higher Education*, 16(2): 115-127.
- Williams, C. G. (2011). Distributed leadership in South African schools: possibilities and constraints. *South African Journal of Education*, 31(2).
- Williams B. & Hummelbrunner, R. (2011). Systems Concepts in Action: A Practitioner's Toolkit. Stanford, CA: Stanford University Press.
- Williams, P. (2012). The role of leadership in learning and knowledge for integration. *Journal of Integrated Care*, 20(3): 164-174.

- Williams, D. R., & Dixon, P. S. (2013). Impact of garden-based learning on academic outcomes in schools: Synthesis of research between 1990 and 2010. *Review of Educational Research*, 83(2), 211-235.
- Williams, W.E. (2018). *Principal leadership style, teacher motivation, and teacher retention* (Doctoral dissertation, Walden University).
- Wilson, C., Woolfson, L. M., Durkin, K. & Elliott, M. A. (2016). The impact of social cognitive and personality factors on teachers' reported inclusive behaviour. *British Journal of Educational Psychology*, 86(3): 461-480.
- Wirthwein, L & Steinmayr R. (2020). Performance-approach goals: the operationalization makes the difference Received: 1 Technische Universität Dortmund, Emil-Figge-Straße 50, 44139 Dortmund, Germany
- Wolhuter, C.C. & Russo, C. (2013). Dealing with incidents of serious disciplinary problems amongst learners: A comparative study between South Africa and selected countries. *Koers – Bulletin for Christian Scholarship* 78(3)
- World Health Organization (WHO). (1986) Ottawa Charta for Health Promotion. WHO, Geneva.
- World Health Organization (WHO). 1996. Recommendations of the WHO Expert Committee on Comprehensive School Health Education and Promotion. Geneva.
- World Health Organization (WHO). (1997). 1st Conference of the European Network of Health Promoting Schools:" the health promoting school: an investment in education, health and democracy", 1-5
- World Health Organization (WHO). (1998). *Quality control methods for medicinal plant materials*. World Health Organization
- World Health Organization (WHO) (2005), Public Health Agency of Canada *Preventing chronic diseases: a vital investment*. World Health Organization.
- World Health Organization (WHO). (2008). School policy framework: implementation of the WHO global strategy on diet, physical activity and health. World Health Organization press, Geneva.
- World Health Organization (WHO). (2009). Water, sanitation and hygiene standards for schools in low-cost settings. Geneva
- World Health Organization (WHO). (2010) Clean Care is Safer Care World Health Organization.

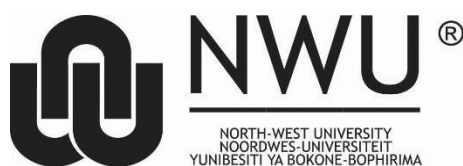
- World Health Organization (WHO). (2012). Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage. World Health Organization
- World Health Organization (WHO). (2013). *Oral health surveys: basic methods*. World Health Organization.
- World Health Organization (WHO). (2016). *World health statistics 2016: monitoring health for the SDGs sustainable development goals*. World Health Organization.
- World Health Organization (2018) guideline on health policy and system support to optimize community health worker programmes. World Health Organization.
- WHO/UNICEF (2019) WHO/UNICEF Joint Monitoring Program (JMP). (2019). Progress on house-hold drinking water, sanitation and hygiene 2000–2017: Special focus on inequalities. New York United Nations Children's Fund (UNICEF) and World Health Organization.
- WHO/ UNICEPH/ JMP (2010) Human Rights for Water. WHO/ UNICEPH/ JMP
- WHO and UNESCO (2021) Making every school a health-promoting school, Implementation guidance. Geneva.
- Woods, E. H. J. & Martin, B. N. (2016). What leadership behaviors were demonstrated by the principal in a high poverty, high achieving elementary school?. *Cogent Education*, 3(1)
- Wright, L. L. (2009). Leadership in the swamp: Seeking the potentiality of school improvement through principal reflection. *Reflective Practice*, 10(2), 259-272.
- Wright, S. R., Ng, S. L., & Kuper, A. (2019). The divergence and convergence of critical reflection and critical reflexivity: implications for health professions education. *Academic Medicine*, 94(8): 1122-1128.
- Wu, C. D., McNeely, E., Cedeño-Laurent, J. G., Pan, W. C., Adamkiewicz, G., Dominici, F., ... & Spengler, J. D. (2014). Linking student performance in Massachusetts elementary schools with the “greenness” of school surroundings using remote sensing. *PloS one*, 9(10):
- Xaba, (2012). A qualitative analysis of facilities maintenance — A school governance function in South Africa. *South African Journal of Education*, 32(2): 215-226

