

The impact of malaria on Foundation Phase teaching and learning

by

June Petersen

Submitted in partial fulfilment of the requirements for the degree

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DECLARATION

I, June Phoebe Petersen, declare that the dissertation, which I hereby submit for the degree Master of Education at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.



.....
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The author, whose name appears on the title page of this thesis, has obtained, for the research described in this work, the applicable research ethics approval. The author declares that she has observed the ethical standards required in terms of the University of Pretoria's *Code of ethics for researchers and the Policy guidelines for responsible research*.

DEDICATION

This dissertation is dedicated to the life and
memory of my dear husband

Vernie Petersen.

You have been my inspiration throughout this journey.

“What magic are you who dies and still lives on?”

Lebo Mashile

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ABSTRACT

This dissertation explores the impact of malaria on Foundation Phase learners and educators in Vhembe. Malaria is prevalent in three South African provinces, Kwazulu-Natal, Mpumalanga and Limpopo. The Limpopo province has the highest number of malaria cases. Malaria is transmitted by mosquitoes, in South Africa the *An. merus* and *An. arabiensis*, with the latter being the primary vectors.

Continuous exposure to malaria infections will impact the academic performance of children. Especially in those communities where socio-economic issues, such as poverty, inadequate housing and unemployment exist, as well as weak public healthcare systems.

This study was situated in an interpretive paradigm and a qualitative approach, using a case study, was followed. Data was collected by conducting interviews with principals and educators. The results indicated that principals and educators believed that parents were the most knowledgeable about malaria. There was consensus that the Department of Health promoted malaria awareness and the local clinic was the first point of contact for treatment.

Schools were not involved in malaria education, except for accommodating annual healthcare visits. The empirical research findings provide evidence to show that teaching and learning continues at schools even when learners or educators are absent. Parents were responsible for the care of their children as well as for 'catch-up' lessons.

Collaboration between the Limpopo Department of Health, the Department of Basic Education officials, principals, educators, parents, and healthcare workers must be strengthened. Existing curriculum topics should be used to further advance malaria awareness. The lack of internet connectivity, efficient public transport and bad roads present a major challenge for the community in accessing healthcare services.

Key Terms: Foundation Phase, malaria, malaria education, awareness, socio-economic, healthcare, absenteeism, collaboration, curriculum

LANGUAGE EDITOR

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LIST OF ABBREVIATIONS

ALMA	African Leaders Malaria Alliance
CAPS	Curriculum Assessment Policy Statement
EFA	Education for All
EPR	Epidemic Preparedness and Response
FRT	Faculty Research Theme
IEC	Information, Education and Communication
KZN	Kwa-Zulu Natal
LSDI	Lubombo Spatial Development Initiative
MDG	Millennium Development Goal
MIS	Management Information System
MOSASWA	Mozambique, South Africa and Swaziland region
NGO	Non-governmental organisation
RDT	Rapid Diagnostic Tests
SADC	South African Development Community
SES	Socio-Economic Status
SP	Sulphadoxine-Pyrimethamine
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UP CSMC	University of Pretoria, Centre for Sustainable Malaria Control (became UP ISMC in 2016)
UP ISMC	University of Pretoria, Institute for Sustainable Malaria Control
WHO	World Health Organisation

CHAPTER 1

ORIENTATION AND BACKGROUND

1.1 INTRODUCTION

Approximately 80 years ago, Louis Leipoldt, the South African poet and writer, observed a link between poor health and under achievement in young school-going children. Fleisch (2008:31) highlights the conditions that Leipoldt discovered between the years of 1914 and 1924, while visiting black, white, urban and rural schools throughout South Africa. During that period, he saw thousands of schoolchildren, and was shocked by the dreadful effects of the two ‘chief Bushveld diseases’”, malaria and bilharzia. He was also disturbed by the “incidence and gravity of the effect of these diseases ... to detect malnutrition so glaringly apparent, feeble-mindedness so obvious, and physical deterioration so evident! I try to teach my children something, but it is hard. They are unable to concentrate; always listless and tired. It is heart-breaking work to have to teach them and some of them are so eager” (Fleisch, 2008:31).

White, Pukrittayakamee, Hien, Faiz, Mokuolu and Dondorp (2014:723) describe malaria as “the most important parasitic disease affecting human beings”. They assert that in sub-Saharan Africa, children younger than five years of age make up an extremely high percentage of malaria cases and deaths. In another study undertaken by Bundy, Lwin, Osika, McLaughlin and Pannenberg (2000:181) it is argued that malaria is of particular importance for the education sector in Africa. The reason for this is that malaria is considered to be the cause of between three to eight percent of all absenteeism in schools. Supporting this view, Bundy et al. (2000:181) identify malaria as one of the main medical reasons that children miss almost half of their school days each year, a situation that could be prevented.

In a study conducted by Fernando, De Silva and Wickremasinghe (2003a:584) it was found that family income and type of housing were existing risk factors for malaria. These factors mainly affected the poor in rural areas where malaria is endemic. In fact, the Roll Back Malaria Partnership (2014:1) highlights this sentiment by referring to malaria as a “global emergency that mostly affects women and children, and perpetuates a vicious cycle of poverty in the developing world”.

Moreover, the study confirmed that the academic performance of learners could be influenced by the effects of malaria as well as other parasitic diseases (Fernando et al., 2003a:584). Research conducted by Bundy et al. (2000); Thuilliez (2010); Udonwa, Gyuse and Etokidem (2010) and Midzi, Mtapuri-Zinyowera, Mapingure, Sangweme, Chirehwa, Brouwer, Mudzori, Hlerema, Mutapi and Kumar (2010) found that empowering learners with knowledge regarding the transmission and treatment of malaria as well as instilling the correct attitude towards the disease, could lead to healthy behaviour and practice.

Consequently, the aim of this study was to discover the effect of malaria on the teaching and learning of Foundation Phase learners. This information was provided from the perspective of principals and educators. The study was conducted in Ha-Makuya, a rural area, in the Vhembe district. The Vhembe district, in Limpopo is an area in South Africa, where the incidence of malaria is considered to be extremely high (Brooks & Abney, 2013:1).

1.2 RATIONALE

Whilst living in Cape Town, I was aware of malaria as a disease, but never gave it a moment's thought as it did not affect me at all. However, years later while teaching at a high school in Nelspruit, I came into contact with the disease and soon my actions became preventive – at home and at school. It was in Nelspruit that I was exposed to and educated about malaria and learnt about its effects on learners from Mpumalanga, Mozambique and Swaziland. I was informed that even though Nelspruit, in Mpumalanga was considered to be a low risk area, it was still necessary to be cautious and take preventive action as many travellers, from neighbouring countries, passed through the area. In addition, my family and I often travelled the length and breadth of the Kruger National Park. The learners that I came into contact with attended a private school where they had access to excellent and well-equipped private and public healthcare facilities in Nelspruit. In the event of a serious case of malaria, the healthcare facilities managed the care of the affected learners extremely well and the school solved the problem of learner absenteeism, by assisting learners and providing “catch-up” work to parents. Thus, my past experiences as an educator definitely impacted on my decision to become involved in a Faculty Research Theme (FRT) project at the University of Pretoria. This project was also supported by the University of Pretoria Institute for Sustainable Malaria Control (UP ISMC).

There can be no doubt that malaria is a disease, which is currently of great concern to South Africa, as well as other African countries and the rest of the world. It is within this context that the UP ISMC, residing under the auspices of the Faculty of Health Sciences, set its vision as making a significant contribution towards sustainable malaria control in Africa

(UP CSMC, 2014:1-3). The research focus of the UP ISMC is thus significant, as it aims to assist with the control and mitigation of the effects of malaria in South Africa by the year 2018. This is also in line with the World Health Organisation's (WHO) Millennium Development Goal 6 (MDG6): "to have halted the diseases by 2015 and begin to reverse the incidence of malaria and other major diseases" (Jensen, 2013:44).

Dr Aaron Motsoaledi, Minister of Health, shared these sentiments in the foreword to the Roll Back Malaria Partnership: Focus on South Africa 2013 Report, in which he stated that "effective partnerships at country and regional levels" would be required to ensure that the planned malaria elimination strategies were effective and to ensure the successful achievement of "zero local transmissions by 2018" (Maharaj, Raman, Morris, Moonasar, Durrheim, Seocharan, Kruger, Shandukani & Kleinschmidt, 2013a:10). Clarke, Jukes, Njagi, Khasakhala, Cundill, Otido, Crudder, Estambale and Brooker (2008:2) identify health education as "a natural and traditional activity" which schools could use in the prevention of diseases. Kruger (2014:2-3) reiterates the importance of an educational approach in the prevention of diseases. The author emphasises that in order for malaria to be eliminated in South Africa, malaria education would be an important strategy in the elimination of this disease. This however, was not evident as a strategy in the affected South African provinces (Kruger, 2014:4).

Thus far, many of the studies conducted, such as those by Maharaj et al. (2013a); Brooks and Abney (2013); Thuilliez (2010); Midzi et al. (2010) and Fernando, Wickremasinghe, Mendis and Wickremasinghe (2003b) have focused on the scientific, environmental and health aspects of the impact of malaria. Very few studies, such as Ohlin (2012); Fleisch (2008) and Bundy et al. (2000) have actually grasped the importance of educational aspects associated with the impact of malaria and the effect on children.

The findings of this study will make a noticeable contribution to the national discourse with regard to the effects of malaria on Foundation Phase teaching and learning. It is also envisaged that these findings will result in recommendations to the Department of Health, the Limpopo Department of Basic Education, principals and educators, as well as parents. Additionally, these findings will also contribute towards a clearer identification of the roles that schools could play in reducing the impact of malaria on education.

1.3 PROBLEM STATEMENT

Pertaining to malaria and school performance, Fernando, Rodrigo and Rajapakse (2010:1) allude to the fact that children could be prevented from being academically successful if exposed to malaria infections on a continuous basis. These authors further argue that “an important hidden burden of malaria” exists. This, they refer to as “cognitive impairment”, and contend that it affects the child’s academic performance (Fernando, et al. 2010:1). Echoing the above, is the conclusion by discussants of the 1990 World Conference on Education for All (EFA) – *Meeting Basic Learning Needs*. The conclusion stated that in order for learners to achieve academic success, they have to first of all be healthy (Whitman, Aldinger, Levinger & Birdthistle, 2000:8).

The intention of this study was to explore whether Foundation Phase learners at primary schools in Ha-Makuya, were indeed able to learn successfully and whether educators were able to teach effectively amidst the high incidence of malaria in the area. The study was directed using the following research questions, from the perspective of the principals and educators.

1.3.2 Research question

How does malaria impact on teaching and learning in the Foundation Phase in Ha-Makuya, Vhembe district?

1.3.3 Sub-questions

- 1.3.3.1 How does the incidence of malaria in an endemic area influence teaching in the Foundation Phase?
- 1.3.3.2 How does malaria influence curriculum content and can the curriculum be used to promote malaria awareness?
- 1.3.3.3 How does malaria influence school management?

1.4 CONTEXTUALISING THE STUDY

Malaria control continues to be “one of the world’s greatest public challenges” (Bornman, Schlemmer, van der Walt, van Dyk & Bouwman, 2012:408).

Jensen (2013:38) explains that in 2010 “219 million cases of malaria worldwide led to some 660 000 deaths and over 80 per cent of them were among children under five.” Similarly, the Roll Back Malaria Partnership (2014:1) describes malaria as a “preventable and treatable infectious disease that kills more than one million people each year”, mostly in sub-Saharan Africa, where it is the main cause of death in children under five years of age. However, since 2010, there has been considerable worldwide progress in efforts to mitigate the spread of malaria.

In South Africa, malaria is endemic to the north-eastern areas of the Kwazulu-Natal (KZN), Mpumalanga and Limpopo provinces. Of these provinces, Limpopo has become the largest contributor to malaria case numbers. In particular, populations in these provinces that share national borders with neighbouring states are vulnerable and at great risk of being infected because of the large number of people moving across these northern and eastern borders of South Africa. It is for this reason that the Vhembe district became the focus area of this study. This area is considered to be a high-risk area where the incidence of malaria has largely remained unchanged (Maharaj et al., 2013a:1-5). Cross-border collaboration and the sharing of resources are essential in ensuring that malaria is controlled within South Africa and its neighbouring countries.

In their understanding of malaria education, Dike, Onwujekwe, Ojukwu, Ikeme, Uzochukwu and Shu (2006:104), refer to “positive malaria-related knowledge, attitude and practice” as the kind of malaria education that is required in a community. This means that community members should be knowledgeable about the effects of malaria and how the disease should be treated.

Community members should be able to identify malaria symptoms quickly and be aware of the treatment options available. In other words, the presence of adequate malaria-related knowledge in a particular community is imperative for healthcare authorities in the planning and implementation of strategies, to prevent and control malaria (Dike et al., 2006:104).

Acknowledging that education is able to contribute, in a constructive manner, towards the prevention and control of malaria, as well as its role in society more broadly, it was important to situate this study within the ambit of recognising that education was important for all communities within South Africa and across the globe. This conviction was supported by Education For All (EFA), a worldwide project launched in Thailand in 1990 by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) (Brooks & Abney, 2013:1-8). At this launch education was recognised as a “fundamental right” and the attendees were encouraged to safeguard these rights. It was agreed that education was fundamentally connected to all development goals, such as “supporting gender empowerment, improving child health and maternal health, reducing hunger, fighting the spread of HIV/AIDS and diseases of poverty, encouraging economic growth and building peace” (Department of Basic Education, 2013:3).

The EFA view is further bolstered by the study conducted by Thuilliez (2010:1) which looked at the effects of malaria on the quality of education. A major reason for the study was the realisation by researchers, that in order to appreciate the effects of malaria on the development and growth of a country, they needed to understand the impact of malaria on education in the affected community. The UP CSMC (2014:2) lists one of its objectives as seeking to “engage communities, promote awareness and conduct research that reflects issues and needs of vulnerable communities related to safe and sustainable malaria control”.

Likewise, in 2011, the African Leaders Malaria Alliance (ALMA), identified the “need for strong decentralised malaria-control programmes with linkages to other health and development sectors, the civil society and private sector entities” (Sambo, Ki-Zerbo & Kirigia, 2011:1). In light of the preceding information, the focus of this study aimed to explore and understand the impact of malaria on teaching and learning in the Foundation Phase in Ha-Makuya, in the Vhembe district.

1.5 CONCEPT CLARIFICATION

For the purpose of this study the following key concepts will be clarified: Malaria and Foundation Phase.

1.5.1 Malaria

“Malaria is caused by five species of parasite that affect humans, and all of these species belong to the genus *Plasmodium*: *P. falciparum*, *P. vivax*, *P. ovale*, *P. malariae* and *P. knowlesi*. Of these, *P. falciparum* and *P. vivax* are the most important. Malaria due to *P. falciparum* is the most deadly form, and predominates in Africa. *P. vivax* has a wider distribution than *P. falciparum* because it is able to develop in the *Anopheles* mosquito vector at lower temperatures, and to survive at higher altitudes and in cooler climates” (WHO, 2013:31). The female *Anopheles* mosquito transmits malaria by biting humans and extracting their blood, which is needed for its eggs to develop. At the same time it also deposits sporozoites into humans which ultimately cause the infection. The most common symptoms of malaria are fevers, chills, stomach aches, headaches, nausea and aching bones (Stone, 2014:36) .

In Asia, South and Central America, the prevalence of malaria is considered to be low and seasonal, whereas, in sub-Saharan Africa the prevalence is higher. The morbidity and mortality of people in these settings are very noticeable, especially during the early childhood years. However, after having had the disease, most infections become “asymptomatic”, which means that people will no longer display any symptoms of the disease (White et al., 2014:1). The Roll Back Malaria Partnership (2014:1) reiterates the fact that “malaria is a preventable and treatable infectious disease” and is considered to be a “global emergency”.

Because malaria is considered to be such a dangerous disease to humans, it is recommended that preventive measures are employed in endemic regions at all times. The South African Development Community (SADC) has committed itself to the promotion of preventive methods such as the use of insecticide-treated nets, indoor residual spraying and mosquito larvae control. The promotion of these preventive methods, as well as the ongoing advancement of preventive policies was done to assist in the elimination of malaria (Kruger, 2014:4).

In addition (Maharaj et al. (2013a:3) report that the use of Rapid Diagnostic Tests (RDTs) increased the speed with which malaria could be diagnosed. Likewise, the malaria information system (MIS) has also resulted in an improvement in the local, provincial and national monitoring and surveillance of malaria cases.

1.5.2 Foundation Phase

The Foundation Phase refers to the initial stage of formal education in the South African education system and consists of Grades 1 to 3. Learners in this phase range from six to nine years of age. This phase of schooling is also referred as the “formative school years” in which the optimal health of learners should be provided for. In doing so the survival, growth and health of these learners will improve as well as their attainment of learning outcomes and development (Department of Basic Education and Health, 2012:6).

1.6 THEORETICAL FRAMEWORK

A theoretical framework can be compared to a lens through which the particular phenomenon being studied is observed. This framework will be used to study the participants as well as ensure that the study questions will be adequately answered by the data that will be collected and interpreted (Creswell, 2013:148-150). In other words, the theory aided in clarifying the existence of the particular research problem highlighted in this study.

Consequently, for the purpose of this particular study, I had to understand how the principals and educators in the selected schools in Ha-Makuya managed the threat of malaria in their environment, as well as what their behavioural choices were in preventing and controlling malaria infections. In conducting this study, I used the Social Cognitive Theory (SCT) as a background to understand the manner in which cognitive factors, environmental influences and behavioural factors affected human learning (Hardin, 2010:22). Bandura (1998:623) explains that human behaviour can be determined by “cognitive factors”, which include “knowledge, expectations and attitudes; environmental factors”, such as “social norms, access in the community, the influence on others to change one’s own environment,” as well as “behavioural factors which include skills, practice and self-efficacy”.

The author suggests that a mutual relationship exists between personal, environmental and behavioural factors, which has the ability of generating shared benefits for the different role players involved. Ultimately, this is a learning theory based on the idea that people learn by observing others. This theory will be further elaborated upon in chapter two.

1.7 RESEARCH METHODOLOGY

This section comprises the research design, an overall plan that was used to find answers to the research questions. In doing so, my approach was a qualitative one, so as to expound on the knowledge, attitudes and values of the participants in the study. A case study approach was used to gather information about the impact of malaria on Foundation Phase teaching and learning in Ha-Makuya, in the Vhembe district.

The following table provides a summary of the research strategy and methodology used in this study.

Table 1.1: A summary of the research strategy and methodology

Summary of the research strategy and methodology				
Research paradigm		Interpretivism		
Research methodology		Qualitative approach		
Research design		Case study		
		Selection of cases	Selection of participants	
		Sample of 2 schools	Purposive sampling	
Data collection methods (interviews, document analysis and researcher's journal)				
Participants	Method	Instrument	Recording	Number
Principals	Individual Interviews	<ul style="list-style-type: none"> Interview protocol Digital recorder 	Transcripts	2
	Research journal	<ul style="list-style-type: none"> Journal 	Field notes	Ongoing
Educators	Individual interviews	<ul style="list-style-type: none"> Interview protocol Digital recorder 	Transcripts	2
	Document analysis	<ul style="list-style-type: none"> Official documents internal documents 	Transcripts	Ongoing
	Research journal	<ul style="list-style-type: none"> Journal 	Field notes	Ongoing
Analysis of data		<ul style="list-style-type: none"> transcribe recorded interviews and type up field notes use of themes and a coding process (categories) indicate interrelationships between themes provide preliminary analysis compare transcript to recorded interviews to ensure accuracy return to research site for the verification of transcripts 		

1.7.1 Research design

A good research design should bring about a collection of trustworthy data by making use of clearly defined research questions and methods employed in the research process (Ritchie, Lewis, McNaughton Nichollis & Ormston, 2014b:125).

1.7.1.1 Research paradigm

An interpretive paradigm was used to “understand the world in terms of its actors” (Cohen, Manion & Morrison, 2007:26). An interpretive paradigm was appropriate for this study, as the purpose was to gain an understanding of and give meaning to how two primary schools in Ha-Makuya were managed and how teaching and learning took place in an area prone to malaria infections. Cohen et al. (2007:257) discuss an interpretive approach to research in the context of small scale studies. It is suggested that such an approach seeks to make sense of the actions and meanings of people, as well as the perceptions that individuals have of their own situations and how they provide explanations and descriptions for these situations. This observation is also supported by Graue and Karabon (2013:41-43) who refer to the interrelatedness of the different facets of people’s lives and that “psychological, social, historical and cultural factors” contribute towards shaping the understanding that people have of the particular world they live in.

1.7.1.2 Research approach: Qualitative

A qualitative approach was followed in this study. Creswell (2007:213) states that the intention of a qualitative study, is not to “generalise”, but to “develop an in-depth understanding of a central phenomenon”. In the same vein, Strydom, Fouché and Delpont (2002:79) refer to a qualitative researcher as someone who is concerned with “understanding rather than explanation; naturalistic observation rather than controlled measurement and the subjective exploration of reality from the perspective of an insider as opposed to the outsider perspective that is predominant in the quantitative paradigm”. It is within this context that interviews were conducted with the principals and Foundation Phase educators of two primary schools in Ha-Makuya, in order to understand how they managed their schools and classrooms, in an area where malaria was so prevalent.

In terms of the qualitative approach, the purpose of my study sought to discover, with the input received from these principals and educators, whether the learners in their schools were able to learn effectively and the educators were able to teach effectively, given the prevalence of malaria in the area. Also important was to understand whether school management and the teaching staff had the knowledge, values and attitudes to ensure that learners and school staff were assisted to prevent malaria infections.

1.7.1.3 Type: Case study

Athanasou, Fabio, Elias, Ferreira, Gitchele, Jansen, Malindi, McMahon, Morgan, Mporu, Nieuwenhuis, Perry, Panulla, Pretorius, Seabi, Sklar, Theron and Watson (2012:75) refer to the essence of a case study as being able to explore a “phenomenon that has a bounded system”. In other words, a case study is defined by the “unit of analysis” rather than the topic being investigated. A case study also has the ability to explore individual differences and a phenomenon in context as well as using different information (Athanasou et al., 2012:75-76). The ability to study and compare multiple cases will provide much more compelling evidence in order to gain a richer understanding of the experiences of the principals and Foundation Phase educators in Ha-Makuya regarding the impact of malaria (Creswell, 2007:477). The focus on individuals or groups of individuals tasked with making sense of their perception of events, is considered to be one of the characteristics of case studies, according to Cohen and Morrison (2004:182).

This kind of approach is also extremely valuable in situations where it is necessary to grasp a comprehensive understanding of the matter at hand, such as engaging with the principals and Foundation Phase educators of these schools to explore their understanding of the impact of malaria on the teaching and learning in their classrooms and the management of their schools (Crowe, Creswell, Robertson, Huby, Avery & Sheikh, 2011;1).

1.7.2 Research methods

Research methods refer to the techniques used during the data gathering process of investigating the research problem (Kothari, 2004:7-8).

1.7.2.1 The role of the researcher

As a qualitative researcher, it is particularly important to ensure that the ethics of research relationships are proper and honest. This will protect the integrity of the data and in so doing ensure that the project is considered to be beyond reproach (Burnett, 2009:175). Therefore, the researcher has a distinct responsibility to support and protect public involvement in research projects. As a researcher in the field, I had to be mindful of my own assumptions, knowledge and prejudices.

It was also my responsibility to familiarise myself with the relevant ethical guidelines and to be aware that participants should always be treated without prejudice, with fairness, honesty, care and sensitivity. In other words their human dignity should be paramount in the relationship with participants (Oliver, 2010:122).

By making use of a field journal, I could jot down notes of my feelings and observation of situations during the research exercise. This proved helpful when discussing my own perceptions. Denscombe (2009:133) remarks that the primary goal of qualitative research is to understand social phenomena, therefore as a researcher I had to appreciate and interpret the views of the participants in a manner that was not judgemental. In order to actively engage with the participants, I had to listen well and probe for further clarification, if necessary. This enabled precise recordings of exactly what participants were saying, and prevented inaccurate information from being published. My involvement in the field was thus not as an expert, but rather, as someone who gained an enormous amount of knowledge about the research topic. In order to successfully engage with the participants, I was totally reliant on their support and cooperation.

1.7.2.2 Participants and research site

As mentioned previously, South Africa has been able to reduce the incidence of malaria in the country and thus, set itself an ambitious task to achieve zero local transmissions of malaria by 2018 (Maharaj et al., 2013a:9). However, the country still had to contend with the fact that malaria continued to be endemic in the north-eastern areas of Kwazulu-Natal (KZN), Mpumalanga and Limpopo provinces. Even though the total number of reported cases had decreased dramatically in KZN, the province of Limpopo remained the largest contributor of malaria infections (Maharaj et al., 2013a:779).

The geographic area of the study lies within the Vhembe district municipality, a largely rural area in the northern part of the Limpopo province. This area shares a border with Zimbabwe in the north, Botswana in the west, the Kruger National Park and Mopani District in the south east, as well as Mozambique in the north east. This particular district covers four municipalities: Musina, Mutale, Thulamela and Makhado (The Local Government Handbook, 2014:1). This district is also located within the local municipality of Mutale. Within this district there are 684 primary schools in numerous villages.

These schools face many challenges such as a shortage of classrooms and administration blocks, (many of them are dilapidated), as well as a lack of electricity and water (Vhembe District Municipality, 2011-2012:22). During the month of June 2014, a field trip was undertaken to the Vhembe district, as an introduction to the research site. The research team was introduced to a non-profit organisation, the Tshulu Trust, who provided guiding, transport and real-time interpreting services. There was an awareness that language could become a social barrier, and therefore the use of a gatekeeper was important. Gatekeepers performed an important role in facilitating access to schools in the area. Lee in Cohen et al. (2007:123) suggest that in order for researchers to gain social access to a research area, the cultivation of caring and trusting relationships is important. Ritchie, Lewis, Elam, Rahim and Tennant (2014a:153) refer to the fact that samples selected for a qualitative study are usually small and will provide an “in-depth exploration” of the phenomena under investigation.

