

**FACTORS INFLUENCING PARTICIPATION IN PHYSICAL ACTIVITY IN
11-13 YEAR-OLD PRIMARY SCHOOL CHILDREN IN THE WESTERN CAPE**

By

COLLEEN COZETT

Student Number: 9192285

A MASTERS THESIS SUBMITTED IN FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE

MAGISTER ARTIUM

SPORT, RECREATION AND EXERCISE SCIENCE



DEPARTMENT OF SPORT, RECREATION AND EXERCISE SCIENCE

FACULTY OF COMMUNITY HEALTH SCIENCES

UNIVERSITY OF THE WESTERN CAPE

November 2014

SUPERVISOR: DR. L. LEACH

CO- SUPERVISOR: DR. S. BASSETT

DECLARATION

I hereby declare that the “Factors influencing participation in physical activity in 11-13 year old primary school children in the Metropole South Education District of the Western Cape.” is my own work, that it has not been submitted, for any degree or examination in any other university, and that all the sources used or quoted have been indicated and acknowledged by means of complete references.

Colleen Cozett

Signature :



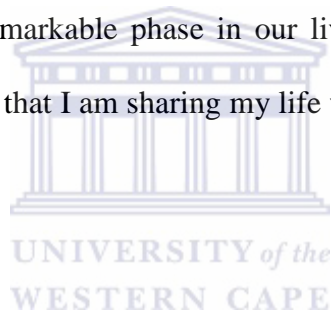
Date: 30-11-2014

Witness: _____

UNIVERSITY *of the*
WESTERN CAPE

DEDICATION

I would like to dedicate this thesis to my husband Marlin and my daughters Amber and Erin. Thank you for your love and continuous support and for believing in me always. Amber and Erin you are my heroes for your acceptance, understanding and tolerating this household where everyone is constantly working. Marlin, you have witnessed every good and bad experience that came with this journey and kept me focused on my goal. Every day we all made the commitment to sacrifice and persevere to reach our dreams. Thank you for being my rock Marlin through the years. Being with you changed my life, and made me want to strive to do better for us. You motivated, inspired, listened and understood what this meant to me. I am proud that you too are completing your studies. I know we are completing a remarkable phase in our lives that will be beneficial to our futures. I thank God every day that I am sharing my life with such remarkable people. God bless you all.



ACKNOWLEDGEMENTS

Firstly, I would like to thank God for His continuous blessings and granting me the strength to complete the thesis. I would like to thank my supervisors, Dr. Lloyd Leach and Dr. Sue Bassett, for their commitment, guidance, support and encouragement. The words of wisdom, the many emails, telephone calls, and countless meetings always discussing the way forward, is appreciated. I could not have come this far if it has not been for your guidance. It was challenging to balance a full time job, with completing this thesis but I met some remarkable people along the way who made this experience worthwhile. Thank you to Prof. Hendricks who provided guidance to me, it was so inspiring. Thank you too to the lecturing staff; Dr. Marié Young, Simone Titus, Mr. John Edas, Prof. Andre Travill, Dr. Clemence Ley, Charlene Roderick, Mrs. Vivien Kensley, Dr. Lorna Holtman, Serena, CMDR Jones, and Linda Davids, you all contributed positively to my development. Thank you for the respect, kind words of support whenever I had contact with you. Thank you also to Olishola Adenyi, my support at the end of the process. I appreciate your professional advice in editing this thesis. I am also highly indebted to the teachers, parents and learners. Thank you for allowing me to conduct my study at your school, your assistance and enthusiasm made the data collection process so much easier. Thank you to the principals of Hyacinth and West End Primary schools in Mitchells Plain, Mr. Cedric Anyster and Mr. Clive Arries. Mr. Anyster, your unwavering support has made this possible. Clive, your friendship is priceless. Thank you to the management staff at Northlink College, especially Mr. Mike Petersen and Mr. Kotsi, your support was instrumental in completing this journey. To my parents and sisters Veronica, Avril and my friend Dr. Christina Amsterdam, thank you for your support, encouragement and continuous prayers. Finally, to my Marlin and children, thank you for all the sacrifices, together we have made this dream come true.

ABBREVIATIONS

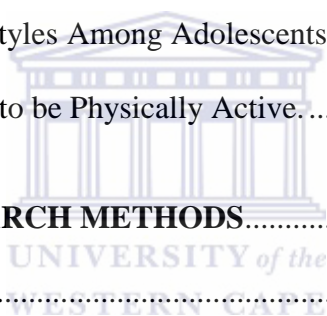
CAPS	Curriculum and Assessment Policy Statement
CPAC	Children's Physical Activity Correlates Questionnaire
CPAQ	Children's Physical Activity Questionnaire
LO	Life Orientation
HAKSA	Healthy Active Kids South Africa
MSED	Metropole South Education District
NCD	Non-communicable diseases
PA	Physical Activity
PE	Physical Education
WCED	Western Cape Education Department
YPAPM	Youth Physical Activity Promotion Model
YRBS	Youth Risk Behaviour Survey



TABLE OF CONTENTS

	<u>Page</u>
TITLE PAGE.....	i
DECLARATION.....	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
ABBREVIATIONS	v
TABLE OF CONTENTS	vi
APPENDICES	ix
LIST OF TABLES	x
LIST OF FIGURES	xi
ABSTRACT.....	xii
CHAPTER ONE: STATEMENT OF THE PROBLEM	1
1.1 Introduction	1
1.1.1 Factors that Predict Physical Activity in Adolescents.....	2
1.1.2 Predisposing, Reinforcing and Enabling Factors of Physical Activity	2
1.2 Problem Statement.....	3
1.3 Aim of the Study	4
1.4 Objectives of the Study.....	5
1.5 Hypothesis	5
1.6 Significance of the Study.....	6
1.7 Definitions of Terms.....	7

CHAPTER TWO: LITERATURE REVIEW	10
2.1 Introduction	10
2.2 Youth Physical Activity Promotion Model	11
2.3 Predisposing Factors.....	13
2.4 Reinforcing Factors	15
2.5 Enabling Factors	19
2.6 Schools as Settings for Physical Activity	20
2.7 Community Programs and Government Initiatives to Encourage Physical Activity	26
2.8 Physical Activity and Inactivity Among Adolescents.....	28
2.9 Health Consequences of Low Levels of Physical Activity	32
2.10 Causes of Sedentary Lifestyles Among Adolescents	37
2.11 Encouraging Adolescents to be Physically Active.....	39
CHAPTER THREE: RESEARCH METHODS.....	41
3.1 Introduction	41
3.2 Research Setting	41
3.3 Study Population	43
3.4 Study Design	45
3.5 Research Instruments.....	49
3.5.1 Children’s Physical Activity Questionnaire	49
3.5.2 Children’s Physical Activity Correlates Questionnaire.....	52
3.6 Instrument Validity and Reliability	53
3.7 Research Procedures.....	58
3.8 Data Analysis.....	60
3.9 Ethics	63



CHAPTER FOUR: RESULTS	64
4.1 Introduction	64
4.2 Demographic Characteristics of the Participants.....	64
4.3 Level of Physical Activity of the Participants	66
4.4 Correlation and Regression Analysis of Predictors.....	72
4.5 Predisposing Factors.....	76
4.6 Reinforcing Factors	76
4.7 Enabling Factors	77
4.8 Summary of Results	77
CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS.	78
5.1 Introduction	78
5.1.1 Application of the Youth Physical Activity Promotion Model	78
5.1.2 Level of Physical Activity of Adolescents	79
5.1.3 Factors Predicting Physical Activity Promotion Amongst Adolescents.....	83
5.2 Study Strengths and Limitations	88
5.3 Future Research and Recommendations.....	88
5.4 Conclusion.....	90
REFERENCES	91

APPENDICES

Appendix A: Ethics Approval from Higher Degrees Committee	100
Appendix B: Letter from WCED Granting Permission for the Study.....	101
Appendix C: Letter Requesting Permission from School Principals	102
Appendix D: Parent’s Information Sheet	103
Appendix E: Parent’s Consent Form.....	105
Appendix F: Participant’s Information Form	106
Appendix G: Participant’s Assent Form.....	108
Appendix H: Children’s Physical Activity Questionnaire	109
Appendix I: Children’s Physical Activity Correlates Questionnaire	114



LIST OF TABLES

2.1 Curriculum aims and objectives for grades four to seven	25
3.1 Research questions, research instruments and data analysis	46
4.1 Description of age and gender of participants	65
4.2 Description of the number of sixty minute sessions of physical activity per week.....	67
4.3 Description of the number of physical education lessons of participants	69
4.4 The sports teams of participants	70
4.5 Number of hours adolescents played video games and watched television	71
4.6 Correlation analysis of predisposing, reinforcing and enabling factors	73
4.7 Regression analysis of predisposing, reinforcing and enabling factors	74
4.8 The strongest predictors of physical activity	75



LIST OF FIGURES

2.1 Youth Physical Activity Promotion model.....	11
3.2 Map of the Metropole South Education District	42
3.3 Flow chart of subject sampling used in the study.....	44



ABSTRACT

Physical inactivity is increasing among adolescents worldwide and may be contributing to the increasing prevalence of overweight and obesity. South African adolescents are physically inactive and obesity has become an alarming trend. Physical activity behaviours have multiple levels of influence that include predisposing factors, reinforcing factors and enabling factors. This study aimed to identify the predisposing, reinforcing, and enabling factors of physical activity and which ones were the strongest predictors of physical activity participation among adolescents in the Western Cape. The study sample was conveniently selected from two schools in the Metropole South Education District. Using the children's physical activity questionnaire and the children's physical activity correlates questionnaire, a sample of 348 participants completed the questionnaires. Demographic variables were analysed using descriptive statistics which included means and standard deviations. Pearson correlation and regression analysis were performed to determine the relationship between the variables and to determine the strongest predictors of physical activity overall. Parental influence ($r=0.236, p<0.01$), peer influence ($r = 0.012, p<0.05$), perceived physical activity self-efficacy ($r=0.212, p<0.05$) and perceived physical activity competence ($r = 0.192, p < 0.05$) were all strong predictors of PA. However, parental influence was the strongest predictor overall ($r=0.236, p<0.01$). Adolescents are more likely to participate in physical activity if their parents encourage, support and participate in physical activity with them.

Chapter One

Statement of the Problem

1.1 Introduction

Adolescence is a crucial period of life, since dramatic social, physiological and psychological changes take place during this developmental period (Mohamadian & Ghannae Aran, 2014). The WHO (2013) identified adolescence as the period in human growth and development that occurs after childhood and before adulthood, from ages 10 to 19 years. During adolescence, important shifts occur in the way individuals think about and characterize themselves, that is, in their self-conceptions (Gel & Natsuaki, 2014). In this development period many future health behaviours are established (Mohamadian & Ghannae Aran, 2014). According to Marques, Peralta and Santos (2014) when enhancing the physical activity (PA) of children, it is important to investigate the predictors of PA to support their development and promote active lifestyles. Therefore, it is important to understand the factors that predict PA. The present study aimed to determine the factors that play a role in predicting PA in this population.

Van Hout, Young, Bassett and Hooft (2013) stated that: “The majority of South African youth are in the developmental phase where critical decisions are being taken on key life transitions, including education, work, lifestyle, participation in society, and other psychosociological areas”. Adolescents in the MSED are exposed to a variety of influential elements which lead them to engage in either healthy or unhealthy lifestyle patterns (Reddy et al., 2010).

1.1.1 Factors that Predict Physical Activity in Adolescents

Predictors of PA are known as a group of factors that influence, encourage or discourage PA behaviours (King, Ogletree, Fetro & Brown, 2011). The factors that influence PA in adolescents need to be addressed to increase PA among children. Since multiple factors influence a child's participation in PA, it is important for health educators to understand the significant predictors of children's PA participation (Welk, 1999; Wattanasit, 2009; King et al., 2011; Belton, O' Brien, Meegan, Woods & Issartel, 2014; Methala, Saakslanti, Inkimen & Poskiparta, 2014). The Youth Physical Activity Promotion Model (YPAPM) was utilised in the present study to provide a structured, systematic framework to determine which predictors influence adolescent's PA behaviour (Wattanasit, 2009; King et al., 2011; Belton et al., 2014; Methala et al., 2014).

1.1.2 Predisposing, Reinforcing and Enabling Factors of Physical Activity

The present study explored the broad range of psychological, social, and environmental factors identified as correlates of youth PA, and several theoretical models proposed to explain variance in PA behaviour (Chen, Welk & Joens-Matre, 2014). The YPAPM has been offered as a framework for understanding the inter-connectedness of these influences (predictors) on youth PA, by merging several theories into one. Components of the model include psychological attributes (predisposing factors), social influences (reinforcing factors), and environmental influences (enablers) (Chen et al., 2014). Despite the increase in literature regarding the determinants of PA, our understanding of the influences on youth PA remains clouded (Dollman & Lewis, 2009; Chen et al., 2014). The predictors of PA are categorised under three factor-groups of PA participation, namely, predisposing, reinforcing and enabling factors (Wattanasit, 2009; King et al., 2011; Belton et al., 2014; Methala et al., 2014). The YPAPM provides the theoretical basis for the current study.

Predisposing, reinforcing, and enabling factors that predict PA behaviour have a powerful influence in the lives of adolescents (Welk, 1999; Wattanasit, 2009; King et al., 2011; Methala et al., 2014; Belton et al., 2014). The predisposing factors consist of PA self-efficacy, perceived attraction to PA and perceived PA competence. Reinforcing factors consist of parental role modelling, parental influence and peer influence (King et al., 2011). The enabling factors consist of environmental factors, namely, access to playgrounds, neighbourhood safety and perceived access to PA equipment. Understanding the PA behaviour of adolescents is a vital part of the current study.

1.2 Problem Statement

In South Africa, little is known about the overall factors that influence adolescents' PA participation (Conchar, Bantjies, Swartz & Derman, 2014). Physical inactivity among children is an increasing problem that adversely affects children's health. A better understanding of factors which affect PA will help create effective interventions aimed at raising the activity levels of children (Ortlieb et al., 2013). Although some studies have reported on the number of people who performed exercise or PA, the definitions and measures across studies were different (Wattanasit, 2009; Belton et al., 2014; Conchor et al., 2014; Mehtala et al., 2014). According to Ortlieb et al. (2013), physical inactivity among children is an increasing problem that adversely affects children's health. However, the number of studies in South Africa dealing with this topic is limited. This may be attributed to the lack of well-developed instruments to measure PA. Therefore, it is difficult to summarise trends concerning the factors that influence PA participation levels in South African adolescents.

In order to address the challenge of promoting PA among children, it is important to determine which factors influence children's PA participation patterns (Ortlieb et al., 2013). In this regard, the study would make a contribution in evaluating the predictors of PA in South African primary school learners. The predictors of PA are categorised under three factor-groups of PA participation, namely, predisposing factors, reinforcing factors and enabling factors. The youth PA promotion model proposed by Welk (1999) provides the theoretical basis for the study. Further to this, the outcomes of the current research could make contributions to health research in South Africa. Understanding the predictors of PA in adolescent populations is fundamental for developing effective PA programs.

1.3 Aim of the Study

The aim of the study was to identify the predicting factors of PA in adolescents and determine which predisposing, reinforcing, and enabling factors were the strongest predictors of PA participation in 11 to 13 year-old primary school children in the MSED of the Western Cape.

1.4 Objectives of the study

The objectives of this study were to:

- Determine the level of PA of adolescents.
- Identify the predisposing factors of participation in PA of adolescents.
- Determine which predisposing factors were the strongest predictors of PA.
- Identify the reinforcing factors of participation in PA of adolescents.
- Determine which reinforcing factors were the strongest predictors of PA.
- Identify the enabling factors of participation in PA of adolescents.
- Determine which enabling factors were the strongest predictors of PA.

1.5 Hypotheses

It was hypothesised that:

- Perceived PA self-efficacy would be a significant predictor of PA participation among adolescents.
- Parental influence would be a significant predictor of PA and the strongest predictor of PA participation overall among adolescents.
- Environmental factors would be a significant predictor of PA participation among adolescents.



1.6 Significance of the Study

As a result of this study, the strongest predictors of PA participation in the MSED could be identified and similar studies could be conducted within different districts. Therefore, the present study may provide health professionals with relevant data to enable them to conduct similar studies with different populations. Results from such quantitative studies could be used to design a model for promoting PA among South African adolescents.

Primary school learners are at a crucial stage in their development, and their current lifestyles have a strong probability for predicting health behaviours as adults (Reddy et al., 2010). The fact that most of the schools do not have qualified PE teachers holds certain implications for the status of LO in general and, more specifically, for the growth and development of the learners (van Deventer, 2008). Educators in the Foundation, Intermediate and Senior Phases who present PE are often not qualified PE teachers (van Deventer, 2009). Most of the LO teachers in the General Education and Training (GET) band and in grades 10 and 11 reported that they did not have sufficient facilities and equipment to present PE (van Deventer, 2009).

Chronic diseases of lifestyle can be prevented by promoting PA. Investigating the predictors of PA is an area of study with little data available about South African primary schools adolescents and presents an ideal opportunity for research (Janse van Rensburg, 2014). Therefore, to address these challenges and to promote PA among adolescents, this study was unique in identifying the predisposing, reinforcing and enabling factors in 11 to 13 year olds.

1.7 Definitions and Terms

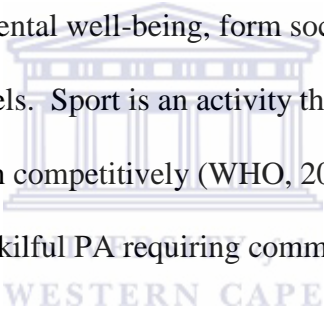
The following concepts will be referred to throughout the thesis and, therefore, classification by definition, is deemed necessary.

Physical Fitness

Physical fitness is the capacity to perform PA, and makes reference to a full range of physiological and psychological qualities (WHO, 2011).

Sport

All forms of PA which, through casual or organised participation, aims to express or improve physical fitness and mental well-being, form social relationships or to obtain results in competition at all levels. Sport is an activity that is governed by a set of rules or customs and is often engaged in competitively (WHO, 2011). It is commonly referred to as organised, competitive and skilful PA requiring commitment and fair play (WHO, 2011).



Physical Activity

Physical activity refers to any bodily movement produced by muscle action that increases energy expenditure, whereas physical exercise refers to planned, structured, systematic and purposeful PA (WHO, 2011). Physical activity is all bodily movements in everyday life, including work, recreation and sporting activities. It can be structured or unstructured, planned or accidental. Research indicates that significant benefits can be achieved by including a moderate amount of PA, (WHO, 2011). Inactivity can be defined as a state in which bodily movement is at a minimal level (WHO, 2013).

Adolescence

The adolescent period is referred to as the phase in development between the onset of puberty and adulthood (WHO, 2013). It usually begins between 11 and 13 years of age with the appearance of secondary sex characteristics and spans through the teenage years. During this period, the individual undergoes extensive physical, psychological, emotional, and personality changes (WHO, 2011).

Predisposing Factors of Physical Activity

Predisposing factors of physical activity are personal knowledge, attitudes, beliefs, values, and perceptions that facilitate participation in PA (King et al., 2011).

Enabling Factors of Physical Activity

Enabling factors are resources, conditions, programs, or skills that initiate and support opportunities for children to be physically active (King et al., 2011).

Reinforcing Factors of Physical Activity

Reinforcing factors are rewards received or the feedback people get from others following behaviour that may encourage adoption and/or continuation of PA (King et al., 2011).

Coloured

The term coloured stems from the South African population registrations act of 1950 which stipulates that a coloured person is defined as a person not white and not of African descent (Louw, 2010).

Sedentary Behaviour

A sedentary lifestyle is a mode of living in which a person, an adult or child, does not engage in adequate PA or exercise (Muthuri, Leblanc, Sampson & Tremblay, 2014). The term is often used by doctors or healthcare professionals within the medical community to describe a lifestyle among many people in highly developed countries that does not afford opportunities for PA (Muthuri et al., 2014). This type of living has been heavily influenced by passive forms of entertainment, such as prolonged television viewing, playing video games, and computer use (Muthuri et al., 2014).



Chapter Two

Literature Review

2.1 Introduction

Human lifestyle has become increasingly sedentary due to changes in society over the years (Muthuri et al., 2014). Labour saving devices, technology and passive entertainment have all contributed to this. Physical inactivity is on the increase as students participate less (Janse van Rensburg, 2013). Physical inactivity amongst adolescents can be attributed to the fact that they have become immersed in technology in nearly all aspects of their everyday living. This includes the usage of computers, cell phones, the internet, ipods and sedentary entertainment, such as television, video and computer programs (Janse van Rensburg, 2013). Increased attention and participation in such activities has led to decreased levels of participation in PA.

Schools play an important role by identifying children with low PA levels, and by promoting healthy behaviour such as encouraging children to be active with emphasis on intensity of activity (Muthuri et al., 2014). To better understand and promote healthy lifestyles among youth, there is a need to understand the predisposing, reinforcing and enabling predictors of PA participation of adolescents (Belton et al., 2014).

