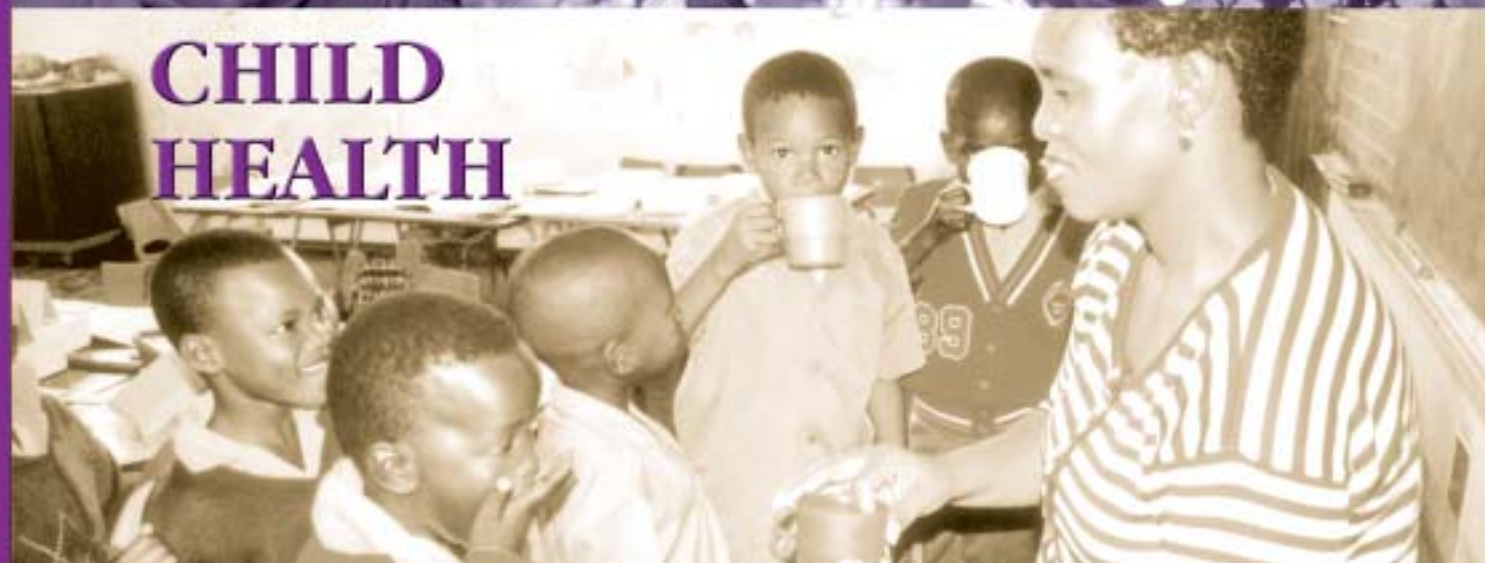


# Evaluation of a primary education programme to combat worm infestation in Khayelitsha, Cape Town

A research report



HEALTHY  
COMMUNITIES



CHILD  
HEALTH



LIFE  
ORIENTATION

Bridget Johnson  
and  
Mickey Chopra  
School of Public Health  
University of the  
Western Cape (UWC)

**Evaluation of a primary education programme  
to combat worm infestation  
in Khayelitsha, Cape Town**

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**A RESEARCH REPORT**

Bridget Johnson and Mickey Chopra  
School of Public Health  
University of the Western Cape (UWC)