Due to the prevalence of malaria, in the Limpopo Province, the research site consisted of two primary schools in Ha-Makuya. Thus, the sampling strategy was purposive. Denzin and Lincoln (2000:370) in Strydom et al. (2002:334) explain that qualitative researchers identify those “individuals, groups or settings” where the issue being studied is most likely to be found. It is also considered to have been a purposive sample because of the intentional selection of two principals, as well as three Foundation Phase educators, one at the one school and two at the other.

The deliberate focus on primary schools and Foundation Phase educators, was because this study was being conducted under the umbrella of the Department of Early Childhood Education at the University of Pretoria, in conjunction with the UP ISMC. The case study approach was therefore appropriate and purposive sampling, the ideal choice for the selection of participants.

1.7.2.3 Data collection

Data collection was used to gather evidence that was analysed to provide answers to the research questions for this study. Individual interviews that were conducted with the principals and Foundation Phase educators of the two schools, the analysing of relevant documents and writing up of field notes, represented the instruments used to gather the data.

1.7.2.3.1 Individual interviews

Individual interviews were conducted with the principals and educators of the two schools. These interviews were conducted as semi-structured interviews. Oliver (2010:106) posit that semi-structured interviews do not depict the “truths or certainties” of the world as inflexible. This is because individuals continuously contemplate what they know about certain things and their views do not remain static. Their interpretation of these views will change all the time, precisely because they constantly interact with each other and subjectively interpret these views. Roulston (2010) and Kvale (1996) in Graue and Karabon (2013:126) also refer to semi-structured interviews as a vibrant interchange of ideas based on open-ended questions or areas of interest of the researcher, with probes that are intended to stimulate discussions and explanations regarding the research questions. These types of interviews do require some kind of structure and process. A measure of flexibility is however allowed and provides participants with opportunities to raise issues and shape the information they provide. This also allows for participants to change their views during the discussions and enables the researcher to ask follow-up questions to the responses received if deemed necessary (Yeo, Legard, Keegan, Ward, McNaughton Nichollis & Lewis, 2014:253).

These kinds of interviews, allowed me to explore the knowledge, experiences and opinions of the principals and educators at the selected schools, and in so doing get to know whether malaria has indeed had any impact on their schools from their own perspective (Yeo et al., 2014:246).

1.7.2.3.2 Document analysis

National or provincial Basic Education Departmental policies and internal school policies will serve as a valuable source of information for my study. Hoepfl (1997:4) refer to the analysis of documents as being invaluable to qualitative researchers as it could shed more light on the issue being raised and in so doing provide an additional rich source of information. Departmental or school documents perused during the interview process will be treated with care and respect with regard to confidentiality.

1.7.2.3.3 Field notes

Field notes are usually considered to be quite important as they will provide the researcher with an opportunity to record what is seen or heard outside of the interview setting. It is also an opportunity to note those areas of the interview that might have been difficult or to list issues or themes that might arise from the interviews (Ritchie et al., 2014b:238). These were especially useful in discussions with the healthcare workers and the education official. Also useful in noting were observations whilst driving to and from the research site.

1.7.2.4 Data analysis

Collected data must be analysed, in an honest manner that is logical and reflects impartiality (Athanasou et al., 2012:227). The data should also be transcribed and analysed, while fresh to ensure that information is not lost or forgotten. Thus, transcriptions of the recorded interviews was completed on the day that the interviews were conducted. In order to ensure that the data was analysed and interpreted in an orderly manner, the transcribed interviews and interview notes, as well as the field journal were used to obtain a comprehensive idea of the data collected. The transcripts of the interviews were read and re-read to detect any underlying meanings, which were then identified and coded. For example, words, phrases or events that were alike was categorised into specific groups. A preliminary report of the interview was provided to the participants, in order for them to verify that their responses were adequately interpreted (Creswell, 2007:243-266).

1.7.2.5 Content analysis

Patton and Cochran (2002:453) refer to content analysis as a process that reduces qualitative data, in order to make sense of and identify important meanings that appear regularly. This process does much more than just discover objective content from texts to scrutinise meanings, themes and patterns that may also be evident or hidden in the text. It also allows researchers to understand social reality in a subjective but scientific manner. This process is used mostly to analyse interview transcripts in order to discover information related to behaviours and thoughts identified during the interview process.

1.7.3 Trustworthiness

(Butler-Kisber, 2010:15) identifies a trustworthy study as a clear and logical research process, which indicates how the researcher will deal with his or her own assumptions and prejudices. I was very aware that as a researcher, my experiences, attitudes, perceptions and values could influence the findings of my study. Ideally, researchers want to ensure that the findings of their studies are of value and will be of interest to the readers. Thus, it is extremely important to researchers to ensure that their studies are considered trustworthy.

Dependability, confirmability, transferability and credibility are elements that can be used to evaluate the trustworthiness of a qualitative study (Hoepfl, 1997:8).

1.7.3.1 Dependability

The focus of a study must be to explain how different groups view what they experience and how they give meaning to these experiences (Oliver, 2010:119). Especially since more than one interpretation can be provided for any particular situation. Cohen and Morrison (2004:120) explained that dependability raises the issue of “respondent validation” and suggest that researchers could take their findings back to the participants to confirm whether they have correctly interpreted their responses. The interviews were transcribed and taken back to the participants who confirmed that it reflected their answers to the questions they were asked.

1.7.3.2 Confirmability

Confirmability refers to the “objectivity of the data and the absence of research error results” (Athanasou et al., 2012:141). The results of a study can be considered to be confirmable if they were derived from participants and the research conditions instead of only from the personal view of the researcher. The use of “peer debriefings” could also be useful to “verify the confirmability” or accuracy of the data. This means that an external researcher who has not been part of the study could be invited to inspect whether the methods and general processes applied to the study were clear and described in detail, in order to confirm that the data has been verified (Athanasou et al., 2012:141). Lincoln and Guba (1985:320-321) also suggest that the researcher could indicate the neutrality of the research by creating an audit trail of raw data, analysis notes, notes of the research process, personal notes as well as the initial report. It goes without saying that these are items that are usually gathered during the research process.

1.7.3.3 Transferability

Strydom et al. (2002:352) refer to transferability as one of the weaknesses of a qualitative study. It could be overcome by the researcher using the theoretical framework, underpinning the study and elaborating how the data was collected and analysed. By doing this, the onus will be on other researchers who conduct research using the same limitations, to decide whether the research discussed, can be universally applied or assigned to another setting. It will however, remain the responsibility of the researcher to provide an abundance of rich data to enable the readers and users of the research to make a decision regarding transferability (Cohen et al., 2007:137).

1.7.3.4 Credibility

The triangulation of multiple sources of data, could also be used to boost the credibility (the value and believability of the findings) of a study. This would entail using data from various sources to substantiate or explain the study being undertaken. For the purposes of this study, a case study indicating the parameters of the setting was identified, interviews were used to interact with participants and documents were perused to obtain additional information or to support data collected. In order to limit the ambiguity of reported speech, the interviews were recorded and transcribed. Thus, the use of more than one method of collecting data definitely strengthened the credibility of this study (Strydom et al., 2002:352). In addition, the participants were given an opportunity to verify the transcripts of the interviews.

The results of this particular study may not be useful to a larger population, as the sample is rather small and participants were purposefully selected. The reasons for undertaking the study was to reflect on practices in local schools regarding malaria; understanding the perceptions and attitudes of school staff towards malaria and their treatment-seeking behaviour. In addition, it also sought to contribute towards raising the awareness of malaria and providing insight into the challenges that schools face in dealing with malaria. This information could be useful to the schools, the Department of Health and the Limpopo Department of Basic Education.

1.7.4 Ethical considerations

As a researcher, I needed to constantly be aware of my own values and assumptions that I brought into the research arena. It was important for me to remember that I was the outsider and that the “social nature of research” reflected the standards, expectations and traditions of others all the time (Butler-Kisber, 2010:13). My role was to gain the confidence of the relevant participants and in so doing eventually provide a transparent, ethical and true reflection of the meanings of their experiences. Oliver (2010:123) directs us, as researchers to provide all the relevant information and to clearly and in an unbiased manner explain the purpose of the study to the participants. This will enable them to make an informed decision before they agree to participate in the study.

Another ethical concern is the anonymity and confidentiality of participants. Maintaining the anonymity of participants can be achieved by, for example giving participants fictitious names or identifying more than one participant by having a code list. In this study, the participants were identified by means of fictitious names. It is also important that the documents of an institution be treated with the utmost care and respect, including protecting the confidentiality of the authors (Oliver, 2010:124).

Ethical clearance for this study was granted by the Ethics Committees of the Faculty of Education (reference number: EC 15/05/01) and the Faculty of Health Sciences (reference number: 203/2015), the National Health Research Database (reference number LP_2015RP33_292) (See Appendices 1-3). The Limpopo Provincial Department of Basic Education (see Appendix 4), as well as the Vhembe district Department of Basic Education (see Appendix 5) also provided permission to visit schools to conduct the study. The relevant participants also gave their informed consent (see Appendix 6). A letter was also sent to the Tshulu Trust outlining their involvement in the study with regard to their services (see Appendix 7).

1.7.5 Outline of the study

Chapter 1: Orientation and background

This chapter provided an overview and context for the study by discussing the rationale, problem statement and research questions, as well as referring to the significance of the study.

The research methodology shed light on the research design, type of sampling used. The research site and data collection methods were also clarified. Lastly, the trustworthiness and ethical considerations were discussed.

Chapter 2: Theoretical perspectives on malaria

The intention of this chapter was to explore and highlight the impact of malaria in a global and South African context. The connection between malaria and poverty was investigated, as well as the initiatives used to prevent and control malaria. Lastly, this chapter also highlighted the importance of education and the contribution that education could make in the awareness, prevention and control of malaria.

Chapter 3: Research methodology

This chapter provided an in-depth discussion of the research methods and research design. The data collection methods, analysis, the strengths and challenges that were encountered in the field was discussed, as well as the methodology choices that were made. Furthermore, data analysis that was completed was expounded upon, and it was indicated how trustworthiness could be maintained and ethical guidelines were alluded to.

Chapter 4: Data analysis and interpretation

In this chapter, the empirical research findings of the study were discussed. The discussion included an overview of the research process and fieldwork that was conducted. The area of study, as well as a brief demographic sketch of each school and interview participants were referred to. Furthermore, the interview data were used to discuss the identified themes, which were used to interpret the empirical research findings of the study.

Chapter 5: Summary, conclusions and recommendations

This chapter presented the findings and recommendations of the study by reflecting on the four broad themes and categories that were identified, assisted by the literature that was examined, as well as discussing the research questions that guided this study.

Lastly, recommendations were made to the Department of Health, the Limpopo Department of Basic Education, principals, educators and parents, regarding the challenges that they face at a school situated in a malaria endemic area.



CHAPTER 2

THEORETICAL PERSPECTIVES ON MALARIA

2.1 INTRODUCTION

This chapter will focus on the impact of malaria in a global context, paying special attention to Africa, as currently this continent bears the burden of approximately 91% of malaria deaths (Teuscher & Halil, 2012:35). The relationship between malaria and poverty will also be deliberated upon as the understanding is that malaria does not cause poverty *per se*, but rather the circumstances within which malaria occurs aggravates the situation. The reason for this is that knowledge, expectations and attitudes, are important factors in establishing the connection between poverty and malaria. Furthermore, malaria will also be discussed in a South African context, highlighting the malaria-endemic provinces with specific reference to Limpopo and cross-border collaboration. In addition, the initiatives to control the spread and prevention of malaria will be discussed as countries take their cue from the global bodies advocating for the prevention and control of malaria. International and national literature will be reviewed with regard to the contribution of education towards the awareness, prevention and control of malaria. These discussions will ensure that this particular study is situated within the international and national discourse surrounding the sustainable control and prevention of malaria.

The aforementioned discussion reflects the elements of knowledge awareness, social norms, access in the community, the ability to change one's own environment, as well as the skill, practice and self-efficacy in either introducing new behaviours or changing existing behaviours. These elements are also encompassed in the Social Cognitive Theory (SCT), which provides the framework for the discussion in terms of how school health programmes can inform public health, education, social and economic development, which provide the conclusion to this chapter.

2.2 THE INCIDENCE OF MALARIA GLOBALLY

Malaria is a global public health problem but particularly in Africa where the disease is responsible for the death of the most vulnerable, children under five years of age, infants and pregnant women.

This fact is explained by Jensen (2013:44) who indicates that in 2010 “219 million cases of malaria worldwide led to some 660 000 deaths and over 80 per cent of them were among children under five”. The fact that so many people were dying from malaria was referred to as one of the “tragedies of the 21st Century” (WHO, 2013:v). Similarly, the Roll Back Malaria Partnership (2014:1) referred to malaria as a “preventable and treatable infectious disease that kills more than one million people each year”. The majority of the people killed, reside in sub-Saharan Africa. Thus, the need for effective awareness programmes to assist and educate the community about the control and prevention of malaria is essential. Considerable worldwide progress has been made since 2010 in efforts to control the spread of malaria. It is stated in the Millennium Development Goals Report that the malaria prevalence rates for “50 of the 99 countries” would be reduced by 75 per cent by 2015. Likewise, the WHO (2013:v) confirms that 59 countries have met the Millennium Development Goal 6 (MDG6) target of reversing the effects of malaria and about 52 countries are on track to reduce the malaria incidence rates by 75 per cent. Similarly, the findings of the 2014 World Malaria Report also indicate that substantial progress has been made regarding the reduction of malaria cases and deaths (WHO, 2014b:7).

The success of achieving the malaria target in terms of MDG6, the World Health Assembly and the Roll Back Malaria targets for 2015, is highlighted by the fact that 55 countries are now on track to reduce their malaria burden. These are the kinds of successes that constructively contribute towards achieving progress despite the destructiveness of the malaria disease. The WHO (2014b:7) credit these positive achievements to the reliable action and involvement of the international and regional health communities, as well as substantial increases in international and national funding. Yet, the available funding is still not enough to ensure that all those who are at risk are protected (WHO, 2014b:7). With regard to funding, White et al. (2014:731) draw on an extensive range of resources and realises that despite extensive global financial contributions, the reduction in malaria case numbers is not always proportionate. There are many reasons for this phenomenon. Some of them are due to drug and insecticide resistance, as well as the use of counterfeit and substandard drugs which pose a serious risk to the gains made in the control and prevention of malaria (White et al., 2014:732).

Notwithstanding the aforementioned successes, the effects of malaria are still most profound in the World Health Organisation (WHO) African Region, where it is predicted that about 90% of all malaria deaths will happen and of these, 78% will be those of children younger than five years of age (WHO, 2014b:12).

Dr Margaret Chan, Director General of the WHO, referred to the 2014 outbreak of Ebola in the affected countries of Guinea, Liberia and Sierra Leone as a devastating global tragedy. The WHO continues to be supportive of countries and organisations assisting the already fragile public healthcare systems in these countries. This type of assistance reflects the importance of support from global organisations as it contributes towards ensuring that the successes and gains of malaria intervention programmes are sustained and that the malaria situation in affected countries does not deteriorate (WHO, 2014b:12). It is not only unexpected disease outbreaks that place enormous strain on fragile public healthcare systems. White et al. (2014:723) draw our attention to the fact that in the sub-Saharan region, from Senegal to Sudan, heavy rains, the movement of large populations as well as armed conflict are some of the reasons for the interruption of malaria prevention and control services. The abovementioned reasons could contribute towards an epidemic with devastating effects for all population groups.

Accordingly, Zhou, Li, Cotter, Zheng, Zhang, Li, Zhou, Zhou, Yu and Yang (2016:1-8), initiated a study in China during 2010 to 2014 and discovered that a general decline in the occurrence of malaria was evident. Yet the presence of *Plasmodium falciparum* (*P. falciparum*) – the malaria causing parasite in the area - had increased. This specific increase was attributed to imported malaria where a history of labour-related travel was apparent. The authors also specifically refer to the fact that Africa was the major contributor to imported malaria in China. The reasons for this deduction were that Chinese workers travelled to Africa for economic reasons and the chief malaria parasite in Africa was in fact, *P. falciparum*. One of the recommendations of the study in China was that malaria prevention programmes should target persons travelling internationally and intervention strategies in the border areas of China should be strengthened (Zhou et al., 2016:1-8). The problem of imported malaria in different countries can also be related to the economic choices that people are forced to make.

In order to support their families, cross border movements are often unavoidable and decisions are made to relieve the burden of poverty. The following section will assist in understanding the economic link between malaria and poverty.

2.3 THE CORRELATION BETWEEN MALARIA, POVERTY AND FUNDING

There is often very little consensus with regard to understanding the link between malaria and poverty. According to the WHO (2014a:5), malaria is concentrated in poorer countries, where income is extremely low. This means that those people who suffer immensely from risks associated with malaria will be those who are indeed the poorest, most marginalised and with the least access to effective healthcare services for malaria prevention, diagnosis and treatment.

Similarly, Gallup and Sachs (2001:88) found that the presence of malaria in the poorest African countries can also be attributed to the environmental and climatic situation rather than solely to the absence of clean water, poor hygiene, poor sewage and inferior housing. These particular conditions will often result in the spread of diseases like malaria, tuberculosis, diarrhoea and schistosomiasis. Therefore, malaria and these other diseases are not caused by poverty *per se*, but they are however exacerbated by the particular living conditions in an area. It has also been suggested that the reasons for the low income in an area, where malaria is prevalent, can also be attributed to poor soil conditions, low or non-existent agricultural activities or tropical illnesses, other than only malaria (Gallup & Sachs, 2001:87).

On the other hand, Sonko, Mlanding, Jafali, Jarju, D'Alessandro, Camara, Komma-Bah and Saho (2014:1) support the view that malaria is usually linked to poverty. The reason for this is that the disease is largely concentrated in the most destitute, particularly sub-Saharan African countries, where impoverishment is dire and very little economic development has been visible over the past few years. In particular, a study conducted in Gambia by Sonko et al. (2014:11), reveal a strong connection between malaria infections and lower socio-economic status (SES). It was found that “children from the poorest households were 8.2 times more likely to have had malaria compared to children from richer households”. It is for this reason that the authors argue that malaria will definitely have an impact on children from the poorer areas, where living conditions are inadequate.

Also houses, constructed with grass roofs, bamboo walls, badly built doors and windows were very accessible to mosquitoes and almost always linked to people with low SES. The researchers also refer to another study conducted in Gambia, in which doors, windows and roof spaces were covered with screens. This action resulted in a fifty percent reduction in anaemia-related malaria among children. Thus, improved housing could significantly contribute towards the decline of malaria prevalence and transmission (Sonko et al., 2014:6-9).

In another study conducted in Nigeria, Onwujekwe, Uguru, Etiaba, Chikezie, Uzochukwu and Adjagba (2013:1) posit the view that malaria imposes a significant economic burden on Africa, which has the most malaria cases in the world. The comparable expenses linked to the “quality of life, consultations, treatments, hospitalisations” and other matters related to malaria are considered to be immense. In the majority of cases, the effect of “the economic burden” would prevent people from being productive and thus result in lower incomes being earned, especially for the poorest families. In this context, the amount of money spent on malaria in terms of prevention, treatment and loss of productivity, could represent a significant portion of the annual income of poor households. It is no surprise then that malaria would have a significant effect on families, communities, the public healthcare system and workforce of a country. Contracting malaria would result in the affected person not being able to work and keep the caregiver out of work as well. As a result the number of days worked would be reduced and in turn affect the ability to pay for accessing treatment or prevention. More importantly, even if treatment was free, the ability to access the treatment from rural areas can be extremely costly. Most often roads are inaccessible and public transport is not available or non-existent. This is why it is extremely important for countries and global organisations to be aware of the economic burden of malaria, in order to plan and invest in addressing public health problems such as malaria (Onwujekwe et al., 2013).

In the Njoro District in Kenya, a further study was conducted to determine whether rural practices could be identified as being associated with the incidences of malaria and typhoid fever. The researchers explained that good health is essential for a population to be productive as this ultimately results in growth and development for a country (Kinuthia, Gicheru, Ngure & Kabiru, 2012:224). The Njoro population is exposed to people travelling to and from areas in the country where malaria is rife.

This is largely due to the fact that the District of Nojoro is situated near a key freeway and railway line. Besides the population being at risk to malaria infections, the manner in which the respondents conducted their everyday lives, also contributed towards the high level of malaria cases in the area. For example, approximately 97% of the communities made use of pit toilets. Empty containers with stagnant water, long grass, dams, unprotected rainwater tanks, muddy cattle compounds - all ideal for attracting mosquitoes, were found near many homes. In addition, more than half of the respondents admitted to not boiling their drinking water, which increased the risk of waterborne diseases.

Community members admitted that washing of hands was not a common practice, nor was the use of soap. In areas where pit latrines were used, the community was remiss in ensuring that it was kept clean. This oversight increased the risk of flies, hence the prevalence of typhoid fever in the area. The presence of malaria and typhoid fever cases were definitely common and the unsuitable hygienic practices adopted as normal by the community were identified as the causes for the prevalence of these diseases. Poverty in the areas was also considered to be a major contributor to the spread of these diseases (Kinuthia et al., 2012:232-233). Behaviour and attitude are extremely important in promoting sustainable hygienic practices. This is why Sibiya and Gumbo (2013:2283) advocate for the provision of hygiene education to ensure that water supply and sanitation services were used properly.

Teuscher and Halil (2012:35), explain that the establishment of the Roll Back Malaria Partnership (RBM) in 1998, resulted in the improved management of donor funding for the control and prevention of malaria. Generally, this improved donor attitude with regard to funding of preventive programmes resulted in an increased number of children attending school, parents keeping their jobs and contributed considerably towards a decrease in household and government expenditure on healthcare. The WHO (2014b:x) reported that the “total annual contributions for the control, prevention and elimination of malaria was US\$ 2.7 billion in the year 2014. Of this amount 82% represented contributions from international donors and domestic contributions amounted to 18%, which was the equivalent of US\$ 527 million”. This highlights the huge gap between international and domestic contributions to fund the control and prevention of malaria.

It also informs governments of malaria-endemic countries to rethink and re-arrange their priorities regarding malaria funding, if there is an urgency to close the gap between international and domestic contributions. Apart from this, the WHO Africa Region reported that domestic contributions have indeed improved annually at a rate of 4%, and of the total malaria funding, this region accounts for 72%, (WHO, 2014b:x).

It is argued that if this funding gap is not decreased, all previous efforts to control and prevent malaria will be fruitless, resulting in many more deaths and an increase in prevalence in areas where it has decreased. As alluded to above, international funding makes a huge contribution towards ensuring that measures to control and prevent malaria across the WHO Africa Region are implemented (Teuscher & Halil, 2012:35). Even though there is an appreciation for the “difficult choices and competing priorities” that many governments experience, the researchers maintain that “there is nothing difficult about the decision to invest in health”, as this type of investment will yield many positive benefits for society (Teuscher & Halil, 2012:38). In order to appreciate the impact of the aforementioned it will be important to understand exactly what the state of malaria is in South Africa.

2.4 MALARIA IN SOUTH AFRICA

Malaria is transmitted by mosquitoes and in South Africa the mosquitoes responsible for the transmission of malaria, as identified by Maharaj et al. (2013a:780) is the *Anopheles. merus* and *An. arabiensis*, with the latter being the primary malaria vector. These mosquitoes are considered to be “zoophilic” vectors, as they feed off cattle and humans. Thus, they are able to feed indoors (endophagic) and outdoors (exophagic) and after feeding they also prefer to rest indoors (exophilic). It is also noted that the number of *An. merus* mosquitoes have been increasing and that it could become a significant vector. Transmittable mosquitoes and their potential breeding sites can be severely restricted by low temperatures and low rainfall.

High temperatures and summer rainfall in South Africa’s three endemic provinces, where malaria is found seasonally, encourage the continued existence of the malaria parasites (Maharaj et al., 2013a:780). These three endemic provinces are Kwazulu-Natal (KZN), Mpumalanga and Limpopo. Of these provinces, Limpopo has become the largest contributor to malaria case numbers.

The Vhembe district, in Limpopo, the focus area of this study, continues to be a high-risk area, where the incidence of malaria remains largely unchanged. Malaria is especially prevalent in those areas where these three provinces share borders with Zimbabwe and Mozambique. In the Mpumalanga Province, the areas of concern are Bushbuckridge and Nkomazi in the Ehlanzeni District. This area also shares a south-eastern border with a Mozambican province and Swaziland to the south (National Department of Health, 2012:12). During the hot and wet summer months, usually from September to May, the area becomes very attractive to mosquito breeding and the presence of the parasites is extremely noticeable. Therefore, as mentioned above, climatic situations definitely have the potential of contributing towards malaria becoming a widespread disease (Gerritsen, Kruger, van der Loeff & Grobusch, 2008:2).

The large numbers of people moving across South Africa's northern and eastern borders with Mozambique and Zimbabwe present a huge risk to vulnerable communities living in these border areas. Between January and December 2011, 30 percent of imported cases in Limpopo were reported to be from Mozambique. This is one of the reasons why imported malaria, has the potential to influence the local transmission of malaria drastically and presents an important challenge to the malaria programme in South Africa. Cross-border collaboration and the sharing of resources will continue to be crucial in ensuring that malaria is controlled within South Africa and in the neighbouring countries (Maharaj et al., 2013a:779-783). More importantly, for South Africa to ensure the sustainability of the prevention and control programmes and eventually move towards elimination of the disease in the affected provinces, the commitment and involvement of its regional neighbours, Swaziland, Zimbabwe and Mozambique will be just as important. After all, malaria does not respect national borders. As a result, one of the interventions was the Lubombo Spatial Development Initiative (LSDI), implemented in southern Mozambique, focusing on the Maputo Province and Swaziland (Brooks & Abney, 2013:1-8)

Despite the interventions, South Africa experienced high levels of imported malaria. Silal, Little, Barnes and White (2015:1-14) maintain that the reduction of these imported infections is of utmost importance and the termination of the Lubombo Spatial Development Initiative (LSDI) in 2010, contributed towards the increase in the incidence of malaria from 2011 onwards, so much so, that "85% of the imported cases of malaria" had its origin in Mozambique.