2.2 The Youth Physical Activity Promotion Model (YPAPM)

The YPAPM proposed by Welk (1999), is a theoretical model that was created to help better understand the factors that influence children's PA behaviours (Welk, 1999; Crim, Hensley & Finn, 2009; Belton et al., 2014; Chen et al., 2014). This model was one of the few that have been designed specifically to explain the influences on children's PA. The model categorises predictors into predisposing, reinforcing and enabling factors of PA. The YPAPM is shown in Figure 2.1

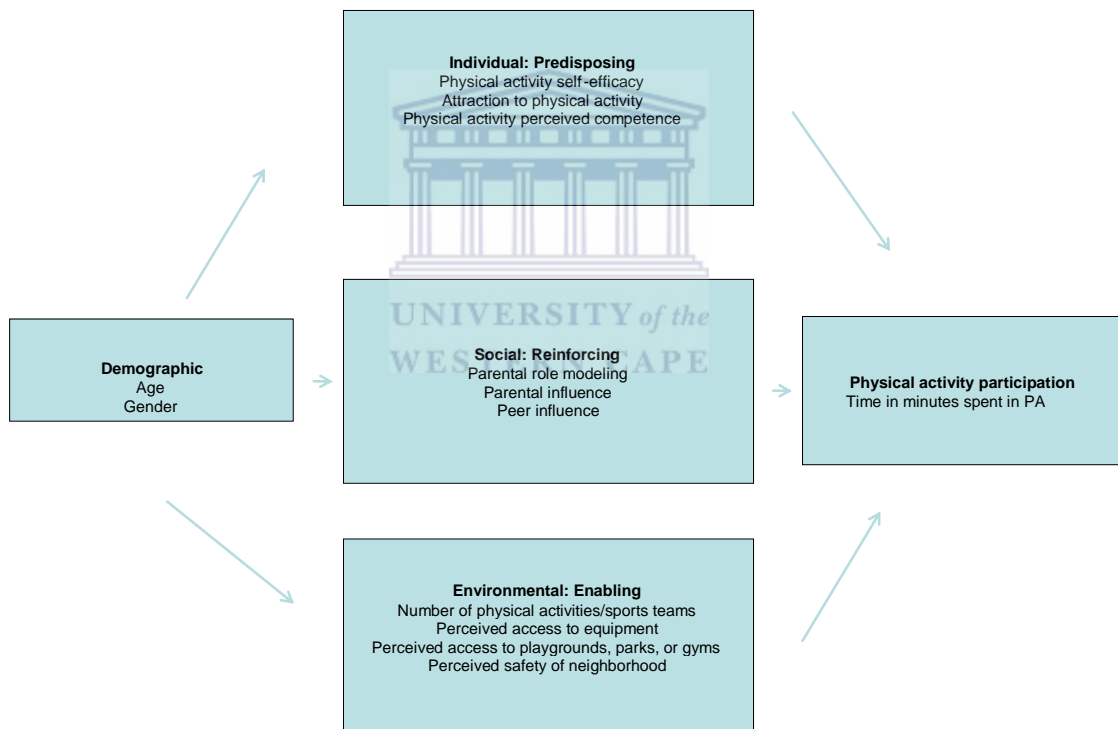


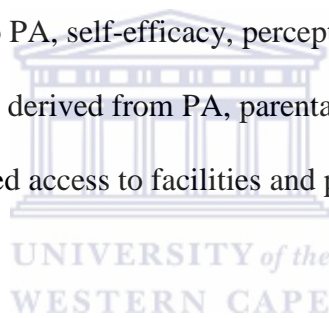
Figure 2.1. The Youth Physical Activity Promotion Model (YPAPM)

The purpose of the YPAPM was based on the unique developmental, psychological and behavioural characteristics of children (Belton et al., 2014). The model utilises aspects of the Precede-Proceed Health Promotional Planning Model as an organisational framework

(Belton et al., 2014). Various personal, social and environmental influences on children's PA were identified (Chen et al., 2014). The first step in the model is behavioural and environmental evaluations that identify the primary determinants of the given behaviour. The second step is an educational and organisational diagnosis for classifying the determinants into factors that predispose, enable or reinforce the given behaviour and weighting them based on their relative importance and potential for change (Belton et al., 2014). The third and last step in the YPAPM is administrative and policy diagnosis in which intervention approaches are planned based on available resources and potential barriers.

A number of commonly used predictors of PA in adolescents are categorised as factors that predispose, reinforce, or enable PA (Welk, 1999; King et al., 2011; Methala et al., 2014). Based on this synthesis, the YPAPM consists of three groups of influencing factors, namely, predisposing factors (such as perception of competence, self-efficacy, enjoyment, beliefs, and attitudes); reinforcing factors (including family influences, peer influence, and coaches influences; enabling factors (including fitness, skills, access, biological factors, and environment). The YPAPM suggests that different predisposing, reinforcing, and enabling factors can directly influence children's PA (King et al., 2011; Methala et al., 2014). The model was constructed based on past research studies that found significant correlations between these broad areas of influence (King et al., 2011; Methala et al., 2014; Belton et al., 2014; Chen et al., 2014;). The present study uses YPAPM to discuss the predisposing, reinforcing and enabling factors and to synthesise the findings in the study. The YPAPM provides a framework to understand and explain the predictors of PA according to Welk (1999).

However, according to Navarro et al. (2007), there are gaps in using models such as the YPAPM to explain health promotion in communities. The use of models such as the YPAPM lack socio-cultural and political influences (Navarro et al., 2007). Furthermore, models do not address several factors that influence change in behaviour, such as mental health, wellness, spiritual, political and economic factors. Therefore, models need to be flexible to allow community choices based upon the availability of resources (Navarro et al., 2007). Finally, Navarro et al. (2007) concluded that models used to determine community health behaviour's and promotion can facilitate positive change in health behaviour and disease prevention. The factors of the YPAPM are the variables that have a strong influence on the likelihood that a child will be physically active. These variables include the child's attraction to PA, self-efficacy, perceptions of their own physical competence and the enjoyment derived from PA, parental influence and support, peer influence and support, perceived access to facilities and perceived safety.

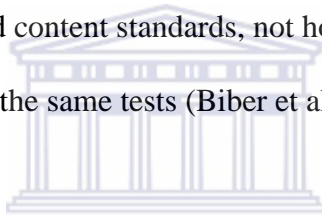


2.3 Predisposing Factors

The factors that influence the individual are known as the predisposing factors (Chen et al., 2014). Predisposing factors include variables that increase the likelihood that a person will be physically active on a regular basis (Chen et al., 2014). The predisposing factors of PA relevant to the present study included perceived attraction to PA, PA self-efficacy and PA competence.

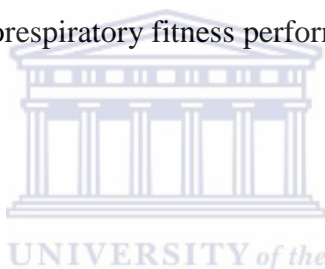
Attraction to PA has been documented in several studies and has been described as an individual's interest in performing PA on a regular basis (Wattanasit; 2009; King et al., 2011; Mackintosh, Knowles, Ridgers and Fairclough, 2011; Biber, Czech, Harris &

Melton, 2013). Attraction to PA increases the likelihood that adolescents will be physically active and forms a part of the predisposing factors (Biber et al., 2013). According to Mackintosh et al. (2011) children tend to participate in PA if they perceive themselves to be physically able, physically competent and if they felt it was worthwhile. The purpose of the research conducted by Biber et al. (2013) focused on understanding children's attraction to PA in a generation Z sample (born after 2000). The results revealed two overarching themes: attraction and aversion to PA, each with subthemes. The Corrective and preventative actions (CAPA) test revealed significant differences between males and females, indicating that males were significantly more attracted to PA than females. CAPA test are criterion-referenced tests. Results are based on how well students achieve identified state-adopted content standards, not how student results compare with results of other students taking the same tests (Biber et al., 2013).



Warner, Schuz, Parchau, Wurm, and Schwartzer (2014) stated that the effects of perceived self-efficacy on PA are well documented, but much less were known about the origins of self-efficacy beliefs. Warner et al. (2014) proposed using a set of scales to assess the sources of self-efficacy. The PA aims of the Warner study was to comparatively test their predictive power for PA via self-efficacy over time to detect the principal sources of self-efficacy beliefs for PA. A study of 1406 German adults aged 16-90 years was conducted to construct scales to assess the sources of self-efficacy for PA. The scales' predictive validity for self-efficacy and PA was tested in a sample of 310 older German adults. The results suggest that mastery experience, self-persuasion, and reduction in negative affective states are the most important predictors of self-efficacy for PA (Warner et al., 2014). Those who had high self-efficacy reported a high level of PA participation contrary to those who had low levels of confidence and self-efficacy (Mackintosh et al., 2011).

Perceived competence has been investigated by several researchers in the past (Wattanasit et al., 2009; King et al., 2011; Belton et al., 2014; Chen et al., 2014). ‘Am I able?’ represents an efficacy expectation, and is defined as the individual’s perception of competence in PA (Chen et al., 2014). Goa (2008) investigated the predictive strength of perceived competence and enjoyment on students' PA and cardiorespiratory fitness in PE classes. The participants responded to questionnaires assessing perceived competence and enjoyment of PE. Physical activity in one class was estimated via pedometers. Regression analyses showed enjoyment ($R^2 = 16.5$) and perceived competence ($R^2 = 4.2$) accounted for significant variance of only 20.7% of PA, and perceived competence was the only significant contributor to cardiorespiratory fitness performance ($R^2 = 19.3\%$).



2.4 Reinforcing Factors

Reinforcing factors have direct and indirect influences on adolescent’s PA levels.

Reinforcing factors are conditions that support a child’s PA behaviours (Wattanasit, 2009; King et al., 2011; Belton et al., 2014; Chen et al., 2014). Parental influence, parental role modelling and peer influence are reinforcing factors of the (YPAPM) and are referred to as social influences on PA. These include supportive influences and variables such as parents, peers, parents as role models that reinforce children’s PA behaviour (King et al., 2011).

Numerous studies have documented that children of active parents are often active themselves (Chen et al., 2014; Redjepi et al., 2014).

Understanding the predictors is important for the development of effective interventions to increase PA behaviour in adolescents. One factor that has received considerable research

attention was the influence of parenting practices and behaviours on adolescents PA behaviour. Trost (2011) conducted a review of 103 studies to understand the social and environmental factors that influenced PA. This review evaluated studies that examined the influence of parental PA, parental support for child PA, parenting style, and family cohesion on child and adolescent activity behavior. The results showed that parental influence was consistently positively and significantly associated with child activity.

Similarly, other authors indicated that children identified a significant need for family as well as parental support while peer influence impacted positively on PA participation (Chen, et al., 2014; Redjepi et al., 2014). However, children from more deprived backgrounds felt less need to have parental (28%) and teacher (17%) support than their peers from affluent schools (Mackintosh et al., 2011). Reinforcing factors consistently identified in the studies included parental role modelling, parental influence, and peer influence. According to Vaidya and Krettek (2014), children cannot distinguish between their perceived effort and ability as causes of achievement. Instead, they rely on parents and peers for their values and beliefs. The family unit is part of society and the surrounding community. Accordingly, PA habits within families also influence a child's activity habits (Vaidya & Krettek, 2014). The YPAPM suggests that families indirectly influence PA in children primarily through reinforcing factors, (taking children to parks, exercising with them). Parents also influence their children's behaviour indirectly through their own health behaviour (Wattanasit, 2009; Belton et al., 2014; Methala et al., 2014).

Socialising variables, such as parental encouragement, play an especially important role in establishing healthy behaviours that children emulate, because children are exposed daily to healthy and unhealthy PA behaviours (Vaidya & Krettek, 2014). Children are clearly

motivated and influenced in different ways compared to adults, and these differences must be considered in an effort to better understand their behaviour.

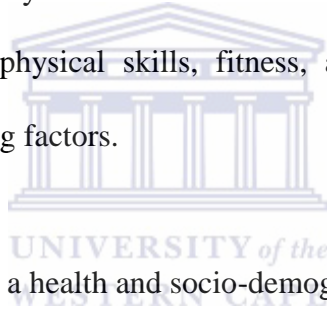
Peer influence as a predictor of PA has been advocated by previous research (Veloigne et al., 2014). Peer interest in PA was related to adolescents' PA levels on weekdays (Veloigne et al., 2014). Veloigne et al. (2014) conducted a study aimed at investigating how peer variables were associated with moderate-to-vigorous intensity PA on weekend days among Australian adolescents, and whether perceived internal barriers such as lack of time, external barriers such as a lack of others to be physically active with, and self-efficacy mediated these associations. Subsequent results indicated that during the week, adolescents were more likely to be physically active during school hours, for example, during breaks or immediately after school, if their friends were interested in PA. None of the peer variables were significantly related to adolescents' PA on weekend days, which emphasises again the importance of parental variables as key predictors of adolescents' PA. Additional research is needed to examine the impact of peer variables on adolescents' PA (Veloigne et al., 2014). Peer variables can directly influence health behaviour via 'automatic' pathways when people spontaneously engage in a particular behaviour or indirectly via adolescents' personal or individual-level factors (Veloigne et al., 2014). Investigating the mediating effect of personal factors on how parents and peers influence PA enables an in-depth insight into the process that may underlie adolescents' behaviour and has been receiving growing attention in recent literature (Veloigne et al., 2014). Parents and friends have a social influence on adolescents' level of PA through the mechanism of behaviour modelling or through social support, mediated by self-efficacy (Veloigne et al., 2014). Therefore, children are more likely to report more intense PA when in the company of peers or family. Overweight children reported greater PA when in

the presence of peers than did lean children (Veloigne et al., 2014). However, overweight children also reported more time spent alone (Veloigne et al., 2014). Taken together, findings highlighted the importance of considering peer relationships in studies of PA (Veloigne et al., 2014).

Researchers Mohamadian and Ghannaei Aran (2014), as well as Gel and Natsuaki (2014) indicated that for most adolescents, establishing a sense of autonomy or independence is as important a part of the emotional transition out of childhood as is establishing a sense of identity. This transition could be observed through interaction with peers. As individuals' self-conceptions become more abstract and as they become more able to see themselves in psychological terms, they become more interested in understanding their own personalities and why they behave the way they do (Gel & Natsuaki, 2014; Mohamadian & Ghannaei Aran, 2014). Furthermore, these authors stated that in general, studies that contrast parent and peer influences indicated that in some situations, peers' opinions are more influential. Moreover, when it comes to long-term questions concerning educational or occupational plans, however, or values, role-modelling, religious beliefs, and ethical issues, teenagers are influenced in a major way by their parents. Specifically, adolescents are more likely to conform to their peers' opinions when it comes to short-term, day-to-day, social matters such as styles of dress, tastes in music, and choices about PA activities. Although relations with peers exist well before adolescence, during the teenage years they change in significance and structure psychological and socially (Mohamadian & Ghannaei Aran, 2014; Gel & Natsuaki, 2014). This is particularly true during the Intermediate Phase at school and the early years of high school (Mohamadian & Ghannaei Aran (2014); Gel & Natsuaki, 2014).

2.5 Enabling Factors

Environmental factors can be defined as determinants in the physical environment that impose or have a direct influence on the opportunity to engage in PA (Chen et al., 2014; Redjepi et al., 2014). Enabling factors include environmental and biological variables that allow children and adolescents to be physically active. According to Belton et al. (2014), without an enabling environment (such as access to equipment, parks, and programs), an individual may lose the opportunity to perform PA. Enabling factors of the YPAPM included the child's physical skills and his or her access to facilities, and physical fitness (Wattanasit, 2009; Belton et al., 2014; Mehtala et al., 2014). Biological factors, such as physical skills, fitness and body fat are also considered enabling factors. In addition, biological factors (including physical skills, fitness, and body fat) can influence PA indirectly through the predicting factors.



Sedibe et al. (2014), conducted a health and socio-demographic surveillance system, in Mpumalanga province, South Africa. The results indicated that the majority of participants reported leading a healthy lifestyle. The majority cited limited accessibility as a major barrier to PA, and noted the increasing intake of “convenient and less healthy foods”. Girls were aware of the benefits of PA and engaged in various PA within the home, community, and schools, including household chores, walking long distances to school, traditional dancing, and extramural activities such as netball and soccer. The findings showed widespread knowledge amongst the participants about healthy behaviours. Results of the study indicated that limited access to PA should be addressed. Walking to school, cultural dance, and extramural activities can be encouraged. Useful facilitators for increasing PA among rural adolescent girls were recommended, where the prevalence of overweight and obesity is increasing.

Environmental attributes such as access to equipment, parks and programs are frequently identified as important predictors of PA. Redjepi et al. (2014) reported that availability of play spaces was significantly related to children's PA levels. Access to PA programs was one of the strongest predictors of PA in rural youth (Redjepi et al., 2014). Environmental attributes had a direct effect on PA.

2.6 Schools as a Setting for Physical Activity

Schools can promote PA and combat physical inactivity through comprehensive school PA programs, including recess/ break, classroom-based PA, intra-mural PA clubs, inter-scholastic sports, and PE (Youth Risk Behaviour Survey, 2013). According to the population statistics, South Africa is home to 54 million people (Statistics South Africa, 2014). About 30.0% of the population is aged younger than 15 years. Of these, a total of 5 123 726 are adolescents aged 10-14 (Statistics South Africa, 2014). Therefore, the schools continue to provide the ideal setting within which to obtain information about adolescents and their health behaviours. The transition of South Africa into an era of democracy has made primary schooling compulsory, which means large numbers of young people are now enrolled in schools (Reddy et al., 2010). Schools can play an important role in the prevention of overweight and obesity among schoolgirls and boys. It is recommended that school governing bodies institute remedial action to prevent weight gain in children, especially girls. One of the primary goals of teaching PE in schools is to develop individuals who have the knowledge, skills, and confidence to enjoy a lifetime of PA. PE further aims to develop a learner's physical wellbeing and knowledge of movement and safety (Draper et al., 2010). Every learner should have the opportunity to participate in quality PE (van Deventer, 2008). During PA, learners develop motor skills

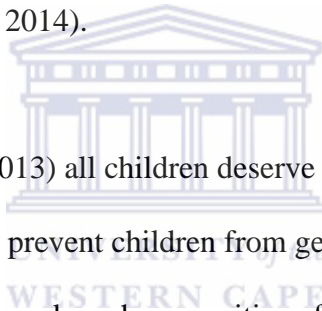
and participate in a variety of PAs. In a similar vein, the results from the YRBS (2010) indicated that PE has an important role to play, yet the results from the survey showed that 34% of South African schools offer no PE (Reddy et al., 2010). According to the HAKSA team (2014) more than a third of the schools surveyed, did not have PE classes and that the average time spent in PE was 30-40 minutes per week. Langlios and Hallam (2010) confirmed that PE classes are not conducted equally among lower socio-economic status communities. PE in South Africa is now receiving more attention after it was found that its demise in schools contributed to South Africa's poor athletic performance internationally (April et al., 2009). According to the LO CAPS (2012) for grades 4-6, teachers addressed the development of skills by assessing PE participation with movement rubrics. Educators were provided with detailed term plans and lesson plans that described the physical activities and gave specific details about how to engage with the new content. The future success of the new system and the implementation of it in the schools will depend on the training of the educators. PE graduates are not utilised in the positions that they were trained for, but where they are needed by school management (Van Deventer, 2009). Thus, the staff used to provide PE lessons in schools are not PE trained specialists (van Deventer, 2009). Educators were retrained during 2013 and the process is on-going. However, the challenges to overcome the barriers of inadequate facilities and equipment remains (van Deventer, 2009; Draper et al., 2010).

Schools in disadvantaged communities lack the following resources; sport fields, equipment and training kits (Mayosi et al., 2009). These are barriers to implementing school sports (Mayosi et al., 2009). Many schools in low socio-economic areas have no PE equipment, swimming facilities, running tracks and no means to practice outdoors due to inadequate facilities (April et al., 2009; Myosi et al., 2009). Similarly, Draper et al. (2010)

noted that the challenges facing learners and educators in South African schools included a lack of equipment, poor maintenance of facilities, and inadequate training of educators. Soko, Villa-Vicencio, Korutaro, Tsekwa and Du Toit (2011) confirmed the lack of appropriate facilities in a Cape Town Sport and Recreation study. Participants in the study expressed a need for more PA opportunities and requested the upgrade of poor facilities (Soko, 2011). Thus, for many adolescents in the present study the school PE classes remained their only opportunity for participating in PA in a safe environment. Schools and communities have the potential to improve the health of young people by providing instruction and services that promote enjoyable, lifelong PA (King et al., 2011). Moreover, schools are an efficient environment for providing PA instruction, because they reach most children (Naidoo & Coopoo, 2012). Schools are intertwined with communities. Therefore, community support is instrumental in promoting PA among young people. Enabling safe PA participation in communities will be beneficial to adolescents. Physical activity during school hours should take place in structured PE lessons or during unstructured free play during breaks. The Western Cape Education Department and communities should coordinate their efforts in making the best use of resources in promoting PA among young people (van Deventer, 2009). School personnel, learners, families, community organisations, and businesses should collaborate to develop, implement, and evaluate PA instruction and programs for young people (van Deventer, 2009).