- Xaba, M. I. (2014). An Examination of the Effectiveness of the Implementation of Safety and Security Measures at Public Schools in South Africa. *Mediterranean Journal of Social Sciences*, 5(27): 490-499
- Yang, J., & Li, P. (2012). Brain networks of explicit and Implicit Learning. *PloS one*, 7(8): 1-9.
- Yeager, D.S. & Dweck, C.S. (2012). Mindsets that promote resilience: When students believe that personal characteristics can be developed. *Educational Psychologist*, 47(4): 302-314.
- Yeager, V. A., Beitsch, L. M., & Hasbrouck, L. (2016). A mismatch between the educational pipeline and public health workforce: can it be reconciled?. *Public Health Reports*, 131(3): 507-509.
- Yin, R. K. (2011). *Applications of case study research*. Sage.
- Yoeli, R. & Berkovich, I. (2010). From personal ethos to organizational vision: Narratives of visionary educational leaders. *Journal of Educational Administration*, 48(4): 451-467.
- York, DN., Owston, R., York, D.N., Malhotra, T. & Sitthiworachart, J., (2020). Blended Learning in STEM and Non-STEM Courses: How Do Student Performance and Perceptions Compare?. *Online Learning*, 24(3): 203-221.
- Young, I., St Leger, L., & Buijs, G. (2013). School health promotion: evidence for effective action. *Background paper SHE factsheet*, 2.
- Youngs, P. & King, M.B. (2002), "Principal leadership for professional development to build school capacity", *Educational Administration Quarterly*, Vol. 38 No. 5, pp. 643-70.
- Yukl, G., (2009). Leading organizational learning: Reflections on theory and research. *The Leadership Quarterly*, 20(1): 49-53.
- Yukl, G., Mahsud, R., Hassan, S., & Prussia, G. E. (2013). An improved measure of ethical leadership. *Journal of Leadership & Organizational Studies*, 20(1): 38-48.
- Yusuf, M. A. (2008). School plant planning and secondary school students' learning outcome in South-West Nigeria. Ph.D dissertation. University of Ado Ekiti.
- Zagoršek, H., Dimovski, V. & Škerlavaj, M. (2009). Transactional and transformational leadership impacts on organizational learning. *Journal for East European Management Studies*, :144-165.

- Zhang, X. (2017). Leaders' behaviours matter: The role of delegation in promoting employees' feedback-seeking behaviour. *Frontiers in Psychology*, 8: 920-930.
- Zhong, D. Fan, Yang. G. & Tian, B. (2022). Knowledge management of product design: A requirements-oriented knowledge management framework based on Kansei engineering and knowledge map. ELSEVIER
- Zuilkowski, SS. & Marty, AH. (2021). Student perceptions of school safety and student learning outcomes in a context of protracted conflict. *International Journal of Educational Development*, 82,

APPENDIXES

Appendix 1



Private Bag X1290, Potchefstroom
South Africa 2520

Tel: 018 299-1111/2222
Fax: 018 299-4910
Web: <http://www.nwu.ac.za>

Senate Committee for Research Ethics
Tel: 018 299-4849
Email: nkosinathi.machine@nwu.ac.za

ETHICS APPROVAL LETTER OF STUDY

Based on approval by the **Education Sciences Research Ethics Committee (EduREC)** on 20 September 2018, the Education Sciences Research Ethics Committee hereby **approves** your study as indicated below. This implies that the North-West University Senate Committee for Research Ethics (NWU-SCRE) grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title: A model for the Promotion of Healthy School Physical Environments for enhancement of learner academic performance

Study Leader/Supervisor (Principal Investigator)/Researcher: Prof S Kwatubana

Student / Team: M Mtimkulu (PhD student – 20494726) Ethics number:

N	W	U	-	0	0	4	7	5	-	1	8	-	A	2

Status: S =

Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation

Application Type: Single study

Commencement date: 20/09/2018

Risk:

Low

Expiry date: 20/09/2019

Approval of the study is initially provided for a year, after which continuation of the study is dependent on receipt and review of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation.