The effectiveness of the LSDI is highlighted by Laas (2012) who claims that whilst the initiative was operational, malaria prevalence in children decreased in South Africa and Swaziland. Likewise, Blumberg, Freaun, Moonasar and South African Malaria Elimination Committee (2014:224-227) are also of the view that there has been an increase in both local and imported malaria cases, with the highest number of imported malaria cases being contributed by Mozambique. The importance and effectiveness of the LSDI was very noticeable in the literature, as it highlighted an effective initiative between Mozambique, Swaziland and South Africa in trying to control and prevent cross-border malaria and encouraging regional collaboration. Besides the fact that imported malaria will continue to pose a significant threat to the efforts to control and prevent malaria, the use of drugs to prevent and control malaria also form part of the prevention strategy. Maharaj et al. (2013a:779) deliberate on the necessary changes to the choice of malaria drugs over the years.

During the 1980's, case numbers and chloroquine failures in the KZN province increased dramatically, which prompted a change to the drug policy. This change in policy had no effect and only the introduction of artemisinin-containing combination treatment (ACT) reduced malaria case numbers in KZN, which have since been sustained. However, the provinces of Mpumalanga and Limpopo were still exposed to chloroquine-resistant parasites until the late 1990s. Changes were also implemented to the drug policy in these provinces, which then saw Sulfadoxine-Pyrimethamine (SP) being the antimalarial of choice. This drug was effective in these provinces for more than 12 years before resistance was noted. It now appears that *P. falciparum* parasites are vulnerable to the by-products of artemisinin and its partner drugs. One of the most effective ways in which South Africa has been able to control the spread of malaria was by implementing indoor residual spraying (IRS).

IRS is applied to the inside walls of houses at least once a year and happens to be one of the critical components in the campaign towards malaria elimination (Maharaj et al., 2013a:781). More importantly in 2010, KZN reported the lowest number of cases and malaria-related deaths, whilst Limpopo reported the most malaria cases and malaria-related deaths (Moonasar, Nuthulaganti, Kruger, Mabuza, Rasiswi, Benson & Maharaj, 2012:5-6). In order to gauge how effective available treatment was, a monitoring system was implemented in South Africa.

The information gathered by means of this system also provided information on drug resistance, as it could be used to determine the manner in which the incidence of malaria was changing. Another positive factor of this system was that it provided excellent data which assisted authorities to make informed decisions regarding drug treatment (Maharaj et al., 2013a:779). However, Maharaj et al. (2013a:780) also found that malaria deaths could easily have been avoided by the speedy detection of malaria and the initiation of the appropriate treatment. Thus, it is extremely important for a country like South Africa to ensure that the public healthcare system is strengthened so as to provide the appropriate treatment to patients as soon as possible. Furthermore, in documenting the successes and challenges that South Africa has faced over the years with regard to the prevention and control of malaria, Blumberg et al. (2014:224-227) highlight the fact that South Africa has indeed achieved significant progress towards the successful control and prevention of malaria.

With the above in mind, South Africa has ambitiously committed itself to 2018 as the target for malaria elimination in all of its endemic provinces (Silal et al., 2015). As a matter of fact, Dr Aaron Motsoaledi, the South African Minister of Health, communicated in 2012 already that South Africa had been identified as one of the African countries qualifying for malaria elimination (National Department of Health, 2012:5). Newly diagnosed cases of malaria decreased significantly in South Africa between the years of 2001 and 2011. This positive situation was largely attributed to the use and promotion of effective malaria control methods, such as very efficient case management, consistent vector control measures such as the provision of ACT's, IRS, epidemic preparedness and response (EPR) and health promotion.

In order for South Africa to transcend from a period of malaria control to a malaria elimination, the Malaria Elimination Strategic Plan was developed as the vehicle to guide this process (National Department of Health, 2012:6). Important to note is that at the time of writing this dissertation, the Malaria Elimination Strategic Plan was being updated. The Malaria Elimination Strategic Plan, suggests that South Africa now more than ever is ready to move towards a state of "malaria elimination". Malaria elimination is described by the WHO (2014b:6) as a situation where there is absolutely no transmission of malaria in a locally identified geographical area.

In addition, evidence should show that “local malaria transmissions” have significantly been disturbed and no malaria cases are identified despite the detection of malaria parasites that would have been introduced through travel within the country and across its borders. It is only once this type of situation has prevailed for more than three years in a country that the WHO will guarantee that the country is in fact free of malaria (National Department of Health, 2012:6-7). The National Department of Health will take the lead to ensure that the Provincial Malaria Programmes receive the necessary support and resources (National Department of Health, 2012:6-7). The importance of the development and introduction of creative and innovative programmes to ensure that South Africa is able to reach its goal of malaria elimination will be extremely important, as current control and intervention efforts especially in the endemic provinces, are clearly not yielding the results that was envisaged (Maharaj, Raman, Morris, Moonasar, Durrheim, Seocharan, Kruger, Shandukani & Kleinschmidt, 2013b:1-5). In a similar vein, the WHO (2015:22), identified certain challenges in the drive towards eliminating malaria.

Even though the following interventions are used in most countries – insecticide-treated mosquito nets, indoor residual spraying, larval control, preventive therapies, diagnostic testing and access to malaria treatment, malaria continues to be a leading public health concern. In order to aid progress towards elimination, the WHO point to the fact that a “strong political commitment, robust financing and increased multi-sectoral collaboration” will be important to safeguard worldwide access to malaria prevention, vigorously working towards elimination and “malaria-free status”, as well as changing “malaria surveillance into a core intervention” (WHO, 2015:55).

With reference to multi-sectoral collaboration, the following discussion on the role of education in the prevention and awareness of malaria will be important to consider.

2.5 THE ROLE OF EDUCATION IN THE PREVENTION AND AWARENESS OF MALARIA

In order to ensure that a world exists where no malaria deaths occur, there has to be a joint effort by all relevant stakeholders to ensure that public health responses are relevant and sustainable.

According to Jooste (2015a:16), these public health responses can take the form of “campaigns, community mobilisation, health education in various settings, capacity building of communities and workshops”, which can all be used to promote malaria education and awareness. This fact is supported by Education for All (EFA), as alluded to above (Moonasar et al., 2012:11). At its establishment, EFA endorsed education as a “fundamental right”. An agreement was also reached that education would fundamentally be connected to all development goals, such as “supporting gender empowerment, improving child health and maternal health, reducing hunger, fighting the spread of HIV/AIDS and diseases of poverty, encouraging economic growth and building peace” (Department of Basic Education, 2013:3). Incidentally, due to the nature of malaria, children are often badly affected and are not be able to attend school. The achievement of MDG2, “to achieve universal primary education” is closely linked to this consequence of malaria (Owens, 2015:s53-s57).

Furthermore, a study conducted by Thuilliez, Sissoko, Toure, Kamate, Berthelemy and Doumbo (2010:1) focused on the importance of education. The researchers focused on highlighting and understanding the effects of malaria on development and growth in specific countries. It was noted that health programmes at school could become a valuable means of disseminating information to children. As the children access the information acquired, it can inform their behaviour, as well as the behaviour of their parents and relatives. In this way information relating to prevention of malaria is spread to relatives, other family members and friends (Thuilliez et al., 2010:9).

A study undertaken by Kirkby, Galappaththy, Kurinczuk, Rajapakse and Fernando (2013:7-8) further highlight the fact that schools are just as important as healthcare facilities as sites of malaria education and awareness. The researchers sought to contribute towards an appropriate strategy to inhibit the spread of malaria in a “post-conflict zone”. It was important to understand the knowledge, attitudes and practices (KAP) regarding malaria, present in this particular community. After the period of conflict in Sri Lanka, people who had fled, returned to the country and were assisted by the government to re-settle in temporary areas. These areas were in the process of being re-built and were soon extremely conducive to the transmission of malaria. Besides climatic effects, pools of water were found everywhere and the temporary homes were not well insulated.

Army personnel, who assisted the community to re-build the area came from areas in the country where malaria had virtually been eliminated. Very soon the highest level of transmissions were reported among this group. This situation appears to be very similar to the Chinese situation, where Zhou et al. (2016:1-8) described the increase in malaria cases that occurred during a period when the country was moving towards the elimination phase of their control programme. Yet, the authors reported that they found the respondents to have a high level of knowledge regarding the transmissions, symptoms, treatment and prevention of the disease. They recorded this as a very positive finding, as well as the fact that treatment was sought as soon as symptoms were first experienced.

Very importantly, Zhou et al. (2016:1-8) also reported that the main source of information about malaria was from public healthcare facilities and schools. In this particular sample, the findings indicate that improved knowledge of malaria, was linked to education beyond primary school. Thus, the researchers suggest that this finding reinforces the need for schools to become important areas for involvement in malaria awareness information. Reference is also made to the fact that education at schools is not the important aspect *per se*, but rather the effect that the specific health education has had on the person receiving it. Likewise, in 2011, the African Leaders Malaria Alliance (ALMA), identified the “need for strong decentralised malaria-control programmes with linkages to other health and development sectors, civil society and private sector entities” (Sambo et al., 2011:1).

Similarly, one of the objectives of the UP CSMC (2014:2) is to “engage communities, promote awareness and conduct research that reflects issues and needs of vulnerable communities related to safe and sustainable malaria control”. In the same manner, Blumberg et al. (2014:225), discuss the importance of ensuring that a high level of malaria awareness is consistently maintained among health workers and within communities. By the same token, the National Department of Health (2012:27-28), recognise that measures to prevent and control malaria should be ongoing, even in those areas where malaria cases are significantly lower and the disease has become less prevalent. This will ensure that communities and those persons moving from endemic areas continue to take precautionary measures to prevent and control malaria.

The objective of the South African Malaria Elimination Strategy 2012 -2018, states that the National Department of Health plans to make sure that everyone in malaria endemic areas is exposed to suitable “information, education and communication, social mobilization and advocacy” to develop positive “attitudes and practices” in terms of malaria awareness by 2018 (National Department of Health, 2012:26).

Clearly, the National Department of Health recognises the importance of sustainable efforts and funding to ensure that where malaria cases have been reduced, it does not increase. The introduction of health promotion programmes and interventions that are effective and relevant to communities who are at risk, are also significant. The Department’s intention is also to assist healthcare workers who offer educational programmes and in so doing raise awareness. It is assumed that these awareness programmes will include close collaboration between the healthcare workers and communities at risk. The responsibility for ensuring that the information is distributed to those communities who would need it, as well as - “community education campaigns, door-to-door health education, and increased interaction between the health educators and the community, lies with the National Department of Health. These initiatives will raise awareness about malaria elimination and increase malaria preventive interventions throughout the country” (National Department of Health, 2012:27). However, it is also important to note that even if community members have access to adequate information regarding the disease, they might not seek immediate medical attention.

As noted earlier, the effects of socioeconomic conditions within a community are very real. Reflecting on this matter, O'Neill, Gryseels, Dierickx, Mwesigwa, Okebe, d'Alessandro and Peeters (2015:1-10) highlight the cost of accessing healthcare facilities by explaining that when malaria symptoms are recognised, community members will often interpret the symptoms as being mystical and a traditional healer rather than a public health facility will be visited. In these situations, families will decide on whether the cost of taking the ill person to a public health facility or private doctor justifies the extent of the illness of the person. Not seeking treatment as quickly as possible can result in the difference between the affected person living or dying. In assisting communities, healthcare workers and researchers must make a concerted effort to interrogate and understand the traditional ways in which community members react and adapt to the way in which the communities respond.

To put it differently, Bornman et al. (2012:409) contend that if sustainable preventive strategies are available to communities, it is assumed that they would be knowledgeable about the risks associated with the disease and therefore respond immediately as required. This is however, not the case as community members will take their time and respond in the way that they know and with the knowledge and resources they have. Thus, it cannot be assumed that the response from the community would correspond to a 'scientifically-based rationale' (Bornman et al., 2012:413). This might also be one of the reasons why some intervention programmes do not have the desired outcome as the social and cultural settings of the community were not taken into consideration. Therefore, successful malaria education programmes and interventions must be aware of the needs of the community and be able to anticipate the actions of the community.

It is therefore particularly important, especially in endemic countries, that effective public information, education and communication programmes are provided, in addition to ensuring that public healthcare systems are strong and effective. The Sri Lankan experience, as discussed by Kirkby et al. (2013:1-9), support this sentiment by stressing the importance of continuous malaria education and information campaigns that will ensure that knowledge regarding malaria awareness is not lost or forgotten. These programmes and campaigns can only be provided when strong public healthcare systems are present in the affected countries.

The WHO (2015:15), reports that the capacity to build strong public healthcare systems in countries where malaria is prevalent is severely limited because governments cannot afford the needed funds. Also, when donor funding is received, it is used for much needed supplies, and not used to focus on improving or strengthening weak public healthcare systems. Therefore, governments of endemic countries must find inventive ways and means to use their limited resources to ensure access to malaria interventions. This could mean engagement with affected communities, including schools, as well as with the private sector.

In order to ensure the sustainability of the proposed malaria elimination strategies, it will be strategic to provide health promotion and information, education and communication (IEC) on a continuous basis.

In order to disseminate information about malaria, IEC could be done in so many different formats, such as flyers, radio and television advertisements, posters, on bus shelters, taxis, busses and at community meetings and at supermarkets. In ensuring effective and sustainable healthcare responses, South Africa has decided to embark on a journey to achieve the vision of a malaria-free country. To facilitate this vision, the National Department of Health together with relevant stakeholders, will creatively and innovatively work towards providing “sustainable, equitable, accessible, efficient and quality interventions to eliminate malaria and improve the health status of all in South Africa” (National Department of Health, 2012:18).

Central to ensuring that the devastating effects of future epidemics are successfully curtailed is the realisation by governments and the global development community that strong public healthcare systems must be managed in innovative ways to guarantee future resilience against these. Such initiatives will have a positive impact on the effects of malaria, as will the support for disease surveillance, research, the development and introduction of new methods and tactics to ensure that public health reactions to malaria become more effective and sustainable (WHO, 2014b:v). In the following section, the Social Cognitive Theory will be used to provide context as to how the abovementioned information can be understood and adapted to be useful in school health programmes.

2.6 SCHOOL HEALTH PROGRAMMES

In 2012, the National Department of Basic Education committed itself to providing a conducive environment for all children to “reach their full potential”. This commitment implied that the “optimal health” of each child must receive very special consideration as it not only affects the “survival, growth and health”, but the “learning outcomes and development” of each child as well. In addition, “poverty-related illnesses” including “non-communicable diseases” also presents a huge challenge to children in the country (Department of Basic Education and Health, 2012:6). According to the Department of Basic Education and Health (2012:6) the aim of this programme will be to ensure that schools become “inclusive centres of learning, care and support”.

Realising that there are fundamental reasons for the health and socioeconomic situation that the vast majority of children in South Africa find themselves in, the Department of Basic Education and Health (2012:6) make it clear that this commitment to school health programmes presents an “ideal opportunity for health education and interventions that aim to address the many health and socio-economic factors that affect South African children”. Thus, it will be imperative to implement these programmes in a manner that guarantees the greatest impact on the health of students from disadvantaged backgrounds (Tang, Nutbeam, Aldinger, St Leger, Bundy, Hoffmann, Yankah, McCall, Buijs & Arnaout, 2009:70). The contribution regarding school health programmes is referred to as “wider initiatives needed to narrow social and health inequities” Tang et al. (2009:70).

Similarly, the Department of Basic Education express the desire that once children have been educated regarding health issues, they will become “influential sources of health information and models of healthy behaviour for their families” as well as for the wider community. However, the latest information that could be accessed on this topic regarding South Africa is a 2012 document, “Integrated School Health Policy” (Department of Basic Education and Health, 2012:1-42). In terms of implementation, mention is made of “reinstating health programmes in public schools in South Africa”, which will also require “strong intersectoral collaboration” from the key role players.

These key role players are the Department of Health, the Department of Basic Education and the Department of Social Development. On the other hand, even though the policy refers to these plans and ideas, the stark realisation is that with regard to implementation or bearing in mind the existing services (staff and resources), considerable improvement will be required to ensure implementation that will yield the results as alluded to above. This is such an important development as many studies, though some dated, have espoused the usefulness of firstly educating children about health related issues and then getting them to educate their peers, their families and the broader community (Pridmore, 2000; Onyango-Ouma, Aagaard-Hansen & Jensen, 2005; Nicotera, 2008; Mitchell¹, Tanner¹ & Haynes, 2009; Ayi, Nonaka, Adjovu, Hanafusa, Jimba, Bosompem, Mizoue, Takeuchi, Boakye & Kobayashi, 2010; Ohlin, 2012; Deepthi, Naresh Kumar, Prasanna Kamath & Rajeshwari, 2014; Buchwald, Walldorf, Cohee, Coalson, Chimbiya, Bauleni, Nkanaunena, Ngwira, Kapito-Tembo, Mathanga, Taylor & Laufer, 2016).

There appears to be a mutual acceptance that messages from children, who have been taught at school, with regard to maintaining personal health will be more acceptable than those from adults, specifically in rural areas. In this regard, the World Health Organisation (WHO) advocates for “Health Promoting Schools”, which has been quite an important task of this organisation for many years (WHO, 1998:1-5).

The (WHO, 1998:1-5) describes the characteristics of Health Promoting Schools as schools that:

- “strives to improve the health of school personnel, families and community members as well as students;
- fosters health and learning with all the measures at its disposal;
- engages health and education officials, teachers and their representative organisations, students, parents and community leaders in efforts to make the school a healthy place;
- strives to provide a healthy environment, school health education and school health services along with school/community projects and outreach, health promotion programmes for staff, nutrition and food safety programmes, opportunities for physical education and recreation and programmes for counselling, social support and mental health promotion;
- implements policies and practices that respect an individual’s self-esteem, provide multiple opportunities for success and acknowledge good efforts and intentions as well as personal achievements “ .

In respect of this study, (see section 2.2 and 2.3) children are extremely vulnerable as they are at greater risk to becoming infected by malaria. In fact the immune system of a younger child is not fully developed, therefore they are more inclined to attract infections and malaria poses a greater risk to them. In the same vein, it is argued that any type of intervention or health education programmes should start with these school going children (Bundy, 2011; Ohlin, 2012). Equally important is the fact that for many years, schools have been acknowledged as important sites for health education (Mükoma & Flisher, 2004:357).

In addition, Bundy et al. (2000:181) believe that there are huge benefits for children and the wider community when health interventions, especially for malaria, are added to existing health school programmes.

Similarly, Brooker, Kolaczinski, Gitonga, Noor and Snow (2009:1-9) recognise that focusing on children at school regarding malaria interventions is not a new approach. It has re-surfaced as a result of the international importance attached to the increase in malaria awareness programmes. These authors believe that the provision of “skills-based” healthcare programmes through schools will promote a greater understanding of malaria and the reasons for control and prevention methods. As alluded to in the aforementioned discussion, the importance of inter-sectoral collaboration between the education and health sectors are of extreme importance. With regard to the available literature, as well as the intention of the National Department of Basic Education, the aim of promoting and re-introducing school health programmes is a noble idea. In order for it to be successful, resources and training must be made available – this cannot be done without intersectoral collaboration. If this is not done, communities (including schools) will encounter barriers in accessing public healthcare programmes.

The following section will address the Social Cognitive Theory that supports this study in attaining answers to the research questions as posed in chapter 1.

2.7 SOCIAL COGNITIVE THEORY

Anfara and Mertz (2014:1-264) explain that a theoretical framework can be used to study and comprehend the environment being examined. It also has the ability to provide an effective way of discussing the actual research project or topic. In the context of this study, the principals, educators and learners at the schools in Ha-Makuya are exposed to the risks of malaria on a daily basis.

Therefore it is important to discover how the principals and educators, with the assistance of healthcare workers, manage their schools in light of the danger imposed by malaria. In order for the schools to be managed purposefully every day, certain choices will have to be made and these will impact on learners, as well as the principals and educators. It is for this reason that this discussion will focus on cognitive, environmental and behavioural factors, which are central to the Social Cognitive Theory (Hardin, 2010:22). Exploring these factors will assist in gaining insight into how school health programmes could be used to influence human behaviour, as well as how the “physical, mental and social well-being” of learners can be taken care of to enable them to learn effectively (Department of Basic Education and Health, 2012:6).

Bandura (1998:623) contends that a mutual relationship exists between cognitive, environmental and behavioural factors which will eventually result in shared benefits for the role players involved.

The following figure illustrates how these factors are intertwined and beneficial to each other.

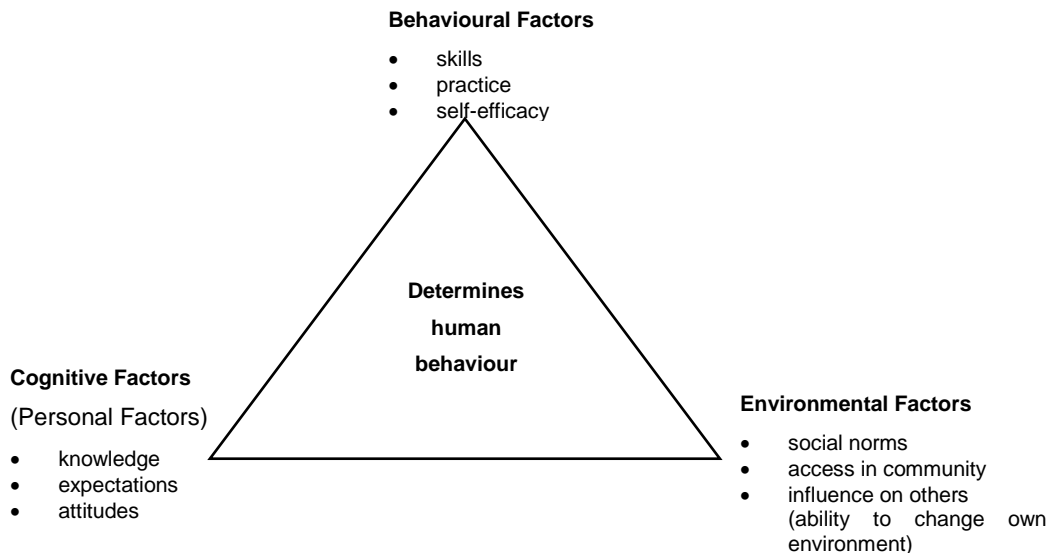


Figure 2.1: The mutual relationship between the cognitive, environmental and behavioural factors (adapted from ReCAPP (2009:1)).

Ultimately, this is a learning theory based on the idea that people learn by observing others. In this context, it means that if children are taught or exposed to positive health behaviours from an early age, they will be empowered to help themselves and assist others. Thus, the importance of the involvement of educators in healthcare programmes at school cannot be emphasised more. Bandura (1998:643) highlights this fact by explaining that educators are considered to be role models for the children they teach and in this way a learner will observe and learn new behaviours whilst at school. In addition to observing others, the environment, behaviour and reasoning all play a part in developing this mutual relationship as alluded to by Bandura (1998:623). For the educator, the instilling of values, attitudes when teaching and hoping that a goal will be reached (the learner will learn the new behaviour), is the expectation when he or she presents a specific task to the learner.

Teaching this task will go hand in hand with the behavioural factors (see figure 2.1), where learners will learn the skill and practice what they have learnt in class, as well as developing self-efficacy. This means that they now believe that they have learnt the particular skill and can use it with the knowledge they required and will be rewarded by the result of their actions. Bandura and Walters (1977:2) refer to the fact that the resultant behaviour that learners will eventually exhibit, will be as a result of constant interaction between them and the educator, which explains the fact that the behavioural, cognitive and environmental factors are “intertwined and beneficial to each other” (see figure 2.1). Therefore, when children adopt lasting actions regarding healthy habits, it will not only benefit those particular learners, but the next generation of learners as well.

With reference to this study and the environmental factors, the schools in Ha-Makuya do not operate in isolation but within a specific social setting. Thus, the importance of discovering how malaria in this specific setting impacts on the school community; how schools are managed to assist their communities in being aware or becoming aware of the threat of malaria in the area and; what kind of preventive behaviour, treatment-seeking practices and care are currently available at the schools or to the schools.

2.8 CONCLUSION

The purpose of chapter 2 was to interrogate the literature in order to situate this study within the national and international discourse with regard to the sustainable control and prevention of malaria. My study looked at the impact of malaria on teaching and learning at schools in a rural area, where climatic and environmental factors definitely played an important role (Gallup & Sachs, 2001; Onwujekwe et al., 2013; White et al., 2014; Sonko et al., 2014).

With regard to the discussion on South Africa, emphasis was on the Vhembe area, Maharaj et al. (2013a) refer to Vhembe as a high-risk area where the incidence of malaria largely remained unchanged. In fact, the National Department of Health (2012), with regard to the Malaria Elimination Strategic Plan, discussed the fact that South Africa was ready to move towards a state of “malaria elimination” whilst noting that the endemic provinces were not yielding the results anticipated. Thus, it would be important to ensure that creative and innovative programmes are introduced on a continuous basis as intervention efforts to control and reduce malaria infections.

Reviewing the current literature, it was evident that the role of education in the prevention and awareness of malaria, mainly refer to public health responses in communities, as well as in schools. Likewise, Thuilliez et al. (2010) mention health programmes at schools as a valuable means of disseminating information to children. These health programmes are disseminated from public healthcare facilities to schools by healthcare workers. In addition, the WHO promotes the idea that school health programmes add great value when integrated into schools as it contributes towards the reduction of common health problems, as well as improving public health and education development. This is also evident in the commitment of the National Department of Basic Education to re-introduce health programmes into schools. However, information relating to the use of the school curriculum in promoting malaria awareness is severely lacking in current literature.

Lastly, the Social Cognitive Theory was discussed and how the mutual relationship between the behavioural, cognitive and environmental factors impact on the learning and teaching of skills in the classroom. This theory allows us to understand how learners are able to learn a skill or acquire knowledge, by observing and practising the skill. They then believe that they will have the ability to use this newly acquired skill and gain the reward that comes with achievement. Also by reaping the rewards the application of this skill brings (the outcome). In addition, this new skill could be used to influence peers, the family and the community with regard to healthy habits in preventing malaria.

Moreover, it does appear that health departments in those countries where malaria is of concern, are usually expected to establish strong public healthcare systems to ensure the sustainability of proposed malaria elimination strategies (National Department of Health, 2012; WHO, 2015).



CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

The research design and methods used to explore and understand the impact of malaria on teaching and learning in Ha-Makuya, in the Vhembe district, will be the focus of this chapter. The information gathered by using these methods could provide valuable insights into the role that educators and school management play in an area prone to malaria. Furthermore, the interpretivist paradigm and methodology selected will be explained as well as the research design used for this study. The approach decided upon was a qualitative one as it allows for the examination of the knowledge, attitudes and values of the participants involved in this study. A case study approach was employed to collect data from the two schools in the area of Ha-Makuya. The research instruments decided upon, were individual interviews, a research journal and relevant documents. In addition, data analysis was expounded upon, as well as how trustworthiness should be upheld and the applicable ethical concerns that had to be considered are referred to.