Adolescents are more physically active than adults, with participation in PA starting to decline in adolescence (Strong et al., 2005; King et al., 2011; Belton et al., 2014; Methala, et al., 2014). Schools and community programs have the potential to help children and adolescents establish lifelong, healthy PA patterns. The decrease in PA coupled with the removal of PE in the curricula of schools in South Africa has had consequences that will be

difficult to undo. An increase in overweight and obesity has been an example of how the decrease in PA levels has affected adolescents (Edginton, Amusa, Chin & Toriola, 2012). Mokabane, Mashao, van Staden, Potgieter and Potgieter (2014) mentioned that in developing countries such as South Africa, this increase was often associated with urbanisation and the adoption of a Western lifestyle. Two aspects of the Western lifestyle that contribute to the development of overweight and obesity are a decrease in PA levels and an increase in the consumption of energy-dense food, high in fats and refined sugar. Information on the prevalence of increased body fatness in populations in transition is scarce, but necessary for effective planning and intervention. Current indications are that there are trends towards unhealthy behaviour among high-school girls, globally and in South Africa (Mokobane et al., 2014).



According to van Hout et al. (2013) all children deserve PA opportunities. Physical activity can be used as a tool to prevent children from getting involved in crime, can prevent alcohol and drug abuse, and can have positive effects on their lives (YRBS, 2013). PE has been recognised as the optimal vehicle for influencing PA habits among children (van Deventer, 2009). It provides an existing organised structure and opportunities to reach nearly all school-aged children (van Deventer, 2008). During adolescence, behavioural skills (self-monitoring, self-reinforcement, and programme planning) that promote lifelong patterns of PA should be emphasised (van Deventer, 2009; Draper et al., 2010). Studies have shown that 34% of schools in South Africa have no PE classes (Mayosi et al., 2009; van Deventer, 2009; Reddy et al., 2010). According to van Deventer (2009), this has been largely attributed to the requirements for schools to complete scheduled and rigorous continuous assessments. These standardised schedules pressurise educators to complete the formal tasks within a specific period (Curriculum and Assessment Policy Statement,

2012). PE periods are often used to complete outstanding academic activities and contribute to the lack of PE classes (Mayosi et al., 2009; van Deventer, 2009). In South Africa, schools in previously disadvantaged areas are eliminating PE programs instead of developing or improving them (Mayosi et al., 2009; van Deventer, 2009). These issues can have a significant effect on children's PA levels (van Deventer, 2009). Physical Education and PA may be constrained or facilitated by local environments. According to the CAPS statement (2012), time allocation for LO in the curriculum are two hours per week in the National Curriculum Statement (NCS). One hour per week will be spent on PE and the remaining hour will be split among the other four topics. This means that there are 70 hours available for the teaching of LO. This excludes internal examination periods. The content is paced across the 40 weeks (80 hours) of the school year to ensure coverage of the curriculum. A fixed period must be dedicated to PE per week and this period is labelled PE on the school timetable. The LO curriculum aims and outcomes (Table 2.1) emphasize the use of track and field athletics, swimming, gymnastics and rhythmic activities (Draper et al., 2010; van Deventer, 2009).

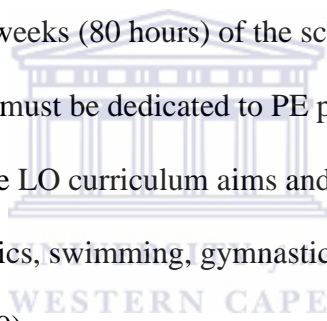


Table 2.1 Curriculum aims and outcomes for grades four to seven

GRADE 4	GRADE 5	GRADE 6/7
Different ways of locomotion, rotate, elevate and balance, using various parts of the body.	Movement sequences that requires consistency and control in smooth and continuous combinations.	Physical fitness programme to develop participation aspects of fitness.
Variety of modified invasion games	Variety of target games	Variety of striking and fielding games.
Rhythmic movement with focus on posture.	Rhythmic movement and steps with attention to position and style.	Rhythmic patterns of movement with coordination and control.
Basic field and track athletics or swimming activities.	Variety of field and track athletics or swimming activities.	Refined sequences emphasising changes in speed, direction through gymnastic activities or swimming activities.
Safety measures	Safety measures	Safety measures

Source: CAPS, Curriculum and assessment policy statement grades R-12, 2012-2014.

2.7 Community Programs and Government Initiatives to Encourage Physical Activity

Social development programs have been implemented that provide the foundation within which school-based education relating to health and development issues might take place effectively (HAKSA, 2014; Reddy et al., 2010). Community programs reach a large segment of the population in a cost effective manner and provide opportunities to promote activity among children (van Deventer, 2009; April, 2009; HAKSA, 2010; Reddy et al., 2010). The community programs aim to improve youth PA and access to facilities. At the community level, there is a need for more innovative after-school programs. Most children today come from families with both parents are working and the children may be able to participate during after-school hours. Innovative programming at community, school or day-care centres can create opportunities for children to be active after school (van Deventer, 2009).



The South African government adopted global legislative and policy initiatives to promote the health and well-being of young people, firmly establishing a sound constitutional, legislative and policy foundation for the social development of youth (The Constitution of the Republic of South Africa, 1996; van Deventer, 2009; Draper et al., 2010; Reddy et al., 2010; HAKSA, 2014). The aim of these programs are to manage the development of sports people across the age spectrum to enhance excellence and increase global competitiveness, ensure effective partnership with community stakeholders, build capacity of stakeholders to leverage international, national and other external stakeholders. The was to transform sport through specific interventions , ensure identification of latent talent, ensure the development of latent talent and deployment of such talent , ensure the creation of an enabling environment for the successful development of talented sports persons.

Moreover, the aim was to ensure the development and implementation of a talent nurturing system with equity and access for marginalised groupings within sport and recreation. The development of facilities plans for the province are vital, taking into consideration the historical past legacies and plan to recognise the performance of deserving sports people. According to the HAKSA group (2014), current programs in communities in the Western Cape include the Open Street Initiative, Parkrun, the Bicycle Empowerment Network (BEN) and mass participation, opportunity and access, development and growth (MOD) programs.

The Open Street Manifesto refers to the concept that the streets should enable safer communities, and provide platforms for creative expression of local cultures and values (HAKSA, 2014). The community agenda is fostered through street festivals, walking tours, workshops and street soccer in various communities. The Park-run is a global movement, which provides PA opportunities for all people from beginners to Olympians (HAKSA, 2014). Weekly timed 5km runs in pleasant parkland surroundings are held within communities. The movement is growing in South Africa with a number of active clubs.

The BEN network is another non-governmental programme that aims to address poverty and mobility through the promotion of bicycling (HAKSA, 2014). Used bicycles are imported from overseas and distributed in low income areas. Bicycle empowerment centres provide recipients with support with maintenance, helmets and safety precautions on the way to school. The mass participation, opportunity and access, development and growth (MOD) programme is one of the flagship initiatives of the Western Cape Government (HAKSA, 2014). It is central to the vision of the Department of Cultural Affairs and Sport, namely, to create a socially inclusive, creative and active Western Cape.

There are currently 181 MOD centres across the province that provide sport and recreational activities to over 40 000 registered participants from disadvantaged communities and underserved schools. MOD has expanded significantly since its introduction in 2010 and now provides employment and skills development to almost 700 community workers across the province. MOD brings together different government departments and stakeholders (HAKSA, 2014).

2.8 Physical Activity and Inactivity Among Adolescents

The present study focussed on the psycho-social factors that impacted the likelihood of participating in PA. Therefore it places an emphasis on the role of PA in enhancing health benefits in children and adolescents. PA promotes the building of healthy bones, muscles, joints, controlling body weight, reducing body fat and preventing or delaying the development of high blood pressure (Strong et al., 2005; Wattanasit, 2009; King et al. 2011; Wang & Morrison, 2014; Dai, Wang & Morrison, 2014). Physical activity reduces anxiety and stress, increases self-esteem, and may improve blood pressure and cholesterol levels (Reddy et al., 2010; WHO, 2013; Youth Risk Behaviour Surveillance, 2013; CDC, Weekly Report, 2014). In addition, PA reduces the risk of many chronic diseases like coronary heart disease, diabetes and colon cancer (Ortlieb et al., 2013). Although, PA is known for providing important physical and emotional benefits, PA participation rates remain low (King et al., 2011). To better understand and promote PA among the youth there is a need to determine the required daily PA guidelines for the promotion of healthy PA behaviour in adolescents (Dai et al., 2014). Because adolescents establish PA patterns of behaviour and make lifestyle choices in this phase that affect both their current and future health it is important to encourage PA participation in adolescence (Langlois & Hallam, 2010; Reddy et al., 2010; Dai et al., 2014).

PA is frequently categorized according to the context in which it occurs. Four common categories of PA include leisure-time activities, household activities, occupational activities, and transportation (CDC, 2008; U.S. Department of Health and Human Services, 2013; Marszalek et al., 2014). In terms of energy expenditure, inactivity represents a state of PA behaviour (WHO, 2011). Inactive behaviour includes television watching, reading, and working at a computer, talking to friends on the telephone, commuting, meditation or eating. According to WHO (2011), physical inactivity has become the leading cause of 3.2 million deaths world-wide.

Leisure-time PA is a broad set of the activities that individuals perform during free time, and are based on personal interests and needs (U.S. Department of Health and Human Services, 2008). It can further be divided into subcategories such as competitive sports, recreational activities, and exercise training (U.S. Department of Health and Human Services, 2008). Examples of leisure-time PA are playing football, free-play, and cycling. Household PA is a set of activities in which an individual participates through housework. It includes many activities such as sweeping floors, scrubbing, washing, doing the laundry, and mowing the lawn. Occupational PA refers to activities that are associated with the performance of a job. It includes a number of activities such as walking, lifting, pushing, carpentry, shovelling, digging, and packing boxes. Transportation PA refers to activities that are associated with active transportation to and from places. It includes several activities such as walking or cycling to school, and cycling to the store (Marszalek et al., 2014).

Along with PA, the terms exercise, physical inactivity, and “physical fitness” are often used in articles and research studies (CDC, 2008; U.S. Department of Health and Human Services, 2013; Marszalek et al., 2014). Physical activity and exercise have been used interchangeably in the past. In fact, PA and exercise have a number of similar common elements, such as involvement of any bodily movement produced by skeletal muscles that expends energy and is positively correlated with physical fitness (CDC, 2008; U.S. Department of Health and Human Services, 2013; Marszalek et al., 2014).

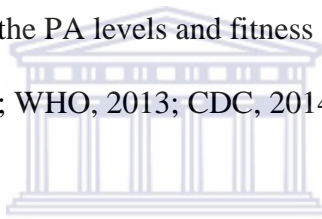
Physical fitness refers to “a set of attributes that people have or achieve that relates to the ability to perform PA” (CDC, 2008; U.S. Department of Health and Human Services, 2013; Marszalek et al., 2014). Physical fitness commonly has two components: health-related physical fitness and skill-related physical fitness (athletic ability). However, health-related physical fitness is more important to public health than it is to skill-related physical fitness which is related to athletic ability. Health-related physical fitness consists of cardiorespiratory endurance, muscular endurance, muscular strength, body composition, and flexibility (Marszelek et al., 2014). Physical fitness levels range from low to high (Centers for Disease Control and Prevention, 2008; U.S. Department of Health and Human Services, 2013; Marszalek et al., 2014).

Belton et al. (2014) stated that for describing patterns of PA, the following terms are commonly used, namely, frequency, duration, and intensity. Furthermore, energy expenditure is also used to explain activity patterns. The authors continue to state that frequency refers to the number of PA actions during a specific period. In other words, frequency is described as the number of activity sessions per day, week, or month. To measure the frequency of activity participation, the number of bouts per day or week or the

percentage of adolescents being active on a given day is reported. The duration referred to the length of participation in a single bout of PA. The duration of an activity is generally reported in minutes (the number of minutes of activity in each session) or the percentage of time spent participating in an activity (Belton et al., (2014), stated that intensity refers to “the physiological effort associated with participating in a special type of PA”. The three degrees or categories of intensity of the PA (light, moderate, or vigorous) are based on the amount of energy that the individual expends in performing the activity (Belton et al., 2014).

Gavin, Abravanel, Moudrakovski and Mcbrearty (2014) stated that participating in regular PA is highly beneficial for both physical health and psychological wellbeing. Physical inactivity was increasingly the norm among Americans, where only 20.6% of the adult American population meets basic PA guidelines for aerobic and muscle-strengthening PA (Gavin et al., 2014). Children and adolescents should do 60 minutes or more of PA each day, for at least 3 days per week (U.S. Department of Health and Human Services, 2008) with aerobic activity making up most of this time (U.S. Department of Health and Human Services, 2008). Strong et al. (2005) conducted a review of the effects of PA on health and behaviour outcomes and made evidence-based recommendations for PA in youth. The panel believed that a greater amount of PA was needed to achieve beneficial effects on health and behavioural outcomes in ordinary circumstances (typically intermittent and unsupervised activity). Furthermore, the review panel believed that school-age youth should participate daily in 60 minutes or more of moderate to vigorous PA that is developmentally appropriate, enjoyable, and involves a variety of activities. Several organisations have confirmed guidelines for PA for adolescents (Reddy et al., 2010; WHO, 2013; CDC, 2014; HAKSA, 2014). Recently, the accumulation of at least 60 minutes of

moderate-to-vigorous PA every day for promoting cardiovascular health and primary prevention of cardiovascular disease was recommended (CDC, 2014; Reddy et al., 2010; WHO, 2013). The U.S. Department of Health and Human Services (2008) recommended that young people aged 6–17 years participate in at least 60 minutes of PA daily. In the nationwide study in the USA, 15.2% of students had not participated in at least 60 minutes of any kind of PA. Physical activity meant activity that increased their heart rate and made them breathe hard some of the time on at least 1 day during the previous 7 days. In the CDC Morbidity and Mortality report (2013), 27.1% of school students surveyed had participated in at least 60 minutes per day of PA on all 7 days before the survey, and only 29% attended PE class daily. Although many of the recommendations related to PA have been published, data related to the PA levels and fitness status of children appear to be as low as ever (Reddy et al., 2010; WHO, 2013; CDC, 2014).



According to Draper et al. (2014), 50% or more of children are not meeting the daily PA requirements of 60 minutes per day. These lifestyle habits and physical inactivity levels are a public health concern (HAKSA, 2014). The health-risk behaviours, once established in adolescence, often persist into adulthood and may have serious consequences for the development of chronic diseases (Reddy et al., 2010). The risky health-risk behaviours and their consequences challenge health and educational resources within South Africa (Reddy et al., 2010).

2.9 Health Consequences of Low Levels of Physical Activity

Internationally, a decline in health and PA levels are evident among adolescents (WHO, 2008; WHO, 2013; Vaidya and Krettek, 2014;). Adolescents are at increased risk for contracting non-communicable diseases through exposure to unhealthy diets and by

leading inactive lifestyles (WHO, 2008, WHO, 2013, Janse van Rensburg & Surujlal, 2013). These unhealthy habits and underlying influences contribute to the growing prevalence of non-communicable diseases (WHO, 2008, WHO, 2013). A healthy lifestyle is an important predictor of future health, productivity and life expectancy (Janse van Rensburg & Surujlal, 2013). The concerning fact is that for the first time generation X (born after 2000) has a lower life expectancy than their parents. The leading causes of global deaths today are largely lifestyle related (WHO, 2013). According to the global status report (WHO, 2010), non-communicable diseases (NCD) are the leading cause of 57 million deaths globally (WHO, 2010). In addition, 80% of NCD deaths occur in low and middle income countries (WHO, 2009; WHO, 2010). Physical inactivity alone is the cause of 3.2 million NCD deaths annually (WHO, 2010). People who lead physically inactive lives have a 20% to 30% increased risk of all-cause mortality (WHO, 2010; WHO, 2013; Vaidya & Krettek, 2014). The WHO (2010) report indicated that 40 million children globally are at risk for contracting NCD, due to physical inactivity. Although many of the recommendations related to PA have been published, data related to the PA levels and fitness status of children remain low (Randall et al., 2008; Reddy et al., 2010; Belton et al., 2014; Methala et al., 2014). Gavin et al. (2014) indicated that low levels of PA have been associated with a number of life-threatening health problems, including coronary heart disease, adult onset diabetes, hypertension, and depression and childhood obesity. Research further indicates that PA participation levels decrease with age (Gavin et al., 2014). Obesity as a consequence of inactivity has become an epidemic, and concern about the significant health and economic consequences has also grown (CDC, 2008; U.S. Department of Health and Human Services, 2013).

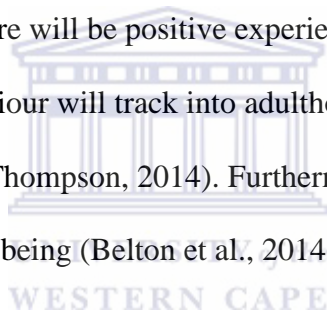
The HAKSA Report Card (2014) builds on the foundation of the previous report cards. The report highlighted the current PA health status of South African children, healthy

eating and weight status. These health behaviours and health indicators are considered, along with influences within the family, among peers and in the environment. According to the HAKSA group (2014) South Africa is home to more than 18.5 million children and youth and there are concerning trends of inactivity. The HAKSA group (2014) further referred to physical inactivity as a global pandemic and that physical inactivity is the leading cause of 5 million deaths annually. Armstrong, Lambert and Lambert (2011) conducted a study measuring the basic physical fitness using 8 different measures for 10 295 South African children and youths (5 611 boys and 4 684 girls) aged 6 to 13 years. The results suggested a need for encouraging fitness in school children, and the reintroduction of formal PE into the South African school curriculum.

Lambert (2012) stated that South Africa had the fourth highest prevalence of physical inactivity in Africa, this was determined using global surveillance instruments. According to Reddy et al. (2010), the second Youth Risk Behaviour Survey (YRBS) found that South African female learners were less active than male learners. The highest prevalence of learners who participated in sufficient moderate PA was those participants living in the Free State (34.1%), Gauteng (33.1%) and Limpopo (33.0%) provinces. The provinces with a significantly lower prevalence of learners who participated in sufficient moderate PA when compared to the national average of 29.3% was the Western Cape (23.2%) and Northern Cape (21.8%) participants. Statistics on the PA participation nationally, indicated that 41.5% were inactive. Significantly more females (46.2%) had insufficient activity levels than males (36.7%). In contrast, the adolescents in the Western Cape Province (51.6%) were inactive (Reddy et al. 2010). Of the learners surveyed in the YRBS (2010), 65.6% indicated they had PE on their school timetable on one or more days in the week. Moreover, the results of the YRBS (2010) indicate that 28.8% of learners did not take part in PA in the week preceding the survey. The results from the YRBS portrayed a bleak

picture of PA among South African youth (Reddy et al., 2010). In spite of knowing about the importance of PA, most adolescents still had a sedentary lifestyle and did not engage in sufficient amounts of PA (Reddy et al., 2010).


According to Methala et al. (2014), PA and physical fitness may favorably affect risk factors for cardiovascular disease such as body mass index, blood lipid profiles, and resting blood pressure. Moreover, PA is to be encouraged among children and adolescents based largely on the assumption that the behaviour will become part of the person's life and be carried into adulthood, where it may help lower the risk of several chronic diseases as well as premature mortality (Methala et al., 2014; Belton et al., 2014). There is an underlying assumption that there will be positive experiences from PA in childhood or adolescence and that the behaviour will track into adulthood, when it is more likely to provide physiologic benefits (Thompson, 2014). Furthermore, regular PA is associated with enhanced health and well-being (Belton et al., 2014; Methala et al., 2014).



The increase in obesity and overweight levels of South African children was highlighted in the HAKSA report, 2014. In 2010 a C score was given but in 2014 it dropped to a D score. The score indicates that the levels of obesity continued to rise among children and adolescents. The highest levels are evident among girls in urban areas. Obesity develops rapidly during adolescence. According to Mokobane et al. (2014), childhood obesity is a major global public health problem. The prevalence of overweight and obesity is increasing rapidly in Africa (Mokobane et al., 2014). Between 1990 and 2010, the number of overweight or obese children doubled (Mokobane et al., 2014). Armstrong et al. (2012) noted that there was an increase in overweight and obesity in South Africa from 1994 to

2004. Females are more likely to be obese than males. This is especially true for females in South Africa (Mokobane et al., 2014).

According to Roussouw et al. (2012), overweight and obesity during adolescence have negative impacts, on both physical and psychological well-being. From a physical point of view, obesity is associated with a higher risk for the development of insulin resistance, type 2 diabetes mellitus, and a number of cardiovascular abnormalities during childhood and adolescence. Although the end points for cardiovascular risks are not necessarily seen in childhood or adolescence, most of the major risk factors start earlier and escalate during adulthood (Rossouw et al., 2012).



Another study that indicated the obesity trend in children is the International Study of Childhood Obesity, Lifestyle and Environment (ISCOLE, 2013). The aim of the study was to predict obesity as a function of lifestyle behaviours (Katzmarzyk et al., 2013). The results of this study provided a robust examination of the correlates of adiposity and obesity in children, focusing on both sides of the energy balance equation. The results also provided important new information that informed the development of lifestyle, environmental, and policy interventions to address and prevent childhood obesity. The interventions may be culturally adapted for implementation around the world (Katzmarzyk et al., 2013). Obesity has been linked to a variety of chronic diseases, almost 300 000 deaths each year, in the United States alone (CDC, 2008; U.S. Department of Health and Human Services, 2013). The recent trends in overweight and obesity were a direct cause of the unhealthy lifestyles that influenced adolescents and increased the obesity epidemic (CDC, 2008; U.S. Department of Health and Human Services, 2013; Gavin et al., 2014).