Special in process conditions of the research for approval (if applicable):

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- *The study leader/supervisor (principle investigator)/researcher must report in the prescribed format to the ES-REC:*
 - *annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and*
 - *without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.*
- *The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the study leader/researcher must apply for approval of these amendments at the ES-REC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.*
- *Annually a number of studies may be randomly selected for an external audit.*
- *The date of approval indicates the first date that the study may be started.*
- *In the interest of ethical responsibility, the NWU-SCRC and ES-REC reserves the right to:*

1

- *request access to any information or data at any time during the course or after completion of the study;*
- *to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process; – withdraw or postpone approval if:*
 - *any unethical principles or practices of the study are revealed or suspected;*
 - *it becomes apparent that any relevant information was withheld from the ES-REC or that information has been false or misrepresented;*
 - *submission of the annual (or otherwise stipulated) monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and / or*
 - *new institutional rules, national legislation or international conventions deem it necessary.*

The ES-REC would like to remain at your service as scientist and researcher, and wishes you well with your study. Please do not hesitate to contact the ES-REC or the NWU-SCRE for any further enquiries or requests for assistance.

Yours sincerely



Prof Jako Olivier
Chairperson NWU Education Sciences Research Ethics Committee

Original details: (22351930) C:\Users\22351930\Desktop\ETHICS APPROVAL LETTER OF STUDY.docm
8 November 2018

Current details: (22351930) M:\DSS1\8533\Monitoring and Reporting Cluster\Ethics\Certificates\Templates\Research Ethics Approval Letters\9.1.5.4.1 ES-REC Ethical Approval Letter.docm
5 December 2018

File reference: 9.1.5.4.2

EDITING

21 June 2022

To whom it may concern

This letter serves to confirm that the following theses (chapters) were edited (from April through May 2022):

Promoting healthy school physical environments to improve learner academic performance: A framework for principals

The onus is on the client(s) to work through the proposed track changes and to accept or reject proposed changes. Clients might amend/re-work or add to the content during and after the editing process which may introduce errors. Clients should make certain that all sources/references have been cited and that they are satisfied with the final manuscript before submitting.

Appendix 2

CONSENT LETTER FOR SCHOOL PRINCIPALS

5 Totius street

Sasolburg

1947

THE SCHOOL PRINCIPAL

Dear Sir

Re: INVITATION TO PARTICIPATE IN A RESEARCH STUDY

I am Melody Glory Nosisa Mtimkulu and presently studying for a PhD degree with North West university. As part of my doctoral programme, I am required to conduct research on an aspect of interest with a view to make a contribution to our knowledge and understanding of the issue under study.

The details of the research are as follows:

TITLE OF THE RESEARCH PROJECT:

Promoting healthy school physical environments to improve learner academic performance:
A framework for principals

RESEARCHER: Ms Melody Mtimkulu

SUPERVISOR: Dr Siphokazi Kwatubana

ADDRESS: Van Eck Boulevard, North West University, Vaal Campus, Vanderbijlpark

CONTACT NUMBER: 016 910 3570

FACULTY OF EDUCATION RESEARCH ETHICS COMMITTEE

Contact person: Ms Erna Greyling, E-mail: Erna.Greyling@nwu.ac.za, Tel. (018) 299 4656

This study has been approved by the Ethics committee of the Faculty of Education Sciences of the North-West University and will be conducted according to the ethical guidelines of this committee. Permission was also asked from the Department of Basic Education as well as the school principal.

What is this research about?

The aim is: to develop a theory-based, empirically derived framework for principals to promote healthy school environments that will improve learner academic performance.

Objectives

Secondary objectives:

- To determine what a healthy school environment entail entail
- To establish the essence of learner academic performance
- To establish factors in the school physical environment that deter academic performance of learners
- To establish factors in the school physical environment that enhance academic performance of learners
- To investigate leadership roles that school managers play in the promotion of healthy school physical environment for the enhancement of learner academic performance
- To come up with recommendations that will enable principals to effectively promote healthy school physical enviroments for a better learner academic performance
- To present a theory-based empirically derived framework for principals to promoe healthy school physical environenments to enhanve learner academic performance

Participants

The following groups of people will be requested to participate as participants with academic researcher:

SMT members (n=6), teachers (n=7), SGB members (n=1), and learners(n=2)

The table below provides information regarding the number of participants from each group.

Table 1: The sample size of this research

SMT	Teachers	SGB	Adult learners	Total
6	7	1	2	16

The SMT members will include the principal, the deputy and two Heads of Departments (one of them responsible for curriculum and the other having a responsibility to oversee the promotion of healthy school environments). Teachers who are members of the health committees (n=2) and other teachers from different subject committees (n=5), these teachers are chosen because they are directly involved, know average performance of learners. The subjects listed below are those subjects which determine the academic performance of a school because the majority of learners do them. The subject fields are Mathematics, Physical science, Accounting, English and Life Orientation. The SGBs will be represented by one member: a chairperson of the SGB. The school is a community institution thus its learner performance touches the whole community. The total number of participants will be seventeen (n=16).