3.2 RESEARCH DESIGN

Research design is described by Ritchie et al. (2014b:125) as a plan with a distinct purpose, which should clearly indicate an accurate connection between the purpose of the study, the research questions, context and setting, as well as the methods that will be utilised to produce data that is meaningful, vigorous and applicable to the study being undertaken. This view is also shared by Athanasou et al. (2012:35) who explain that the purpose of the study and the research questions will assist in determining a good research design. In addition, the research design will reveal whether a qualitative or quantitative approach will be undertaken. However, before discussing the particular approach applied to this study, it would be helpful to first consider the research paradigm within which this study was undertaken.

3.2.1 Research paradigm

This study was guided from the perspective of an interpretive paradigm as the researcher endeavoured to understand and give meaning to how principals and educators in Ha-Makuya, an area prone to malaria manage their schools.

The type of data collected allowed me to identify the beliefs and values of the participants in relation to their understanding of the malaria issue. Cohen et al. (2007:26) allude to the above, as an attempt to “understand the world in terms of its actors”. Furthermore, Cohen et al. (2007:257) indicate that an interpretive approach is usually appropriate when the focus is on small scale studies. It is suggested that by using this approach the researcher will be able to develop a sense of the perceptions that people have of their own situations, as well as how they attempt to explain and describe the conditions they find themselves in, Graue and Karabon (2013:41-43) hold a similar view in terms of connecting the various aspects of people’s lives. They also believe that “psychological, social, historical and cultural factors” do add value to how people understand their own context within which they find themselves. As a researcher this approach appealed to me as it allowed me to gain a comprehensive view and understanding of how schools were managed in an area where the incidence of malaria has not changed, even though it has improved in other parts of the country. Thus, the approach selected to study the impact of malaria on learning and teaching from the perspective of educators and principals in a malaria prone area had been the qualitative approach.

3.2.2 Approach: Qualitative

Due to the fact that this study was guided by an interpretive perspective, a qualitative approach gave me an opportunity to discover the social and organisational characteristics, individual behaviours of the participants and the context within which they found themselves. According to (Creswell, 2007:213) the aim of a qualitative study, is not to “generalise”, but rather to “develop an in-depth understanding of a central phenomenon”. Correspondingly, Strydom et al. (2002:79) describe a qualitative researcher as someone who attempts to comprehend rather than provide reasons for what is being observed in real-life.

Quite a few differences exist in the approach to qualitative research and this is largely due to the fact that many key elements are commonly identified as giving qualitative research its distinctive character (Creswell, 2009; Janesick, 2011; Ritchie et al., 2014b). The following table illustrates a few of these key elements alluded to above, as well as an indication of how it relates to this particular study (Janesick, 2011; Corbin & Strauss, 2012; Athanasou et al., 2012; Padgett, 2014b).

Table: 3.1: Key elements of the qualitative approach as applied to this study

Key elements (characteristics)	How they relate to this study
<p>Data is collected by means of personal, face-to-face, immediate interactions within a given setting, otherwise referred to as a <i>natural setting</i>.</p>	<p>In this particular study, the natural setting refers to the classrooms of the educators, the classroom or office of the principal, the clinic where the healthcare workers were visited and the office of the education official.</p>
<p>The focus is also on getting to understand the particular social setting of the participants; what are the <i>meanings that participants contribute towards the issue being researched</i>. The focus is not on predicting and controlling the situation. Thus, it is an attempt to understand the situation in a holistic manner.</p>	<p>During the period of study, it was important to try to make sense of the social and material environment, the experiences and history of the situation from the perspective of the participants. For example what were the views they held regarding the fact that the incidence of malaria continued to increase in the surrounding area?</p>
<p>Following on from the above, a qualitative approach results from an <i>interpretive paradigm</i>, which indicates that human behaviour or experience can only be understood and explained from the viewpoint of people (Athanasou et al., 2012:72-73)</p>	<p>Using what I knew about malaria in the area, assisted me in making sense of the perceptions, experience and meanings that the participants contributed to the study. It was also important to understand the social setting in the particular area and the meanings that people attached to their everyday lives.</p>
<p>The key <i>research instrument</i> is the researcher, who has to be flexible in order to self-reflect to multitask in an iterative nonlinear manner.</p>	<p>As alluded to above, the contact that I made as a researcher, was face-to-face individual interviews with the principals and educators.</p>



	<p>During these sessions, it was important not to be judgemental, to always have an open mind, be empathetic and sensitive when listening to responses so as to gain an understanding of the situation. I also had to be flexible and adapt to changes in interview times, which could be influenced by the weather, availability of participants, vehicles and bad roads.</p>
<p>The use of multiple sources of data.</p>	<p>Use was made of individual interviews, a field journal and documents were perused before the actual data collection process began.</p>
<p>Analysing the data collected is largely an inductive process, in the sense that meaning or interpretation largely depends on the data. In addition, the collected data represents descriptions of the phenomena being researched from the perspective of the participants. Thus, it can be said that data collected can be considered to be detailed, rich and complex.</p>	<p>The data was analysed in different ways, such as grouping together common themes, similar responses and it was repeated to ensure that there was an openness to understanding the situations at the schools. This allowed for emergent (developing) matters arising from the interviews, to be explored.</p>
<p>The underlying theoretical lens through which this study will be viewed, provides the researcher with a platform to position the study with regard to what already exists in the field.</p>	<p>The Social Cognitive Theory of Albert Bandura was used in the study to explain that human behaviour is determined by the reciprocal relationship or interaction between cognitive factors, environmental factors and behaviour (Bandura & Walters, 1977).</p>

In essence this meant that I did not know whether or to what extent the schools, the principals or educators were affected by malaria. Instead, I had to speak to the participants themselves and in so doing gain an understanding of their situation. It is only after such an engaging process that one is able to gather possible reasons for the incidence of malaria in the community and its impact on teaching and learning. Understanding this made it easier for me to appreciate the participants telling their stories and describing their reality, which enabled me to have a better understanding of the situation within which they found themselves. Given that an interpretive stance was used for this study, the qualitative research methodology, comprising of a case study approach, individual and semi-structured interviews as well as a research journal was appropriate. It is within this qualitative context that interviews with principals and educators were conducted, in order to understand how schools were managed in an area where malaria was prevalent. The aim of this study was also to discover, whether malaria education and awareness forms part of the aims and objectives of the school management and teaching staff.

3.2.3 Research type: Case study

The essence of a case study is described by Athanasou et al. (2012:75) as being able to explore a “phenomenon that has a bounded system”. In other words, a case study is defined by the “unit of analysis” rather than the topic being investigated and will contribute towards the collection of data within a specific context, from a limited number of participants in a geographical area (Baxter & Jack, 2008:545). In addition, Denscombe (2010:53-54) mentions that the case is a “naturally occurring phenomenon”. This means that the situation being studied existed before the study was embarked upon and will continue to be there once the study has been completed. Another important aspect of this kind of research, is that the case study welcomes and inspires researchers to make use of various research methods, such as observing places, people and events, the ability to collect documents where applicable, at times conducting interviews that are not formal and using questionnaires as well. The research methods selected will obviously depend on the specific needs and conditions of the situation (Denscombe, 2010:54).

Likewise, Yin in Baxter and Jack (2008:545) contend that case studies are most often used in circumstances where the conduct of participants cannot be influenced or when the circumstantial or background conditions are deemed to be important because it is relevant to the issue being studied as well the context. Furthermore, it is important to realise that the choice of a case study is deliberate, as it is selected because of factors that have been identified and explained explicitly (Denscombe, 2010:56). For this study, primary schools in the area of Ha-Makuya (case study), in the Limpopo province were looked at, where the incidence of malaria has not decreased, as was the case in the Mpumalanga and Kwa-Zulu Natal (KZN) provinces.

As a researcher it was important for me to listen carefully to the responses of the participants (principals and educators) and examine their understanding of the material conditions within which the participants find themselves to provide coherent explanations and responses to the research questions. In this context, Crowe et al. (2011:1), refer to the usefulness of a case study where there is a need to “obtain an in-depth appreciation of an issue, event or phenomenon of interest, in its natural real-life context”. In so doing, the case study will also allow the researcher to delve into “relationships and social processes” in a manner that is not afforded by using a survey (Denscombe, 2010:62).

Before conducting my research I had visited the area of Ha-Makuya, which meant I had first-hand experience of the “material conditions” within which these educators and principals found themselves. The original intention was to visit three schools in Ha-Makuya. But arriving in the area to commence with the collection of data, it was discovered that due to a restructuring exercise, by the Limpopo Department of Basic Education, two of the three schools were merged, leaving only two schools to visit. Due to the costs involved with the data collection exercise, the distance to be travelled, as well as the time constraints for all involved, the data collection exercise could not be postponed and the research at the two schools continued. Consequently, it was hoped that the study of the two schools would provide compelling evidence to allow me to gain an understanding of the experiences of the principals and Foundation Phase educators in Ha-Makuya regarding the impact of malaria in an endemic area (Creswell, 2007:477).

This situation also speaks to the adaptability and flexibility of a qualitative study, by referring to the researcher as a “sensitive instrument of observation” and having the ability to “go with the flow” rather than always trying to control the situation (Padgett, 2014b:3). In the same way, case studies can be used to focus on individuals or groups of individuals. This type of approach proved to be very valuable for the kind of situation where one had to engage with the principals and Foundation Phase educators of the above schools to explore their understanding of the impact of malaria on the management of their schools (Cohen et al., 2007; Crowe et al., 2011). In fact, Denscombe (2010:53) points out that a case study is ideal when wanting to study an issue or phenomenon in detail, as alluded to above.

In a particular study undertaken by Baxter and Jack (2008:545), the authors explained that their choice of a case study approach was considered in conjunction with the context of the situation. They maintain that it would have been impossible to have a holistic view of their intended study without the context within which it occurred. Therefore, in my view, by visiting the actual schools in the area of Ha-Makuya and engaging the principals and educators definitely contributed towards obtaining extremely valuable research information for this study. In addition, it illustrated flexibility and showed how well a case study approach could be used to concentrate on one or two sites, therefore making it an ideal way to approach “small-scale research” (Denscombe, 2010:62).

3.3 RESEARCH METHODS

Research methods refer to those techniques used in the data collection process whilst studying a research problem (Kothari, 2004:7-8). In discussing these methods, the role of the researcher will be discussed, as well as looking at who the participants were and explaining why this particular research site was selected. Discussion will also be focused on the gathering of data and the analysis thereof.

3.3.1 The role of the researcher

As a qualitative researcher, it is important to ensure that the ethics of research relationships are proper and honest, as this will contribute towards protecting the integrity of the data and in so doing ensure that the project is beyond reproach (Burnett, 2009:175). Thus, the responsibility of the researcher with regard to promoting and supporting public involvement in research must be taken seriously.

As a researcher in the field, I had to guard against my own assumptions, knowledge and prejudices, especially when trying to explain the context of the school situation in Ha-Makuya and how the principals and educators approached the problem of malaria in the area. In addition, Oliver (2010:122) proposes that a researcher should be familiar with the relevant ethical guidelines and always ensure that participants are treated without prejudice, with fairness, honesty, care and sensitivity. In other words their human dignity should always be respected.

By using a field journal, I recorded my observations, and used the information in writing up the data to challenge my perceptions and assumptions. These notes also contained additional information as to what was observed outside the interview process during the research period. Denscombe (2009:133) suggests that the aim of qualitative research should be to strive to really understand the issue being studied. Therefore as a researcher I had to appreciate and interpret the views of the participants in a manner that was not judgemental. In addition, I had to actively engage with the participants, listen well and probe for further clarification, if necessary. In doing this, I was able to accurately record what the participants were saying, and prevent the recording of inaccurate information. Clearly, I was not the expert. The support and co-operation of the participants was important and necessary, as it contributed to the collection of the required knowledge and information on the research topic.

3.3.2 Participants and research site

The Limpopo province has been identified as one of the three malaria-endemic provinces in South Africa, as well as the province that contributed the largest number of malaria cases in the country (Gerritsen et al., 2008; Brooks & Abney, 2013; Moonasar & Blumberg, 2013; National Department of Health, 2016). Thus, the research site is located within the province of Limpopo, in the Vhembe district – in a village known as Ha-Makuya. The Vhembe District Municipality is a largely rural area situated in the northern area of the Limpopo province. It borders on Zimbabwe in the north, Botswana in the west, the Kruger National Park and Mopani District in the south east, as well as Mozambique in the east. This study aimed to explore the impact of malaria on Foundation Phase learning and teaching from the perspective of the principals and educators at two schools in the area. Therefore the selection of Primary Schools in the Ha-Makuya area was prudent.

At the same time, I was involved with observing the interview with two healthcare workers at the local clinic in Ha-Makuya, to find out what the relationship was between the local clinic and the schools. Furthermore, I also assisted with an interview conducted with an education official at the local education circuit office. It must be noted that the main focus for the researcher were the interviews conducted with the principals and educators. The principals and educators were the most important source of information in this study. The information gleaned from these participants provided insight into the research questions as the principals and educators were well suited to provide this information. Ultimately, it was their prime responsibility to ensure that their schools were managed well in an area that was prone to malaria. These participants were therefore deemed suitable to provide the researcher with the information required. Because the object of this research study was known, it was quite logical to make use of a purposive sampling strategy.

Similarly, Padgett (2014b:8) explains that qualitative researchers prefer to use purposive sampling as it is considered to be a “deliberate process” of selecting those participants who will deliver the required data. With regard to purposive sampling, Denzin and Lincoln in Strydom et al. (2002:334) also indicate that qualitative researchers identify those “individuals, groups or settings” where the issue being studied is most likely to be found. Because the research issue, for this qualitative study had to be investigated thoroughly, it was practical to work with small samples. As discussed previously, only two primary schools were selected for the research site. In one school, a principal and two educators were available. In the other school, a principal and only one educator were available to be interviewed.

Ritchie et al. (2014a:153) hold the view that samples selected for a qualitative study are usually small. The reason for this is that it will provide a “comprehensive investigation of the incidences under investigation”. This view is also supported by Miles and Huberman in Padgett (2014b), who wrote that “qualitative sampling is done for conceptual and theoretical reasons, not to represent a larger universe”. An added reason for the selection of these primary schools, principals and Foundation Phase educators, was because this study was conducted under the auspices of the Department of Early Childhood Education and the University of Pretoria Institute for Sustainable Malaria Control.

3.3.3 Data collection

The objective of this study was to gather information to answer the stated research questions. In order to do this a process of data collection had to be undertaken. Merriam in Seabi (2012:88), defines data as “bits and pieces of information in the environment”. The instruments used to assemble these “bits and pieces of information” were the interviews conducted with the principals, educators, healthcare workers and an education official. Information was also gathered by the perusal of documents and the collection of notes composed whilst in the field.

3.3.3.1 Interviews

Padgett (2014a:2), considers “high-quality” interviews to be the absolute accomplishment of all qualitative studies. Likewise, Janesick (2011:99), refers to “tried-and-true, face-to-face interviews”. The author goes on to mention that the “most rewarding part of any qualitative research project is interviewing”. The reason for this is that interviews are considered to form a huge part of qualitative research. By conducting these interviews the researcher is left with “rich and descriptive” data (Janesick, 2011:100). Interviews can also be much more useful in capturing information than a questionnaire. The reason for this is that participants would prefer to provide much more detail when speaking about their experiences rather than writing something down. In addition to having the opportunity to question the participants, the researcher will be able to think about the answers provided and become acquainted with the data collected (Howell, 2013:7-8)

(i) Semi-structured individual interviews

“Interviewing is a meeting of two persons to exchange information and ideas through questions and responses, resulting in communication and joint construction of meaning about a particular topic” (Janesick, 2011:100). With regard to qualitative studies, interviews are considered to be quite significant when it comes to the collection of data. Seabi (2012:89) indicates that using interviews provides a way to discover the “ideas, beliefs, views and opinions” of the participants, especially when the objective is to obtain “rich and descriptive information. Padgett (2014a:2-6) suggests that informal, focus group interviews as well as semi-structured individual interviews can be conducted with participants depending on the context of the study. Informal interviews can be conducted whilst doing field work. They are largely spontaneous and do not require any prepared questions.

On the other hand, focus group interviews are applicable where groups of between seven and 10 people exist and they usually have similar backgrounds (Padgett, 2014a:2-6). With regard to this particular study, the informal interview and the focus group interviews were not appropriate as specific appointments had to be made before the time and the participants concerned were never more than one or two persons. Besides the preparation of questions for the principals and educators, appointments were set up via a community organisation that liaised with the Vhembe district Department of Basic Education and individual schools on my behalf. These appointments were personally confirmed by me on the first day in the field, with each of the principals of the schools that were to be visited.

Accordingly, the semi-structured individual interview was appropriate to be used in this particular study, as a list of prepared questions was required and the interviews had to take place within a specific timeframe at each school. However, a rigid structure was not required, as there had to be flexibility to allow for occasional probing if the answers were inadequate or not forthcoming, as well as to allow the participants to engage with the researcher if necessary. This style of interviewing is usually considered to be pliable, not entirely fixed and more of an informal style of engagement (Seabi, 2012:89). This view is supported by Oliver (2010:106) who maintains that these types of interviews provide the researcher with much flexibility and is extremely useful in situations where the participants have difficulty in answering questions or where only partial answers are provided.

In fact, this means that the researcher is able to ask follow-up questions, if the responses provided seem to be inadequate. Similarly, Howell (2013:9-10) highlights the fact that these semi-structured interviews offer a vibrant exchange of ideas based on open-ended questions or areas of interest of the researcher, with probes that are intended to stimulate discussion and explanation regarding the research questions. Even though these interviews were treated as semi-structured interviews, qualitative research still requires that structure and process is present whilst these interviews are being conducted. As mentioned previously, a prepared list of questions was used for the interviews (see Appendix 8 and 9). It was very clear that these interviews enabled me to discover more about the knowledge, experiences and opinions of the principals and educators at the selected schools (Yeo et al., 2014:246).

Table 3.2 lists important elements to consider when successful interviews are conducted (Padgett, 2014a:6)

Table: 3.2: Elements to consider when conducting interviews

Important elements	How it was incorporated into this study.
<p>Participants should be the best qualified to provide the required data</p>	<p>Foundation Phase educators were selected as they were in regular contact with the age group of learners who were the most vulnerable to malaria. I needed to understand how malaria impacted on teaching and learning from the perspective of the educators who could speak from their own experience. The principals were involved with the management of the primary schools. The healthcare workers and the district education official provided information as to their involvement in malaria education and awareness.</p>
<p>The reason for (aim of) for the interview should be provided to the participants.</p>	<p>Letters stating the reason for the research project were sent to each of the schools, the educators and principals. At the start of each interview, I once again explained why it was necessary to undertake this research project and why it was necessary to include them as participants. The participants were also informed that they were in no way obligated to participate in the study and could withdraw their participation at any time.</p>



<p>Make sure that the questioning plan being used has been well prepared.</p>	<p>It was important to ensure that participants were adequately engaged.</p> <p>In the case of yes or no answers, an attempt was made to prompt the participants to answer questions more fully. Following the questioning plan also allowed participants to share their specific malaria experiences, without me coming across as patronising.</p>
<p>Sequencing of questions is very important</p>	<p>The first set of questions was used to establish a rapport between myself and the educators and the principals. It was also done to find out more about their history at that particular school and how they viewed their own role. These questions, were non-threatening and set the participants at ease for the other questions that would follow.</p>
<p>Location of the interviews</p>	<p>Where to conduct the interview was always a concern as I did not know what to expect. The classroom and the principal's office offered some measure of privacy and quiet – not altogether though. The observation made with regard to the interview location was that there was such a big difference between schools that were located near the city centre and those located in the far rural areas. In the end the interviews were conducted in the respective classrooms of the educators and office of the principals.</p>

<p>Listening intently to the responses of the participants.</p>	<p>It was very important to really listen to what the participants were saying to me, without interrupting or trying to control the interview; or even trying to be judgemental of the answers that I was receiving. Respect for the participants was paramount. I had to learn to accept that pauses during the interview were normal and being patient was very important.</p>
<p>Observation and taking notes</p>	<p>Observations are largely about the surrounding area and what is not provided by the participant. Taking of notes should be done without distracting the participant.</p>
<p>Ensure that enough data has been gathered.</p>	<p>I had to make sure that I had collected enough data regarding how malaria was dealt with at each school. I also had to keep in mind that I could only get as much data as the participants were willing to share or show me.</p>

3.3.3.2 Document analysis

An additional rich source of information would have been the National or Provincial Department of Basic Education's policies or the particular school's policies. Analysing documents is invaluable to qualitative researchers as they provide another means of obtaining information (Ritchie et al., 2014b:96-98). Likewise, Howell (2013:18) describes the fact that even though information and stories relating to values and beliefs of a qualitative nature can be extremely valuable to the researcher, there should be an awareness that it could also lead to problems with clarification and truthfulness at times. During the planning phase of the study, it was assumed that policies and other relevant literature would be available at the schools, as these are documents provided by the Provincial and National Department of Basic Education.

In addition, I also assumed that the management of schools in conjunction with the educators would have documents or policies regulating the way in which they manage the school. However, during the course of the research it was not possible to view any of these documents at school level, as there were none. One of the documents that was scrutinised during the initial visit, by the researchers to the research area was the Grade R to 3 Curriculum and Assessment Policy Statement. In the Life Skills curriculum, topics such as water, my Community, homes, animals and creatures that live in water, life at night, health protection, insects and pollution are presented to learners (Department of Basic Education, 2011:1-68). Yet any one of these topics could be used to introduce malaria formally into the curriculum. In the absence of such formal content, educators would have to take the initiative and be extremely creative about including the issue of malaria in any of these lesson topics. In discussions with the principals and educators, it was obvious that there was no special effort on their part to include malaria information in the curriculum.

Discussions with other researchers during the research period, indicated that there was consensus in the community that the Department of Health was largely responsible for malaria awareness, through its healthcare workers. In addition to providing malaria education, these healthcare workers were also involved in community meetings.

3.3.3.3 Field notes

Field notes are usually the additional notes recorded in a journal during the period of research. These notes were made during the research period whilst driving to each school. The notes included the observations made whilst moving through the area in which the schools were situated, the actual classroom settings that impacted on me, as well as the daily activities of community members. It also provided me with an opportunity to jot down the progress of the research process, such as problems encountered and the changes that were made, if any. These observations of the research site were extremely important as it provided colour for the story that was going to be told. These field notes and observations also provided me with an opportunity to record those areas of the interview that might have been difficult or list any issues or themes that might have arisen from outside the interview process (Ritchie et al., 2014b:238).

3.4 DATA ANALYSIS

As indicated earlier, this study was conducted through the lens of a qualitative approach and the intention was to provide the perspectives of the participants in terms of how they saw “their world” in a descriptive manner, providing as much information as possible. The use of this approach also produced data that reflected the stories as told by the participants in their own words. These spoken words allowed me to understand the beliefs and values that the participants attached to their experience of malaria, how they interpreted the effect, if any, on their everyday lives, their working lives and on the manner in which their schools were managed. Qualitative data analysis refers to the manner in which data is organised into categories and the patterns that are identified within those categories. In other words, when data is analysed the process of continuous grouping and revising of the collected data is extremely important.

The researcher is required to dig deep into the data in order to find the different perspectives that will provide information to describe the actual topic under discussion (Crowe et al., 2011:3). The data was collected over a period of three days. The rest of the time was spent travelling to the research site and between the relevant schools. It was important that the recorded interviews were transcribed on the same day to ensure that information gathered was not lost or forgotten. Transcriptions of the data was done verbatim, from the digital recordings, to ensure that important features of the conversations were maintained. The transcripts were taken back to the schools the following day and the participants were given an opportunity to read through it and provide additional input, if necessary. The participants signed the documents and agreed that it reflected the views as expressed to the researcher (Creswell, 2007:243-266).

Patton and Cochran (2002:453) describe the analysis of the collected data as a process whereby qualitative data is reduced into smaller bits and made sense of by grouping similar data together. This was done in an attempt to identify important meanings that appear regularly. It is imperative to understand that this process does much more than only find objective content from texts in order to scrutinise meanings, themes and patterns that may be evident or hidden in the text. It allows the researchers to understand social reality in a subjective, yet scientific manner.

This process is most often used to analyse interview transcripts in order to discover information related to behaviours and thoughts identified during the interview process. In the same vein Bogdan and Biklen (1992:153) explain that the aim of analysing data is to make the actual data more manageable. Data should be analysed and interpreted in an orderly manner and in order to do this, the transcribed interviews and interview notes, as well as my field journal will be used to obtain a comprehensive idea of the data collected or to add information. As alluded to above, transcripts of the interviews will be read and re-read to detect any underlying meanings, which will then be identified and coded. Corbin and Strauss (2012:2) explain that “coding is the verb and codes are the names given to the concepts derived through coding”. This is done by organising the collected data into categories and interpreting the data by searching for recurring patterns to determine the importance of relevant information. For example, words, phrases or events that seem alike can be categorised into particular groups.

The main categories identified for this particular study were knowledge and awareness of malaria; support regarding absenteeism and the consequences thereof; information regarding the use of the curriculum in malaria awareness and the socioeconomic situation in the community and how it impacted malaria awareness. Reading and re-reading the transcripts assisted in adding information to these themes, as well as identifying phrases or comments that were not very clear (Corbin & Strauss, 2012:1-22). The various themes identified were broadly based on information gathered in Chapter 2 (Theoretical perspectives on malaria), as well as by looking at the data collected and grouping it into the categories and themes. These were the categories that would provide insight into the impact of malaria on the primary schools visited in Ha-Makuya.

The four broad themes identified and discussed in Chapter 4, were the following:

- Knowledge and awareness
- Support
- Curriculum
- Community

These themes are in fact linked to the main theme of the actual study. Eventually these themes will assist in providing answers to the research questions.