Commissioned by the Khayelitsha Task Team



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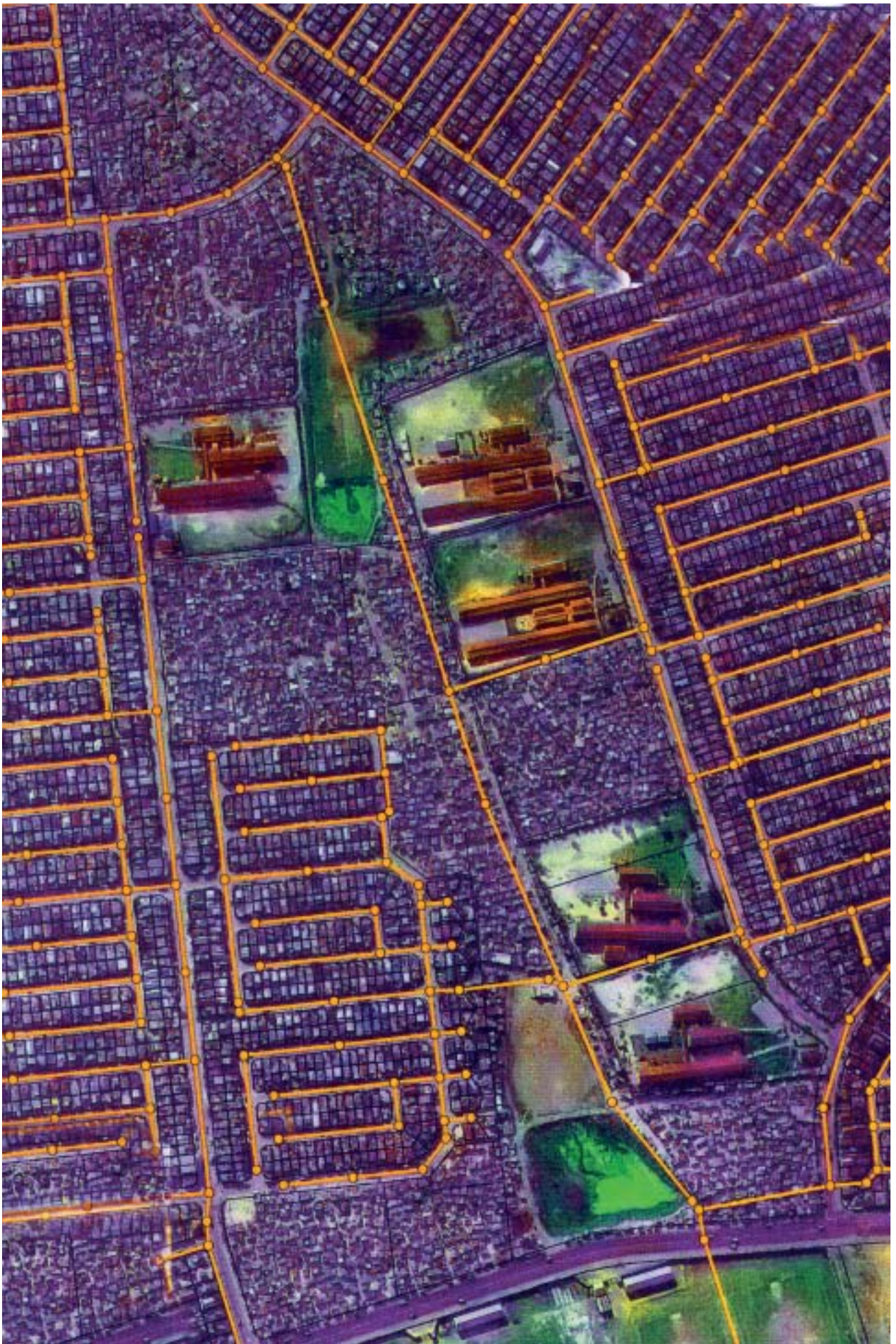
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Schools amongst shacks. Clockwise from top left: Ikhusi, Ummangaliso, Sobambisana, Sakumlandela and Ntwasahlobo schools in Site B of Khayelitsha.

## Executive Summary

---

This report documents the findings of an evaluation study into the implementation of a school-based programme designed to treat and prevent worm infestation in children.

The study was conducted in the Western Cape, among six schools in Site B and six in Site C of Khayelitsha, using qualitative research.

Phase One involved the evaluation and monitoring of the training of key teachers so that they could train other teachers (master trainers).

Phase Two was concerned with the evaluation and monitoring of the implementation of the programme in the classroom. Interviews were conducted with teachers from six of the twelve pilot schools in order to determine the factors that facilitated, or hampered, the success of the programme, and to elicit ideas for improvements to the programme. A semi-structured questionnaire aimed at supplementing the information gained from the interviews was completed by key personnel or programme coordinators at the six schools.

Phase Three involved the determination of needs that have not been met by the current programme. In order to do this, focus group discussions were held with teachers in both Sites.

Phase Four involved the assessment of the responses of learners to the programme. This was based on observation of lessons in the classrooms in order to ascertain the effectiveness and appropriateness of the materials.

Factors that facilitated the success of the programme included: participation in the design, testing and improvement of the materials; training by Subject Advisory Services of the WCED; active membership of Health Promoting Schools; and the support and collaboration of school principals and colleagues.


Factors that hampered the success of the programme included : competing curriculum priorities; lack of support from the Principal and colleagues; lack of basic facilities to monitor basic hygiene practices by children; and conflicting messages from the community.

Suggestions for improvement of the programme included: greater durability of materials; improved visual appeal of the materials; more interaction with learners and classroom participation; and greater involvement of parents and the community.

This study therefore highlights the development of a school-based programme as part of an effective and sustainable prevention strategy in dealing with worm infestation.