2.10 Causes of a Sedentary Lifestyle Among Adolescents

South African children engage in too much screen time, watching on average close to three hours of television daily (HAKSA, 2014). High levels of internet usage and social media participation like FACEBOOK, MXIT and WhatsApp was found (HAKSA group, 2014). The recent HAKSA report (2014) gave an F grading for television viewing and screen time of adolescents. The poor grade meant that there had been no improvement since the previous report of 2010. Further, it meant that the high levels of participation in social media and television viewing was disconcerting and monitoring is needed. According to the City of Cape Town recreation study in 2011, many children lead sedentary lifestyles that resulted in adverse health consequences (Soko et al., 2011). A sedentary lifestyle is considered a risk factor for coronary artery disease. Parents and healthcare professionals need to encourage adolescents to maintain active lifestyles throughout adolescence. Also, the guidance from schools is necessary to combat poor access to community programs and poor PA support structures. King et al. (2011) conducted an empirical study based in a rural low socioeconomic area in Kentucky, United States of America. The purpose of the study was to identify which predisposing, reinforcing, and enabling factors predicted PA participation among middle school children. The PRECEDE-PROCEED planning model was utilised in a cross-sectional, descriptive, survey research design (González, Contreras, Portillo & Ortega, 2014). The model is based on the same construct as the YPAPM (González et al., 2014). The study also aimed to determine the strongest predictors of PA similar to the present study. Results from the study indicated that children who watched more television and who were less likely to participate in vigorous activity tended to have higher body mass index (King et al., 2011).

Along with inactive types of entertainment, numerous studies have indicated a variety of negative impacts that may affect the health of persons living sedentary lifestyles (Wattanasit, 2009; WHO, 2013; Belton et al., 2014; Mehtala et al., 2014; Muthuri et al., 2014). Therefore, health-care professionals, parents and educators should encourage children and adolescents to be physically active. According to Belton et al. (2014) one reason for the increase inactivity levels may be the increased use of information and communication technology, particularly television, digital games (video, computer and console games) and computers. There are several mechanisms to explain how modernisation, information and communication technology can influence this imbalance (Belton et al., 2014). Viewing television, using a computer and playing digital games are mainly low-energy activities (Belton et al., 2014). Adolescents favour screen-based activities because they find it exciting and fun. One of the common factors that increased children's physical inactivity levels was the amount of time spent by children watching television and playing video games (Huang, Wong, Salmon & Hui, 2011). Screen-based viewing hours certainly reduce the opportunity to be active (King et al., 2011). The amount of television-viewing has been shown to be a strong predictor of obesity in children (King et al., 2011). Similarly, a lack of activity is generally associated with obesity and chronic diseases of lifestyle that may influence the quality of life of the adolescent and the adult (Wattanasit, 2009; Reddy et al., 2010; Belton et al., 2014; Mehtala et al., 2014). Therefore, understanding the predictors that determine and increase PA behaviour is an effective way to promote healthy lifestyles in adolescence and prevent obesity (Belton et al., 2014).

Micklesfield et al. (2014) confirmed that PA, was higher in boys than girls, and informal activity was lower for girls. Sedentary time was higher in the older than the younger groups. According to Draper et al. (2014), girls and boys PA has been shown to decline in

adolescence, and lower activity levels have been associated with living in more urbanised areas. Amongst girls, sedentary behaviour in leisure time has been shown to increase significantly between early- and mid-adolescence, particularly on weekends (Micklesfield et al., 2014).

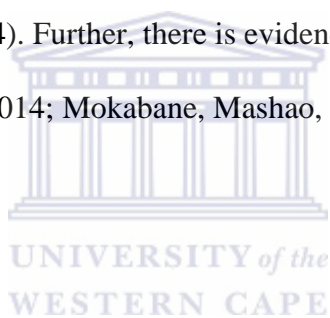
2.11 Encouraging Adolescents to be Physically Active

Adolescents who enjoyed a greater encouragement of healthy lifestyle behaviours from parents would have a better quality of life (Nicholls, Lewis, Petersen, Swinburn, Moodie and Millar, 2014). Higher levels of encouragement are needed from parents to facilitate healthy behaviours in this developing phase of life (Nicols et al., 2014; Vaidya & Krettek, 2014). The acceptance of peers and their influence during PA participation increases the likelihood that an adolescent will take part in that activity again (Nicols et al., 2014; Vaidya & Krettek, 2014). Furthermore, adolescents who enjoy taking part in PA and are confident about their own ability will likely engage in PA in the future (Nicols et al., 2014). The need exists to promote healthy behaviours and PA participation and schools are an appropriate place to encourage PA in adolescents (Reddy et al., 2010).

In contrast, Monyeki et al. (2012), determined the habitual PA of adolescents from the North West Province. The results indicated that the average PA for the study sample was 50.9 ± 40.3 minutes/day. Girls were significantly more active than boys expending more time in PA (61.13 ± 52.2 minutes/day; $p < 0.05$) than boys (35.0 ± 32.9 minutes/day). This result was in contrast to the previous results that indicated that boys were more active than girls (Monyeki et al., 2013). The sample fell below the recommended daily average of 60 minutes per day. Therefore, the authors suggested that adolescents be the foremost targets of interventions aimed at enhancing habitual PA.

Draper et al. (2014) conducted the Ntshembo intervention intended to improve the health and well-being of adolescent girls in order to limit the inter-generational transfer of risk of metabolic disease, in particular diabetes risk. The Ntshembo consortium stated that South Africa is undergoing multiple transitions with an increasing burden of non-communicable diseases and high levels of overweight and obesity in adolescent girls and women.

Adolescence was the key to addressing trans-generational risk and a window of opportunity to intervene and positively impact on individuals' health trajectories into adulthood. Concerning rates of overweight and obesity amongst adolescent girls (29% overweight and 7.5% obese), with higher rates amongst urban compared to rural adolescents (Draper et al., 2014). Further, there is evidence suggesting that girls are less active than boys (Chen et al., 2014; Mokabane, Mashao, van Staden, Potgieter & Potgieter, 2014; Sedibe et al., 2014).



Chapter Three

Research Methods

3.1 Introduction

The aim of this study was to identify the predicting factors of PA in adolescents and to determine which predisposing, reinforcing, and enabling factors were the strongest predictors of PA participation among 11-13 year-old primary school children in the MSED of the Western Cape. This chapter presents the details of the methodology used including the research design, population and sample, research instruments, data collection, data analysis, and ethics considerations.



3.2 Research Setting

The present study was carried out in a peri-urban area at two conveniently sampled public primary schools in the MSED that forms a part of the WCED. The WCED has 1458 public schools and 936 534 learners from grades 1 to 12 (Department of Basic Education report, 2013). The two schools found in the MSED is located within the Mitchell's Plain residential area. Mitchell's Plain is a large township, mainly consisting of coloured inhabitants about 32 km from the city of Cape Town. Mitchell's Plain is one of South Africa's largest townships. It is located on the Cape Flats on the False Bay coast between Muizenberg and Khayelitsha (Theunissen, 2010). The apartheid government built the township during the 1970s to provide housing for coloured victims of forced removal resulting from the implementation of the Group Areas Act (Louw, 2010). The township's lay-out was completed in a neighbourhood unit concept with large open spaces, localised

public facilities and routes. Various forms of housing were provided including, freestanding, semi-detached and duplex housing. However, by the late 1980's - 1990's, major areas of Mitchells Plain had deteriorated into urban ghettos (Theunissen, 2010). Gangsterism, drug abuse and social challenges have increased and a number of informal settlements have sprung up in several areas of Mitchell's Plain (Theunissen, 2010). The map of the Education Districts found in Cape Town is presented in Figure 3.1.

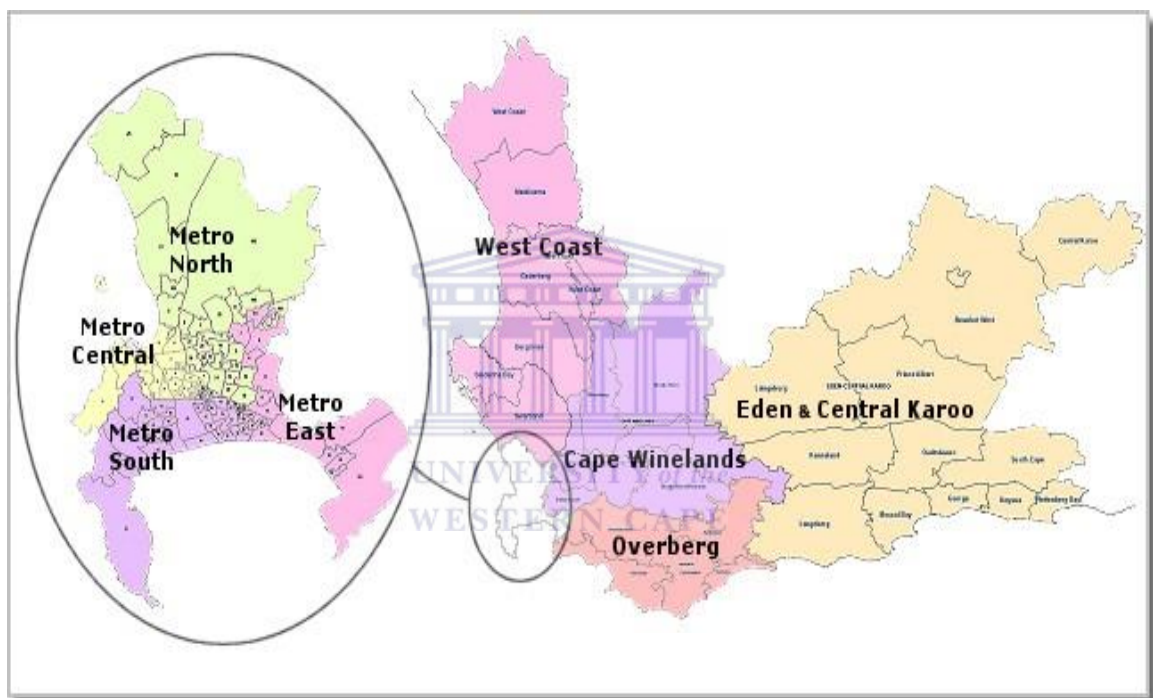


Figure 3.1 Map of the Metropole South Education District

Social challenges due to poor infrastructure, unemployment, low socio-economic conditions, drug use, alcohol use and gangsterism influence these adolescents daily (Theunissen, 2010). Major areas of Mitchells Plain have deteriorated into an environment filled with social risks (Theunissen, 2010). It was found that 68.5% of the population are under 35 years and 30% of the population are unemployed. Reasons for the high level of unemployment in the area was a lack of educational opportunities, lack of funding for training future entrepreneur's, high drop-out rates in schools and poor socio economic

conditions (Theunissen, 2010). Mitchell's Plain was selected as the research setting in the present study because it consisted of a unique environment. The curriculum of the schools is organised under the guidelines of the WCED. Approximately one hour per week was scheduled for PE classes in both schools per grade.

3.3 Study Population

The demographic research variables used in this study were geographical region (school location), school size (total number of learners), PA level, gender and age. The conveniently selected sample drawn for the present study was adolescents aged 11 to 13 years from two English medium schools in the MSED. The total number of learners enrolled at both schools was 2 580. The final total of 600 participants was conveniently selected to participate in this study as illustrated in Table 3.2. Convenient samples are a statistical method of drawing data by selecting people because of their easy access (Field, 2009). The advantages of the method are the availability of the subject and the quickness with which data can be gathered. A disadvantage may be that the full population may not be represented. The number of participants selected was 100 participants per school per age level, i.e., 100 participants per school who were 11 years old, 100 participants who were 12 years old, and 100 participants who were 13 years old. Since there were two schools, there were a total of 200 participants of 11, 12 and 13 years that gave a final total of 600 participants for the study. From this total, a 58% response rate ($n = 348$) was obtained for this study. A total of 56.6% ($n = 197$) of the participants were female and 43.3% ($n = 153$) were male. Participants who failed to get parental consent and did not assent taking part in the study were excluded from the study. Therefore, a total of 252 participants did not give consent. Figure 3.2 illustrates the sampling breakdown for the present study.

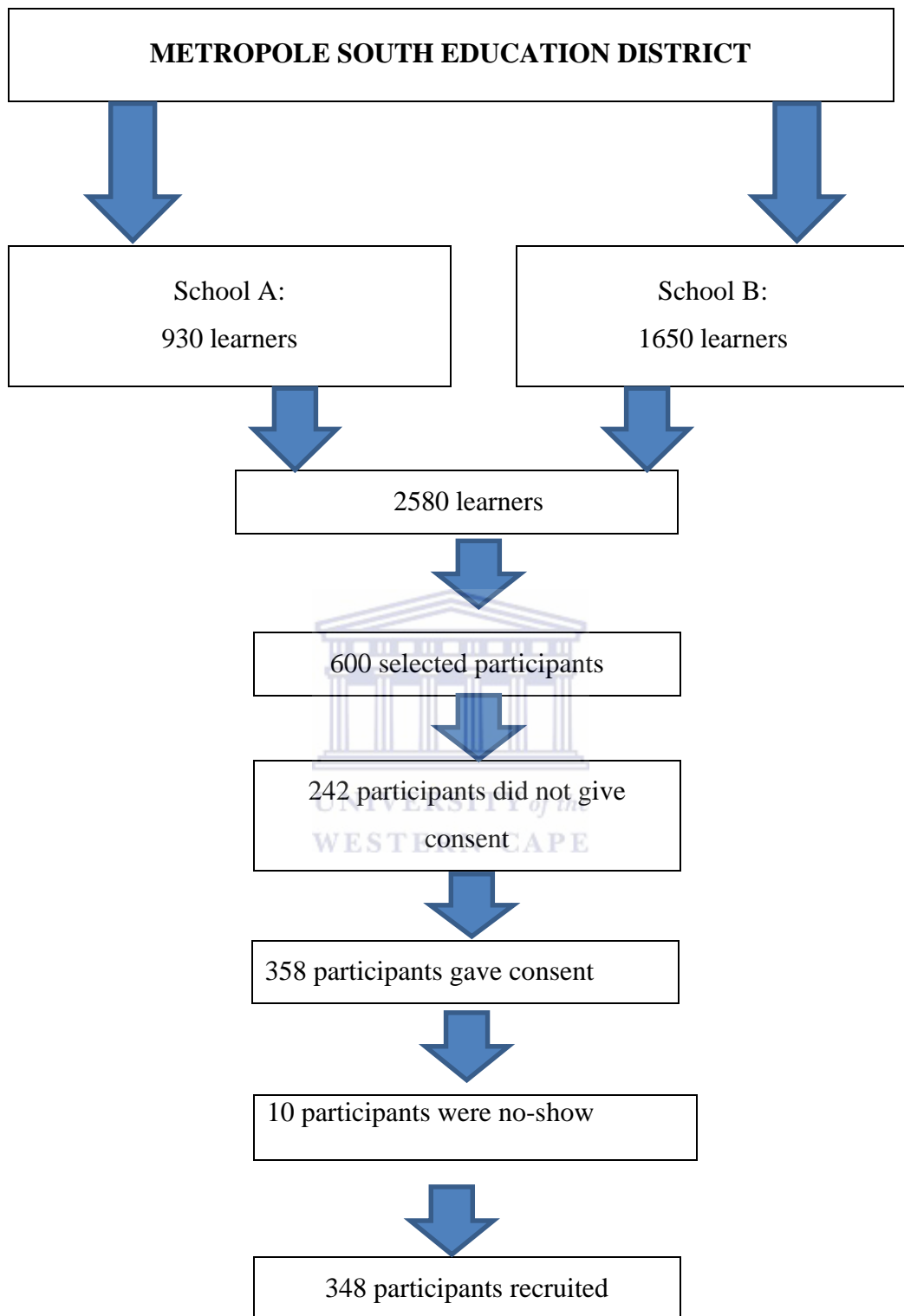


Figure 3.2 Flow Chart of Subject Sampling used in this Study

3.4 Study Design

The present study utilised a cross-sectional, descriptive research design based on quantitative research methods (Kumar, Sisodia & Ramapuram, 2013). Quantitative research refers to the characteristics of the data collected by the researcher and makes use of numerical measurement and analysis by statistics to provide an objective representation of data (Kumar et al., 2013). The selection of the two schools was based on convenience sampling.

The demographic variables (age, grade, gender) and level of PA of the study sample are presented in the CPAQ in Table 3.1. The data analysis of the CPAQ was described for each variable. The explanation was given of how the level of PA, television viewing time and video gaming time were quantified. The PE days and the number of sport teams were calculated per participant. The CPAC instrument was utilised to identify and determine the strongest predictors of PA in the present study as illustrated in tabular form in table 3.1. Thereafter, the strongest predisposing, reinforcing and enabling predictors of PA were determined. The instrument items and variables tested, were explained. Finally, the data was analysed using the SPSS version 21. The strongest predictors of PA identified for the present study was then determined by means of regression analysis. In statistics, regression analysis is a statistical process for estimating the relationships among variables. It includes many techniques for modelling and analysing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables (Kumar et al., 2013). Table 3.1 below refers to the tabular format of the research questions, instrument items, and the data analysis of the present study.

Table 3.1 Research questions, instrument items and data analysis

RESEARCH OBJECTIVES	INSTRUMENT ITEMS	DATA ANALYSIS
1. What is the level of PA of adolescents?	<p data-bbox="651 405 869 442">Phase A: CPAQ</p> <p data-bbox="651 480 1249 550">Demographics age, grade, gender and level of PA items are presented.</p> <p data-bbox="651 592 1265 662">1.1 Number of 60 minutes sessions spent doing PA per day.</p> <p data-bbox="651 703 1227 774">1.2 Number of hours spent watching TV per day.</p> <p data-bbox="651 815 1256 885">1.3 Number of hours playing video/computer games per day</p> <p data-bbox="651 927 1122 997">1.4 Number of sport teams in which adolescents participated.</p> <p data-bbox="651 1038 1238 1102">1.5 The number of days PE was provided per week.</p>	<p data-bbox="1317 405 1559 442">SPSS (version 21)</p> <p data-bbox="1317 480 1888 587">Demographic variables were analysed using descriptive statistics including means and standard deviations.</p> <p data-bbox="1317 628 1921 735">PA was quantified as the number of 60 minute sessions multiplied by the number of sessions per week.</p> <p data-bbox="1317 777 1877 847">TV time was quantified as the number of sessions per week multiplied by 60 minute.</p> <p data-bbox="1317 888 1944 995">Video gaming was quantified (was quantified (The number of sessions per week multiplied by 60 min)</p> <p data-bbox="1317 1037 1839 1107">Number of sports teams were added and calculated per participant.</p> <p data-bbox="1317 1149 1823 1219">Number of PE opportunities added and calculated per participant</p>



RESEARCH OBJECTIVES	INSTRUMENT ITEMS	DATA ANALYSIS
2. Predisposing factors	Phase B: (CPACQ)	SPSS (version 21)
2.1 To identify the predisposing factors PA in adolescents.	2.1.1 Perceived self-efficacy, attraction to PA and perceived PA competence.	Pearsons correlation s was used to determine strong relationships.
2.2 Which predisposing factors were the strongest predictors of PA participation among adolescents?	2.2.1 Score of 17 self-efficacy items. 2.2.2 Score of 5 attraction items. 2.2.3 Score of 5 perceived competence items	Means and standard deviations were presented as numerical values and tables. Regression analysis quantifies the strength of relationships between variables.
3. Reinforcing factors	Phase B: (CPACQ)	SPSS (version 21)
3.1 To identify the reinforcing factors of PA in adolescents.	3.1.1 Conducted a literature search of parental role modelling, parental influence and peer influence.	Pearsons correlation s was used to determine strong relationships.
3.2 Which reinforcing factors were the strongest predictors of PA participation among adolescents?	3.2.1 Score of 4 parental role modelling items. 3.2.2 Score of 4 parental influence items. 3.2.3 Score of 4 peer influence items.	Means and standard deviations were presented as numerical values and tables. Regression analysis quantifies the strength of relationships between variables.



UNIVERSITY of the
WESTERN CAPE

RESEARCH OBJECTIVES	INSTRUMENT ITEMS	DATA ANALYSIS
<p>4. Enabling factors</p> <p>4.1 To identify the enabling factors of PA in adolescents.</p> <p>4.2 Which enabling factors were the strongest predictors of PA participation among adolescents.</p>	<p>Phase B: Children's physical activity correlates (CPAC)</p> <p>4.1.1 Environmental factors such as access, safety and equipment.</p> <p>4.2.1 Score of 4 environmental items</p>	<p>SPSS (version 21)</p> <p>Pearsons correlations was used to determine strong relationships.</p> <p>Means and standard deviations were presented as numerical values and tables.</p> <p>Regression analysis quantifies the strength of relationships between variables.</p>



3.5 Research Instruments

Questionnaires are practical, feasible, and cost effective tools to obtain information (King, et al., 2011). Moreover, questionnaires are a standardised set of questions to gain information from subjects (Belton et al., 2014). However, children's ability to accurately recall or assess their PA participation is poor (Chen et al., 2014). Some studies have found that children tend to overestimate their amount of PA when compared to objective monitoring (King et al., 2011; Chen et al., 2014). The data was collected by means of the CPAQ (Appendix H) and the CPACQ (Appendix I). The CPAQ and CPACQ allowed the participants to self-report their PA patterns and the factors that predict PA. Some studies have found that children tend to overestimate their amount of PA when compared to objective monitoring (King et al., 2011; Chen et al., 2014).