The resulting information will provide a broad *understanding* of how malaria impacts on teaching and learning in two primary schools within the Ha-Makuya area, rather than interpreting the themes from my *perspective*, as the researcher (Maree, 2012:228). Quotations were used for the purposes of emphasis and clarification. Thus, some of the statements made by the participants were quoted in the discussion of the findings. Including these views and opinions indicate that as the researcher, I was open to different points of view and the ability to explore, understand and represent the information in an objective manner. This will also assist the reader to assess the authenticity of the study (Fossey, Harvey, McDermott & Davidson, 2002:731).

3.5. Trustworthiness

A trustworthy study can be identified by means of a clear and logical research process which also indicates how the researcher will deal with his or her own assumptions and prejudices (Butler-Kisber, 2010:15). As a researcher, I was very aware that my experiences, attitudes, perceptions and values could influence the findings of my study. Therefore, to ensure that the findings of my study are of value to the reader, it should assuredly reveal that which the research set out to explore. Corbin and Strauss (2012:21) on the other hand, explain that “bias and assumptions’ are so entrenched and “cultural in nature” that researchers are oblivious to the effect it has on their analysis of the research situation. The authors also suggest that the use of a journal, for jotting down thoughts and emotions experienced during the research period is a very good idea. In order for the findings of a particular study to reflect trustworthiness as discussed here, four aspects should be considered when the trustworthiness of a study has to be evaluated. These aspects are credibility (value and believability of findings), dependability (stability of the data), confirmability (accuracy of the data) and transferability (applicability of findings to a similar setting) (Denscombe, 2010:297-300) .

3.5.1 Credibility

Triangulation through more than one source of data could be used to boost the credibility (the value and believability of the findings) of a study (Fabio & Maree, 2012:141). This in effect means that data from various sources should be used to corroborate or clarify aspects of the study being undertaken. For the purposes of this particular study, more than one method of collecting data was employed.

These methods consisted of a case study, which was represented by the two schools; individual interviews which were used to interact with the participants; and documents which were perused to obtain additional information or to support the data that was collected. In order to limit the ambiguity of reported speech, the interviews were recorded and transcribed. Clearly, more than one method of collecting data served to reinforce the credibility of this study (Strydom et al., 2002:352).

3.5.2 Dependability

The focus of a research study should aim to explain how different groups view what they experience and how they give meaning to these experiences (Oliver, 2010-119). Due to the fact that more than one interpretation can be provided for any particular situation, Cohen and Morrison (2004:120) explain that dependability raises the issue of “respondent validation”. They suggest that researchers take their findings back to the participants to confirm whether they have correctly interpreted their responses. In this particular study, this was done by allowing the participants to read, provide comments and verify a transcribed version of the interview.

3.5.3 Transferability

Denscombe (2010:298) explains that transferability has to do with whether the research findings of this particular study can be applied to or generalised to other settings or whether it is only applicable to one particular setting. In fact, a lack of transferability could also contribute to the weakness of a qualitative study (Strydom et al., 2002:352). A lack of transferability could be overcome when the researcher makes use of the theoretical framework underpinning the study and provides an explanation of the data collection and data analysis processes. Once this has been done, the burden will be on other researchers, conducting research within the same constraints, to conclude whether or not the research described above can be generalised or transferred to another setting. The researcher will however, have the responsibility of ensuring the richness of the data to allow the readers and users of the research findings to pronounce on transferability (Cohen et al., 2007:137). The research findings of this study could be transferred to another setting. However, this would only be possible if the intended setting is similar with regard to the incidence of malaria, the socio-economic conditions at the schools and in the community.

3.5.4 Confirmability

Confirmability refers to the “objectivity of the data and the absence of research error results” (Athanasou et al., 2012:141). The results of a study can be considered to be confirmable if it has been provided by the participants and material conditions of the research environment, instead of only from the views expressed by the researcher.

The use of “peer debriefings” could be useful to “verify the confirmability” or accuracy of the data. This means that an external researcher who has not been part of the study could be invited to inspect whether the methods and general processes applied to the study were clear and described in detail to confirm that the data has been verified (Athanasou et al., 2012:141). In addition, external examiners will also contribute towards the confirmability of this study by evaluating it. The neutrality of the study could also be indicated by means of an audit trail of raw data, analysis notes, notes of the research process, personal journal entries, as well as the initial report. These are usually items that are collected during the period of the study (Denscombe, 2010:300).

The findings of this specific study may not be beneficial to a larger population as the sample is rather small and participants were purposefully selected. The reasons for undertaking the study was to reflect on practices in the local primary schools regarding malaria; understanding the perceptions and attitudes of school staff towards malaria and their treatment-seeking behaviour. In addition, the study sought to contribute towards raising the awareness of malaria and providing insight into the challenges that schools face in dealing with malaria. This information could be useful to schools, the Department of Health, as well as the Limpopo Department of Basic Education.

3.6 ETHICAL CONSIDERATIONS

Applications for ethics approval to conduct this study were made to the Ethics Committees of the Faculty of Education (reference number: EC 15/05/01) and the Faculty of Health Sciences (reference number: 203/2015) at the University of Pretoria. An application was also made to the National Health Research Database (reference number LP_2015RP33_292) (see Appendices 1-3). In addition, the Limpopo Department of Basic Education (see Appendix 4) and the Vhembe district Department of Basic Education (see Appendix 5) also provided permission to visit schools to conduct the study.

The relevant participants also gave their informed consent (see Appendix 6). A letter was sent to the Tshulu Trust outlining their involvement in the study with regard to their services (see Appendix 7). The assistance of the Tshulu Trust was sought with regard to the facilitation of transport, guiding and real-time interpreting services. These interpreting services were quite important as many people in Vhembe speak Tshivenda, the most common language in the area. Even though the principals and educators were able to converse in English, there was always the possibility that language could act as a social barrier and impede research. Therefore the assistance of a gatekeeper organisation was very useful. Lee in Cohen et al. (2007:123) suggests that in order for researchers to gain social access to a research area, the cultivation of caring and trusting relationships are important. It is within this context that the employees of the Tshulu Trust organisation provided assistance in introducing the researchers to the respective participants (principals and educators), as well as assisting with translations as required. One day before the commencement of the actual interviews, each one of the schools was visited in order to meet the principal and to confirm the appointments for the following day.

Even though, I entered the research space with my own values and assumptions, as a researcher, I was aware that I could not be disparaging whilst addressing the research topic with the participants. My role had to reflect that of an outsider and I needed to be conscious of the fact that the “social nature of research” reflected the standards, expectations and traditions of others all the time (Butler-Kisber, 2010:13). My role was focused on gaining the confidence of the relevant participants and then attempting to provide an understanding of what they had shared in a clear and ethical manner.

This sentiment is echoed by Oliver (2010:123) who reminds us that as researchers we should be able to explain the purpose of the actual study in a transparent and unbiased manner. In accomplishing this, the intended participants would be in a position to make an informed choice as to participate in the study or not. My intention was to ensure that the contributions of the participants were not misinterpreted or distorted in any way. In the letter of consent that the participants signed, it was explained that they could withdraw from the study at any time; that there would be no harm or risk to their well-being for agreeing to participate in the study; that their responses would also remain confidential and would not be shared without their permission.

The information provided in this chapter illustrated the qualitative research process and methods that were used to collect the data in order to understand the impact of malaria on teaching and learning in the Foundation Phase at two primary schools, in the area of Ha-Makuya, from the perspective of the principals and educators. This discussion also referred to the research site and purposive sampling, which was discussed in detail. The interviews were also discussed, as well as what the analysis of the data entailed. Furthermore, trustworthiness, dependability, transferability and confirmability were discussed with regard to the validity of the study. An explanation regarding ethical considerations concluded the chapter.

The next chapter will deal with the analysis of the collected data. It will provide a comprehensive description of the findings from the interviews conducted with the principals and educators, as well what was garnered from the interviews with the healthcare workers and education official.



CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

This chapter will present the findings from the analysis of the data collected by conducting interviews at two primary schools within the Mutale municipality. Firstly, I will commence with an anecdotal overview of the research process. This discussion will include an account of how the fieldwork was conducted; a brief introduction to the area within which the interviews took place and a brief demographic sketch of each school and the participants. Thereafter, an analysis based on the broad themes which emerged from the interview data will be presented in the form of a table and will be discussed at length.

4.2 RESEARCH PROCESS

This study was conducted in the Mutale local municipality located within the Vhembe district in Limpopo province. The Municipal Directory (2014:1) locates the Mutale local municipality in the far north-eastern region of the Limpopo province. This area is quite close to the borders of Zimbabwe in the north and Mozambique in the east. The eastern border with Mozambique can easily be reached through the Kruger National Park. The Mutale municipality serves largely rural communities. The National Department of Health (2016:10) confirms that Limpopo is one of the most malaria-endemic provinces in South Africa and states that during the 2014 and 2015 rainy season, the province had to deal with more than 8000 cases of malaria. Therefore, this study will focus on the effects of malaria on Foundation Phase teaching and learning from the perspective of selected educators and principals in the area. A qualitative approach allowed me to use interviews, field notes, recordings and conversations, to make sense of how malaria impacted upon Foundation Phase teaching and learning (Creswell, 2013:22). Employing these techniques allowed me to engage with the participants in order to find out what they knew about malaria in the area, as well as how they understood the impact of malaria on their school lives and whether they made use of the curriculum in any way to increase the awareness of malaria in their own schools (see section 3.3.3).

Webster, Lewis and Brown (2014:145-146) subscribe to the view that unreasonable demands should not be made on participants. The involvement of participants should be based on informed consent, which usually results in voluntary participation. Equally important is the fact that participants should be made aware and be assured that the confidentiality of their contributions and their anonymity would be respected at all times. The data that is collected will be influenced by “cultural contexts” and the expertise and techniques used by the researcher. This makes informed consent an important issue. It means that adequate information should be provided to prospective participants to enable them to make an informed decision as to whether they will consent to participate in the study or not (Webster et al., 2014:145-146). For this particular study, a letter containing the following information was provided to the prospective participants:

- the purpose of the research and its objectives
- the organisation and the individual conducting the study
- that participation was voluntary and could be withdrawn at any time during the research period
- what the actual participation would involve and the duration thereof,
- that the data collected would remain confidential and that anonymity of participants would be respected, as well as,
- the fact that participation would not be rewarded in any way (see Appendix 8).

The distribution of these letters was managed by the Tshulu Trust, a non-governmental organisation (NGO). This organisation performed the role of a “gatekeeper” and assisted in creating the initial contact with the principals and educators of each school, as well as the healthcare workers. The reason for enlisting the assistance of this NGO was that during a previous visit to the study area, the group of researchers was introduced to this organisation. It was subsequently discovered that the staff in this organisation knew the area and schools very well through their work in the community. In addition, they offered the services of gatekeeper functions to various prospective researchers from South African and international tertiary institutions.

Besides delivering the letters of consent to the various schools, the NGO also provided interpreting, transport and guiding services in the area (see section 3.6). As alluded to earlier, these services were integral to the successful collection of data in the area. It is worthwhile mentioning that Webster et al. (2014:145-146) raise a concern about gatekeepers assuming the responsibility for making decisions regarding the inclusion of certain participants, on behalf of researchers. However, this was not the case in this study. In terms of selecting schools, the Provincial Department of Basic Education was approached, firstly to request permission to conduct the research and secondly, to request which schools could be approached. A list of schools was sent to the supervisor, who then informed me about the list of schools that could be visited. In addition, the Vhembe district Department of Basic Education also provided permission for the research team to visit the schools (see section 3.6). Thus, the gatekeepers were provided with an explicit list of schools where the letters had to be delivered.

The real-time interpreting service was extremely helpful, especially as the educators were not comfortable in answering the questions in English. Transport and guiding services were welcomed in light of the vast rural area and the extremely bad roads that had to be navigated. Approximately, two weeks before the research commenced, the NGO workers delivered the letters to the prospective participants. This set the scene for me to visit the schools before the actual collection of data commenced. Each school was approached and I was introduced to the principal and educators. The contents of the letters were once again explained and discussed comprehensively. The participants agreed to participate and the letters were signed (see Appendix 6). Thereafter, specific times were scheduled for the various interviews.

It was also during this time that I was informed that two of the intended three schools had been combined by the Department of Basic Education. This meant that only two schools were available for the research project. A decision, in collaboration with the supervisors, was made to continue the research process by visiting Zanadu Primary School and the newly combined Sunshine Primary School. Zanadu Primary School and the newly combined Sunshine Primary School was situated approximately forty-five kilometres apart.

Travelling to the schools, especially Zanadu Primary School, was extremely challenging. The road to the schools was extremely bad, bumpy, gravelly, uneven and extremely rocky in most places.

Before engaging in a discussion of these findings, information regarding the participants is presented in table 4.1 (see section 4.2).

Table 4.1: Participants

Site	Participants	
Sunshine Primary School	Principal: Mr. Sunny	Educators: Ms. Susan and Ms. Rachel
Zanadu Primary School	Principal: Mr. Zinedane	Educator: Ms. Rose

The interviews for this particular study were conducted with Mr. Zinedane, the Principal and one Foundation Phase educator, Ms. Rose at Zanadu Primary School and Mr. Sunny, the Principal and two educators, Ms. Susan and Ms. Rachel at Sunshine Primary School in the Mutale municipality, situated in the Vhembe district of Limpopo. The objectives of the interviews were to discover whether the incidence of malaria in an endemic area impacts on teaching and learning, from the perspective of the educator and principal; also to find out if malaria influenced the school curriculum in any way, and to find out how the current school curriculum, could be used to promote malaria education. The intention was also to discover and understand the knowledge, beliefs, attitudes and treatment-seeking behaviour of the school community. Throughout the study the participants remained anonymous, which contributed to the trustworthiness and confidentiality of the data. As explained in Chapter 3 (see section 3.5.2), the participants were provided with an opportunity to verify the accuracy of the transcripts after each interview. This was intended to add value to the trustworthiness of this study (see section 3.5)

A profile of Sunshine Primary School

Mr. Sunny, the Principal has held the position of Head of Department of Mathematics at Sunshine Primary School since 2006. He currently holds the position of Acting Principal. He is also an active educator at the school and teaches Mathematics to Grade 4 learners. At the end of 2015, Sunshine Primary was combined with another local school and has a current enrolment of 238 learners from Grades 1 to 7.

Mr. Sunny explained that his school was also a beneficiary of the National Schools Feeding Scheme, meaning that all learners received a cooked meal every school day. These meals were provided by a permanent team of ladies known as the “Cooking Team”. In addition, the Department of Basic Education categorised this school as falling within Quintiles 1, 2 and 3, making it a “no-fee paying” school. This meant that parents were not required to pay the school fees of their children. The indicators used to make this determination are income, the current unemployment rate and educational levels of the community within which the school is located. In addition, Sunshine Primary School is a Section 21 school, which means that the school manages its own finances and the School Governing Body (SGB) played an important role in ensuring that the finances of the school were employed in an ethical manner for the upliftment of the school and for the benefit of the learners. According to Modisaotsile (2012:4), the role of SGB’s is to ensure that schools are administered in a manner that safeguards the best interests of all the stakeholders.

The interview with Mr. Sunny took place in a classroom, which is designated as his office. His office is also used as a storeroom for school books, a photocopy area, a computer station for educators, and a refrigerator. It was a very busy area, but the only place available to conduct an interview. Mr. Sunny was very pleased to participate in the interview. It appeared that transport was a key concern for him as the principal. He explained that the educators did not travel to school in their own vehicles. They left their vehicles near Thohoyandou and travelled to school by means of the school bus, which was available from six in the morning and then again at two in the afternoon. The major reason for this was that the roads were in a particularly bad state. The roads were not paved, were mainly gravel, very hilly, rocky, bumpy and very treacherous to travel on in wet weather.

During the interview period, travelling up and down these roads, was a major challenge, which was then compounded by the construction of a new road. Ms. Susan and Ms. Rachel were the two Foundation Phase educators at Sunshine Primary School. These educators could converse in English and had been teaching at the school for more than 10 years. During the interview it appeared that Ms. Rachel knew much more about malaria than Ms. Susan. As they became more relaxed towards the end of the interview, they answered the questions much more enthusiastically.

A profile of Zanadu Primary School

Zanadu Primary School, was a Junior Primary School, also categorised as a “No Fee Paying” school by the Provincial Department of Basic Education. As alluded to above this determination is based on income, the unemployment rate and educational levels of the community within which the school was located. The learners at Zanadu Primary School were also beneficiaries of the school feeding scheme. In 2015, Zanadu Primary School had 32 learners which only allowed for the appointment of a principal. Such a low number of learners did not allow for the appointment of additional teaching staff. At the beginning of 2016, the number of enrolled learners increased to 50, which allowed for the appointment of an additional teacher, but only on a temporary basis. The principal had high hopes that the number of learners would increase, which would then allow the school to acquire additional staff. Mr. Zinedane had been teaching at the school since 1993 and was appointed as acting principal from December 2015. He does not reside in the area where the school is located, but lives in the Thulamela district, where according to his knowledge, malaria was not considered to be a risk.

The second interview at the school was held with the newly appointed educator, Ms. Rose, who was the only other educator at the school at the time. She had been teaching at a private school before taking up the post at Zanadu Primary. She was extremely shy and very hesitant at first to answer questions. The assistance of the interpreter in this instance was extremely helpful as Ms. Rose could then express herself much better in Tshivenda. She did not know much about malaria as she did not live in the area and was not involved in any malaria education at her previous school.



Fig. 4.1: (i) The road travelled by the research team



Fig. 4.1: (ii) The road travelled by the research team

Due to the state of the roads, it was common practice for school staff at both schools to make use of the school bus to travel to and from school and leave their vehicles along the way. The negative effect was that when learners became ill at school, the principal or educators were not able to transport the children to the nearest healthcare facility. Parents were requested to collect their children from the school. Another reason for contacting the parents was that the principals were of the opinion that the parents were more knowledgeable about malaria and other illnesses affecting their children and would know what to do.

4.3 DATA ANALYSIS

This qualitative study was situated within an interpretive paradigm (see section 3.2.1 and 3.2.2) therefore it was appropriate to make use of the inductive approach to analyse the collected data. Burnard, Gill, Stewart, Treasure and Chadwick (2008:429) describe the inductive approach as inclusive and lengthy and most frequently used to analyse qualitative data when not much is known about the phenomenon being studied. The actual data is used to decide on the framework of the analysis. This particular procedure involves the analysis of the transcripts, detecting themes within the data and finding instances of the themes in the text (Burnard et al., 2008:430). In this way the researcher was able to make sense of the collected data, as the interview transcripts, field notes and observations only provide a descriptive account of the study (see section 3.4). On the other hand, according to Pope, Ziebland and Mays (2000:114), a deductive approach is increasingly being used by qualitative researchers, mostly in situations where there are possible participant responses. Unlike the inductive approach, the deductive approach allows researchers to impose their own structure or theories on the data and then to use those theories or structure to analyse the interview transcripts.

The aim of my study was to focus on the effect of malaria on Foundation Phase teaching and learning from the perspective of the educators and principals in the selected area (see section 1.3). From the interview transcripts, documents and field notes, data was gathered by clustering events, actions, opinions, particular words and sentiments that were expressed by the participants. The data collected allowed the uniqueness of each participant to be highlighted, as well as identifying themes common to all participants.

More importantly, the descriptive accounts were provided from the perspectives of the participants themselves (Ritchie et al., 2014b:30). It is for this reason that the inductive approach was engaged for this study as it assisted in discovering the broad themes listed in Table 4.2 by means of an intensive process of repeatedly combing the data to discover more themes and categories (Denscombe, 2010:284-285).

An overview of the themes and categories used to position the findings of the study is provided in the following table which will be followed by a discussion of these themes and categories.

Table 4.2: Themes and categories for this study

	Emerging Themes	Categories
4.3.1.	Knowledge and awareness	<ul style="list-style-type: none"> • Malaria, symptoms, deaths • Treatment-seeking behavior • Interventions/Resources • Collaboration between schools, educators and principals in the area • Collaboration between the Department of Basic Education and the Department of Health
4.3.2	Support	<ul style="list-style-type: none"> • Principals and educators • Learners • Parents • Healthcare facilities
4.3.3	Curriculum	<ul style="list-style-type: none"> • Policies • Initiatives by educators/principal • Collaboration with others • Knowledge of curriculum
4.3.4	Community	<ul style="list-style-type: none"> • Impact of unemployment/fees/feeding scheme • Relationship between community and schools • Area infrastructure/schools/homes

4.3.1 Knowledge and awareness

This theme is important as the schools are located in the area of Vhembe, where the incidence of malaria is considered to be quite high. The National Department of Health Strategic Plan (2016-2020), regarding the MOSASWA Initiative for malaria elimination in southern Mozambique, South Africa and Swaziland, mentions the special situation of Limpopo. As a province, Limpopo has been identified as the most endemic South African province, with the districts of Mopani and Vhembe presenting more malaria cases than those in the Mpumalanga province and in the province of Kwazulu-Natal (National Department of Health, 2016). The areas of Mutale and Masisi, where the abovementioned schools are located, can be found within the Vhembe district as indicated in the map below. Given the endemic nature of malaria in this area, it was important to gauge the kind of information, knowledge and awareness that was available in this particular school community regarding malaria as a disease.

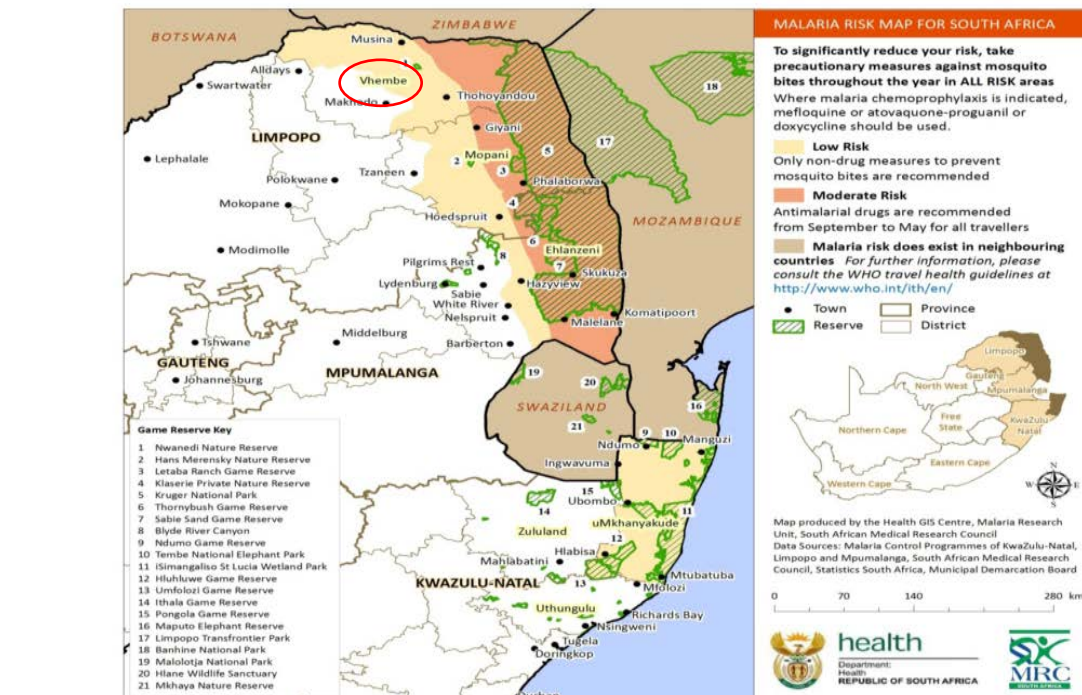


Fig 4.3: Malaria risk map for South Africa (Jooste, 2015b:22)

In addition, it was essential to discover whether the school community was knowledgeable about efforts to promote malaria awareness and education as well as the interventions available in the event that staff or learners contracted malaria. It was equally important to discover whether the managers of schools and educators made use of the curriculum to further increase the awareness of malaria. This study also sought to identify the kind of collaboration that existed between government departments regarding malaria awareness and any best practices in the management of malaria cases. During the interviews, questions regarding malaria, its symptoms and effects were put to the principals. Both principals clearly indicated that they were aware of malaria in the area. They knew that they were living and teaching in an area that was considered to be high-risk for malaria. At Sunshine Primary, when teachers commenced their teaching career at the school, they were informed about the symptoms of malaria and that they were teaching in a high-risk malaria area.

“Mostly, we do tell the teachers about the symptoms of malaria.”

(Principal: Zanadu Primary School)

“Here at school, some of the children or the learners, you see the parents they can come and say that this learner will have a cold, a fever. Then when the symptoms of that... I don't know more about the malaria myself. I did not get... am not affected by malaria. From when I came here, was not affected. But I know the area is high-risk for malaria”. (Principal: Zanadu Primary School)

“What I know is about the symptoms and that it is a disease that kills”. (Principal: Sunshine Primary School)

Mr. Sunny, the principal of Sunshine Primary School, explained that he had suffered a bout of malaria. For this he was treated at the local hospital and was extremely impressed with the kind of care that he received. He also indicated that the nursing staff was knowledgeable and very caring, he was also contacted by the hospital staff after he had been discharged and this really made an impression on him. Both principals acknowledged that what they knew about malaria was negligible. They revealed that when students presented with headaches or flu-like symptoms, they contacted the parents. In some instances, an educator or fellow learner would accompany the ill learner to the clinic.

“Depending on the seriousness of the situation, sometimes we do not have contact numbers for the parents, we will send the learner to the clinic with a teacher or another learner”. (Principal: Sunshine Primary School)

When asked why parents were called, the principals said that they trusted the parents to have the knowledge and experience to know exactly what to do with their children. Another reason for contacting parents was that school staff did not always have transport at the school to take the learners to the local clinic.

“To help learners to prevent malaria. At school, we don’t have any, what I mean is that the parents are the only ones who knows about their children. Only parents know if their child has malaria symptoms. They say that the child has malaria, has symptoms of malaria. At school we don’t have something”. (Principal: Sunshine Primary School)

“What I did, what I do is when I see that child is sick, I can call the parents of the learners, because I do have the cell numbers of the parents and tell them their child is not well. They will come and fetch the learner. But it is my responsibility, I cannot come with my car. The Department wants some car, some schools have a car, it belongs to the school, if the child is sick, and they take the child to the clinic. Responsibility of the principal to see that the learner is cared for or tell the learner to go home. Sometimes I can be here alone, like yesterday, so I can't go to the clinic and leave the learners alone. Representatives of the Department will come around and see that no one is here”. (Principal: Zanadu Primary School)

Mr. Zinedane did admit that it was only when the parents provided information regarding the malaria symptoms to him that he was able to recognise those symptoms in a learner when approached. If this happened, the parents were always his first contact. It was also quite clear that there was an understanding and acceptance that the principal and educators were not able to provide any type of medical care to learners. In fact during a recent burglary, a basic first aid kit was stolen, as well as the cupboard in which it was kept.