The report is divided into two sections. Section A is in six parts:

1. An introduction to the research project, which includes a brief review of selected literature;
2. A background to the study, which outlines the processes involved in the design and implementation of the programme;
3. The research methodology of the evaluation, which details the objectives of the research and the processes involved in data collection;

- 
4. The research findings, which are presented according to common themes elicited from the data;
  5. A discussion, which includes a summary of the research findings; and
  6. The conclusions and recommendations.

Section B comprises the action plans, which are based on the recommendations.

# Section A: Research and Evaluation

## I Introduction

Recent studies have estimated the rate of infection by worms globally, to be more than two billion people (Yazhari, 2001). These estimates project an ever-increasing risk of infection of individuals, especially in urban areas (Curtis *et al*, 1997). While the infestation of children by worms (helminthiasis) has been largely eliminated in developed countries, it is a serious and growing problem in developing countries. Helminthiasis is still widespread among children in most countries in Africa (Bundy *et al*, 2000). The living conditions of many South African children make them particularly vulnerable to infestation by intestinal parasites. Moreover, migration continues from rural areas to cities and towns in search of employment and better living conditions. Since the existing infrastructure cannot cope with rising demands for housing, water and sanitation in the urban areas, the problem is growing.

While the excessive prevalence of infestation by worms is cause for concern, the situation is exacerbated by the fact that helminths are currently being considered as co-factors in the pandemics of HIV/AIDS and tuberculosis (TB) (Fincham, 2001). There is accumulating evidence that chronic helminthic infection compromises the immune system. This situation could increase the risk of infection by HIV and *Mycobacterium tuberculosis* and may also accelerate progression of disease. In addition, it is likely to impair the efficacy of vaccines against HIV and TB. These possible links between HIV/AIDS, TB and the presence of worms therefore reinforce the urgency for effective prevention of helminthiasis.

Mass deworming is generally accepted as a cost-efficient method of control (Bundy *et al*, 2000; Fincham, 2001). Nevertheless, it is becoming increasingly obvious that a holistic and comprehensive approach to dealing with helminths and other enteric diseases, like cholera, needs to involve partnership programmes in order to make the efforts sustainable and more efficient (Anonymous, 2001).

These partnership programmes include education and training; the development of school and community-based hygiene and sanitation programmes; an uninterrupted supply of clean water; nutrition and school feeding schemes; as well as effective communication and mobilisation strategies (Anonymous, 2001; Yazhari, 2001). While there is recognition of the value of a collaborative and co-ordinated approach based on holistic principles, it is rare to find accounts of successful practice.

This report examines the development of a school-based programme aimed at the prevention of helminthiasis in children. This is part of a holistic intervention that includes deworming of children; community awareness; empowerment and engagement; improvement of sanitation and hygiene; and participation by all service providers (Anonymous, 2001).

## 2 Background to the Study

---

The Khayelitsha Task Team (KTT) was established in response to growing concern among the community, health workers, teachers and researchers about the high prevalence of worm infestation in children of informal settlements in Sites B and C of Khayelitsha, in the Western Cape (Anonymous, 2001). KTT consists of medical personnel, researchers, academics, teachers, parents, NGOs, service providers and community members, all of whom are committed to improving the health status of the children and communities. Interventions by the team to date have included:

- a baseline assessment of the extent of worm infestation;
- surveys of school sanitation;
- surveys of environmental conditions and mapping by means of locality-based photographs;
- fundraising;
- the employment of a full-time co-ordinator;
- regular deworming of children and monitoring of results (see Appendix 2);
- informing and engaging parents and community members;
- development of a set of learning materials for primary schools, so as to inform children about the relationship among worms (and other pathogens), pollution, hygiene and sanitation, and to foster healthy practices (Lake, 2001).

The focus is therefore on a comprehensive and holistic approach to dealing with the problem (Anonymous, 2001). From the start, the community of Khayelitsha played an active role in determining the extent of their problems, and in generating solutions. Key role players have been engaged in advocacy, fundraising and seeking long-term, community-based solutions. The education materials that were designed to inform children about prevention and treatment of worm infestation were developed in consultation with teachers, the Western Cape Education Department (WCED) and community members. The module is based on health-promotion principles in general, and the Health Promoting Schools concept in particular.

The design of the materials also incorporated the principles of outcomes-based education, namely: the development of appropriate knowledge, skills, attitudes, values and practices in children, with regard to specific subjects, topics and life orientation (Lake, 2001).

Development was initiated towards the end of 1999. A professional Education Materials Developer was tasked to produce the programme, which needed to be technically accurate, but which also might be used to create: “an opportunity to promote a culture of active citizenship and to facilitate whole-school development” (Lake, 2001). The contractual relationship was between KTT and the Education Support Services Trust.