3.5.1 Children's Physical Activity Questionnaire

Firstly, the CPAQ was administered and included demographic items (age, grade and gender) to describe the sample characteristics. The participants were expected to answer questions relating to their age, gender, grade level. The CPAQ included the demographic data with age categorised into 11, 12 and 13 years, whereas grade level was stated as grade four, five, six or seven. Gender was categorised into female or male. Participants were further asked to recall the minutes per day that they were physically active. There were also questions about the number of hours per day they spent watching television and playing video games, the number of PE opportunities at school and the number of sports teams in which they participated.

The CPAQ was designed to assess minutes spent in PA. Participants filled in the number of 60 minute sessions for each day per week that they were engaged in PA. The level of

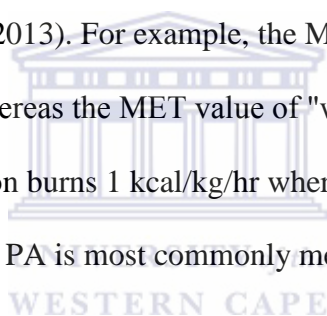
PA of adolescents were evaluated by asking the participants “ How many times in the past week have you done at least a 60 minutes (session) of exercise hard enough to make you breathe heavily and make your heart beat fast?” (Example: playing netball, soccer, jogging, dancing). Responses from participants ranged from A (0-sessions) to H (7 sessions). Participants filled in the number of 60 minute sessions for each day/week that they were engaged in PA per week. The number of 60 minute sessions indicated was calculated by multiplying the number of sessions per week with 60 minutes. This gave each participant a weekly score.

The section of the CPAQ questionnaire evaluating sedentariness in the sample of the present study asked participants questions related to television viewing and playing video games. Television and video/computer gaming was evaluated asking participants “On an average day how many hours and minutes do you spend sitting or lying down watching TV while doing nothing else?” Responses ranged from A (0) to G (5 or more hours per day). Additionally, to ensure that participants did not count physically active computer/video games during video/computer time, the statement “Do not include games that are active, such as Wii or Dance Revolution” was included. These explanations were added to clarify that the items were requesting sedentary time, and not active time. On both questions, responses ranged from “I do not watch TV (or play video or computer games) on an average school day” to “I watch TV (or play video or computer games) 5 or more hours per day.

As a rule of thumb, on a scale of 0 to 10, where sitting would be a 0 and the highest level of activity a 10, moderate-intensity activity is a 5 or 6. When engaging in moderate-intensity activity, the heart will beat faster than normal and breathing will be more rapid.

Vigorous-intensity activity is a level 7 or 8, where the heart beats much faster than normal and breathing rate is heavier than normal.

Belton et al. (2014) stated that estimating PA in terms of energy expenditure requires information about the metabolic costs of each activity that an individual has performed. Estimates are typically made using multiples of the resting metabolic rate and these are reported as metabolic equivalents (METs). According to Belton et al. (2014) a MET is the ratio of the work metabolic rate to the resting metabolic rate. One MET is defined as 1 kcal/kg/hour and is equivalent to the energy cost of sitting quietly. A MET is also defined as oxygen uptake in ml/kg/min with one MET equal to the oxygen cost of sitting quietly, around 3.5 ml/kg/min (WHO, 2013). For example, the MET value of "sitting quietly and watching television" is "1," whereas the MET value of "walking for pleasure" is 3.5. In other words, watching television burns 1 kcal/kg/hr whereas walking for pleasure burns 3.5 kcal/kg/hr. The intensity of PA is most commonly measured using the MET.



Light (low) intensity PA refers to activities requiring between 1 and 3 METs, such as ironing, cleaning and dusting (WHO, 2013). A moderate intensity PA refers to activities requiring between 3 and 6 METs, such as painting/decorating, golf, and badminton. Those activities requiring 6 MET and above (such as aerobic dancing, cycling, and swimming) are classified as vigorous intensity activities. Although the intensity of PA is often used to categorize PA, it is not commonly used as an outcome measure in research. In general, the amount of activity (duration and frequency) is calculated in conjunction with intensity categories for determining the level PA. The pattern of PA of children and adolescents is quite different from that of adults. Children and adolescents usually have intermittent activity rather than continuous activity.

PE opportunities at school were evaluated by asking participants: “On an average school week when you are at school, how many days do you go to PE classes?” Participant’s responses ranged from A (0) to F (5 days per week). Finally, the participants were asked to indicate the following: “During the past 12 months, on how many sports teams did you play? (count any teams run by your school or community groups).” Responses ranged from 0 teams to 3 or more teams. The scores were added and each participant was given a score.

3.5.2 Children’s Physical Activity Correlates Questionnaire

The participants completed the CPACQ which divided the questions into three categories, namely, predisposing, reinforcing and enabling factors. These factors were divided into subscales. Predisposing factors contained such subscales as PA self-efficacy and perceived PA competence. Reinforcing factors included variables such as parental role modelling, parental influence and peer influence. Enabling factors contained environmental items such as access to facilities, sport equipment and safety. Participants had to answer questions according to a five point Likert scale.

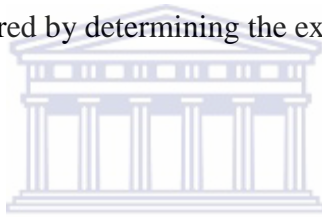
The predisposing subscales consisted of (perceived attraction to PA, perceived self-efficacy and PA competence. Attraction to PA contained 5 items. Responses ranged from “I strongly disagree”, “disagree”, “neutral”, “agree” and “strongly agree”. Perceived self-efficacy contained 17 responses were made on a five point Likert scale. Perceived PA competence) contained five statements on a five point Likert scale.

The reinforcing subscales consisted of parental role-modelling, parental influence and peer influence. Parental role-modelling contained 4 statements on a five point Likert scale.

Parental influence was evaluated in the CPACQ instrument and contained four items on a five point Likert scale. Peer influence was evaluated in the CPACQ with four items on a five point Likert scale. The enabling factors subscale or (environmental items) consisted of the four items on a five point Likert scale. Environmental items were evaluated in the scale.

3.6 Instrument Validity and Reliability

Validity of a research instrument indicates whether the research instrument measures what it is supposed to measure (Kalk, Luik, Taimalu & Täht, 2014). Reliability reflects the degree to which there may be errors in a study's measurements. According to Kumar et al. (2013), content validity is ensured by determining the extent to which a measure reflects a specific domain of content.

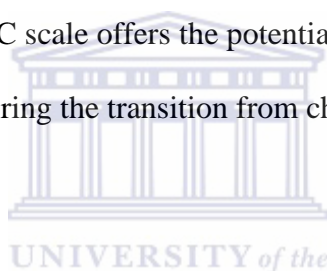


The reliability and validity of the CPAQ was proven by Belton et al. (2014), Chen et al. (2014) and Schaben, Welk, Joens-Matre, Hensley. (2010). Saint-Maurice, Welk, Beyler, Bartee and Heelan (2014) tested the utility of the CPAQ. The CPAQ was used to measure typical levels of PA. The results indicated that school youth had lower levels of PA (Schaben et al., 2014). The utility of self-report measures of PA in youth can be greatly enhanced by calibrating self-report output against objectively measured PA data (Saint-Maurice et al., 2014). This study demonstrates the potential of calibrating self-report outputs against objectively measured PA in youth by using a common self-report tool called the CPAQ. A total of 148 participants (grades 4 through 12) from nine schools completed the CPAQ. Multiple linear regression modelling was used on 70% of the available sample to develop a calibration equation and this was cross validated on an independent sample of participants (30% of sample). These results suggested that the

CPAQ may be a valid alternative tool to activity monitoring instruments for estimating PA in groups of youth (Saint-Maurice et al., 2014). McVeigh and Norris (2012) sought to determine the validity, reliability and ranking ability of an interviewer-administered PA questionnaire (PAQ), in South African primary school-aged children. Criterion validity of the PAQ was tested against PA movement counts measured with an Actical accelerometer in 30 children. Agreement between the two instruments was measured with a weighted Kappa statistic. Test-retest reliability of the past week and past year with the PAQ was also tested. The results indicated a positive, significant ($r=0.53$, $p=0.004$) relationship between total time spent being physically active as measured by the Actical and PAQ. A similar relationship was found for time spent doing sedentary ($r=0.63$, $p<0.001$) and vigorous activities ($r=0.47$, $p<0.001$), but not for activities of a moderate intensity ($r=0.001$, $p=0.88$). The ability of the PAQ to correctly categorise children into activity levels was moderate ($r=0.41$, $p<0.001$). The PAQ was found to be reliable and reproducible with significant ($p<0.001$) intra-class correlation coefficients for both the past week and past year administrations. The interviewer-administered PAQ is a useful assessment tool in this population of children, as evidenced by its good correlation with Actical measurements. Although, this instrument is relevant for use in adolescent populations the best application of the questionnaire lies in its ability to qualitatively rank subjects according to activity level (McVeigh & Norris, 2012).

The validity and reliability of the CPACQ in measuring the predictors of PA in adolescents was determined in previous studies. The scales were developed to assess the predisposing, reinforcing and enabling factors described in the YPAPM (Schaben et al., 2014). The CPACQ was established as a reliable tool to measure the predictors of PA in adolescents (Schaben et al., 2006; Welk, 2009).

Understanding PA psycho-social correlates in youth is challenging due to the inherent changes in activity patterns, activity preferences, and social norms that occur during the normal developmental transition from childhood into adolescence (Schaben et al., 2010). This study examined possible age-related differences in PA correlates using the CPACQ. The results indicated that high school youth had lower levels of PA and lower levels on the psychosocial correlates than middle school youth (Schaben et al., 2010). Parental influence accounted for about 15% of the variance in PA while the predisposing factors (perceived competence, attraction to PA) accounted for 20% and 17% of the variance for middle and high school students, respectively. CPACQ has similar predictive validity across the age range. The CPAC scale offers the potential to help understand the factors that influence PA behaviour during the transition from childhood into adolescence (Schaben et al., 2010).



Dollman and Lewis tested the CPACQ (2009) in a sample of South Australians (10–15 years). The questionnaire has exhibited acceptable validity and reliability in previous studies (Dollman & Lewis, 2009). Welk has postulated domains derived from the CPACQ, such as: parental influence ('reinforcing'), predisposing factors [attitudes to PA ('is it worth it?') and perceived competence ('am I able?')]. In the current study, internal consistency for these three scales was acceptable: 'reinforcing', $\alpha = 0.74$; 'is it worth it?', $\alpha = 0.84$; and 'am I able?', $\alpha = 0.77$).

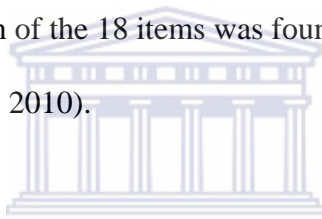
The predisposing factors of the present study assessed self-efficacy, attraction to PA and perceived PA competence. Physical self-efficacy in social cognitive terms is referred to as perceived self-efficacy and is defined as “beliefs in one’s capabilities to organise and execute the course programs of action required to produce given attainments (Schaben et

al., 2010; Scabben et al., 2014). The CPAC instrument measures a child's confidence and their ability to be physically active. The scale uses seventeen items addressing three self-efficacy constructs: seeking social support, confidence in overcoming barriers to PA, and seeking positive alternatives (Belton et al., 2014). All scales were significantly correlated with each other. A five -point Likert scale was used to assess how much participants "strongly disagreed," "disagreed," "neutral", "agreed," or "strongly agreed" with each statement. The average score from the 17 items was used to reflect a participant's PA self-efficacy (Chen et al., 2014).

The CPACQ scale was developed to assess attraction to PA and perceived PA competence. The CPAC used five of six items for the perceived competence scale to assess children's PA competence. The scale was developed to measure predisposing factors of PA in youth (Chen et al., 2014). The scale was developed to assess attraction to PA. The CPACQ attraction scale utilised 15 items from the attraction to PA instrument. Additional research with the tool showed it to be valid and reliable for use with primary and high school students (Wattanasit, 2009 ; Schaben et al.,2010; ; King et al., 2011; Chen et al.; 2014; Methala et al., 2014; Belton et al., 2014).

The perceived competence scale was used to assess the children's perception of their physical ability. The scale emphasised physical competence in sports and games. The scale was found to be reliable in previous studies that provided support that the scale is a valid measure of PA in children (Schaben et al., 2010; King et al., 2011; Chen et al.; 2014) . This competence scale was a consistent predictor of PA in children (Schaben et al., 2010; King et al., 2011; Chen et al., 2014).

The reinforcing factors of PA assess social support, and aspects of social influence of PA. Reinforcing factors include the peer influence, parental influence and parental support scales. Reinforcing factors, specifically parental influence was assessed with 18 items that measured different dimensions of parental support (role-modelling, encouragement, involvement, and facilitation). Reinforcing factors were based upon the social influence that parents or guardians had with participants. The constructs measured were parental and peer influence and parental role-modelling. Parental influence, parental role-modelling and encouragement scales reflect the efforts made by parents to support, and encourage their children to participate in PA. The development and psychometrics of these scales have been described in previous work (Schaben et al., 2010; Chen et al., 2014). The composite measure, computed as the mean of the 18 items was found in previous research to have good reliability (Schaben et al., 2010).



The enabling factors included the environmental factors that assessed access to sport equipment, access to facilities and safety considerations. Enabling factors such as perceived access to PA equipment, perceived access to playgrounds, parks, or gyms, and perceived safety of neighbourhood after school were measured. The environment consisted of the macro and community level factors, legal, physical and policy factors that influence households. Environments may restrict a range of PA behaviours by promoting or discouraging PA through factors such as access to safe recreation, accessibility of recreation facilities and transit options (Popkin, Duffey & Gorden-Larsen, 2005). The CPAC scoring for each factor item was scored on a 5-point Likert scale. The lowest score (1) was anchored at sedentary activities and the highest score (5) for very active activities. The environmental scores for factors were determined by using the numerical score assigned for responses 1 and 2. The average of 3 and 4 (4 was reverse coded) was

computed to determine the “perceived safety of the neighbourhood”. Previous research in elementary school youth revealed good internal consistency at 0.80 for the three sub-scales (Welk, 2003). The environmental scale accounted for over 30% of the variance in PA. The scale was utilised effectively in assessing middle school and high school youth, and is a useful tool for research on children’s PA correlates (Welk, 2003).

3.7 Research procedures

Approval to conduct the study was obtained from the Senate Research Committee of the University of the Western Cape (Appendix A). Then permission was obtained from the Western Cape Education Department to conduct the study in the public schools (Appendix B). Next, the principals of the two schools gave consent for the study to take place in the schools (Appendix C). The information letters clarified the details of the study to the parents (Appendix D). Consent forms were provided for the parents or guardians (Appendix E). The participant’s information letters were also provided (Appendix F). Next, the assent forms were issued to the participants (Appendix G). The steps and methods employed in the collection of data are described below.

Upon obtaining permission from the school principals, a research coordinator (school teacher) was assigned by the respective principals to coordinate the process. The research procedures and schedule of data collection were then arranged by the researcher and respective school coordinators of each school. The steps and methods employed in the collection of data are described below. The data was collected by the researcher and school coordinators in the second term of the 2012 academic school year. The educators were informed about the study by means of staff meetings at both schools. Where difficulties arose, the educators informed the researcher. The questionnaires were administered during

the LO periods in order not to disrupt the academic programme. Information about the study was given to the participants and parents in the following manner. The researcher addressed all the learners at each school in a regular school assembly, where she was introduced by the school principal, and went on to describe the objectives of the study and the research procedures, including the ethical considerations. Thereafter, information letters and consent forms were sent to the parents or guardians of the learners to explain the purposes of the study and to obtain consent and assent to participate in the study. Participants were asked to return these forms to the school coordinators.

The questionnaires were administered in two phases. The screening phase A of the study was conducted first, using the CPAQ which included demographic information and questions to evaluate the level of PA. In Phase B, the CPACQ was administered to the participants either in the classroom (school A) or on the school pavilion (school B) during the LO periods. The researcher explained to the participants how to complete the scales and read each scale out loud. The questionnaires were administered in this manner to assist the learners understanding. The researcher and the school coordinators walked around the classrooms or pavilion to answer questions posed by the participants. The most common challenge for the participants was their inability to read with understanding.

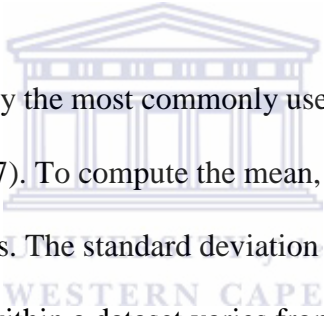
3.8 Data analysis

Data obtained from the CPAQ and CPACQ was compiled using SPSS (version 21) and analysed. Firstly, the demographic data obtained in the CPAQ was analysed. The data obtained from the CPAQ was entered into a data-sheet using Microsoft Excel. Double entry was used for data capturing to eliminate possible human errors. Errors were corrected by referring back to the original completed questionnaires. Descriptive statistics included the means and standard deviations of each variable. The mean refers to the simple average of the numbers and the standard deviation reflects how much the group differs from the mean value. Frequencies and percentages were used to describe the demographic characteristics of the participants. The descriptors used were gender and grade level.

The level of PA was calculated by taking the indicated number of 60 minute sessions for each day/week, then multiplying the sessions by 60 minutes. The average number of hours that the participants spent watching television or playing computer games was determined by each participant. The number of hours indicated in seven days was then multiplied by 60 minutes and a weekly score was calculated.

The CPACQ analysis was done to determine the predisposing, reinforcing and enabling predictors of PA. Scores for each of the predisposing, reinforcing and enabling factors were calculated by coding the individual response items of the questionnaire (coded 1 to 5). For each construct, higher scores represented higher predisposition to PA. Normality in the distribution is the basis of parametric statistical analysis (Chen et al., 2014). All parametric tests assume that the populations from which samples are drawn have specific

characteristics, and that samples are drawn under certain conditions. These characteristics and conditions are expressed in the assumptions of the test. Normality of the sample, homogeneity of variance and independent errors were met in the present study. Further statistical analysis was conducted by means of inferential statistics. Inferential statistics refer to the need to go beyond the descriptive data. It is a way to explore and test the hypothesis by drawing conclusions and determining the relationship between variables from the data collected (Field, 2009, page 627; Chen et al., 2014). Firstly, descriptive statistics were performed for each of the predictors in the predisposing factors, reinforcing and enabling factors. Means and standard deviations were calculated and presented in the form of tables.



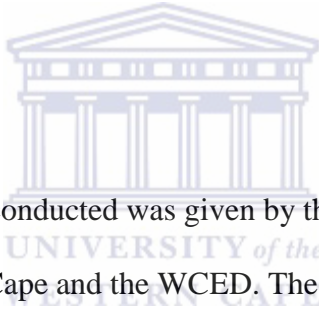
The mean or average is probably the most commonly used method of describing central tendency (Field, 2009, page 347). To compute the mean, all the values are added up and divided by the number of values. The standard deviation is a measure that summarises the amount by which every value within a dataset varies from the mean. Effectively it indicates how tightly the values in the dataset are bunched around the mean value. It takes into account every variable in the dataset (Field, 2009, page 627). When the values in a dataset are tightly bunched together the standard deviation is small. When the values are spread apart the standard deviation will be relatively large. The standard deviation is usually presented in conjunction with the mean and is measured in the same units (Field, 2009, page 63). Parametric testing was conducted for each of the variables and the assumptions were met. Secondly, each predictor was regressed with the number of 60 minutes sessions in the current study. In statistics, regression analysis is a statistical process for estimating the relationships among variables (Field, 2009, page 661). It includes many techniques for modeling and analyzing several variables, when the focus is

on the relationship between a dependent variable and one or more independent variables. More specifically, regression analysis helps one understand how the typical value of the dependent variable (or 'criterion variable') changes when any one of the independent variables is varied. Most commonly, regression analysis estimates the conditional expectation of the dependent variable given the independent variables that is, the average value of the dependent variable when the independent variables are fixed (Field, 2009, page 627). Regression analysis is also used to understand which independent variables are related to the dependent variable, and to explore the forms of these relationships.