For further information, kindly contact me/or my supervisor at:

20494726@nwu.ac.za 0729053086 sipho.kwatubana@nwu.ac.za

Thank you for your kind consideration of my request.

Yours Sincerely

Melody Nosisa Mtimkulu

- I hereby give free and informed consent to participate in the abovementioned research study
- I understand what the study is about and why I am participating and what the risks and benefits are
- I give the researcher permission to make use of the data gathered from my participation, subject to the stipulations he has indicated in the above letter.

Signature.....Date.....

Appendix 3

ADVERT

Research participants needed

You must be:

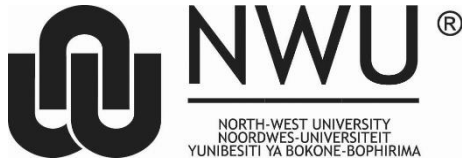
- A teacher in school A and teach the following subjects:
 - -Mathematics
 - -Physical Science
 - Life Science
 - -Accounting
 - -English and
 - -Life Orientation

Please share your views about the **promotion of Healthy School Physical Environments (HSPE)** for improving learner academic performance

If you would like to participate in this study please contact
Ms Melody Mtimkhulu @ 0783343239 or
20494726@nwu.ac.za for more information about the
research project.

Appendix 4

CONSENT FORM FOR PARTICIPANTS



Private Bag X6001, Potchefstroom

South Africa 2520

Tel: 018 299-1111/2222

Web: <http://www.nwu.ac.za>

(Recipient name)

Faculty of Education

(Recipient address)

(EDU-LEAD ENTITY)

(Recipient address)

(Recipient address)

Tel: 018 111 1111

Email: Name.Surname@nwu.ac.za

Date

PARTICIPANT INFORMATION AND CONSENT FORM

I herewith wish to request your consent to participate in this research, which involves teachers from secondary schools. Before you give consent, please acquaint yourself with the information below.

The details of the research are as follows:

TITLE OF THE RESEARCH PROJECT:

Promoting healthy school physical environments to improve learner academic performance: A framework for principals

RESEARCHER: Ms Melody Mtimkulu

SUPERVISOR: Dr Siphokazi Kwatubana

ADDRESS: Van Eck Boulevard, North West University, Vaal Campus, Vanderbijlaprk

CONTACT NUMBER: 016 910 3570

FACULTY OF EDUCATION RESEARCH ETHICS COMMITTEE

Contact person: Ms Erna Greyling, E-mail: Erna.Greyling@nwu.ac.za, Tel. (018) 299 4656

This study has been approved by the Ethics committee of the Faculty of Education Sciences of the North-West University and will be conducted according to the ethical guidelines of this committee. Permission was also asked from the Department of Basic Education as well as the school principal.

What is this research about?

The aim is: to develop a theory-based, empirically derived framework for principals to promote healthy school environments that will improve learner academic performance.

Objectives

Secondary objectives:

- To determine what a healthy school environment entail entail
- To establish the essence of learner academic performance
- To establish factors in the school physical environment that deter academic performance of learners
- To establish factors in the school physical environment that enhance academic performance of learners
- To investigate leadership roles that school managers play in the promotion of healthy school physical environment for the enhancement of learner academic performance
- To come up with recommendations that will enable principals to effectively promote healthy school physical environments for a better learner academic performance
- To present a theory-based empirically derived framework for principals to promote healthy school physical environments to enhance learner academic performance

Participants

The following groups of people will be requested to participate as participants with academic researcher:

SMT members (n=6), teachers (n=7), SGB members (n=1), and Adult learners(n=2)

The table below provides information regarding the number of participants from each group.

Table 1: The sample size of this research

SMT	Teachers	SGB	Adult learners	Total
6	7	1	2	16

The SMT members will include the principal, the deputy and two Heads of Departments (one of them responsible for curriculum and the other having a responsibility to oversee the

promotion of healthy school environments). Teachers who are members of the health committees (n=2) and other teachers from different subject committees (n=5), these teachers are chosen because they are directly involved, know average performance of learners. The subjects listed below are those subjects which determine the academic performance of a school because the majority of learners do them. The subject fields are Mathematics, Physical science, Accounting, English and Life Orientation. The SGBs will be represented by one member: a chairperson of the SGB. The school is a community institution thus its learner performance touches the whole community. The total number of participants will be seventeen (n=16).