It was also extremely difficult and time consuming for the school staff to travel from the school to the local clinic during the middle of the day. If parents did not have vehicles and a vehicle was not available at the school, parents were left to the mercy of good Samaritans along the road. This, I personally witnessed whilst travelling to and from the schools. The interpreters gave many people lifts as we passed them along the way. There was however, no guarantee that any vehicle would be passing during the middle of the day.

Both principals were aware that the local clinic was the hub of activity regarding malaria information and that medical assistance would be readily available. They unanimously indicated that they did not provide any malaria awareness programmes, even though they were fully aware of the dangers of malaria. The one constant acknowledgement from both schools was the fact that malaria awareness and malaria education programmes was the responsibility of the Department of Health. Although welcomed, the principals felt affronted when they were not informed beforehand about the visits from the healthcare workers. The healthcare workers from the local clinic visited the schools three to four times a year to speak to the learners. It was emphasised that this was not a coordinated activity. The Department of Health or the healthcare workers from the local clinic did not make any formal arrangements with the various schools. The education official interviewed, emphasised this fact when questioned about the fact that the educators and principals rely on the Department of Health for information regarding malaria.

“Yes, of course. In fact, what is happening, they don't even contact me. They just go straight to schools. They have direct contact with the schools”. (District Education Official)

“Yes, no arrangements, sometimes we receive letters from the Health Department that they are going to visit schools, especially at the beginning at the year.

It might be once, sometimes there is no communication, they just go straight to the schools. In fact, they have not shown us their programmes”. (District Education Official)

However, the education official did admit that there were times when the Department of Health sent a circular or letter informing the Department of Basic Education that the local schools would be visited. This was not forwarded to the schools.

The reasons provided for the visits were for purposes of malaria awareness or to “counsel learners about HIV and other related diseases.” When the healthcare workers visited the schools, it was acknowledged that this was an important matter and therefore the learners were allowed to be exposed to the malaria awareness programmes of the Department of Health. The principals and educators accepted that the role being fulfilled by the healthcare workers was helpful to everyone. They provided learners with important information about malaria and various preventive measures. These included wearing long sleeved clothing at night, closing windows, cutting the long grass near their homes and at the school and getting rid of stagnant pools of water, to prevent the continuous breeding of mosquitoes. Information pamphlets and posters were left behind by the healthcare workers. The posters were not placed on the classroom walls and therefore could not be used as a source of discussion. The educators explained that the walls were very rough and when they managed to put the posters up, it did not remain on the walls for long periods.

It was quite clear that the Department of Health was the organisation largely responsible for malaria awareness in the area. The healthcare workers provided a very important information service to the learners with regard to malaria education. When the educators were asked whether they also attended these information sessions provided by the healthcare workers, they indicated that they did not. Thus, the educators were not aware of the information that the healthcare workers shared with the learners.

With regard to further malaria interventions, the principals and educators of both schools were aware that before the commencement of the rainy season, a spraying campaign would take place in the communities surrounding the schools. Before embarking on an explanation of what a spraying campaign entails, it would be important to understand when the ‘rainy season or malaria season’ occurs. According to Jooste (2015b:18), the transmission of malaria was quite low during the months of July, August and September. Transmission was usually considered to be quite high during the months of October, November, December, January, February and March, which included the summer months and the rainy season in the Limpopo province. However, it is important to note that although the transmission of malaria is considered to be seasonal, it could occur at any time of the year.

The spraying of houses with a pesticide was one of the preventive measures coordinated by the local malaria control team. Once a year, a team of operators visited those areas that were at risk for malaria and sprayed the inside walls of the homes. This was done to kill the mosquitoes that usually rested on the walls after they had bitten someone.

Mr. Sunny explained, that although the community was aware of the importance of the spraying operation once a year, there were some community members not entirely happy with this operation. They did not trust the spraying team and believed that their homes would be burgled during the spraying operation. As a result, they locked their houses and left the area when the spraying season commenced. This happened even after the healthcare workers from the local clinic held regular community meetings to promote malaria awareness. These community meetings were arranged by the traditional leaders in the community. Principals and educators were quite clear about the fact that the healthcare workers were the major source of malaria information in the community, as well as providing learners with information concerning malaria. This type of situation is not uncommon. Jooste (2015b:58) explains there are times when people choose to “selectively interpret the information” they are confronted with. This usually happens when they hear or are made aware of information that is inconsistent with what they believe. The tendency is to decipher what they hear and explain it to others in ways that seem more in line with their own attitudes and beliefs. Mr. Sunny attributed the actions of community members to a lack of knowledge on their part regarding the importance of the “spraying campaign” and felt that a more concentrated effort, in addition to the information meetings, should be undertaken to inform community members about the reasons for the spraying campaign.



Fig. 4.4 Insecticide being sprayed onto walls in a house. (Jooste. 2015b:39)

The educator from Zanadu Primary School indicated that she was aware that people suffering from malaria would be taken to the local clinic for treatment. However, no one in her family had contracted malaria. She was aware that the malaria symptoms could present in the form of headaches, weakness of the body and a loss of appetite. She referred to the fact that the climate of the area was conducive to the spread of malaria. Her understanding was that the warm and moist conditions during the rainy season largely contributed to the increase of malaria in the area. At the Sunshine Primary School, on the other hand, the educator pointed out that she knew malaria was a very dangerous disease and that diarrhea could be a symptom of malaria. She was aware that the learners at the school were knowledgeable about malaria symptoms, but she was not able to explain how she knew that the learners were aware of malaria symptoms. At both schools, it was clear that parents were relied on to take care of their children when they became ill. Both principals were more aware of the dangers of malaria and what the symptoms were than the educators who were interviewed.

The educators were aware that windows had to be closed at night to prevent mosquitoes from entering homes. They insisted that learners wash their hands regularly to avoid contracting malaria. In discussion with the educators, this appeared to be a spin-off from the media campaign surrounding the few typhoid fever cases that were identified in the country during January 2016.

Typhoid fever is also considered to be a very dangerous disease, displaying the symptoms of a fever, which is similar to that of malaria. An extensive media campaign was undertaken and it advocated the importance of washing hands by both adults and children, to prevent contracting typhoid fever (National Institute for Communicable Diseases, 2016:1-2).

It was important to find out whether any additional initiatives were implemented in the area to provide the community with knowledge regarding malaria. In this regard, Mr. Sunny explained that his school had a close relationship with the local malaria station in the area. Information regarding malaria and the spraying season would be disseminated by workers from the local malaria station. In addition, mosquito coils would be handed out to learners, though this was not a regular occurrence. It only happened when the local malaria control team had finance available to purchase the coils.



Fig 4.5. Burning of mosquito coils (Jooste, 2015b:43)

With regard to the use of these mosquito coils, Hogarh, Antwi-Agyei and Obiri-Danso (2016:1) reported that in malaria-endemic countries the use of these coils was not recommended as a preventive measure for warding off mosquitoes. They reported that the insecticides that were released once the coil was lit, could be a potential source of indoor air pollution and could complicate acute respiratory infections and other illnesses. Regarding malaria deaths, the principals and educators at both schools provided very similar responses. They were aware of malaria deaths in the community, but they were not close to any of the deceased. However one of the principals indicated that a family member had been affected by such a death.

4.3.2 Support

Mr. Zinedane indicated that there were times when learners would be absent from school for a period of two to three days. When this happened, the educator was supposed to find out why the learners were absent from school. This was done by contacting the parents. While speaking to the parents, additional lessons were arranged to provide the learners with the school work that was missed. This was supported by the educator who said that additional written work was also provided to learners to enable them to catch up with the school work that was missed. Mr. Sunny on the other hand, explained that parents informed the school if learners were going to be absent from school.

“During the parents meeting, we always remind parents to inform us if the learner is absent from school. If the parents know that the child will be away, they will tell us in advance.

But if the child becomes ill unexpectedly, like overnight, the parents will inform the school the next day. There is very good communication between the parents and the school”.

(Principal: Zanadu Primary School)

At the time of the interviews, Sunshine Primary School did not have any programme in place to assist absent learners to catch up with the school work that was missed. Mr. Sunny indicated that it was expected of parents to assist their children to catch up with any work that had been missed. It appeared that parents were quite used to this as Mr. Sunny indicated that neighbours were also approached for assistance, as well as other learners. This fact was also reiterated by the educators who were interviewed.

“The parents are expected to help the children, if they cannot, they need to ask other members of the family. They are also encouraged to ask the next door neighbour”. (Principal: Sunshine Primary School)

The principal made it clear that there were more than forty learners in a class, which meant that educators were not able to take the time to care for only one or two learners who had been absent. If they did that the rest of the learners would be left unattended. He added that educators were also not able to do any additional work after school hours as they had to travel home on the school bus. The school bus was the only means of transport to where the principals and educators parked their cars. However, the principal also informed us that a retired educator, who was a role model in the area, provided academic assistance to learners during the school vacation. This retired educator usually arranged a special academic programme and often included educators who lived in the area. This happened to be quite a popular programme among the learners and their parents. When the principal was prompted about offering additional classes for the learners who missed school due to absenteeism, he responded as follows:

“Not easy to do this. If the class has 48 learners and two have been absent. The teacher must concentrate on the 46 learners, but must call on the parents about the issue of assisting the child. We have only one educator who stays in the area. She helps children in the area, she does have a problem sometimes and outsources to other teachers.

She offers extra lessons. When there are functions, she is invited to be a motivational speaker”. (Principal: Sunshine Primary School)

The absenteeism of learners was not the only problem that principals had to manage. They also had to deal with the absenteeism of educators. Mr. Zinedane explained that in his experience, the educators at his school would usually be absent for personal reasons. If they were ill, these reasons were not revealed to the principal. Mr. Sunny indicated that the same principle applied at his school with regard to educator absenteeism.

“They phone me, and the reason is confidential and they say that they will consult with a doctor”.
(Principal: Sunshine Primary School)

If the principal happened to be ill or had to be away from school for any particular reason, he informed the Circuit Manager. He had not had any educators absent from school due to the effects of malaria. Likewise, Mr. Sunny explained that he and his educators were very aware of the symptoms and effects of malaria. Thus, if they experienced any symptoms, he would be informed.

“Some reasons, most of them say - she just call me and say it is a personal issue. Sometimes she can reveal the reason, but will depend on the type of illness. We are only two here, and the one teacher is new. Sometimes I wake up and my wife is sick, I have to phone to the Circuit Manager and tell him my child or my wife is ill. That is no problem, at least he knows”. (Principal: Zanadu Primary School)

At both schools it was clear that there were no facilities to house the learners in the event that they became ill, irrespective of whether the symptoms were malaria or not. The general rule at Sunnyside and Zanadu Primary School, was that learners were sent home when they presented any symptoms indicating any type of illness. It was generally accepted that it was the responsibility of the parents to take their children to the local clinic, which was the nearest facility to access healthcare.

4.3.3 Curriculum

The educators felt that even though malaria information was made available by healthcare workers, it was important that they, as educators also did something. However, to date no initiative has been forthcoming from the educators that were interviewed. One of the educators from Sunshine Primary School explained that she had initiated malaria discussions with learners during lunch breaks at the school. When asked why she had conducted these discussion outside of normal classroom activities, she explained that it was an activity that was considered to be “outside” of the normal school curriculum. However, it appeared that the educator was not aware that she could actually provide learners with malaria information and promote malaria awareness as part of the curriculum.

This could be done very naturally when discussing topics such as water, healthy environment, the weather and us, seasons, life at night, insects and pollution all provided for in the Foundation Phase Life Skills curriculum (Department of Basic Education, 2011:26-70). Upon further discussion regarding the curriculum, it appeared that educators rigidly concentrated on teaching only what is stated in the official curriculum. This fact was clearly illustrated when the principals indicated that the District Office provided the examination or test papers that was used to assess the learners.

This meant that the educators did not set the examination and tests, therefore it was difficult to teach anything that was not explicitly stated in the curriculum. Consequently, it was clear that principals and educators were not expected to teach anything that fell outside the realm of what they were expected to teach and assess the learners on.

Yes, we do. Sometimes, we do some workshops. But I mean, when we started with this CAPS, we struggled a lot. We did not understand it. They do not tell us what we have to do, they just say what the difference is between the NCS and CAPS in a table. What we need, is to know how implement it for the learners. As from last week, we are having a workshop on Life Skills and First Additional Language. I do understand. (Principal: Zanadu Primary School)

When prompted about the value of the workshops and whether they received any resources, the following responses were received.

“Yes, they give us the information, straightforward. How to implement this, even the English, we must know how to set an exam”. (Principal: Zanadu Primary School)

“They say, we have to first check, to go through the policy. The policy will tell us how to assess and tell us about the tasks. We must become aware of the policy. We have the policy and the tracker.

The tracker is a big book, they show us that during this term, we have to follow this. Now we are in March, they give me the specifics of what to do”. (Principal: Zanadu Primary School)

Questioned about particular policies regarding malaria awareness, the principals and educators indicated that there were none at their schools. But Mr. Sunny indicated that all new teachers at his school were provided with information regarding malaria symptoms. He also explained that the educators were told that parents were to be informed as soon as they became aware of any learner that displayed such symptoms. He said no formal policy at school level was introduced. The education official concurred that even though there was an HIV/Aids policy that the Department of Basic Education made available to schools, no policy on malaria infection was available.

Mr. Zinedane and Mr. Sunny confirmed that they were indeed aware of the HIV/Aids policy. Finally, the education official highlighted the fact that the Department would provide support, but that each school would be encouraged to design their own malaria policies.

“No. There is no specific policy. Only HIV policy”.

(Principals: Zanadu Primary School and Sunshine Primary School)

“No, we, when we monitor and give support. We visit schools, we also request them to give us policies. But that will be done after you will have taken them through the processes of how to formulate particular types of policies.

Once it is formulated, it is adopted by the School's Governing Body. It is then easier when you visit and say now I want to see this policy.” (Provincial Education Official)

In terms of introducing anything new to the local primary schools, the education official admitted that it was not easy. Schools would have to follow a process in which they would be supported to create their own policies. However, malaria was not one of the issues mentioned. Indeed, anything considered to be outside of the actual curriculum was very difficult to introduce. If it was something that affected the daily activities of the school, then the matter was introduced to principals and educators in the form of a workshop. The education official admitted that he thought the matter of malaria education was extremely important. He also admitted the issue of malaria education at schools was not considered to be as significant as information on HIV/Aids.

He explained that schools were encouraged to draft their own HIV/Aids policies, which would be discussed and ratified by the Governing Body of each school. His expressed wish was that malaria education would eventually be treated in the same manner as HIV/Aids education. He also admitted that the Department of Basic Education was not as focused on malaria education as they were on HIV/Aids education.

“In fact, even the policies, is it not when we cause schools to draft their own policy - especially for HIV/Aids, when these policies are not there? But we are not strict with these ones, the malaria ones. It is a wakeup call that we must enforce the malaria policy so that we exactly know what schools are doing.”
(Provincial Education Official).

Even though, it was quite clear that there was a feeling amongst the community that malaria education was important, nothing practical had been done to introduce the actual topic into the schools. From the above discussion, it appears that the matter of collaboration between the Department of Basic Education, the principals and educators, only existed for matters that informed the formal curriculum. Mr. Sunny explained that general policy implementation of new information was usually done by the Department of Basic Education in the form of a workshop.

Very interestingly, he explained that there were instances where the Department of Basic Education and the Department of Health held joint workshops for the schools. Mr. Zinedane indicated that the workshops offered by the Department of Basic Education helped them to understand the new curriculum much better.

“Some of the policies have been developed and workshopped. What is in the policy is about daily activities, but if it is about something we are not doing, then it is not easy to implement, then you need a workshop from the Department of Education. In other words, the Department of Education would be an observer and the Department of Health would be doing the workshop”. (Principal: Sunshine Primary School)

“So, the Education Department would explain how the schools would deal with the issue in terms of the curriculum and the Department of Health would explain about the health issues. I have said there are certain sections in Social Science where malaria is mentioned - in Grade 5”. (Principal: Sunshine Primary School)

The educators confirmed that they met with other educators in cluster meetings. Only subject content or assessments were discussed in these forums. Both principals concurred that they did not initiate any meetings amongst principals in their area. They only attended the meetings convened by the Department of Basic Education at the District Circuit Offices.

With regard to collaboration between the Department of Health and the Department of Basic Education, it was accepted that the Department of Health provided health information to school communities. However, the view from the education official at the Department of Basic Education Circuit Office was that co-ordination between the two departments should be improved. The education officials could then provide schools with the relevant information when they met with principals and educators in their various forums. At the time of the interviews, the education official indicated that he had attended an advocacy meeting regarding the “worming programme” and that they were waiting for an indication as to when the schools would be visited.

According to the education official there was an awareness that the Department of Health was actively involved in various community forums through the contributions of the healthcare workers. Community meetings were called by the traditional leaders in the area and healthcare workers were invited to address the community. However, those educators who did not live in the villages where these meetings took place were not exposed to the kind of information shared about malaria.

4.3.4 Community

The area of study is considered to be a poor rural area. This is indicated by the sparsely populated villages where houses (mud or brick) are situated far from each. The schools selected for the study are classified as ‘no fee paying’ schools. Learners were provided with a cooked meal each school day, through the efforts of the school feeding scheme. The roads between the villages were not tarred and were in bad shape. The major road that was used during the interviews was under construction at the time. Regular public transport is not available except for the school bus for each school transporting learners and educators in the morning and in the afternoon.

The availability of mobile networks in the area was intermittent and could not be relied upon. Even educators who had access to smartphones could not use them due to the signal being erratic and mostly inaccessible. This frustrated Mr. Sunny who explained that when he wanted to send an email, he had to take his laptop and move around quite a bit before a signal could be found.

“Do have emails, but must go to Masisi for reception.
We do have a fax machine, but cannot use it to
communicate with the Department of Education as they
do not have a fax machine”. (Principal: Sunshine Primary School)

The school received a donation of a very sophisticated printer and copier. However, the features could not be utilised due to a lack of network coverage. This machine also had a fax facility, but the school could not communicate with the District office as this office had no fax machine. The effect of this was that when examination papers had to be collected, the principals had to physically find a way of getting to the District Office during the day. As we travelled to and from the schools, we met one of the principals along the road and gave him a lift to the District Office.

Due to the bad or intermittent network coverage, the principals and educators admitted that phone calls to parents were not always reliable. However, they indicated that community members were very supportive and messages could be distributed very quickly by word of mouth as the communities were quite small.

“Let me start with the internet. The educators do not have internet – cannot talk about learners. There are educators who have smart phones so inaccessibility to the internet, it disadvantages the learners and the educators. Because there is no access, they miss out on lots of information. Network coverage is also extremely bad. So even if you have the resources – there will be no network”.

(Principal: Sunshine Primary School)

Unemployment in the area was quite high. Whilst moving around the area to get to the schools, it was quite noticeable that many young people were waiting around for lifts to get to the city area. The community around Sunshine Primary School had been particularly affected by the closure of a mine in the area. Even though the mine closure happened two years earlier, the effects were still being felt in the area.

While operational, the mine offered housing to employees, a school for their children and community members operated small shops near the mining area. As a result of the closure, many employees were transferred to other mines around the country and a once thriving community ceased to exist. Mr. Sunny also noted that it would take approximately three years for the main road to be constructed and once the road was completed, all those workers would have no work again.

“I do know that you are students, but would like to say that the rate of unemployment in the area is very high. Even though they are building a road, after three years the project will be done and people will be without work again”. (Principal: Sunshine Primary School)

A very important point made by Mr. Sunny of Sunshine Primary was that before the mine had been closed, it was very active in contributing to malaria awareness programmes in the area. Since the mine closed, this was no longer the case. Staff at both schools, experienced acts of theft and burglary.

Mr. Zinedane explained that the school had purchased a photocopier. But it was operated from house of an SGB member and not from the school. This was very frustrating as he could not use the photocopy machine when he needed to. It was clear that storage facilities at the schools for particular items that we as researchers took for granted, was not available or considered to be a luxury. This lack of storage also affected the use of the items. For example, while waiting on Mr. Sunny to be interviewed, I came across so many books stacked in his “office”. These were excellent, colourful and interesting books that could be used in the classroom. But due to limited space, the books were not sorted or used.

The Mutale River was another matter of concern raised by Mr. Sunny. He indicated that it was considered to be a major source of water for the community, though it was common knowledge that this river now served as a breeding ground for mosquitoes. (Brooks & Abney, 2013:5) support this view in the discussion on the study done in the Ha-Makuya District. Mr. Sunny indicated that it would be much better for the schools and nearby communities to receive water from water tanks, instead of solely relying on the Mutale River.

4.4 DATA INTERPRETATION

This study was intended to discover how primary schools in the Ha-Makuya area in Vhembe, Limpopo manage the threat of malaria in a high-risk area (see section 1.3). The study focused on the impact of malaria on the teaching and learning of Foundation Phase learners. The principals and educators were interviewed to discover whether their actions had any impact on the lives of the learners, from their perspective. The findings of this study suggest that, within the Ha-Makuya community there was an awareness that malaria was a dangerous disease. The schools visited had different experiences regarding malaria. The differences depended upon the personal experiences of the principals and educators which then informed their level of interest in the disease. Irrespective of the lived experiences of the educators, principals and officials it was abundantly clear that everybody knew what they needed to do in the event that malaria infections occurred.

Even though, some of the adults interviewed did not have in-depth knowledge of malaria, the constant refrain was that the local clinics were the important point of contact for information and care. In addition, parents were considered to be the first port of call when learners were ill.

It is my view that if so much emphasis was placed on the fact that parents were the first point of contact, then learners had to be made aware of this practice as well. If the learners were aware of this, they were able to tell others that their parents had to be contacted in the event that no one else knew what to do. This is important given the fact that malaria education programmes conducted by the healthcare workers were focused exclusively on the learners.

In addition, to the local clinic being the first point of contact for diagnosis and treatment of malaria, the healthcare workers were also acknowledged as the main source of malaria awareness and education for the schools and the community. These findings speak directly to the Social Cognitive Theory (SCT), the theoretical framework underpinning this study. This theory alludes to the cognitive factors (knowledge, expectations, and attitudes), environmental factors (social norms, access in the community, and influence on others to change one's environment) and behavioural factors (skills, practice, and self-efficacy), which all affect each other in a reciprocal way to holistically influence the behaviour of people (see section 3.2.2).

During the interviews, it became evident that some of the participants were aware that the Mutale River was becoming a breeding ground for mosquitoes. Some were also aware that the healthcare workers from the local clinic were involved in community meetings regarding malaria. Participants believed that the annual spraying campaign was important and that community members should work together to allow it to happen without any interruptions. Furthermore, they knew that the local malaria committee was involved in important work, by visiting schools and distributing mosquito coils. Participants acknowledged the fact that the mine had closed down and that the closure had negatively impacted the community with fewer organisations being involved in malaria awareness, as well as a loss of jobs and income. Lastly, there was evidence that the local hospital was successful in treating malaria cases with exceptional aftercare service (see section 4.3.1).

The above information resonates with the evidence from the literature that many successes and gains exist locally and abroad regarding the attainment of the Millennium Development Goal 6 (MDG6) target of stopping the spread of malaria (see section 2.2). In order to ensure that these gains are protected, public health systems have to be strengthened to continue providing much-needed malaria education and awareness programmes to relevant communities.

In addition, medical service and resources must be available as needed by the affected communities. These views are supported by the World Health Organisation (WHO) and the National Department of Health (see section 2.3), which advocate for political will, financial resources and strong collaboration between the various sectors.

The need for effective collaboration has been reinforced by the findings of this study. This study has found that collaboration exists between educators in their cluster meetings, between principals of the local schools, as well as between the Department of Basic Education and the Department of Health. However, it would be important to take advantage of such a collaboration space addressing the need for malaria education and awareness appropriately. It comes as no surprise that the view alluded to above, that public health systems should be strengthened and health promotion increased, is echoed in the literature and supported by the findings of this study.

The local clinic and healthcare workers were identified as the primary role-players who ensured that the community were informed about malaria. This took the form of distributing informative posters, pamphlets and regular visits to primary schools as well as being involved in community meetings (see section 4.3.1). Support for linking malaria control programmes to other health and development sectors has been highlighted by the University of Pretoria Institute for Sustainable Malaria Control (UP ISMC). The UP ISMC advocates for the involvement of communities in safe and sustainable malaria control programmes.

An additional intervention for malaria awareness as suggested in the literature (see section 2.5) refers to increased and sustainable cross-border collaboration. This is due to the fact that the location of the research site is near the borders of Zimbabwe, Swaziland and Mozambique. Therefore the risk of imported malaria is greatly increased as people constantly move across these borders for various reasons.

The literature highlighted that there was an awareness of how young children could be negatively affected when they were infected by malaria. This could be especially harmful when they were not able to attend school. As a result the WHO linked the Millennium Development Goal 2 (MDG2), which promotes universal primary education for all children, to the consequences of malaria (see section 2.5).

This study found that the absenteeism of learners is managed differently in each school. In the smaller school, Zanadu Primary School, the educator and principal would assist the learner to catch up with school work missed during periods of absenteeism, irrespective of the reasons for the absenteeism. The larger school, Sunshine Primary School, however insisted that there were too many learners in one class for the educators to assist any learner who has been absent from school. Parents were then responsible to ensure that arrangements were made for learners to catch up (see section 4.3.2). It would appear that the learners in the larger school were being disadvantaged as they were not assisted by people who knew the curriculum. However, as an ex-teacher in an urban school, such a scenario might not be what I was used to. But I have come to understand that it is the best that these schools can do in this community, taking their environment and material conditions into consideration.