Many techniques for carrying out regression analysis have been developed. Familiar methods such as linear regression and ordinary least squares regression are parametric, in that the regression function is defined in terms of a finite number of unknown parameters that are estimated from the data (Field, 2009, page197). A regression analysis was performed in the present study to determine which factors were the strongest predictors of PA. Regression analysis quantifies the strength of relationships between the dependent variable with multiple predictor variables (Chen et al., 2014). The predisposing, reinforcing and enabling factors were each separately tested. Coefficients were calculated and presented in numerical value, indicating the best significant predictor of PA. Finally, a summary of the most significant predictors was presented indicating the strongest predictor of PA overall. Pearson's correlation was performed for each of the predictors. Pearson correlation between factors and the outcome variable were then compared to determine possible co-linearity and to establish whether the factors correlated significantly with the outcome variable. Co-linearity refers to the non-independence of predictor variables, usually in a regression analysis. Co-linearity describes the situation where two or more predictor variables are linearly related (Field, 2009; Chen et al., 2014). Each factor was

regressed with the number of 60 minutes PA sessions. Pearson correlation was performed for each of the predictors. Pearson correlation between factors and the outcome variable were compared to determine possible co-linearity and to establish whether the factors correlated significantly with the outcome variable. Regression analysis was done to determine which factors were the strongest predictors of PA. Regression analysis quantified the strength of relationships between the dependent variable with multiple predictor variables (Chen et al., 2014). The predisposing, reinforcing and enabling factors were each separately tested in the present study. Coefficients were calculated and presented, indicating the best significant predictor of PA. Finally, a summary of the most significant predictors was presented. Statistical significance was set at $p < 0.05$.

3.9 Ethics



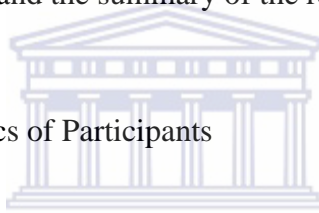
Permission for the study to be conducted was given by the Senate Research Committee of the University of the Western Cape and the WCED. The study was conducted according to ethical practices pertaining to the study of human subjects as specified by the Faculty of Community and Health Sciences Research Ethics Committee of the University of the Western Cape. Ethics considerations in this study entailed obtaining informed consent/assent from all participants, parents, guardians and school principals. Consent forms were provided for the parents, and guardians, and permission forms to school principals, with assent forms used for the participants. The information form clarified the details of the study, while the consent form requested voluntary consent to participate in the study, and included a clause allowing participants to withdraw from the study at any stage with impunity. All information provided by the participants was kept confidential. The participants' identities were kept anonymous by assigning each participant a number and storing the data in a safe and secure manner.

Chapter Four

Results

4.1 Introduction

The aim of the study was to identify the predisposing, reinforcing and enabling factors and to determine which predisposing, reinforcing, and enabling factors were the strongest predictors of PA participation in 11 to 13 year-old primary school children in the MSED of the Western Cape. The following chapter include the demographic characteristics of participants, descriptive results of each variable, a summary of factors, the most strongest predictors of PA are identified and the summary of the results.



4.2 Demographic Characteristics of Participants

Demographics may be useful to describe characteristics of the sample (Welk, 1999; Chen et al., 2014). The male participants were 151 or 43.4 % and the females were 197 or 56.6% in the present sample (n=348). The overall response rate for females in the study was 56% and 61% for male participants. The smaller school, school A, had a greater response rate of 63% females and 59.2% males while the bigger school, school B, had a response rate of 51.1% from the females and 62.1% from the males. The age-groups consisted of 11 year old participants (n=140), 12 year old participants (n=105) and 13 year old participants (n=103). The female participants outnumbered the male participants in both schools. The 11 year-old participants were the biggest group within the three groups (n=140).The response from the 11 year-olds in terms of returning consent forms was better than their counterparts. This indicates that parents were more involved with school related issues of younger children in the present sample.

Table 4.1 Description of age and gender of participants

Variable	Gender	Number (n)	Percentage (%)
1. Gender of total group	Total	348	100
	Male	151	43.4
	Female	197	56.6
2. Age	11years	Total	140
		Male	58
		Female	82
	12 years	Total	105
		Male	44
		Female	61
	13years	Total	103
		Male	49
		Female	54

4.3 Level of Physical Activity of Participants

A description of the number of 60 minute sessions of PA per week is illustrated in Table 4.2. A total of 13.1% of the females in the sample selected “0 sessions” compared to only 1.3% of the males. The daily PA requirements for adolescents should do 60 minutes per day on at least 3 days per week (US Department of Health and Human Services, 2008; YBRS, 2013). Twenty six females in the present sample selected “0 sessions”, 36 selected “1 session” per week and 27 selected “2 sessions” per week. The number of female participants who engaged in less than three sessions of PA per week was 45% of the sample. Of the males in the sample, two participants selected “0 sessions”, 22 selected “1 session” per week and 14 selected “2 sessions” per week. Thirty eight (25.1%) male participants engaged in an insufficient amount of PA per week. A total of 113 (74.8%) of the male participants engaged in a sufficient amount of PA per week, in other words they engaged in three or more 60 minute sessions of PA per week. Compared to the males, 108 females (54.8%) of the females engaged in a sufficient amount of PA per week. The grade 6 male group (13.2%) indicated the highest rate of PA overall for the category “7 sessions of 60 minutes per week. The males in the sample have a higher level of PA participation than the females in the present sample.

Table 4.2 Description of the number of 60 minute sessions of physical activity per week

Gender	Number of 60 min sessions	11years	12years	13years	Totals	%
Males	0	0	2	0	2	1.3
	1	10	12	0	22	14.5
	2	5	6	3	14	9.2
	3	5	8	9	22	14.5
	4	4	9	4	17	11.2
	5	5	11	7	23	15.2
	6	0	0	6	6	3.9
	7	8	20	17	45	29.8
		37	68	46	151	100
Females	0	3	7	16	26	13.1
	1	7	12	17	36	18.2
	2	5	9	13	27	13.7
	3	8	19	10	37	18.7
	4	10	5	7	22	11.1
	5	3	15	6	24	12.1
	6	6	2	0	8	4.0
	7	5	5	7	17	8.6
	Total	47	74	76	197	100

According to CAPS (2012), the weekly requirement for LO lessons is two hours per week to be spent on PE and the remaining hour will be split among the other four topics (CAPS, 2012). Table 4.3 describes the number of PE days per week at the schools. The results of the present study indicated that 197 participants or 56.6 % indicated that they had no PE sessions at school. Only 151 participants or 43.3% indicated that they had one or two sessions a week. Table 4.4 illustrates the description of the number of sport teams of the participants in the present study. The results in the present study indicated that 120 of the participants or 34.4% belonged to 0 teams. The participants of the present study indicated that 120 or 34.4% belonged to 0 teams. Furthermore, 94 of the participants indicated they belonged to 1 sport team. Lastly, 22.1 % of the participants belonged to two teams and 57 or 16.3% belonged to 3 teams. Overall, more males belonged to teams than females.

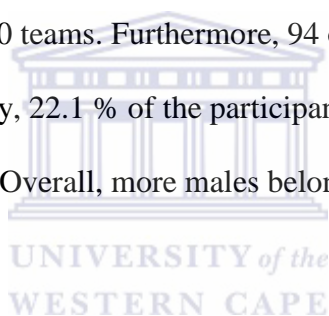


Table 4.5 describes the number of hours adolescents spent watching television. The results indicated that 3.0% of the participant did not watch television. However, 102 participants indicated that they watched 5 or more hours of television on an average day, i.e. on any ordinary school day. More female participants (31.4%) indicated that they watched 5 hours or more television daily compared with the males (26.4%). The results indicated that 65 female participants (32.9%) in the sample did not play video games, and 33 male participants (21.8%) reported the same. The results relating to those participants who played 5 hours or more of video games on an average day showed that 32 female participants (16.2%) and 23 (15.2%) male participants played video games for 5 hours or more per day.

Table 4.3 The Number of PE lessons of participants

Variable	Sessions	Number of subjects	Percentage (%)
1. Number of PE days			
Combined age groups	0 days	197	56.6
	1-2 sessions	151	43.1
2. Age			
11 years	Males		
Males	0 days	33	9.4
	1-2 sessions	33	9.4
Females	0 days	43	12.3
	1-2 sessions	27	7.7
12 years			
Males	0 days	26	7.4
	1-2 sessions	18	5.1
Females	0 days	48	13.7
	1-2 days	16	4.5
13 years			
Males	0 days	27	7.7
	1-2 sessions	44	12.6
Females	0 days	18	5.1
	1-2 sessions	15	4.3

Table 4.4 The number of sport teams

Gender	Number of teams	11years	12years	13years	Total	%
Females	<u>(n=197)</u>					
	0 teams	13	45	37	95	48.0
	1 team	15	19	15	48	24.3
	2 teams	11	8	14	33	16.7
	3 teams	8	3	10	21	10.6
	Total	47	74	76	197	100
Males	<u>(n=151)</u>					
	0 teams	3	15	7	25	16.5
	1 team	15	18	11	46	30.4
	2 teams	13	20	11	44	29.1
	3 teams	6	15	15	36	23.8
	Total	37	68	46	151	100



Table 4.5 Number of hours playing video games and watching television

Video Games	Number of hours	11years	12years	13years	Total (n=348)	%
Hours: Females	0	16	29	20	65	32.9
	1	2	9	12	23	11.6
	2	7	12	15	34	17.2
	3	5	2	6	13	6.5
	4	6	0	7	13	6.5
	5 or more hours	12	16	4	32	16.2
			Subtotal	197		
Hours: Males	0	8	18	7	33	21.8
	1	3	12	9	24	15.8
	2	10	6	6	22	14.8
	3	6	10	4	20	13.2
	4	2	9	18	29	19.2
	5 or more hours	1	10	12	23	15.2
			Subtotal	151		
<hr/>						
Television watching						
Hours: Males	0	1	2	2	5	3.3
	0.5	10	7	10	27	17.8
	1	4	9	11	24	15.8
	2	8	7	4	19	12.5
	3	12	5	5	22	14.5
	4	4	4	6	14	9.2
	5	10	10	20	40	26.4
Hours: Females	0	2	2	2	6	3.0
	0.5	13	10	10	33	16.7
	1	7	5	7	19	9.6
	2	8	12	8	28	14.2
	3	10	10	12	32	16.2
	4	5	6	6	17	8.6
	5	18	24	20	62	31.4



Table 4.6 illustrates the descriptive statistics for each predisposing, reinforcing and enabling factor. The means and standard deviations of the various factors were computed. The results indicated that “attraction to PA” was not a significant predictor ($\bar{x}=17.03$ and $SD=3.027$). The predisposing factors “perceived self-efficacy” ($\bar{x}=65.61$ and $SD=8.992$) and “perceived PA competence” ($\bar{x}=17.32$ and $SD=3.537$) were, however, significant predictors ($p<0.05$). Parental role-modelling” ($\bar{x}=12.60$ and $SD=2.758$) and “peer influence” ($\bar{x}=14.16$, $SD=2.695$) were not significant predictors of PA. However, “parental influence” ($\bar{x}=13.94$ and $SD=2.577$) was a significant predictor of PA. Enabling factors indicated that the “environmental factors” were not significant predictors ($\bar{x}=14.18$ and $SD=2.748$) of PA.

4.4 Correlation and Regression Analysis of Predictors

The final stage of data analysis entailed correlation and regression analysis of the predictors with the outcome variable, i.e., 60 minutes of PA. Table 4.7 illustrates the regression analysis of predictors with the outcome variable. The significance was determined for each variable and is illustrated in Table 4.9. The results for each predictor were summarised in the conclusion to Chapter 4.

Table 4.6 Correlation analysis of the predisposing, reinforcing and enabling factors

Variables	Mean	Standard Deviation	β	<i>r</i>
Predisposing factors:				
Attraction to PA	17.03	3.027	0.400	0.202
Perceived self-efficacy	65.61	8.992	0.012	0.000
Perceived competence	17.32	3.537	0.058	0.000
Reinforcing factors:				
Parental role modelling	12.60	2.758	0.760	0.225
Parental influence	13.94	2.577	0.000	0.000
Peer influence	14.16	2.695	0.519	0.012
Enabling factors:				
Environmental factors	14.18	2.748	0.427	0.412

Table 4.7 Regression analysis of the predisposing, reinforcing and enabling factors

Predicting Variables	Coefficients		Correlations		Factor summary	
	β	p- value	<i>r</i>	p-value	R	R ²
Predisposing factors:						
Attraction to PA	-0.048	0.400	0.480	0.202		
Perceived self-efficacy	2.511	0.012	0.212	0.000*	0.235	0.060
Perceived competence	1.905	0.058	0.192	0.000*		
Reinforcing factors:						
Parental role modelling	-0.017	0.760	0.041	0.225		
Parental influence	0.225	0.000	0.236	0.000*	0.239	0.057
Peer influence	0.037	0.519	0.121	0.012*		
Enabling factors:						
Environmental factors	-0.041	0.427	0.010	0.412		

Note: * indicate significant correlations

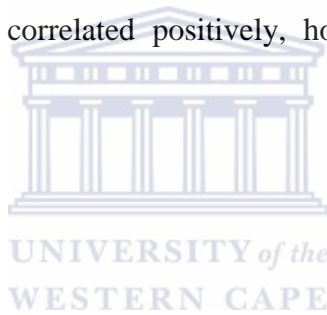
Table 4.8 The strongest predictors of physical activity

Predicting Variables	Coefficients		Correlations		Factor summary		Mean	Standard Deviation
	β	p-value	<i>r</i>	Significance	R	R ²		
Parental influence	0.225	0.00	0.236	0.000*	0.239	0.057	13.96	2.577
Perceived self-efficacy	2.511	0.012	0.212	0.000*	0.235	0.06	65.61	8.992
Perceived competence	1.905	0.058	0.192	0.000*			17.32	3.537

Note: * indicate the most significant correlations

4.5 Predisposing Factors

Table 4.7 contains the results of the regression analysis for the predisposing factors. An analysis of the predisposing factors included perceived PA competence, attraction to PA, and PA self-efficacy with the outcome variable PA. The predisposing factors account for only 5.5% of the variation 60 minutes of PA. Perceived self-efficacy was the strongest predictor within the predisposing factors. The Durbin-Watson value was 1.38, thus the assumption of independent errors was met (Field, 2009). Pearson's correlation was performed to determine the relationship with the outcome variable. Perceived PA self-efficacy and perceived competence all correlated significantly with the outcome variable while perceived self-efficacy correlated positively, however with only a small effect ($r=0.212, p<0.05$).



4.6 Reinforcing Factors

An analysis of the reinforcing factors (independent variables) included parental role modelling, parental influence and peer influence. The correlation matrix indicated a possible co-linearity between parental and peer influence ($r=0.387, p<0.01$). Only one of the three predictors did not correlate significantly with the outcome variable, namely parental role-modelling. Peer influence correlated significantly with the outcome variable ($r=0.012, p<0.05$), as well as parental influence ($r=0.236, p<0.01$) and the latter was thus the strongest predictor overall. The reinforcing group of factors accounted for 5.7% of the variance in PA.

4.7 Enabling Factors

The regression analysis completed for the enabling factors included environmental predictors, none of which were significant in predicting PA. Enabling factors which included the environmental predictors did not correlate significantly with the outcome variable PA. The significant predictors were perceived PA self-efficacy, perceived PA competence peer influence and parental influence.

4.8 Summary of Results

The results for the predisposing factors perceived PA self-efficacy and perceived competence all correlated significantly with the outcome variable, while perceived self-efficacy correlated positively, however with only a small effect ($r=0.212$, $p<0.05$). Within the reinforcing factors parental influence had the highest correlation with PA, ($r=0.236$, $p<0.01$) and was thus the strongest predictor overall. Peer influence significantly correlated with the outcome variable ($r=0.012$, $p<0.05$). Enabling factors which included the environmental predictors did not correlate significantly with the outcome variable PA.

Chapter Five

Discussion, Conclusion and Recommendations

5.1 Introduction

The aim of this study was to identify the predisposing, reinforcing and enabling factors and to determine which predisposing, reinforcing, and enabling factors were the strongest predictors of PA among 11-to-13 year-old primary school children in the MSED of the Western Cape. The first objective of the current study was to determine the level of PA of participants and to identify the predictors that influence their participation in PA. In addition, the objective was also to determine which predisposing, reinforcing and enabling factors were the strongest predictors of PA overall. To realise the objectives of the study, 348 participants (151 males and 197 females) were surveyed on their habitual PA patterns and the predictors of PA were examined. The results were compared with the findings of other researchers and appropriate recommendations made. The discussion is presented with the summary of the study, as well as the strengths and limitations.

5.1.1 Application of the Youth Physical Activity Promotion Model

There are multiple factors that impact positively and negatively on children's PA (Chen et al., 2014). The YPAPM used in this study examined personal, social, and environmental influences on PA. The model was explored in chapters one and two. The YPAPM enabled researchers to apply the model in promoting PA (Chen et al., 2014). The theoretical framework of the YPAPM was applied in the present study to understand the multiple influences on children's PA behaviour. Moreover, the YPAPM synthesized the research

findings and helped to explain PA behaviour in youth. Although, the study was based on the constructs of the model it served mainly to identify and group predictors according to the predisposing, reinforcing and enabling factors.

5.1.2 Level of Physical Activity of Adolescents

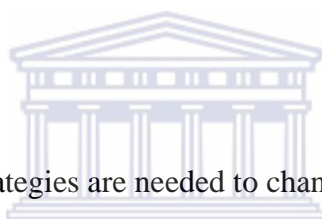
Promoting PA is complex, because there are many factors that either encourage or inhibit participation (Welk, 1999; Chen et al., 2014). Children and adolescents should do 60 minutes or more of PA each day, for at least three days per week (Department of Health and Human Services, 2008). According to Strong et al. (2005), school-age youth should participate daily in 60 minutes or more of moderate to vigorous PA that is developmentally appropriate, enjoyable, and involves a variety of activities. Many children and adolescents engage in insufficient amounts of PA. The results indicated that more females compared to males do not participate in sufficient amounts of PA. A total of 74.8 % of the male participants in the study engaged in sufficient levels of PA compared to 54.8% of the females. In contrast to the present study, the results of the Physical activity and health longitudinal (PAHL) study by Monyeki et al., (2012) revealed that girls were significantly more active than boys. Higher PA levels among boys that is consistently reported in the literature may reflect a higher internal drive among boys that may predispose them to greater participation regardless of influences from their social and physical environments (Chen et al., 2014; Draper et al., 2014; Mokabane et al., 2014; Sedibe et al., 2014).

According to Dollman and Lewis (2009), various predictors of PA influence the participation patterns of all adolescents. This helps to explain the widely reported decline in girls' PA when they pass through adolescence (Dollman & Lewis, 2009). Increasing the level of habitual moderate-to-vigorous intensity PA in youth is a health promotion and a disease-prevention strategy (Dollman & Lewis, 2009). Sedentary youngsters should

progress toward the recommended level of PA gradually. The HAKSA report (2014) revealed that a grade D was given to PA levels of South African children. The meaning of the grade was that 89% of children failed to accumulate the recommended PA levels. Thus, any interventions since the previous HAKSA reports failed. Therefore, adolescents and children should be the foremost targets of interventions aimed at enhancing habitual PA.

According to CAPS (2012) the weekly requirement for PE opportunities at schools are two hours per week. One hour per week will be spent on PE. The other hour is divided between the remaining PE components. The results of the present study indicated that 56.6% of the participants had no PE sessions at school and 151 participants or 43.3% indicated that they had one or more sessions per week a variety of PE experiences existed at the two schools sampled. It was evident that although the requirements for PE were set at 2 hours per week, the weekly requirements were not met at either of the schools. It was possible for some participants in one grade to select “0 opportunities” and other participants in the same grade and school to select “1 or more opportunities”. The reason for this was that more than one educator may be responsible for the PE per grade per school. The one educator may take the class outside for PE, while the other may choose to keep the participants in the classroom for PE and continue with the mainstream school curriculum. The results of the present study with regard to the number of days allocated for PE is confirmed nationally (Chen et al., 2014). According to the YRBS (2010), PE has an important role to play in education, yet the results from the survey showed that 34% of South African schools offer no PE. The lack of specialist teachers, infrastructure and the fact that periods set aside for PE are not utilized effectively, are challenges that policy makers face (Van Deventer, 2009).

The HAKSA report (2014) allocated a D-grade to PE prevalence at schools in South Africa. The meaning of the grade was that PE in schools persists in providing limited opportunities for participation by children. According to HAKSA (2014), organized sport participation in South Africa scored a C. Meaning that more than half of all South African children participate in some sort of organized sport. However, in some areas only 20% belong to teams. Results in the present study indicated that 34.4% of the participants did not belong to a sports team. Amongst the girls, the PA levels decreased significantly in adolescence. Understandably, more males belonged to sports teams than females. Efforts must be made to create more opportunities for organized sport, especially to engage more girls.



More effective intervention strategies are needed to change the health behaviours, especially of females. The females were the most inactive in all age groups. Many researchers found similar trends in the PA levels of males and females (Welk, 1999; Wattanasit, 2009; King et al., 2011; Belton et al., 2014; Methala et al., 2014). A possible explanation for the difference in PA behaviours of males and females is that parents believe that boys should be more involved in sports and PA than girls (Methala et al., 2014). Also, parents tend to protect their female children more for safety reasons (Methala et al., 2014). Parents are more concerned about the safety of their daughters and, therefore, allow them less time to explore and be active (Methala et al., 2014). Thus, females are not given as much freedom as males. Therefore, parents play a vital role in encouraging adolescent females to be more active. The resulting socialization process of boys and girls can become a self-fulfilling prophecy that shapes a child into patterns of PA or inactivity for life (Welk, 1999). Since PE is the primary form of instruction that children receive

about PA knowledge, attitudes, skills, and ultimately behaviours, a collaborative approach between health education and the PE curricula should be advocated that spans throughout preschool and high school.