What is expected of you as participant?

The participants will spot and take photos of places and situations which need to be exposed and reported to the whole team regarding factors in the school physical environment that enhance or deter academic performance of learners. The taking of photos will take ten days. Participants will reflect on the content of photographs and the photo shoot process. The scribe who will be chosen from external stakeholders will take notes of all the discussions in every session and in the FGI's. Two trained participants and I will interview teachers and SMT. In this research study all participants will be encouraged to do observation especially during the time when plans are implemented and to scrutinize in depth if the implementation of plans is successful, in other words what changes occurred and in which areas did changes not occur?, what were the driving forces for the changes and what were the restraining forces? The participants will have note books where they will write down their observations. Participants will hold a photo-exhibition where they will be reporting and giving findings of the research project to the school parents and district officials.

All seventeen participants will be given cameras to participate in the gathering of data by means of photo voice. Before the taking of the photos I will together with my supervisor hold a three hour workshop with the participants where they will be trained on how to take quality and clear photos. This workshop will also focus on the photo voice technique including discussions about ethics, power, the use of consent forms, and how to use the camera. I will audio-tape the discussions and the FGI's with the consent of the participants so that exact quote could be used in reports, articles, and in the pictorial scrapbooks provided to each participant during the session. The researcher, the researcher's supervisor and one other seasoned researcher will train two participants democratically elected from the external

stakeholders' group. Training will be on how to conduct Focus Group Interviews (FGI), how to pose questions, probe and keep the interview on track. The two interviewers and I will agree on how they will ask questions, who will start and how they will take turns when posing questions. I will hold a meeting with all the team members to explain procedures to be followed: who will ask what question. The FGIs will be one hour each. The FGIs will be conducted with the SMTs first (n=6) followed by teachers (n=7). The interviewees in each group will be made aware of the ethical principles that apply to FGIs as discussed in a section below. Wherever possible, interviews will be conducted in areas free from distractions and at times and locations that are most suitable for co-researchers, and which will not disturb teaching and learning. The chosen venues and procedures will ensure that privacy is not violated.

Benefits to you as participant

Direct benefits

Knowledge on how to use disposable cameras
Being part of coming up with solutions to the problems the school encounters with regards to promotion of healthy physical school environments
Knowledge of how to do interviews

Indirect benefits

Gaining problem solving skills
Collective decision making
Ability to identify problems and coming up with solutions

Risks involved for participants

There is a risk of being tired during the discussion sessions. To counter this there will be breaks and water and a fruit will be provided to help especially participants that are on medication and those that are diabetic.

Confidentiality and protection of identity

In this study names of the participants and the school will not be revealed and the information in the report will be indicated in such a way that an outsider cannot be able to link such information to the participants or the school. Information or data will be stored in different locked storages and codes will be used to label different data. I will keep all records of participant information in a safe and locked cupboard. I will be part of the two scheduled FGI's and will ensure that no outsider enters the venue where focus groups interview and photo voice discussions take place for privacy reasons

Dissemination of findings

Participants will form part of dissemination of findings to parents, community members and the Department of Basic Education. Participants will create a photo collage which will be used during the photo-exhibition (If participants opted for the exhibition). Participants will choose two people who will do presentation if there are no volunteers. The exhibition will be in September 2019.

If you have any further questions or enquiries regarding your participation in this research, please contact the researchers for more information.

DECLARATION BY PARTICIPANT:

By signing below, I agree to take part in a research study entitled: A model for the Promotion of Healthy School Physical Environments for enhancement of learner academic performance

I declare that:

- I have read this information and consent form and understand what is expected of me in the research.
- I have had a chance to ask questions to the researcher and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the research process before it has finished, if the researcher feels it is in my best interests, or if I do not follow the research procedures, as agreed to.

Signed at (place) _____ on (date) ____/____/20____

Signature of participant

Signature of witness

Appendix 5

INTERVIEW SCHEDULE

INDIVIDUAL INTERVIEWS FOR SMT

PARTICIPANTS	GENDER	ROLES
Participant 14	Male	Principal
Participant 2	Male	Deputy Principal; Physical and Technical Science teacher
Participant 13	Female	Deputy Principal, CAT teacher, CPTD Committee
Participant 15	Female	HOD – Life Orientation, SBST Committee
Participant 5	Female	HOD – Physical and Technical Science teacher, Cleaning and environment Committee
Participant 16	Female	HOD – English

INTERVIEW QUESTIONS

Main question 1: How does the promotion of a HSPE affect learner academic performance? (Interviews)

Follow up questions:

1. Understanding promotion of HSE
2. What are benefits for the school?
3. What are benefits for learners and academic performance?