The literature consulted for information on educational aspects related to malaria was very scant as the major focus was on the scientific, environmental and health aspects of malaria. In addition, this study revealed that none of the schools visited had any formal programme in place to contribute to the knowledge and awareness of malaria of the learners. The fact that one of the educators mentioned that she conducted brief sessions on malaria awareness during the lunch break, was indicative of the rigidly prescribed manner in which educators had to follow and complete the set curriculum without deviating from it. Yet, the Curriculum and Assessment Policy Statement (CAPS) states, under the general aims of the South African curriculum, the following:

“This curriculum aims to ensure that children acquire and apply knowledge and skills in ways that are meaningful to their own lives. In this regard, the curriculum promotes knowledge in local contexts, while being sensitive to global imperatives”

These official statements are central to the discussion on malaria. The Foundation Phase Life Skills curriculum includes relevant topics that could be used to promote knowledge and awareness about malaria (see section 4.3.3). Below are a few examples.

Table 4.3: Examples of potential lessons using topics in the curriculum

Topic(s)	Possible lessons
Water, pollution and the healthy environment	<p>Lessons could focus on the need to ensure that no stagnant pools of water exist around the school area as such pools of water would become breeding sites for mosquitoes.</p> <p>Lessons could also point out the need to remove broken or dirty containers, because these will fill up with water during the rainy season and also promote the breeding of the mosquitoes.</p>
The weather and us, seasons and life at night.	<p>A lesson on the seasons could highlight the climate of the area, its summer rainfall which is so conducive to the breeding of mosquitoes.</p> <p>The indoor residual spraying (IRS) season and its benefits to the community could be discussed.</p> <p>Discussing life at night could assist learners with knowledge as to why they have to wear different clothes at night as opposed to what they wear during the day.</p>
Insects	<p>Learners could be taught about the life cycle and scientific aspects of the mosquito.</p>

There are thus endless ways in which the knowledge and awareness of malaria could be disseminated by using the current Foundation Phase Life Skills curriculum, without changing or adding any new topics, but merely introducing additional information. In doing so, it would be easier for educators to promote malaria awareness and become role models to their learners with regard to their knowledge and prevention of malaria. By introducing information into the lesson topics as suggested above, learners would be exposed to positive information and behaviour regarding the prevention of malaria.

They would be able to go out and inform their parents, their peers, neighbours and other educators about the knowledge, attitudes and values that they have acquired from their educators. Evidence in the literature supports the abovementioned practice, suggesting that improved knowledge of malaria can be linked to education beyond primary school (see section 2.5). In addition, this manner of sharing information could also be linked to the SCT (see section 3.2.2). Evidence from the literature, my personal observations and findings of this study all highlight the fact that this research site is located in the poor rural part of Limpopo. Many of the conveniences that we take for granted as urban dwellers are absent in this area. The local people are used to being without them and carry on doing what they have to do with the bare minimum.

Local residents do not have good roads. There is no regular public transport. They struggle to access information via the internet or to send an email. There are no fax machines or landline telephones. Even just making a call using a cellular phone or having a well-stocked library at school is foreign to them.

In the literature, much value has been placed on the availability of strong local healthcare services. It is identified as one of the most common places where information regarding malaria can be accessed. However, there is also evidence to suggest that even if healthcare services are available at no cost, it does not mean that the community will always be able to access these services. At times, the costs incurred (transport costs, deduction of a day's pay) to access healthcare services can be excessive and might be what hampers immediate treatment-seeking behaviour. In addition, community members might also try and diagnose symptoms, such as headaches on their own (see section 4.3.4).

4.5 CONCLUSION

The aim of this chapter was to present the research findings as indicated by the themes and categories that emerged from the data during the analysis of the transcribed interviews. In addition, the information and experiences of the participants regarding their knowledge and awareness of malaria, as well as the treatment-seeking behaviour that was prevalent, was alluded to. In addition, the types of collaboration that took place regarding malaria education was interrogated as well as the importance of the collaboration.

Furthermore, an effort was made to understand the kind of support that the participants provided to learners, if any, to overcome the effects of absenteeism due to malaria. Fundamentally, the study explored whether there were any initiatives in place to promote malaria awareness by making use of the current curriculum. None of the data gathered would make sense if there was no information regarding the community and the environment, including unemployment, the infrastructure affecting schools and the relationship between the community and the schools.

Chapter 5 will conclude this study by providing recommendations and ideas for further studies.



CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This study explored the various factors surrounding the impact of malaria on teaching and learning in the Foundation Phase. The theoretical framework proposed that a mutual relationship exists between the person, the environment and behaviour, which can be reciprocal. This implies that children who are exposed to positive health behaviors from an early age will be empowered to help themselves and eventually influence others. The underlying conclusion from the empirical data is that staff (principals and educators) have no special malaria education or awareness programmes at their respective schools, besides accommodating the visits from healthcare workers. They are however, aware of the malaria symptoms and regard the parents as the first point of contact in case of illness. They consider the Department of Health as the authority responsible for promoting malaria awareness.

Chapter 5 will conclude this study by discussing the four themes highlighted by the findings. These themes revealed various aspects about knowledge and awareness of malaria, the support provided to learners by educators and parents in the event of illness and absenteeism, the curriculum, as well as aspects of the socio-economic environment of the community. These themes will be discussed briefly by looking at the similarities and possible differences between the literature and the empirical findings of this study as discussed in chapter 4.

Subsequently, conclusions will be drawn by discussing the secondary research questions, and then finally the main research question that guided this study. Lastly, recommendations will be made to the Department of Health, the Limpopo Department of Basic Education, the principals, educators and parents, as well as recommendations for further research.

5.2 SUMMARY OF LITERATURE AND EMPIRICAL RESEARCH FINDINGS

This section contains a summary of the literature that was read for this study as well as a summary of the empirical research findings.

5.2.1 Summary of key literature findings

A large part of the literature studied for this research project dealt with knowledge about the impact of malaria and what could be done to enhance the sustainability of malaria awareness programmes globally as well as locally. According to the World Health Organisation (WHO), the achievement of the Millennium Development Goal 6 (MDG6) target of halting the spread of malaria seems possible, more specifically within South Africa. This is largely due to continuous national and international co-operation and collaboration. These positive achievements are attributed to the reliable action and involvement of the international and national health communities. The successes achieved in the affected countries (see section 2.2) should be protected. Evidence from the literature strongly suggests that one of the important ways in which the MDG6 target can be achieved is to ensure that public health systems are strengthened and remain effective in providing malaria education and awareness programmes. In addition, it would be important to make sure that the correct medical care and resources are provided to members of the affected communities. The local healthcare facilities play an important role in maintaining the awareness of malaria, as well as the treatment and prevention of the disease. The literature also recognises the fact that community members (parents in this study) in endemic areas, including school staff are usually knowledgeable about malaria. The literature further suggests that knowledge of malaria is also linked to education beyond the primary school years (see section 2.5). Thus, the constant involvement of healthcare workers, as illustrated in this study is extremely valuable to the community.

Another element highlighted in the literature is the fact that the location of the Ha-Makuya area and village near the border of Zimbabwe, Swaziland and Mozambique increases the risk of imported malaria. This is why malaria awareness and education is such an important aspect that requires lots of political will to ensure stronger cross-border collaboration between the various communities, including the Department of Health and the Department of Basic Education. This view is also supported by the WHO (see section 2.3). The Department of Health plays an important role in providing communities with reliable and relevant information to enhance the awareness of malaria.

Social and cultural views of the community often interfere with preventive measures, such as indoor residual spraying (IRS). In the literature, IRS is referred to as one of the critical components in the campaign to eliminate malaria. Community meetings focusing on the importance of IRS – which is only done once a year during a specific season – is extremely important. At these meetings the reasons for the spraying campaign are explained in full to community members, taking their fears into consideration. It is thus important for healthcare workers and researchers to make an effort to understand the traditional ways in which communities respond (see section 2.5).

Much of the literature on the impact of malaria is focused largely on the scientific, environmental and health aspects. Very few studies have considered the educational aspects associated with the impact of malaria, specifically on teaching and learning. Yet, malaria is recognised as a serious, worldwide public health concern, which affects many young children in the endemic countries. In some instances, the literature does refer to how badly young children can be affected, mainly impacting on their ability to attend school (see section 2.5). In this regard, the WHO has linked the achievement of the Millennium Development Goal 2 (MDG2), which advocates for universal primary education for all children, to the consequences of malaria.

The socio-economic conditions of a community will also affect treatment-seeking options. In the literature, existing accounts of malaria in Limpopo highlight the fact that Ha-Makuya is a very poor area. Some studies do reveal that even though government healthcare services are usually freely available, the ability to access these services from rural areas makes it extremely costly. This is often due to the lack of proper infrastructure (see section 2.3 and section 2.5). At times the costs that are incurred to access these healthcare facilities might prevent the community members from seeking treatment immediately. A headache (one of the symptoms of malaria) would at times not justify the expense of travel.

5.2.2 A short overview of the empirical research findings of this study.

The study found that there is a definite awareness among the community that the health department is in charge of promoting malaria awareness programmes in the affected communities. It is quite evident that the local clinic serves as a beacon of information with regard to malaria awareness, knowledge and the provision of medical resources, as required.

The healthcare workers from the local clinic undertake regular visits to the primary schools in the area to disseminate important malaria information and leave informative posters at the school. It is through these visits and organised community meetings that the various groupings in the community are made aware of preventive measures and what to do in the event that malaria infections do occur. School personnel have come to accept that parents are the most reliable source of information regarding malaria and that they will know what to do in the event that their children contract malaria. There are many reasons for this, including the fact that mothers are the ones who regularly visit the local clinics and in so doing gain access to the informative pamphlets provided. With regard to my study, it has come to light that communities in the Ha-Makuya area are quite small and most of the information is also shared amongst community members through word of mouth.

In my discussions with the principals at Zanadu and Sunshine Primary Schools, it was clear that the material and social conditions at both schools do not allow for the staff to care for learners when they do become ill. Besides the fact that facilities are non-existent and vehicles are not available, the large number of learners in a class make it impossible for educators to care for one or two learners and leave more than forty others on their own. Thus, the support provided by parents in caring for their own children when they are ill is invaluable to the school. Parents are not only expected to care for their children when they become ill, but they must also ensure that their children make up the school work lost due to absenteeism. The principal at Sunshine Primary indicated that these lessons can be made up with the assistance of parents, neighbours, fellow learners and even retired educators, who reside in the community, and offer their services for this purpose. Learners, through their parents and educators who are absent from school would inform the principal when they are not able to be at school. The principals, in turn, inform the district office when they have to be away from school. Positive support is provided to the learners and educators by the principals, parents, other educators and the district office. It was very clear that parents, educators and principals know exactly what to do and who to contact in the event that their learners or educators contract malaria.

Even though the schools, situated within the endemic area of Ha-Makuya, do not have any set guidelines contained in a document (policy) for malaria, there was clear evidence that there had been extensive collaboration between the Department of Health and the Department of Basic Education regarding HIV/Aids. Although, the policy was not displayed at the school, there was an awareness that such a policy existed.

There was no evidence from any of the schools of any formal initiative regarding malaria awareness presented by the principals or educators. One of the educators mentioned that she held malaria discussions, with learners during lunch breaks on an adhoc basis. However, during the interviews, there was a constant awareness of how dangerous malaria was. In questioning the educators and principals about how they used the curriculum to advance the awareness of malaria, they indicated that they could not teach outside of the curriculum. What made it even more difficult was the fact that the tests and examinations that the learners had to write were not set by the educators who taught them. Therefore, it was important for them to follow the curriculum guidelines very rigidly. Yet, it appeared that they were unaware that within the Foundation Phase Life Skills curriculum, they could make use of existing topics to include malaria information. These topics were about water, a healthy environment, the weather and us, seasons, life at night, insects and pollution (see section 4.3.3 and Table 4.2) and could definitely be used to promote malaria awareness.

The issue of collaboration once again becomes important. During the interviews, I learnt that the Limpopo Department of Basic Education often held workshops with groups of educators and principals, when new educational matters had to be introduced into the curriculum or into the schools. This was the way that HIV/Aids awareness was introduced into the schools. Shortly before the interviews I conducted there had been collaboration between the Limpopo Department of Basic Education and the Department of Health concerning a “worming programme”. This is one of the ways that this kind of collaboration could contribute towards malaria awareness and education in schools. Collaboration on malaria education amongst schools can be initiated by using the information already contained in the curriculum. This can be initiated by those educators who are already promoting malaria awareness at their schools and thus, they can become role models to their learners with regard to malaria awareness.

In the context of this study, this type of behaviour would be underpinned by the Social Cognitive Theory (see section 3.2.2) used as a lens through which we got to understand the effect that cognitive and environmental influences have on human learning. This infers that if the learners were exposed to positive information and behaviour regarding the prevention of malaria, they would be able to go out and inform their parents, their peers, neighbours and other educators of the awareness, knowledge and treatment-seeking behaviours that they had learnt from their educators.

As alluded to earlier, the Vhembe district is a deep rural area and both schools visited have been identified as 'no-fee paying' schools, which means parents do not pay school fees and that all learners received a cooked meal at school every day (see section 4.2). Within this area, employment opportunities are scarce, as the mine that had operated in the area closed down a few years earlier and the effects were still being felt by the community. The lack of infrastructure such as proper roads and effective public transport made it very difficult for the community to move around easily to access available services. Irrespective of the minimal access to public transport and the ownership of vehicles, the parents in the community have a close relationship with the schools. Parents could be relied on to collect learners when they were ill, as well as ensuring that lost school work was made up.

5.3 RESEARCH CONCLUSIONS

The final section of this study will focus on providing answers to the research questions that were used to guide the research project (see sections 1.3.1 and 1.3.2). It is important to note that no learners were involved in this study and that the questions were answered from the perspective of the educators and principals.

The secondary research questions will be discussed and answered first as they will then assist in answering the main research question as a summative research conclusion.

5.3.1 Secondary research question 1: How does the incidence of malaria in an endemic area influence teaching and learning in the Foundation Phase?

Much of the South African literature consulted (see Chapter 2) confirm that Ha-Makuya in the Vhembe district of Limpopo is an area where malaria is endemic.

This area is very close to the Swaziland, Zimbabwe and Mozambique borders, which makes the communities very vulnerable to imported malaria. With regard to teaching and learning, the schools operate normally and have in place a system to contact parents in the event that learners show malaria symptoms. The study found that there is an awareness of malaria and its symptoms which is reinforced by visits to the schools from the healthcare workers from the local clinic. The reliance on parents in the community to assist the schools highlights the positive impact of parental support. The educators and principals were adamant that the parents were the best people to contact when the learners became ill. In addition, when learners were absent from school due to malaria symptoms or any other illness, it was expected of parents, peers or neighbours to assist the learners to catch up on work lost during their periods away from school. It appears that this approach is acceptable to all, with ex-teachers in the community being called upon to assist during vacations. From what I have observed and heard through the interviews, it appears that teaching and learning continues unabated even if learners or educators are away from school.

5.3.2 Secondary research question 2: How does malaria influence curriculum content and can the curriculum be used to promote malaria awareness?

Previous studies concerning malaria have not specifically dealt with the effect on education or any aspects relating to content of the curriculum and malaria. The only way that schools currently engage with information about malaria is when they are visited by the healthcare workers, who speak to the learners about the disease. However, the Foundation Phase Life Skills curriculum includes topics such as water, healthy environment, the weather and us, seasons, life at night, insects and pollution (see section 4.3.3 and Table 4.2).

One of the findings of this study is the fact that the Limpopo Department of Basic Education conducts regular workshops to assist educators in understanding the curriculum. Participants interviewed understand and accept that malaria is a dangerous disease.

They regard as important the need for knowledge and awareness about how the disease is spread, how infections can be prevented, as well as information regarding treatment-seeking behaviour.

Given the above, it would be important for the Limpopo Department of Basic Education to assist educators to re-consider the manner in which they teach selected Foundation Phase Life Skills topics as alluded to above (see Table 4.2). Examples are the following: topics of water, pollution and the healthy environment could include the importance of getting rid of stagnant pools of water around the school area as this will result in breeding sites of mosquitoes being destroyed. Pollution could include the need to remove broken or dirty containers, especially during the rainy season, as they too become potential breeding sites for mosquitoes. The topics concerning the weather and us, seasons and life at night are ideal for focusing on the climate of the area which is conducive to the breeding of mosquitoes. Information can be shared about the importance of the indoor residual spraying (IRS) season. Discussing life at night will equip learners with knowledge about the kind of clothes that should be worn at night to prevent mosquito bites. The topic of insects could enlighten learners about the life-cycle and scientific aspects of the mosquito. All these topics could be introduced to the other grades as well, in order to reinforce malaria awareness at the schools in Vhembe.

5.3.3 Secondary research question 3: How does malaria influence school management?

Knowledge and awareness concerning malaria was important to the principals of the both schools. They were aware of the symptoms and indicated that they understood malaria to be a dangerous disease. What they have in place at their schools to manage the effects of the disease, is a system to inform parents to collect their children if they do present with malaria symptoms. They are also aware of the importance of having links with the local healthcare clinic as it is recognised as the centre for malaria information. Therefore, even if they have not been warned of a visit from the clinic, they allowed the visit to take place as they recognise the importance of the information that will be shared with the learners.

The principal of the larger school, Sunshine Primary School, was adamant that the educators were not able to offer extra lessons to learners who were absent from school. His reason was that class sizes were too big to focus on only one or two learners at a time. Instead, they had a system in place whereby parents had to arrange for these extra lessons, sometimes with retired educators in the communities during vacations.

5.3.4 Main research question: How does malaria impact on teaching and learning in the Foundation Phase in Ha-Makuya, Vhembe district?

As a result of this study, I have become aware that a heightened sense of awareness and knowledge of malaria and its symptoms exist amongst educators and the principals interviewed. Malaria information and knowledge is not shared by the educators or principals with the learners at all. Rather, they depend on external organisations to provide malaria information to the learners. In the main, this would be the healthcare workers from the local clinic or the organisers from the local malaria station. As mentioned previously, school management has systems in place to allow schooling to continue irrespective of the absenteeism of learners, whether due to malaria or any other illness. However, absent learners are affected because there is no consistent policy of dealing with the academic work lost during their absenteeism. The fact that at the one school parents were responsible for ensuring that learners make up their lessons that they have missed, will affect the learners negatively. The parents, neighbours or peers, as alluded to in the study do not have an understanding of the guidelines of the curriculum as followed by the educator. Therefore, the absent learners will definitely be disadvantaged and not have the same support to catch up on academic work lost as learners at the other school, who were assisted by the principal or educator.

5.4 RECOMMENDATIONS

With reference to the research findings, the following recommendations are made to the Department of Health, the Limpopo Department of Basic Education, principals, and educators.

5.4.1 Recommendation 1

The Department of Health is the primary organisation involved in malaria awareness and prevention programmes. Consequently, the strengthening of collaboration between the Department of Health and the Limpopo Department of Basic Education is emphasised. Improved collaboration will lead to optimised opportunities regarding the role that schools could play in reducing the impact of malaria through education. This could also be done by the Department of Health formally notifying the Limpopo Department of Basic Education, on a regular basis, of the annual dates and times that local healthcare workers will be visiting schools.

In this way, the schools could prepare the learners for the visits and the educators could prepare to attend the sessions as well.

5.4.2 Recommendation 2

The Limpopo Department of Basic Education must revisit the general aims of the South African curriculum as contained in the Curriculum and Assessment Policy Statement (CAPS) to include malaria awareness and knowledge. These aims must be explained to the principals and educators, when curriculum workshops are held. By doing this, principals and educators would gain an understanding of the importance and urgency of malaria as a disease within their own communities. This knowledge will in turn be transferred to their learners, parents and other community members. In this way, the Foundation Phase Life Skills curriculum applicable to malaria can be taught in a relevant manner.

5.4.3 Recommendation 3

The Limpopo Department of Basic Education must include malaria updates as an important topic in their ongoing workshops with educators and principals, besides its inclusion in the curriculum. These workshop sessions are held regularly by the Limpopo Department of Basic Education with educators and principals. During these sessions a few minutes could be used to discuss progress regarding malaria awareness and prevention, the latest outbreaks and preventive measures such as IRS. This will be extremely important because all educators and principals do not live in the areas where community meetings are held. The same strategy used to increase awareness for the HIV/Aids and “worming” programmes, should be used to increase awareness for malaria.

5.4.4 Recommendation 4

The Limpopo Department of Basic Education must work with each of the schools to ensure that a “catch-up” programme is in place, so that all learners who are absent from school are assisted by the educators in the same manner. These lessons could be held during the lunch breaks.

5.4.5 Recommendation 5

The lack of internet connectivity presents a huge problem to the local schools as it affects how educators and learners are able to access the internet for information.

It also impacts on school staff and management's ability to communicate with their colleagues and District Education offices in a timely manner. Regular connectivity and relevant resources could overcome the distances between the District Office and the schools. The Limpopo Department of Basic Education must investigate opportunities to request mobile service providers to sponsor schools with the necessary infrastructure to enhance their connectivity. In addition to the infrastructure, the matter of securing the infrastructure from theft should also be investigated.

5.4.6 Recommendation 6

The Limpopo Department of Basic Education does at present provide one school bus in the morning and in the afternoon to the schools that were visited. Besides this, there is a lack of reliable and efficient public transport that affects educators, learners and members of the community, impacting on their access to healthcare facilities and contact with the District Education offices. The Department of Health and the Limpopo Department of Basic Education must raise the matter of transport with the relevant authorities.

5.4.7 Recommendation 7

The principals must encourage further collaboration between the educators and the healthcare workers. This will assist educators to use information, including posters and pamphlets, in conjunction with the relevant topics in the Foundation Phase Life Skills curriculum. This can be done by making it compulsory for educators to attend the malaria awareness programme offered by the healthcare workers, when they visit the schools.

5.4.8 Recommendation 8

Parents are the first point of contact when learners display symptoms of malaria or other illnesses and have the responsibility of caring for them. Because parents play this vital role, it would be advisable to include the parents in the talks provided by the healthcare workers. By involving parents in this way, they could share information within the community, especially in light of the negative attitudes being displayed towards the spraying teams during the annual spraying season.

5.5 CONCLUDING REMARKS

The aim of this study was to understand how malaria impacts on teaching and learning in the Foundation Phase in Primary Schools in the Vhembe district, from the perspective of the educators and principals. The empirical research provided evidence to show that teaching and learning continued unabated at the schools involved in the study, irrespective of the reasons for absenteeism of learners or educators from school. These schools had a system in place to allow educators to carry on with their normal duties and parents cared for their children when they became ill.

A summary of the viewpoints displayed in the literature as well as those from the empirical research findings, concludes this chapter. In addition, recommendations were formulated as proposals to the Department of Health, the Limpopo Department of Basic Education, the principals, educators and parents, as well as for further research. This study allowed me to reflect on the issues raised. It made me realise that one's experience does not entitle you to assume that you have a solution to what you perceive to be a problem. As an ex-educator in an urban environment, I had access to relevant resources and could also access additional resources when required. These resources were used to deliver lessons in a very creative manner and to solve problems as I came across them. However, this experience has humbled me in making me realise that rural communities struggle to cope without the basics I took for granted. These basic resources include the internet, using my vehicle as I wished, decent roads, a well-stocked library and very modern computer facilities, as well as being able to teach very small classes of learners. Thus, my experience in the field has made me aware that no matter what the material conditions are at these schools, the learners are important to the parents, the educators and to the principals.

Irrespective of the availability of facilities and resources, the parents, educators, principals and healthcare workers did the best that they could do under the current circumstances to nurture their learners.



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7. APPENDICES

Appendix 1: Faculty of Education (EC 15/05/01)

Appendix 2: Faculty of Health Sciences (203/2015)

Appendix 3: National Health Research Database (LP_2015RP33_292)

Appendix 4: The Limpopo Provincial Department of Basic Education

Appendix 5: The Vhembe district Department of Basic Education

Appendix 6: Consent letters for participants

Appendix 7: Tshulu Trust letter

Appendix 8: Individual interview questions: Educators

Appendix 9: Individual interview questions: Principals



Ethics Committee

15 July 2015

Dear Ms. Peterson,

REFERENCE: EC 15/05/01

Your application was carefully considered and the final decision of the Ethics Committee is:

Your application is approved on the following condition:

1. Please respond to the Faculty of Health Ethics Committee conditions for approval.

You are not allowed to proceed with data collection until these conditions have been met **and you have submitted a letter to the ethics committee on how the conditions have been met.**

Final data collection protocols and supporting evidence (e.g.: questionnaires, interview schedules, observation schedules) have to be submitted to the Ethics Committee before they are used for data collection. However, you do not have to re-submit an application.

The above-mentioned issues can be addressed in consultation with your supervisor who will take final responsibility. Please note that this is **not a clearance certificate**. Upon completion of your research you need to submit the following documentation to the Ethics Committee:

Integrated Declarations form that you adhered to conditions stipulated in this letter – Form D08

Please Note:

- **Any amendment** to this conditionally approved protocol needs to be submitted to the Ethics Committee for review prior to data collection. Non-compliance implies that approval will be null and void.
- On receipt of the above-mentioned documents you will be issued a clearance certificate. Please quote the reference number **EC 15/05/01** in any communication with the Ethics Committee.

Best wishes,

Prof Liesel Ebersöhn
Chair: Ethics Committee
Faculty of Education



The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

- FWA 00002567, Approved dd 22 May 2002 and Expires 20 Oct 2016.
- IRB 0000 2235 IORG0001762 Approved dd 22/04/2014 and Expires 22/04/2017.



23/07/2015

Endorsement Notice

Ethics Reference No.: 203/2015

Title: The impact of malaria on Foundation Phase teaching and learning in Ha-Makuyu, Vhembe District.

Dear Mrs June Petersen

The **New Application** as supported by documents specified in your cover letter for your research received on the 21/04/2015, was approved, by the Faculty of Health Sciences Research Ethics Committee on the 22/07/2015.

Please note the following about your ethics approval:

- Please remember to use your protocol number (**203/2015**) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

Ethics approval is subject to the following:

- The ethics approval is conditional on the receipt of 6 monthly written Progress Reports, and
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

Dr R Sommers; MBChB; MMed (Int); MPharMed.
Deputy Chairperson of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).



Appendix 3

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RESEARCH PROPOSAL DETAILS: LP_2015RP33_292

Research Committee



LIMPOPO HEALTH RESEARCH COMMITTEE

APPLICATION DETAILS

Title of Research Project

The impact of malaria on Foundation Phase teaching and learning in Ha-Makuyu, Vhembe District.