As children age and move through the adolescent years, they become increasingly inactive (HAKSA, 2014). The participants in the present study indicated that 31.4% of females watched 5 or more hours television on an average day compared to 26.0% of males. The recent HAKSA (2014) report gave an F grading for television viewing and screen time of adolescents. The grade meant that there has been no improvement since the previous report of 2010 (HAKSA, 2014). The same disconcerting results were indicated for playing video games in the present study. More males preferred to play video games compared to females in the present sample. The fact that some children spend more than three hours a day playing computer/video games, and watching TV for more than three hours a day was confirmed by King et al. (2011). According to King et al. (2011), further investigation into the potential health risks associated with television, computer and video use, revealed negative relationships with PA time. Similarly, Muthuri et al. (2014) confirmed that children who watched more television were less likely to participate in vigorous PA and tended to have higher body mass indices.

The school PE environment is challenged by a lack of resources, facilities and lack of time in the schedules. Firstly, the capacity building of educators to enable the effective implementation of PE in schools and prioritizing of the implementation of PE will be vital for the way forward. Schools have the potential to establish lifelong, healthy PA patterns with the help of educators and coaches. Moreover, schools are an environment for providing PA skills that may reach most children and adolescents. The habits taught at

schools may track into children's day-to-day health behaviours and may influence the entire family (Methala et al., 2014). It is important for health educators to continually work with communities to provide PA opportunities for children as they become older. Additionally, health educators should promote communication among parents, teachers and community members regarding the benefits of targeting the development of children's PA.

5.1.3 Factors Predicting Physical Activity Promotion Amongst Adolescents

The results of the present study revealed that the predisposing factors that correlated significantly with PA were perceived self-efficacy and perceived PA competence. Other studies also showed that children who held a higher level of PA self-efficacy were more likely to be physically active after school than children with a lower level of PA self-efficacy (King et al., 2011). Furthermore, children who perceived themselves to be competent in physically active games and sports activities were more likely to be physically active than children with lower levels of perceived PA competence (King et al. 2011). Perceived self-efficacy is a predisposing factor that can be fostered and cultivated through effective, quality programming designed to improve children's knowledge, attitudes, and skills in learning and performing a variety of PAs (King et al. 2011). Similarly to the present study, in a cross-sectional Thai study conducted by Wattanasit (2009), perceived PA self-efficacy was positively correlated with PA. However, in contrast to the present study, perceived PA attraction was a significant predictor to PA in Thai adolescents. Perceived attraction to PA was not a significant predictor of PA in the present study.

Physical activity enjoyment was deemed an important factor that influenced children's PA behaviour (Chen et al., 2014). When children enjoyed participating in PA programs, the likelihood that they will continue participation is greater (Chen et al., 2014). It is important for communities and schools to offer a variety of PAs for children of all ages and skill levels so that children can find and participate in activities that attract and hold their interest. Children who felt competent in physically active games, sports, and activities were more likely to be physically active than those with lower levels of PA attraction (Chen et al., 2014).

Perceived PA competence was a significant predictor of PA in the present study. The participants who felt capable of competently performing physical activity, and valued PA were predisposed to an active lifestyle. A possible explanation for the finding was that adolescents value what they are good at and prefer doing those activities. As a result, children who had higher levels of perceived competence were more likely to be physically active. The reinforcing factors were parental role modelling, parental influence, and peer influence. Parental influence correlated significantly with PA. Parental influence was the strongest predictor of PA among the reinforcing predictors and the strongest predictor of PA overall. This meant that children who have greater support and positive role modelling from parents are more likely to be physically active. Previous research suggested that children who felt that significant others in their lives were supportive of their PA pursuits were more likely to be physically active than children whose do not have significant others who were supportive (Belton et al., 2014; Chen et al., 2014).

Parental role modelling was not a significant predictor of PA in the present study. Parental role modelling has been frequently researched and is usually seen as the most effective

tool for reinforcing PA (Welk, 1999; Chen et al., 2014). Encouraging families to model and support participation in regular PA is one of the key strategies for increasing PA levels in youth (Chen et al., 2014). It is recommended that PA should be fun, promote confidence, and be shared with friends and family. Role modelling is a direct form of influence, where parents' efforts and interests in being physically active are displayed (Chen et al., 2014). In most studies, the relationship between role modelling and PA behaviour has been found by correlating parents' and children's activity levels (Welk et al., 2003; Chen et al., 2014). The results have been mixed (Welk et al., 2003). Some studies found that parental role modelling had a positive association with children's PA behaviour. Parental influence may involve making efforts to encourage children to participate in PA. Parents playing directly with children, or providing access or opportunities for PA pursuits are likely to see positive health changes in their children. According to McKintosh (2011), parents may be significant barriers (grounding) or enablers (encouraging) to children's PA participation. The meaning of this is that parents may have a greater influence over their children's involvement in PA with the ability to both facilitate and impede participation (McKintosh, 2011). The various findings suggest that although role modelling may play an important role, other parental influencing strategies can positively affect children's PA behaviour as well (McKintosh, 2011). Families, therefore, play a powerful and important role in promoting health-enhancing behaviours (McKintosh, 2011). Thus involving parents and the whole family appears fundamental to increasing children's PA levels (McKintosh, 2011).

The findings of the current study support the literature by identifying a strong effect of parental influence on PA. According to Welk (1999), various socialization factors influence a child's interest and involvement in PA by promoting parental involvement. The

most common factor that was evident was role-modelling of children with active parents. Children copy the health behaviours of the adults in their lives. Others argue that parental encouragement, support, and beliefs may be more powerful influences. Parents who expect their children to be successful in sports or PA and who value success in this area will be more likely to influence their children to pursue this behaviour (Welk, 1999, Macintosh, 2011). This could include family walks, practicing a physical skill or playing “catch”, where the parents throw the ball and the child is taught the skill of catching. The involvement of the parents demonstrates to their children that they feel PA is important (Chen et al., 2014).

Peer influence was a significant predictor of PA in the present study. Similar to the results from the present study, Veloigne et al. (2014) examined the associations between children's physical activity and the social context. Adolescents engaged in less intense activity when alone than when in the presence of others, and in more intense activity in the presence of peers and friends. Although many investigators have examined peers as a moderator of social and emotional development (Welk et al., 2003; Chen et al., 2014; Veloigne et al., 2014), the present study contributes to the literature by demonstrating that peer relationships play an important role in children's PA by indicating that it was a significant predictor of PA.

Enabling factors referred to the environmental factors in the present study. Although, environmental factors are not positive predictors of PA in the adolescent of the present study, they enabled adolescents to be physically active irrespective of their environment. In contrast to the present study, King et al. (2011) found that access to sports equipment was a statistically significant predictor of middle school children's after-school PA level.

Accessibility, opportunities, and aesthetic attributes had significant associations with PA. Providing access to PA is an increasingly important responsibility for children to be physically active. Children who felt that they had active toys, games, equipment, and supplies at home were more likely to be physically active than children who felt that they did not have adequate access to equipment (King et al., 2011).

Weather and safety showed less strong relationships (King et al., 2011). Parental concerns (real or perceived) about the safety of parks and playgrounds and an increasing reliance on after-school programs are two factors that contribute to physical inactivity in children (King et al., 2011). A major concern for parents when adolescents participate in school sport activities is safety and having reliable transport for participants to be transported home if the activity takes place after school (King et al., 2011) (reference). Because these factors are out of a child's control, schools, parents and communities need to accept responsibility for opportunities for children to be physically active on a daily basis (Welk, 1999). Children who felt that they had access to play spaces, activities and equipment toys, such as bicycles, skates, balls, or jump ropes at home, were more likely to accumulate more PA. If a parent cannot afford to purchase toys or sports equipment, then the child will not have access to activity promoting items, thus negatively impacting PA participation (Chen et al., 2014; Welk, 1999).

5.2 Study Strengths and Limitations

This study used a large sample size that resulted in statistical power sufficient to detect effects. The study strength was that the sample was representative of both genders. The present study is unique in utilizing the YPAPM to synthesize the findings in the MSED.

The limitations of the present study were as follows: of the use of questionnaires were dependent upon the children's recall ability. A child's perception of his or her PA may be inaccurate. The accurate description of and recording of the amount of time engaging in PA may be misjudged. Using convenient sampling as the selection method limited the generalizability of the findings.

5.3 Future Research and Recommendations

The strongest predictors of PA in the present study could be explored further in future research. The results in the present study indicate that females are less active than males. Therefore, future research should include intervention programs to counter these health risk behaviours in females specifically.

The findings of the study have implications for policy and practice, as well as challenges to the family, schools and National Education Department. The recommendations are provided in order to address the challenges confronting adolescents at risk of negative health behaviour, especially regarding participation in regular PA:

- Sport participation and PE at schools should be encouraged, since schools provide protective environments for children to engage in PA.
- The WCED should find creative ways to engage children in the recommended levels of physical activity daily.

- School personnel, students, families, community organizations, and businesses should collaborate to develop, implement, and evaluate physical activity instruction and programs for young people.
- One way to achieve this collaboration is to form a coalition amongst local resources that are available to schools and community groups that might be useful in promoting physical activity among young people.
- Schools and communities should coordinate their efforts to make the best use of their resources in promoting PA among young people.
- Within the school, efforts to promote PE among students should be part of a coordinated, comprehensive school health program.
- Physical activity programs have been effective in enhancing the students' PA - related knowledge, attitudes, and behaviour and their physical fitness. Programs need to focus on predictors that influence PA participation (parental influence, peer influence, perceived self-efficacy and perceived PA competence).
- The Western Cape Education department should provide ongoing training for Life Orientation educators to promote PA at school level.
- The PA programs should involve families and focusing on community needs, resources, standards, and requirements.
- Training for parents to increase PA awareness should be a priority, as the results of the present study indicated that parental influence was the most significant predictor of participation in PA.
- Adolescents should be encouraged to engage daily in at least 30 minutes of moderate-to-vigorous PA. The target should be increased to 60 minutes or more, since activity levels tend to decrease with age.

5.4 Conclusion

Physical activity self-efficacy, parental influence, peer influence, and perceived PA competence were all strong predictors of PA in the present study. Parental influence was the strongest predictor of PA overall. Adolescents will see long-term health benefits if parents encourage, role-model and participate in PA with their children. Strong foundations for PA fostered during the adolescent phase can help avoid the trend towards inactivity as adolescents approach adulthood. Predisposing factors and reinforcing factors predicting PA are vital to promote PA participation among adolescents.



References

- April, M.A., Kolbe-Alexander, T., Draper, D., & Lambert, E.V. (2006). Physical activity and public health in Africa: Review of problem strategies for primordial prevention of non-communicable diseases. *Journal of Science, 1*, 1-32.
- Belton, S., O'Brien, W., Meegan, S., Woods, C., & Issartel, J. (2014). Youth-Physical activity Towards Health: evidence and background to the development of the Y-PATH physical activity intervention for adolescents. *Bio Medical Central Public Health, 14*:122, 2-12. doi:10.1186/1471-2458-14-122.
- Chen, S., Welk, G.J., & Joens-Matre, R. (2014). Testing the Youth Physical Activity Promotion Model. *Journal of Measurement in Physical Education and Exercise Science, 18* (1), 1–15.
- Centers for Disease Control and Prevention. (2014). Youth Risk Behavior Surveillance. United States, *Morbidity Mortality Weekly Report, 63*(SS-4), 1-172.
- Conchar, L., Bantjies, J., Swartz, L., & Derman, W. (2014). Barriers and facilitators to participation in physical activity. *Journal of Health and Psychology*. Retrieved of 10 September 2014 from:
[www.http://sagepub.com/content/early/2014/03/05/1359105314523305.pdf](http://www.sagepub.com/content/early/2014/03/05/1359105314523305.pdf).
- Constitution of the Republic of South Africa No. 108 of 1996. Schedule 6 (23). Issue: 38 Pretoria. Republic of South Africa Government.
- Crim, K., Hensley, L. D., & Finn, K. (2009). Psycho- social correlates of physical activity and adolescents in a rural community setting. *International Journal of Exercise Science, 2*(4), 230-242.
- CAPS, Curriculum Assessment and Policy Statements, Department of Education. (n .d.) Retrieved January 20, 2012 from <http://www.education.gov.za/CAPS/>.

Currie, C., Zanotti, C., Morgan, A., Cirrie, D., de Looze, M., Roberts, C., Samdal, O., Smith, O.R.F. & Barnekow, V. (2012). Social determinants of health and well-being among young people. Health behaviour in school-aged children (HBSC) study: *Bio Medical Central Public Health Journal*, 14:122, doi: 10.1186/1471-2458-14-122.

Dai, S, Wang, F., & Morrison, H. (2014). Predictors of decreased physical activity level over time among adults. *American Journal of Preventative Medicine*, 47 (2), 123-130.

Draper, C.E., de Villiers, A., Lambert, E.V., Fourie, J., Hill, J., Dalais, L, Abrahams, Z., & Steyn, N. P. (2010). HealthKick: a nutrition and physical activity intervention for primary schools in low-income settings. *Bio Medical Central Public Health Journal*, 6(10), 1471-2458.

Draper, C.E., Kolbe-Alexander, T.L., & Lambert, E.V. (2009). A retrospective evaluation of a community-based physical activity health promotion program. *Journal of Physical Activity and Health*, 6 (1), 578-588.

Draper, C.E., Micklesfield, L.K., Kahn, K., Tollman, S.M., Pettifor, J.M., Dunger, D.B., Norris, S.A., & Ntshembo Consortium. (2014). Application of Intervention Mapping to develop a community-based health promotion pre-pregnancy intervention for adolescent girls in rural South Africa: Project Ntshembo (Hope). *Bio Medical Central Public Health*, 14(2), 78-88.

Dolman, J. & Lewis, N. (2009). Interactions of socioeconomic position with psychosocial and environmental correlates of children's physical activity: an observational study of South Australian families *International Journal of Behavioural Nutrition and Physical Activity*, 6 (56), doi: 10.1186/1479-5868-6-56.

Edginton, C. R., Ming-Kai, C, Amusa, L.O & Toriola. A. L. (2012). Health and Physical Education: A New Global Statement of Consensus - Perspectives from South Africa, *African Journal of Physical Health, Exercise, Recreation and Dance*, 18(2), 434-441.

- Field, A. (2009). *Discovering Statistics Using SPSS: (Introducing Statistical Methods)*. (2nd edition ed.): London: Sage Publications Ltd.
- Gavin, K.M., Abravanel, M., Moudrakovski, T., & Mcbrearty, M. (2014). Motivations for participation in physical activity across the lifespan. *International Journal of Wellbeing*, 4(1), 46-61.
- HAKSA (2014). Draper. C., Bassett. S., de Villiers. A., Lambert. E.V., HAKSA Writing group (2014). Results from the South African 2014 Report card on physical activity for children and youth, *Journal of Physical Activity and Health*, 11(1), 98-104
- Huang, Y., Wong, S.H., Salmon, J., & Hui, S. (2011). Reliability and validity of psychosocial and environmental correlates measures of physical activity and screen-based behaviours among Chinese children in Hong Kong. *International Journal of Behavior Nutrition and Physical Activity*, 8(16), 2-9.
- Janse van Rensburg, C. & Surujlal, J., (2013), 'Gender differences related to the health and lifestyle patterns of university students', *Health SA Gesondheid*, 18(1), 35, 8.
- Kalk, K., Luik, P., Taimalu, M. & Täht, K (2014). Validity and reliability of two instruments to measure reflection: a confirmatory study. *Journal of the Humanities & Social Sciences*, 18(2), 121–134.
- Katzmarzyk, P., Barreira, T., Broyles, S.T, Champagne, C.M, Chaput, J, Fogelholm, M., Hu, G., Johnson, W.D., Kuriyan, R., Kurpad, A., Lambert, E.V., Maher, C., Maia, J., Matsudo, V., Olds, T., Onywera, V., Sarmiento, O.L., Standage, M., Tremblay, M.S., Tudor-Locke, C., i Zhao, P & Church, T.S.(2013). The International Study of Childhood Obesity, Lifestyle and the Environment (ISCOLE): design and methods. *Bio Medical Central Public Health Journal*, 13:900, doi:10.1186/1471-2458-13-900.
- King, K.M , Ogletree, R.J., Fetro, V.J. & Brown, Partrich. J.A. (2011). Predisposing, reinforcing and enabling factors of middle school children's physical activity participation. *American Journal of Health Education*, 42(3), 142-153.

- Kumar, S.P., Sisodia, V. & Ramapuram, J. (2013) Reporting of HIV/AIDS- A Systematic Review and Quantitative Analysis of Research Publications in Palliative Care. *International Journal of Health Rehabilitation Science*, 2(1), 56-65.
- Lambert, E.V. (2012). Physical activity as a global risk factor for non-communicable diseases: time for action, what, why, when, who and how? *South African Journal of Sport Medicine*. 24(1), 1-5.
- Langlois, M. & Hallam, J. (2010). Title Integrating multiple health behaviour theories into program planning: The PER worksheet. *Health Promotion Practice*, 11(2), 282-288.
- Louw, A. (2010). Coloured identity South Africa: A select bibliography. African studies library, University of Cape Town Libraries. Retrieved 30 May 2014 from <http://www.lib.uct.za/as/info/2010.pdf>.
- Mackintosh, K.A., Knowles, Z.R., Ridgers, N.D., Stuart, J. & Fairclough, S.J. (2011). Using formative research to develop CHANGE: a curriculum-based physical activity promoting intervention. *Bio Medical Central: Public Health*, 11(1), 831-837.
- McVeigh, J.A. & Norris, S.A., (2012). Criterion validity and test-retest reliability of a physical activity questionnaire in South African primary school-aged children. *South African Journal of Sports Medicine*, 24(2), 43-48.
- Marques, M., Maldonado, A. & Santos, P. (2014). Exploring psychosocial correlates of physical activity among children and adolescents with spina bifida. *Disability and Health Journal*, Advance Online Publication. doi: 10.1016/j.dhjo.2014.06.008.
- Methala, M.J, Saakslanti, A, Inkinen, M.E, Poskiparta, M. E.H. (2014). A sociological approach to physical activity interventions in childcare: A systemic review. *International Journal of Behavioral Nutrition and Physical Activity* 2014, 11:22 doi: 10.1186/1479-5868-11-22.
- Micklesfield, L. K., Pedro, T.M., Kahn, K., Kinsman, J., Pettifor, J.M., Tollman, S., & Norris, S.A. (2014). Physical activity and sedentary behavior among adolescents in

rural South Africa: levels, patterns and correlates. *Bio Medical Central: Public Health*, 14, 40, 1-10. doi:10.1186/1471-2458-14-40.

Mayosi, B.M., Flisher, A.J., Lalloo, U.G., Sitas, F., Tollman, S.M., & Bradshaw, D. (2009). The burden of non-communicable diseases in South Africa. *The Lancet*, 12; 374 (9693), 934-47.

Mohamadian, H. & Ghannaei Aran, M. (2014). Factors Predicting the Physical Activity Behaviour of Female Adolescents: A Test of the Health Promotion Model, South African Health Review. Durban: Health Systems Trust. Retrieved on 20 August 2014 from: <http://www.hst.org.za/publications/south-african-health-review-2012/13>.

Mokabane, N. N, Mashao, M.M., van Staden, M , Potgieter, M, & Potgieter. A. (2014) Low levels of physical activity in female adolescents cause overweight and obesity: Are our schools failing our children? *South African Medical Journal*, 104(10), 665-667.

Monyeki, M.A., Neetens, R., Moss, S.J., & Twisk, J. (2012). The relationship between body composition and physical fitness in 14 year old adolescents residing within the Tlokwe local municipality, SA: the PAHL study. *Bio Medical Central: Public Health*, 12(1), 374-381.

Muthuri, S.K., Wachira, L. J.M , Leblanc, A.G., Francis, C.E., Sampson, S., Onywera, V.O., & Tremblay, M.S. (2014). Temporal Trends and Correlates of Physical Activity, Sedentary Behaviour, and Physical Fitness among School-Aged Children in Sub-Saharan Africa: *International Journal of Environmental Research and Public Health*, 11(3), 3327-3359.

Naidoo, R. & Coopoo, Y. (2012). Impact of a primary school-based nutrition and physical activity intervention on learners in KwaZulu-Natal, South Africa. *African Journal for Physical, Health Education, Recreation and Dance*, 18(1), 75-85.

Navarro, A. M., Voetsch, K. P., Liburd, L. C., Giles, W., Collins, J. L., Bezold, C. & Rhea, M., (2007). Prevention chronic disease. Public Health research. Practice and Policy: Charting the Future of Community Health Promotion: Recommendations from

the National Expert Panel on Community Health Promotion. *Report of National Expert Panel on Community Health Promotion*, 4(3), 68, 1-7.

Nicols. L., Lewis, A.J., Petersen, S., Swinburn, B., Moodie, M., Millar, L. (2014). Parental encouragement of healthy behavior: adolescent weight status and health-related quality of life. *Bio Medical Central: Public Health*, 14:369, 1-8. doi:10.1186/1471-2458-14-369.