The following knowledge, values and skills were identified as critical learning outcomes of the programme:

## 2.1 Knowledge

### a) Understanding

- What worms are;
- Where they come from;
- How they grow, live, reproduce themselves and die;
- How they get into the children's bodies at home and at school;
- Why they are a problem;
- How the children might know when they have got worms inside them, and how they affect learning and playing.

### b) Working towards solutions - breaking the cycle

- By means of prevention based on: responsible behaviour, cleanliness, hygiene, effective sanitation, fresh water, and a clean environment.
- By treatment with medicines that are effective and safe.

## 2.2 Values

The children were taught active citizenship, which involves:

- Caring for themselves,
- Caring for others, and
- Caring for the environment.

## 2.3 Skills

It was considered that children needed to be able to:

- Identify transmission routes, danger zones and risky behaviours,
- Actively engage in preventive behaviour,
- Motivate and help others to protect themselves from worms, and
- Identify other role players that can help keep the environment clean.

The Subject Advisory Services section of the WCED ensured the programme materials were Curriculum 2005 compliant.

The materials were initially piloted at Ikhusi and Nolungile Primary Schools in Sites B and C, respectively. Teachers at these schools contributed actively to the development during piloting, testing and modification. The final set of materials was made available in English and Xhosa, and consists of:

- a Teacher's Guide: *Learn about Worms*
- Story book 1: *Thandi goes to the clinic*
- Story book 2: *The journey of the eggs*

- Story book 3: *Thandi's school gets clean and healthy*
- A work book: *Worms Worksheet*, comprising illustrative material for completion by children.

The WCED officially endorsed KTT's education programme in January 2001 (Lake, 2001). Since then, formal piloting of the programme has been completed in six of the twelve schools at which KTT was operating in 2001.

KTT commissioned the School of Public Health at UWC to evaluate the piloting and the results are presented in this report.

## 3 Research Methods

---

### 3.1 The Objective of the Study

The overall objective was to monitor and evaluate the implementation of the education programme that was designed and developed to inform children about how to prevent and address infestation by worms. The same basic principles apply to other intestinal parasites as well as epidemic enteric diseases, like cholera.

In order to achieve the overall objective, specific aims were set, as follows:

- Determine the extent to which the programme was being successfully implemented.
- Identify factors that facilitate or hamper successful implementation.
- Develop assessment tools that could be appropriate for use in future evaluation studies.
- Determine the usefulness of the programme in terms of:
  - curriculum infusion;
  - user friendliness;
  - appropriateness in relation to age of pupils.
- Try to enhance further development of the education programme by providing feedback from various sources.

### 3.2 Data Collection

The research was conducted over a period of six months. Qualitative methods were used for data collection and there were four phases.

- Phase One: the observation of the tutoring of teachers from 12 schools, to become master trainers of their colleagues.
- Phase Two: teacher interviews and the completion of a wide-ranging questionnaire at six schools (Appendix 1).
- Phase Three: discussion groups with teachers, focussed on *Learn about Worms*.
- Phase Four: observation of lessons that incorporated *Learn about Worms*, in classrooms at two schools.

Collection of data from different sources, and using different methods, as indicated above, allowed for triangulation (or cross-checking) and strengthened the basis from which to draw conclusions and make recommendations about *Learn about Worms*. An overview of the research design is provided in Table 1.

Table 1: Overview of the research design			
Phase <sup>a</sup>	Schools <sup>b</sup>	Techniques	Focus of activity
1	12	Observation	Tuition of master teachers
2	6	Questionnaires by 20 teachers <sup>c</sup>	Perceptions by teachers
3	2 <sup>d</sup>	Focus group discussions	About how to improve
4	2 <sup>d</sup>	Classroom observation <sup>e</sup>	Reception by learners

<sup>a</sup> See section 3.2 in the text.  
<sup>b</sup> The number of schools involved.  
<sup>c</sup> See Appendix 1.  
<sup>d</sup> One in Site B and C.  
<sup>e</sup> Of the use of *Learn about Worms* by teachers.

### 3.3 Analysis of the Data

The data was analysed thematically. Key statements were quoted and used to support discussion. Observations were recorded in journal form and also used for thematic analysis.

### 3.4 Limitations of the Study

In conducting the classroom observations, one of the greatest constraints was the lack of Xhosa language skills by the researcher. The lessons were presented in Xhosa because that was the language of the learners.

The lack of understanding of Xhosa meant that it was difficult to ascertain the extent to which learners understood the lessons and were getting the facts right. In an attempt to overcome this limitation, the marks allocated by the teacher in their learner's books, were noted.