Status of Application

Approved

Status of Project

On-Going

Proposal Submission Date

2015/11/24

Comments

You will find a list of all comments made on the selected research application. The list below displays comments visible to both the Applicant and Research Committee

Comment	Comment Date	Comment By
---------	--------------	------------

Research Staff assigned to Project/Proposal

Title	Name	Surname	Role	Institution	E-Mail	Telephone No.	Mobile No.	CV/Resume
MS	June	Petersen	Student	University of Pretoria	june.petersen@up.ac.za	+27124206502	+27423912026	No File

Aim and Objectives

Aims and Objectives: The aim of this study will be to determine the effect of malaria on the education of Foundation Phase learners in Ha-Makuyu, a rural area, in the Vhembe District, as this area has one of the highest incidences of malaria in the country. This study will be guided by the following research questions: Main research question: 1. How does malaria impact on teaching and learning in the Foundation Phase in Ha-Makuyu, Vhembe District? Sub-questions: 1.1 How does malaria influence teaching in the Foundation Phase? 1.2 What are the effects of malaria on learning in the Foundation Phase, from the perspective of the educator? 1.3 How does malaria influence school management? 1.4 What recommendations can be made to reduce the impact of malaria on education and to improve the teaching and learning of malaria in the Foundation Phase? Rationale: My involvement in a faculty research theme involving malaria, was influenced by my past experiences as an educator in an area prone to malaria infections. The faculty research theme is coordinated between the (Faculty of Education and Faculty of Health – University of Pretoria Centre for Sustainable Malaria Control - UPCSMC) Malaria, is a disease which is of great concern in South Africa and other parts of Africa. The UP CSMC, has as its vision to contribute substantially towards the sustainable control of malaria in Africa. One of its aims is to assist with the control and mitigation of the impact of malaria in South Africa by 2018. This aim is in line with the World Health Organisation's (WHO) Millennium Development Goal 6 (MDG6), which is to stop the disease (malaria) by 2015 and reverse the effects of the disease. So too, does the Minister of Health, Dr Aaron Motaale, indicate that effective partnerships at country and regional levels are important to ensure that the planned malaria elimination strategies are effective and that the "zero local transmissions by 2018" is successfully achieved. An educational approach has been identified as an important strategy in the campaign to eliminate malaria. However, this is not evident as a strategy in the affected South African provinces. Malaria is endemic in the north-eastern areas of Kwazulu-Natal (KZN), Mpumalanga and Limpopo Provinces. Of these provinces, Limpopo has become the largest contributor to malaria case numbers. The large numbers of people moving across South Africa's northern and eastern borders poses huge risks to the vulnerable border populations. Thus, imported malaria remains South Africa's biggest challenge for the elimination of malaria. Cross-border collaboration and the sharing of resources are essential in ensuring that malaria is controlled within South Africa and its neighbouring countries. The Vhembe District, the focus area of this study, continues to be a high risk area, where the incidence of malaria has largely remained unchanged. In deciding to become involved in creating awareness of the impact of malaria in the Ha-Makuyu district, the objectives of the UP CSMC are very important – "to engage communities, promote awareness and conduct research that reflect issues and needs of vulnerable communities related to safe and sustainable malaria control". The benefits of this study will be that: • the findings will be helpful to schools; • information will be provided to the Department of Basic Education and the Department of Health as to how schools view and manage the problem of malaria in their area; and • if there are any existing strategies, it will be an excellent way for the schools, Department of Basic Education and Department of Health to discover whether these strategies are effective or not. The proposed empirical study will take place during the first quarter of 2016.

**Study Area(s)/Field(s)**

Description

Communicable Diseases

Study Design(s)

Description

Descriptive

Data Collection Method(s)

Method Category

Method Description

QUALITATIVE

Focus Group Discussions

QUALITATIVE

Semi-Structured Interview Schedule

QUALITATIVE

Case Study

Sample

Foundation Phase teachers at the schools: More than 85% of cases and 90% of deaths relating to malaria occur in children younger than 5. Studies have identified that malaria is of particular importance for the education sector as it is the main medical reason for schoolchildren missing almost 50% of school days annually. Thus, the decision to use Foundation Phase educators, as well as the fact that this study is being conducted under the auspices of the Department of Early Childhood Education in the Faculty of Education. Three Principals: Appropriate persons to provide information on the management of schools in an area prone to malaria infections. Role Vulnerability status Institutional affiliation Justification for participation Educators Adults Department of Basic Education (Limpopo) More than 85% of cases and 90% of deaths relating to malaria occur in children younger than 5. Studies have identified that malaria is of particular importance for the education sector as it is the main medical reason for schoolchildren missing almost 50% of school days annually. Thus, the decision to use Foundation Phase educators, as well as the fact that this study is being conducted under the auspices of the Department of Early Childhood Education in the Faculty of Education. Principals Adults Department of Basic Education (Limpopo) Appropriate persons to provide information on the management of schools in an area prone to malaria infections.

Data Analysis Tool(s)

Tool Description

Thematic Analysis

Content Analysis

Information / Data Request ?

No

Information / Data request details.*No Data Requested***Locations(s) where study will be conducted**

Facility

LIMPOPO PROVINCE PROVINCIAL OFFICES

Anticipated Start Date

2014/01/01

Anticipated Completion Date

2016/09/30

Institution(s) which gave ethical approval

Institution

UP - University Of Pretoria Faculty Of Health Sciences Research Ethics Committee

Ethics Approval Number

203/2015

Date of Ethical Approval

2015/07/22



Date Ethical Approval Expires

2016/07/31

If Clinical Trial, MCC Approved

No

National Clinical Trials Registry Number

Funding source

UP Centre for Sustainable Malaria Control

Budget (in ZAR)

0

[Back to List](#)





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YUNIBESITHI YA PRETORIA

LIMPOPO

PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

Appendix 3

DEPARTMENT OF HEALTH

Enquiries: Latif Shamila 015 2936210

Ref:4/2/2

Petersen J

University of Pretoria
Department of Early Childhood Education

Greetings,

RE: The impact of Malaria on foundation phase teaching and learning in Ha-Makuyu, Vhembe District

The above matter refers.

1. Permission to conduct the above mentioned study is hereby granted.
2. Kindly be informed that:-
 - Research must be loaded on the NHRD site (<http://nhrd.hst.org.za>) by the researcher.
 - Further arrangement should be made with the targeted institutions.
 - In the course of your study there should be no action that disrupts the services.
 - After completion of the study, a copy should be submitted to the Department to serve as a resource.
 - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
 - The above approval is valid for a 3 year period.
 - If the proposal has been amended, a new approval should be sought from the Department of Health.

Your cooperation will be highly appreciated.



Head of Department

06/11/2015

Date



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PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

Appendix 4

DEPARTMENT OF EDUCATION

Enquiries: Dr. Makola MC, Tel No: 015 290 9448. E-mail: MakolaMC@edu.limpopo.gov.za

UNIVERSITY OF PRETORIA

FACULTY OF EDUCATION

EARLY CHILDHOOD EDUCATION DEPARTMENT

PRETORIA

0002

DR MG STEYN

RE: Request for permission to Conduct Research

1. The above bears reference.
2. The Department wishes to inform you that your request to conduct a research has been approved- **TOPIC: THE IMPACT OF MALARIA ON TEACHING AND LEARNING.**
3. The following conditions should be considered
 - 3.1 The research should not have any financial implications for Limpopo Department of Education.
 - 3.2 Arrangements should be made with both the Circuit Offices and the schools concerned.
 - 3.3 The conduct of research should not anyhow disrupt the academic programs at the schools.
 - 3.4 The research should not be conducted during the time of Examinations especially the forth term.
 - 3.5 During the study, the research ethics should be practiced, in particular the principle of voluntary participation (the people involved should be respected).
 - 3.6 Upon completion of research study, the researcher shall share the final product of the research with the Department.
4. Furthermore, you are expected to produce this letter at Schools/ Offices where you intend conducting your research as an evidence that you are permitted to conduct the research.

Page 1 of 2

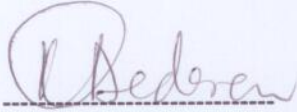
Cnr. 113 Biccard & 24 Excelsior Street, POLOKWANE, 0700, Private Bag X9489, POLOKWANE, 0700
Tel: 015 290 7600, Fax: 015 297 6920/4220/4494

The heartland of southern Africa - development is about people!



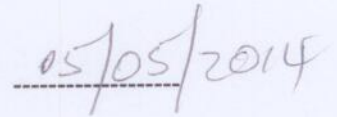
5. The department appreciates the contribution that you wish to make and wishes you success in your investigation.

Best wishes.



Dederen K.O

Acting Head of Department



Date



DEPARTMENT OF
EDUCATION
VHEMBE DISTRICT

REF: 14/7/R
ENQ: MATIBE M.S
TEL: 015 962 1029

PROF TIAAN DE JADER
UNIVERSITY OF PRETORIA
PRIVATE BAG X 323
PRETORIA
0001

DEPARTMENT OF EDUCATION VHEMBE DISTRICT
2015 -09- 08
PRIVATE BAG X2250 SIBASA 0970 LIMPOPO PROVINCE

RE: PERMISSION TO CONDUCT RESEARCH IN PRIMARY SCHOOLS IN
VHEMBE DISTRICT.

1. The above matter refers.
2. We acknowledge receipt of your letter in which you requested for names and contact information of principals of schools that you have identified.
3. The following is a list of identified schools names and contact details of principals in the Ha- Makuya area.

NAME OF SCHOOL	NAME OF PRINCIPAL	CONTACT NUMBER
1. khavhambe	Muloyhedzi M.Q	076 719 9567
2. Maholoni	Naledzani N.G	071 064 1879
3. Fandani	Tshitande H.V	072 458 5964
4. Karel Nngideni	Nembahe A.G	072 517 6943
5. Matshikiri	Ramadzhiela L.E	073 503 1155
6. Tshikalange	Nemukula N.G	082 523 7555
7. Tshianzwane	Ms Musehane (acting)	072 141 5853
8. Tshikondeni	Rasithithi N.B	072 565 2995
9. Mukomawabani	Netshiomvanyi F.E	073281 8856

4. Hoping that you will the above in order.


DISTRICT SENIOR MANAGER

08/09/2015
DATE

Appendix 6

Approval for research to be conducted at Primary school

I,(name & surname) principal of
.....Primary School in Vhembe, hereby grant
permission for a University of Pretoria Education postgraduate student to conduct research at my
school for the period 7 to 11 March 2016. I acknowledge that I have received all relevant
documentation including:

- a letter from the UP Centre for Sustainable Malaria Control Director, Prof de Jager, asking for approval to conduct the research,
- an information letter from the postgraduate student explaining how the research will be done,
- an approval document from the Limpopo Department of Education,
- an approval document from the Vhembe District Department of Education.

Signed

Date

.....

.....

(copy to remain with principal)

Approval for research to be conducted at Primary school

I,(name & surname) principal of
.....Primary School in Vhembe, hereby grant
permission for a University of Pretoria Education postgraduate student to conduct research at my
school for the period 7 to 11 March 2016. I acknowledge that I have received all relevant
documentation including:

- a letter from the UP Centre for Sustainable Malaria Control Director, Prof de Jager, asking for approval to conduct the research,
- an information letter from the postgraduate student explaining how the research will be done,
- an approval document from the Limpopo Department of Education,
- an approval document from the Vhembe District Department of Education.

Signed

Date

.....

.....

(copy to be returned to postgraduate student)

Please include the official school stamp if one is available.



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UNIVERSITY OF PRETORIA
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Faculty of Education

Appendix 7

June 2015

The Tshulu Trust
Hama-Kuya Village
Vhembe District

Dear Sir/Madam

Responsibility of the Assistant from the Tshulu Trust, providing assistance to the Malaria Project in Hama-Kuya, Vhembe District.

A research project on the *Impact of malaria on learning and teaching in Ha-Makuyu, Vhembe District*, will be conducted by June Petersen from the Department of Early Childhood Education in the Faculty of Education at the University of Pretoria. The purpose of the study is to determine the effect of malaria on the education of Foundation Phase learners from the perspective of the educators and principals in Ha-Makuyu. The Vhembe District is considered to have the highest incidence of malaria in the country, even though the incidence of malaria has decreased in other parts of the country.

The Principals and Foundation Phase teachers of the following primary schools will be requested to participate in individual and focus group interviews during the month of September 2015. The interviews will be conducted with the various participants, after school hours at each respective school. This research project will involve the collection of data from school records. This data will be used by the researcher in a manner that will protect the identity of the participants.

I, am aware that the abovementioned project will involve the participation of the Principals and Foundation Phase teachers of the abovementioned Primary Schools. I also do understand that the data collected from the above participants will be done with their informed consent and that they are able to withdraw their participation from the project at any time they wish to, without experiencing any negative consequences.

I hereby support the planned activities of the said research project and pledge to assist with the following:

- guiding to and from the respective schools
- initial introductions to the participants
- interpreting services will be provided, if required.

I,have read the above information, fully understand that my assistance and responsibilities in this research project will be highly valued in terms of honesty and integrity.

Signature of Assistant from the Tshulu Trust:

Date:

.....

Signature of researcher:

Date:

.....



Individual Interviews: Educators

1. What do you understand by the term Malaria?

The discussion that follows will determine further questions and will be guided by the following:

2. What do you know about the extent of malaria in

- your area
- your province or
- the rest of the country?

3. What could be done to avoid malaria:

- at home
- at your school?

4. Are you aware of the symptoms of malaria?

5. What do you do if you have any of these symptoms?

6. What do you do if your learners display any of these symptoms?

7. What are the current interventions (if any) at:

- your school
- in the community

8. Is malaria addressed in the curriculum in any way?

9. If malaria is not addressed in the curriculum, do you as an educator embark on any initiative to inform the learners of malaria, its causes and consequences?

10. Are you aware of any deaths among your learners that were caused by malaria?

11. Are you aware of any illnesses suffered by your learners that could be related to malaria?

12. What are the typical types of illnesses suffered by your learners for which they are often away from school?

13. Can you list the common reasons for the absenteeism of your learners?

14. How many days are learners usually absent from school?



15. Do you have instances where learners are away from (absent) from school for long periods due to illness?
16. If there are learners who do suffer from the effects of malaria, how do you manage their school work or assist them to complete their tasks?
17. If there are learners who do suffer from the effects of any other illnesses, how do you manage their school work or assist them to complete their tasks?
18. Do you as a group of Foundation Phase educators share information as to how you can assist your learners and each other in the event of malaria infections at school?



Appendix 9

Individual interview questions for: Principals:

1. Can you elaborate on/explain your understanding of Malaria?
2. What do you know about the extent of malaria in
 - your area
 - your province or
 - the rest of the country?
3. What could be done to avoid malaria:
 - at home
 - at your school?
4. Are you aware of the symptoms of malaria?
5. What do you do if you have any of these symptoms?
6. What do you do if any of your educators or learners display any of these symptoms?
7. What are the current interventions (if any) at:
 - your school
 - in the community
8. Do you think that your teachers have adequate information regarding malaria?
9. Is malaria addressed in the curriculum in any way?
10. If malaria is not addressed in the curriculum, do you as a school manager have a policy whereby the educators have to inform the learners of malaria, its causes and consequences?
11. Are you aware of any deaths among your educators or learners that were caused by malaria?
11. Are you aware of any illnesses suffered by your educators or learners that could be related to malaria?
12. What are the typical types of illnesses suffered by your educators or learners for which they are often away from school?



14. Does the school have a standard policy to assist learners who do suffer from the effects of malaria, how do you manage their school work or assist them to complete their tasks?
15. If there are learners who do suffer from the effects of any other illnesses, how do you manage and are away from school work for lengthy periods?
16. Do you as manager share information with your educators as to how they can assist their learners and each other in the event of malaria infections at school?
17. Do you as principals in the area share information about the effects of malaria on your schools and how these effects can be minimised?
18. Does your school and the health authorities communicate in any way about the effects of malaria?

The Literature Review of the proposed study will inform the questions for this research. The questions that follow are provisional. It is envisaged that not all the questions will be asked of all the participants – for this purpose it has been divided into sections where the relevant participants are indicated. The interviews are estimated to last between 45 to 60 minutes per interview, and will be recorded. It will also be conducted at a time and place that is suitable and convenient for the participants. It is envisaged that the questions will be given to the participants beforehand in order for them to have an idea of the information required. At this point it is anticipated that participants will have already signed the consent letters which provide a background to the study and in which the conditions for participation in this study have been set out.

The questions to this interview encompass two research proposals. For the purpose of avoiding response fatigue from the participants, the questions for interviewing the principals and teachers have been combined. The titles of the respective studies are:

1. A situation analysis of health education for young children to promote prevention and control of malaria in the Ha-Makuyu Village.

2. The impact of malaria on Foundation Phase teaching and learning in Ha-Makuyu, Vhembe District.

Malaria kills more than 2 million people annually, and the majority of the victims are children younger than five years of age. Malaria is also responsible for up to 50% of deaths among schoolchildren. However, if malaria is diagnosed timeously and treated effectively, the mortality rate can be reduced. Despite efforts to prevent and control this disease, it is reported that the incidence of malaria is still relatively high in the endemic province of Limpopo, especially the Mutale Local Municipality. This research initiative aims to explore the effects of malaria on teaching and learning at schools, as well as why the incidence rate remains high by analysing health education measures in the province (in terms of teaching and policy), and what is being done by the relevant stakeholders such as the government departments of Health, Education and Social Development (in terms of collaboration) to address this problem, especially in the rural village of Ha-Makuyu.

Time of interview _____ Duration: _____

Date: _____

Place: _____

Interviewer: _____

Interviewee: _____ Pseudonym: _____

Position/Role: _____

Institution: _____

Male/Female _____

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Principals: (Individual Interviews)

Time of interview _____ Duration: _____

Date: _____

Place: _____

Interviewer: _____

Interviewee: _____ Pseudonym: _____

Position/Role: _____

Institution: _____

Male/Female _____

1. What do you know about the extent of malaria in:
 - your area,
 - your province or
 - the rest of the country?
2. What could be done to avoid malaria:
 - at home or
 - at school?
3. Are you aware of the symptoms of malaria and how would you treat these symptoms?
4. What do you do if any of your educators or learners display any of these symptoms?
5. What are the current interventions (if any) in terms of a person diagnosed with malaria at:
 - school,
 - in the homes of learners or
 - in the community
6. Does the school have a standard policy to assist learners who do suffer from the effects of malaria, how do you manage their school work or assist them to complete their tasks if they had been absent for some time?
7. Are there processes in place at your school to assist learners, who happen to be absent for lengthy periods as a result of any other illnesses, besides malaria?

8. (a) Are you aware of any current policies on the prevention and control of malaria in this Province?
8. (b) If yes – do you know which policies these are?
8. (c) How do you ensure general implementation of policies in the school?
8. (d) How do you ensure the implementation of the CAPS curriculum in the school?
9. (a) Are you aware of any collaboration or communication between role-players on malaria awareness, prevention and control?
9. (b) If not – how would you suggest that such collaboration could be achieved?
10. (a) In your opinion, do schools promote the awareness, prevention and control of malaria?
10. (b) If yes – how is this achieved?
10. (c) If no, do you as a school manager have a policy whereby the educators have to inform the learners of malaria, its causes and consequences?
11. (a) How is health education addressed in the Foundation Phase classroom?
11. (b) How is health education addressed according to the CAPS curriculum?
12. (a) Do you think that your teachers have adequate information regarding malaria?
12. (b) If yes – how is this evident?
13. Do you as manager share information with your educators as to how they can assist their learners and each other in the event of malaria infections at school?
14. Do you consider the content of the Foundation Phase Life Skills curriculum to be sufficient to address the issue of malaria prevention and control?
15. (a) Are you aware of any other means by which information on malaria is distributed amongst children/educators?
15. (b) If yes – how is this information distributed?
16. (a) Are you aware of any deaths among your educators or learners that were caused by malaria?
16. (b) If any deaths did occur, was it reported to the health authorities?
17. Are you aware of any illnesses suffered by your educators or learners that could be related to malaria?
18. What are the typical types of illnesses suffered by your educators for which they are often away from school?
19. Do you as principals in the area share information about the effects of malaria on your schools and how these effects can be minimised?

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Foundation Phase Teachers: (Group Interviews)

Time of interview _____ Duration: _____

Date: _____

Place: _____

Interviewer: _____

Interviewee: _____ Pseudonym: _____

Position/Role: _____

Institution: _____

Male/Female _____

1. What do you know about the extent of malaria in
 - your area
 - your province or
 - the rest of the country?
2. What could be done to avoid malaria:
 - at home
 - at school?
3. Are you aware of the symptoms of malaria and how would you treat these symptoms?
4. What do you do if your learners display any of these symptoms?
5. What are the current interventions (if any) in terms of a person diagnosed with malaria at:
 - school
 - in the homes
 - in the community
6. Is malaria addressed in the curriculum in any way?
7. Do you consider the content of the Foundation Phase Life Skills curriculum to be sufficient to address the issue of malaria prevention and control?
8. If malaria is not addressed in the curriculum or if the content is deemed as insufficient, do you as an educator embark on any initiative to inform the learners of malaria, its causes and consequences?

9. (a) Are you aware of any other means by which information on malaria is distributed amongst children/educators?
9. (b) If yes – how is the information distributed?
10. (a) Are you aware of any collaboration or communication between role-players on malaria awareness, prevention and control?
10. (b) If not – how would you suggest that such collaboration could be achieved?
11. (a) Do schools promote the awareness, prevention and control of malaria?
11. (b) If yes – how is this achieved?
12. What strategy would you suggest to enhance and improve the overall awareness, prevention and control of malaria?
13. (a) How is health education addressed in the Foundation Phase classroom?
13. (b) How is health education addressed according to the CAPS curriculum?
13. (c) How do you ensure that learners understand the content of the CAPS curriculum?
- 14.(a) Do you know whether the learners are aware of malaria prevention practices?
14. (b) If yes – how is this evident?
15. Would you say that this knowledge is sufficient?
16. Are you aware of any deaths among your learners that were caused by malaria?
17. Are you aware of any illnesses suffered by your learners that could be related to malaria?
18. What are the typical types of illnesses suffered by your learners?
19. Can you list the common reasons for the absenteeism of your learners?
20. Do you have instances where learners are away from (absent) from school for long periods due to illness?
21. If there are learners who do suffer from the effects of malaria, or any other illnesses, how do you manage their school work or assist them to complete their tasks?
22. Do you as a group of Foundation Phase educators share information as to how you can assist your learners and each other in the event of malaria infections at school?

1. A situation analysis of health education for young children to promote prevention and control of malaria in the Ha-Makuyu Village.

District officials: Department of Education and Department of Health

Time of interview _____ Duration: _____

Date: _____

Place: _____

Interviewer: _____

Interviewee: _____ Pseudonym: _____

Position/Role: _____

Institution: _____

Male/Female _____

- 1.(a) Are you aware of any current policies on the prevention and control of malaria in this Province?
- 1.(b) If yes – which policies/name them.
- 2.(a) Are you aware of any collaboration between role-players on malaria awareness, prevention and control?
- 2.(b) If not – how would you suggest that such collaboration could be achieved?
3. Do schools promote awareness of malaria prevention and control? **(DoE)**
- 3.(b) If yes – how?
4. What strategy would you suggest to enhance and improve overall awareness of malaria prevention and control?
5. How do policies of this department address malaria education in the Foundation Phase?
6. What strategies (if any) are employed by this institution to promote the prevention and control of malaria through health education?
7. What do you consider as
 - (a) the strengths, and
 - (b) the weaknessesof health education, especially with regard to malaria prevention and control in Early Childhood Education in this province?
8. Describe how information in policies is disseminated to the community?

- 9.(a) How do you ensure general policy implementation in schools? (DoE)
- 9.(b) How is policy implementation monitored?
- 9.(c) How do you ensure the implementation of the CAPS curriculum in the school? (DoE)
- 10.(a) How is health education addressed in the Foundation Phase classroom? (DoE)
- 10.(b) How is health education addressed according to the CAPS curriculum? (DoE)
- 11.(a) Do you consider the content of the Foundation Phase Life Skills curriculum to be sufficient to address the issue of malaria prevention and control? (DoE)
- 12. (a) Are you aware of any other means by which information on malaria is distributed amongst children/community members? Please name all possible sources you can think of.
- 12.(b) If yes – how is the information distributed?
- 12.(c) Do you consider these sources In 12 (a) to be effective?
- 12.(d) If not - Can you suggest any other means by which the information could be distributed?

1. A situation analysis of health education for young children to promote prevention and control of malaria in the Ha-Makuyu Village.

Community members (sisters at the clinic and community workers) and traditional leaders

Time of interview _____ Duration: _____

Date: _____

Place: _____

Interviewer: _____

Interviewee: _____ Pseudonym: _____

Position/Role: _____

Institution: _____

Male/Female _____

1.(a) Are you aware of any current policies on the prevention and control of malaria in this Province?

1.(b) If yes – which policies/name them.

2.(a) you aware of any collaboration between role-players (such as yourself and the departments of health and education) on malaria awareness, prevention and control?

2.(b) If not – how would you suggest such collaboration is achieved?

3. What do you consider to be

- (a) the strengths, and
- (b) the weaknesses

of health education, especially with regard to malaria prevention and control in Early Childhood Education in this province?

4. Describe how information in policies is disseminated to the community?

5. How is policy implementation monitored?

6.(a) Are you aware of any other means by which information on malaria is distributed amongst children/community members?

6.(b) If yes – how is the information distributed?

7. How would you describe the

- (a) attitude and
- (b) knowledge

of the community towards the prevention and control of malaria?

- 8.(a) Where would you say the community get their information on malaria prevention? Please name all possible sources you can think of.
- 8.(b) Do you consider these sources to be effective?
- 8.(c) If not - Can you suggest any other means of information distribution?
- 9.(a) Do you know whether the learners are aware of malaria prevention practices?
9. (b) If yes – how is this evident?
- 9.(c) Would you say that this knowledge is sufficient?
10. How is malaria usually diagnosed in this village?
11. Do community members usually
 - (a) first come to the clinic or
 - (b) seek “other” treatment (such as traditional cures)
12. (a) Briefly describe the process from malaria diagnosis until the patient receives treatment.
12. (b) How effective would you say the process is?
13. How do cultural beliefs influence the seeking of medical attention in cases of malaria?