Ortlieb et al., (2013). Physical activity and its correlates in children: a cross-sectional study (the GINIplus & LISApplus studies. *Bio Medical Central: Public Health*, 13:349, 1-14. doi:10.1186/1471-2458-13-349.

Popkin, B.M., Duffey, K., & Gordon-Larsen, P. (2005). Environmental influences on food choice, physical activity and energy balance. *Physiology and Behaviour*, 86(5), 603-613.

Randall, F., Gearhardt, J.R., Gruber, D & Vanata, D. (2008). *Obesity in lower Socio – economic segments of American society forum on Public Policy Sports Sciences*. Report of Family and Consumer Sciences, Ashland University.

Reddy, S. P., James, S., Sewpaul, R., Koopman, F., Funani, N. I., Sifunda, S, Josie, J., Masuka, P., Kambaran N. S. & Omardien, R. G. (2010). Umthente Uhlaba Usamila - *The South African Youth Risk Behaviour Survey 2008*. Cape Town: South African Medical Research Council.

Redjepi, A., Gonatarev, S.V., Petrov, L., Damijanovska, M., & Kalac, R. (2014). The Influence of some psycho-social factors on physical activity among female students between the ages of 11 and 14. *SOP Transactions on Psychology*, 1(2), 35-41.

Rossouw, H.A, Grant ,C.C., & Viljoen, M. (2012). Overweight and obesity in children and adolescents: The South African problem. *South African Journal of Science*. 108 (5/6), 1-7.

Saint-Maurice, P.F., Welk, G.J ., Beyler ,N.K., Bartee, R.T., Heelen, K.A(2014).

Calibration of self-report tools for physical activity research: the CPAQ. *Bio Medical Central: Public Health*, 16, 14:461, 1-9.

Schaben, J.A., Welk, G.J., Joens-Matre, R., & Hensley, L. (2006). Reliability and validity of the children and youth physical activity correlates scale in children and adolescents. *Journal of Physical Activity and Health*, 3(1): 59-69.

Sedibe, H. M ., Kahn,K., Edin,K., Gitau, T., Ivarsson, A., Norris,S.A. (2014). Qualitative study exploring healthy eating practices and physical activity among adolescent girls in rural South Africa. *Bio Medical Central Public Health Journal*, 14(211), 1-9. doi :10.1186/ 1471-2431-1-14-211.

Strong, W.B., Malina, R.M., Blimkie, C.J.R., Daniels, S.R., Dishman, R.K., Hergengroeder, A.C., Must, A., Nixon, P., Pavarnik, J.M., Rowland, T., Trost, S., Trudeau, F. (2005). Evidence based physical activity for school-age youth. *Journal of Pediatrics*, 146 (1), 732-737.

Soko, M., Villa-Vicencio, H., Korutaro, B., Tsekwa, J., & Du Toit, J. (2011). City of Cape Town Recreation Study. Retrieved 30 August 2014 from: <http://www.capetown.gov.za/en/SportRecreation/Documents/Recreation%20Study.pdf>.

Sparling, P. B., Owen. N., Lambert. E.V., & Haskell. W.L. (2000). Promoting physical activity: the new imperative for public health. *Journal of Medicine and Health Research*, 15(3), 367-376.

Statistics South Africa. (2014). *Census 2013*. Pretoria: Statistics South Africa.

Sterdt, E., Liersch, A., & Walters, U. (2013). Correlates of physical activity of children and adolescents, *Health Education Journal* , 73(1), 72-89.

Theunissen, S. (2010). *Mitchell's Plain: South Africa:Ministry of Foreign affairs and information*. Retrieved on 30 May 2014 from <http://.lib.uct.ac.za/asl/info/2010.pdf>.

Thompson, JL, Bentley G, Davis M, Coulson J, Stathi S, and Fox KR. Food shopping

habits, physical activity and health-related indicators among adults aged 70+ years.

Public Health Nutrition, 14(9):1640-1649, 2011.

Trost, S.G., Pate, R.R., Sallis, J.F., Freedson, P.S., Taylor, W.C., & Dowda, M., (2003).

Evaluating a model on parental influence on youth physical activity. *Journal of Preventative Medicine*. 25(4), 277-282.

U.S. Department of Health and Human Services. (2008). *Physical Activity Guidelines Advisory Committee report*. Washington, DC: U.S. Department of Health and Human Services.

U.S. Department of Health and Human Services. (2008). *Physical Activity Guidelines for Americans*. Washington, DC: U.S. Department of Health and Human Services.

U.S. Department of Health and Human Services. (2008). *Physical Activity Guidelines Advisory Committee report*. Washington, DC: U.S. Department of Health and Human Services, Youth Risk Behaviour Surveillance. How do I access this online?

van Deventer, K.J. (2008). Physical Education in Grades 10 and 11: A survey of selected Western Cape high schools in South Africa. *African Journal for Physical, Health Education, Recreation and Dance*, 14(4), 373-387

van Deventer, K.J. (2009). Perspectives of teachers on implementation of LO in Grade R-11 from selected Western Cape schools. *South African Journal of Education*, 29(1), 127-145.

van Hout, R.C.H., Young, M.E.M., Bassett, S.H. & Hooft, T. (2013). Participation in sport and the perceptions of quality of life of high school learners in the The Waterskloof Municipality, South Africa. *African Journal for Physical, Health Education, Recreation and Dance*, 19(3), 612-622.

Vaidya, A. & Krettek, A. (2014). Physical activity level and its socio-demographic correlates in a peri-urban Nepalese population: a cross-sectional study from the

Jhaukhel-Duwakot health demographic surveillance site. *International Journal of Behavioural Nutrition and Physical Activity*, 11:39 doi:10.1186/1479-5868-11-39.

Verloigne et al. (2014). Exploring associations between parental and peer variables, personal variables and physical activity among adolescents: a mediation analysis *Bio Medical Central: Public Health Advance Online Publication*. doi:10.1186/1471-2458-14-966.

Warner, L.M., Schuz, B., Wolff, J. K., Parschau, L, Wurm, S., Schwarzer,R. (2014). Sources of self-efficacy. *Health Psychology*, 33(11), 1298-1308.

Wattanasit, P. (2009). *Determinants of physical activity in Thai adolescents*: Unpublished doctoral thesis, Prince of Songkla University, Thailand

Welk, G. (1999). The youth physical activity promotion model: A conceptual bridge between theory and practise. *Quest Journal*, 51(1), 5-23.

World Health Organization. (2009). *Global Health risk: Mortality and burden of disease attributable to selected major risks*. Geneva: World Health Organization.

World Health Organization. (2010). *Global Health Status Report*. Geneva: World Health Organization.

World Health Organization. (2011). *Promoting sport and enhancing health in European Union countries: a policy content analysis to support action*. Europe: World Health Organization.

Appendix A: Ethics Approval from Higher Degrees committee

Appendix A: Ethics Approval from Higher Degrees committee



OFFICE OF THE DEAN DEPARTMENT OF
RESEARCH DEVELOPMENT

09 May 2012

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape has approved the methodology and ethics of the following research project by: Mrs C Cozett (SRES)

Research Project: An investigation of factors influencing participation in physical activity in 11-13 year old primary school children in the Western Cape.

Registration no: 12/4/26



*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*

Private Bag X17, Bellville 7535, South Africa
T: +27 21 959 2988/2948 . F: +27 21 959 3170
E: [pjiosias@uwc.ac.za](mailto:pjosias@uwc.ac.za)
www.uwc.ac.za

A place of quality,
a place to grow, from hope
to action through knowledge

Appendix B: Letter From WCED Granting Permission for the Study

Audrey.wyngaard2@pgwc.gov.za

tel: +27 021 467 9272

Fax: 0865902282

Private Bag x9114, Cape Town, 8000

wced.wcape.gov.za

REFERENCE: 20120620-0099

ENQUIRIES: Dr A T Wyngaard

Mrs Colleen Cozett
Department of Sport, Recreation and Exercise Science
UWC

Dear Mrs Colleen Cozett

RESEARCH PROPOSAL: FACTORS INFLUENCING PARTICIPATION IN *PHYSICAL ACTIVITY* IN 11 – 13- YEAR OLD PRIMARY SCHOOL CHILDREN IN THE WESTERN CAPE

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Approval for projects should be conveyed to the District Director of the schools where the project will be conducted.
5. Educators' programs are not to be interrupted.
6. The Study is to be conducted from **20 July 2012 till 28 September 2012**
7. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
8. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number?
9. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
10. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
11. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
12. The Department receives a copy of the completed report/dissertation/thesis addressed to:
**The Director: Research Services
Western Cape Education Department
Private Bag X9114
CAPE TOWN
8000**

We wish you success in your research.

Kind regards.

Signed: Dr Audrey T Wyngaard

for: **HEAD: EDUCATION**

DATE: 20 June 2012



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2350, Fax: 27 21-959 3688

E-mail: colleencozettconsulting@hotmail.com

Principal Permission Form

The Principal

School

Dear Sir/ Madam,

Project Title: Factors influencing participation in physical activity in 11-13 year-old primary school children in the Metro South Education District of the Western Cape



I would like to request permission to conduct a research project on the physical activity participation patterns among school going children and adolescents. The learners will be asked to fill in two surveys asking questions about how often they participate in physical activity and what activities they participate in. All the learners personal information will be kept confidential. To further protect their confidentiality, only the researcher will have access to their information. Their participation in this research is completely voluntary. Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

Study Coordinators Names: Dr. L. Leach

University of the Western Cape

Private Bag X17, Belville 7535

Telephone: (021) 9592653



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2350, Fax: 27 21-959 3688

E-mail: colleencozettconsulting@hotmail.com

Parental Information Sheet

Project Title: Factors influencing participation in physical activity in 11-13 year-old primary school children in the Metro South Education District of the Western Cape

What is the study about?

This is a research project conducted by Colleen Cozett at the University of the Western Cape in completion of a Masters in Sport Recreation and Exercise Science. We are inviting your child to participate in this research project because he/ she is a school going child.

What will I be asked to do if I participate?

Your child will be asked to fill in two questionnaires asking questions about how often he/ she participates in physical activity and what activities he/ she participates in. The second questionnaire consists of questions about the factors that influence their participation. All the steps will be explained clearly to him/ her and the teacher. I will be present if they have any questions.

Would my participation in this study be kept confidential?

All his/ her personal information will be kept confidential. To further protect his/ her confidentiality only the researcher will have access to his/ her information. I will collect

the questionnaires personally and I will be responsible for ensuring their storage in a locked and secure place. Your child's participation in this research is completely voluntary. If your child decides not to participate in this study or if participation is stopped at any time, he/ she will not be penalised.

What are the risks of this research?

There are no known risks with participating in this research project. The child merely has to recall physical activity information about him/ herself.

Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

Study Coordinator's Name: Dr. L. Leach

University of the Western Cape

Private Bag X17, Belville 7535

Tel: (021) 959265



Student's Name: Colleen Cozett

Telephone: (021) 9592377

Cell: 0843250513



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2350, Fax: 27 21-959 3688

E-mail: colleencozettconsulting@hotmail.com

Parental Consent Form

Title of Research Project: Factors influencing participation in physical activity in 11-13 year-old primary school children in the Metro South Education District of the Western Cape

The study has been described to me in language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my child's identity will not be disclosed and that he/ she may withdraw from the study without giving a reason at any time and this will not negatively affect him/ her in any way.

Participant's name.....Participant's signature.....

Date.....

Parent's name/Guardian.....Parent's signature.....

Date.....

Witness name..... Signature of witness.....

Date.....

Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

Study Coordinator's Name: Dr. L. Leach

University of the Western Cape

Private Bag X17, Belville 7535

Tel: (021) 959265



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa


Tel: +27 21-959 2350, Fax: 27 21-959 3688

E-mail: colleencozettconsulting@hotmail.com

Participant Information Sheet

Project Title: Factors influencing participation in physical activity in 11-13 year-old primary school children in the Metro South Education District of the Western Cape

Dear Participant,



Kindly accept my sincere thanks for taking the time to read about the study. My name is Colleen Cozett and I am a Masters student at the University of the Western Cape. Mr. L. Leach is a Lecturer at the University of the Western Cape and he is helping me finish my research project so I can graduate. If you need any further information please do not hesitate to contact me or my supervisor whose details are at the end of this letter.

What is the study about?

This is a research project conducted by Colleen Cozett at the University of the Western Cape. We are inviting you to be a part of the study about physical activity.

What will I be asked to do if I participate?

You will be asked to fill in two questionnaires asking questions about how often you participate in physical activities and which activities and what influences you to

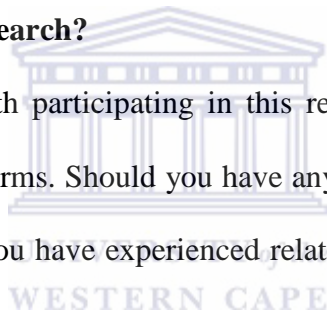
participate. All the steps will be explained clearly to you and your teacher. I will be present if you have any questions.

Would my participation in this study be kept confidential?

All your personal information will be kept private. To further protect your confidentiality, only the researcher will have access to your information. I will collect the questionnaires personally and will be responsible for ensuring their storage in a locked and secure place. Your participation in this research will be completely voluntary. If you decide not to participate in this study or if participation is stopped at any time, you will not be penalised.

What are the risks of this research?

There are no known risks with participating in this research project. You will only be writing on the questionnaire forms. Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator.



Study Coordinators Names: Dr. L. Leach

University of the Western Cape

Private Bag X17, Belville 7535

Tel: (021) 959265



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2350, Fax: 27 21-959 3688

E-mail: colleencozettconsulting@hotmail.com

Participant Assent Form

Title of Research Project: An investigation of factors influencing participation in physical activity in 11-13 year-old primary school children in the Western Cape.

The study has been described to me in language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

Participant's name.....Participant's signature.....

Date.....

Parent's name/Guardian.....Parent's signature.....

Date.....

Witness name.....Signature of witness.....Date.....

Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

Study Coordinators Name: Dr. L. Leach

University of the Western Cape

Private Bag X17, Belville 7535

Tel: (021) 959265



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959 2350, Fax: 27 21-959 3688

E-mail: colleencozettconsulting@hotmail.com

CHILDREN'S PHYSICAL ACTIVITY QUESTIONNAIRE (CPAQ) PHASE A: SCREENING PHASE

An investigation of factors influencing participation in physical activity in 11-13 year old primary school children in the Western Cape.



BY
UNIVERSITY of the
WESTERN CAPE

COLLEEN COZETT

STUDENT NUMBER: 9192285

Please answer all questions honestly and if you do not understand a question feel free to ask. All the information that is filled out on these forms will be kept confidential.

PART 1: SOCIO-DEMOGRAPHIC INFORMATION

NO. _____

AGE: _____ years

DATE OF BIRTH: (day) _____ (month) _____ (year) _____

GRADE: _____

SELECT THE BEST OPTION BY MAKING A TICK.



GENDER: MALE _____ FEMALE _____

UNIVERSITY of the
WESTERN CAPE

PART 2: CHILDREN'S PHYSICAL ACTIVITY QUESTIONNAIRE (CPAQ)

Level of physical activity:

How many times in the past week have you done at least 60 minutes (session) of exercise hard enough to make you breathe heavily and make your heart beat fast? (Example: playing netball, soccer, jogging, dancing).

CIRCLE THE RESPONSE

- A 0 sessions
- B 1 sessions
- C 2 sessions
- D 3 sessions
- E 4 sessions
- F 5 sessions
- G 6 sessions
- H 7 sessions



TELEVISION AND VIDEO/ COMPUTER GAMING:

On an average day how many hours and minutes do you spend sitting or lying down watching TV while doing nothing else?

CIRCLE THE RESPONSE

- A I do not watch TV on an average school day.
- B Less than 1 hour per day
- C 1 hour per day

- D 2 hours per day
- E 3 hours per day
- F 4 hours per day
- G 5 or more hours per day

On an average day after school, how many hours do you play video or computer games or use a computer for something that is not school work? (Include activities such as Nintendo, Game Boy, PlayStation, Xbox, computer games, and the Internet.

(Do not include games that are active such as Wii or Dance Revolution.)

CIRCLE THE RESPONSE

- A I do not play on computers on an average school day.
- B Less than 1 hour per day
- C 1 hour per day
- D 2 hours per day
- E 3 hours per day
- F 4 hours per day
- G 5 or more hours per day



On an average school week when you are at school, how many days do you go to Physical Education (PE) classes?

CIRCLE THE RESPONSE

- A 0 days
- B 1 day
- C 2 days

During the past 12 months, on how many sports teams did you play (count any teams run by your school or community groups).

CIRCLE THE RESPONSE

- A 0 teams
- B 1 team
- C 2 teams
- D 3 teams or more

END OF SURVEY, THANK YOU





UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

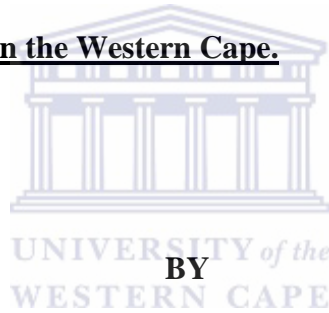
Tel: +27 21-959 2350, Fax: 27 21-959 3688

E-mail: colleencozettconsulting@hotmail.com

CHILDREN'S PHYSICAL ACTIVITY CORRELATES :

PHASE B: CPACQ

An investigation of factors influencing participation in physical activity in 11-13 year old primary school children in the Western Cape.



STUDENT:

COLLEEN COZETT

9192285

INSTRUCTIONS: CIRCLE THE APPROPRIATE RESPONSE

I. PREDISPOSING FACTORS

a) Attraction to physical activity items:

1. I like to exercise, play sports, or play physical games or activities.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

2. My body feels bad when I exercise, play sports, or play physical games or activities.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

3. I don't enjoy exercising, playing sports, or playing physical games or activities very much.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

4. I think it is important to exercise, play sports, or play physical games or activities.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

5. I am popular with other kids when I exercise, play sports, or play physical games or activities.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

b) Physical activity self- efficacy items:

1. I think I can ask my parent(s) or other adult to sign me up for a sport, dance, or other physical activity.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

2. I think I can ask my parent(s) or other adult to take me to a physical activity or sport practice.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

3. I think I can ask my best friend to be physically active with me.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

4. I think I can ask my parent(s) or other adult to do physically active things with me.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

5. I think I can ask my parent(s) or other adult to get me the equipment I need to be physically active

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

6. I think I have the skills I need to be physically active.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

7. I think I can be physically active most days after school.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

8. I think I can be physically active no matter how busy my day is.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

9. I think I can be physically active no matter how tired I may feel.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

10. I think I can be physically active even if it is hot or cold outside.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

11. I think I can be physically active even if I have a lot of homework.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

12. I think I can be physically active after school even if I could watch TV or play video games instead.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

13. I think I can be physically active even if I have to stay at home.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

14. I think I can be physically active even when I'd rather be doing something else.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

15. I think I can be physically active even if my friends don't want me to.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

16. I think I can be physically active after school even if my friends want me to do something else.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

17. I think I can be physically active at least three times a week for the next 2 weeks.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

c) Perceived physical activity competence items:

1. I do very well at all kinds of physical games or sports.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

2. I feel that I am better than other kids my age at physical games or sports.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

3. I am pretty sure I am a good athlete

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

4. I don't do well at new physical games or sports.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

5. I am good at most physical games or sports.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

II. REINFORCING FACTORS

a) Parent role- modelling items:

1. My parents are in really good shape physically.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

2. My parents like to exercise, play sports, or play physical games or activities.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

3. My parents don't like to do much physical activity.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

4. My parents would rather walk places, if possible.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊



b) Parental influence items

1. My parents let me play on community or school sports teams

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

2. My parents buy me a lot of sports, physical games, or physical activity equipment.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

3. My parents tell me I am not good at physical games or sports.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

4. My parents encourage me to try hard at physical games or sports

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😊

c) Peer influence items

1. My friends like to exercise, play sports, or play physical games or activities.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

2. My friends think it is important to exercise, play sports, or play physical games or activities.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

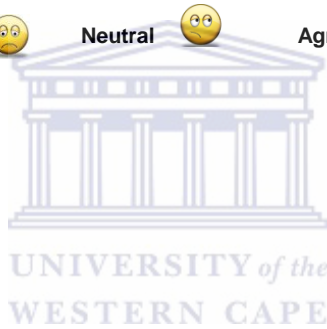
3. My friends are popular with other kids when they exercise, play sports, or play physical games or activities.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

4. My friends say that their bodies feel bad when they exercise, play sports, or play physical games or activities.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

III. ENABLING FACTORS



a) Environmental items

1. At home there are enough supplies and pieces of sports equipment (like balls, bicycles, and skates) to use for physical activity.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

2. There are playgrounds, parks, or gyms close to my home, which I can get to easily.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

3. It is safe to walk or jog alone in my neighbourhood during the day.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄

4. It is difficult to walk or jog in my neighbourhood, because of things like traffic, no sidewalks, dogs, gangs, and so on.

Strongly Disagree 😞 Disagree 😞 Neutral 😐 Agree 😊 Strongly Agree 😄