Main question 2: What leadership roles do school managers play in the promotion of HSPE for the enhancement of learner academic performance?

Follow up questions:

4. What is your (principal's) role in the promotion of HSE?
5. What are the challenges in the promotion of HSE in your school?
6. Which strategies do you (does he) use to encourage and support the involvement of teachers, learners, parents and community members in the promotion of HSPE?

Appendix 6

CODING TABLE

Thematic analysis form

1. Factors that enhance academic performance.

Raw Data	Codes	Categories
the school entrance which is very welcoming because it is always neat and clean. The photo shows the green grass and beautiful flowers next to the administration block. The grass is ever green and flowers bloom seasonally (P1); the school entrance is welcoming and people are at ease when they enter the school (P12); there is a clean and welcoming front view of the school (P11); around the school there is green grass and green trees, they also bring beauty to the school and the shade to learners during break time. Grass is neatly cut, and learners play safely (P3); trees also bring the beauty in the school. Nature is good to watch especially after hard work. If we are healthy, we will teach well, and learners will learn and get good levels (P9).	school entrance neat the library clean green grass green trees library with books dust bins clean library water shade beautiful flowers cut grass clean corridors keep the school clean sense of cleanliness clean paving welcoming beauty kitchen food at lunch eat vegetables clean food handlers bathrooms healthy, toilets healthy lifestyle very clean	1. Resources Dust bins Water Bathrooms Toilets basins 2. Beautiful surroundings School entrance Green grass Green trees Shade Flowers cut grass welcoming beauty healthy, proud of their school the school entrance which is very welcoming Nature is good 3. Cleanliness clean corridors keep the school clean sense of cleanliness clean paving healthy lifestyle neat clean User friendly toilets

Bathrooms are very clean, having running water to flush and basins for hand washing. Untidy and filthy bathrooms make learners sick (P5); our school bathrooms are very tidy and user friendly (P10); there is water and sanitation bucket for menstrual disposal. These girls cannot leave school early or absent themselves because of lack of facilities and privacy. When we live a healthy lifestyle and our minds become healthy (P11); the toilets are very clean too, they have running water and leakages are fixed immediately. They are user friendly (P13).		Clean surroundings Clean surroundings clean classes user friendly toilets very clean leaning the surroundings 4. Safety gas bottles are put and locked inside the cages learners play safely leakages are fixed immediately 5. Special buildings library kitchen	
I see the corridor between the administration block and the classes which is always clean and open to allow the flow of learners and teachers (P1); the foyer is very clean and welcoming. The dust bins and the system that is used by the school to keep the school clean really works. Late comers are	Gas stoves User friendly toilets Water and sanitation bucket Clean surroundings food containers and plates In the kitchen they use gas stoves, gas bottles are put and locked inside the cages breakfast play safely		

recorded every morning and serve their punishment after school by cleaning the surroundings with the supervision of teachers. The sense of cleanliness is instilled to the learners when they first arrive at school to do grade eight (P5); the school entrance which is very welcoming and clean. Learners become proud of their school on the first day till the time that they finish matric (P4); the paving is always very clean. We don't litter (P11); learners are taught responsibility to keep their surroundings clean and the cleanliness responsibility is transferred to their schoolwork (P2). The kitchen is very clean and spacious and the pots, buckets, food containers and plates are clean and in good condition. Cooks also called food handlers are always clean; learners always look forward to break time. Some	clean classes proud of their school the school entrance which is very welcoming leaning the surroundings gas bottles are put and locked inside the cages		

learners eat for the first and last time at school. It is food from school which give them energy to concentrate in classes. In the kitchen they use gas stoves, gas bottles are put and locked inside the cages (P3);				

Appendix 7

DONATION FORM

SCHOOL LETTER HEAD

DONATION FORM

Dear Donor

The school is in the process of improving the school physical environment and facilities. We would appreciate it if you can support our initiative by donating or sponsoring in monetary form or by providing a product.

Thank you.

Name of donor	Cellphone Number	Amount	Signature

ENQUIRIES: 1. The school principal Tel.....

2. Financial clerk Tel.....

Signatures:

School principal..... Date.....

SGB Chairperson..... Date.....