The materials were also not available in Xhosa at the time of the study. This was particularly disadvantageous to the children in the Foundation Phase because they usually do not understand English at all. The teachers tried to compensate by translating continuously, thereby creating a language-learning opportunity based on life orientation.

WCED Subject Advisory Services personnel could not respond to requests to join in the classroom observations at some schools, owing to their limited time and staff resources. Since their insight and input would have been particularly valuable, the lack of WCED input was a serious deficit.

There were also difficulties in establishing appointments for classroom observation because of competing priorities. In some instances, visits had to be postponed owing to extra-curricular activities.

## 4 Research Findings

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This section presents the findings according to the main themes and sub-themes that were identified. It is arranged into three parts: the Master Training; Implementation of the Programme; and Unmet Needs of Teachers.

### 4.1 The Master Training

#### a) Observations

The training of the teachers to use *Learn about Worms*, took place on the 2<sup>nd</sup> and 3<sup>rd</sup> of July, 2001. Each of the 12 schools was requested to nominate six teachers for training. Ideally these were supposed to consist of two staff members involved in KITT activity; two management staff members; and two Life Orientation teachers. Once they had come together, participants were divided into groups and exposed to the training methods that were participatory and highly interactive, with the focus on the sharing of ideas.

Teachers were trained on how to integrate new material into their year-plan for Life Orientation. They learned to adapt the lessons according to the different age groups, how to link the lessons to other learning areas, and were cautioned about the myths that prevail in the communities around the origins and causes of worms. It was emphasised that teachers needed to be familiar with the facts about worms, so that they could rectify myths and to respond accurately to questions that learners would inevitably ask about worms.

The response from teachers during training was clearly positive, They responded freely and enthusiastically and contributed their own ideas for making the programme successful.

#### b) Strengths

During the interviews, teachers identified certain strengths in the training. It was perceived as clear, straightforward and sufficient to implement with confidence. One participant also valued the fact that the materials were available at the time of training. Another teacher felt the training was adequate as the materials are easy to implement. Those who felt that the training was sufficient also mentioned that it was because they had been involved in the initial piloting of the programme.

#### c) Weaknesses

Some perceptions of shortcomings in the training were also recorded during the interviews. Some participants felt that more time was needed. One thought that the pace was too fast and that more thorough explanations should have been given. Another suggested that the training should be repeated.

#### d) Recommendations

One participant was of the opinion that the training was sufficient in itself, but felt that the results would be enhanced if all the teachers were trained, and not just the core group that was selected.

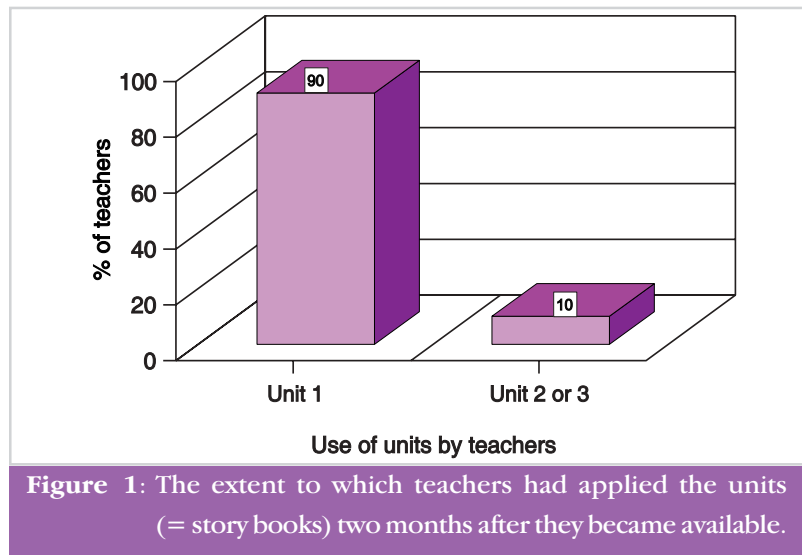
## 4.2 Implementation of the Programme

### a) Extent of implementation

#### i) The use of units by teachers

It should be noted that the teachers were not expected to work through the units in chronological order, as they were encouraged to infuse the lessons across learning areas and themes.

Teachers received the set of materials about two months before this evaluation. Most teachers (90%) had worked through Unit One, and some teachers (10%) had also worked through either Unit Two or Unit Three (Fig. 1).



#### ii) The number of lessons completed by each teacher

Half the teachers had completed at least two lessons, and 40% more than two (Fig. 2 on page 8). This was considered to be good progress as the teachers had only received the materials about two months before the evaluation.

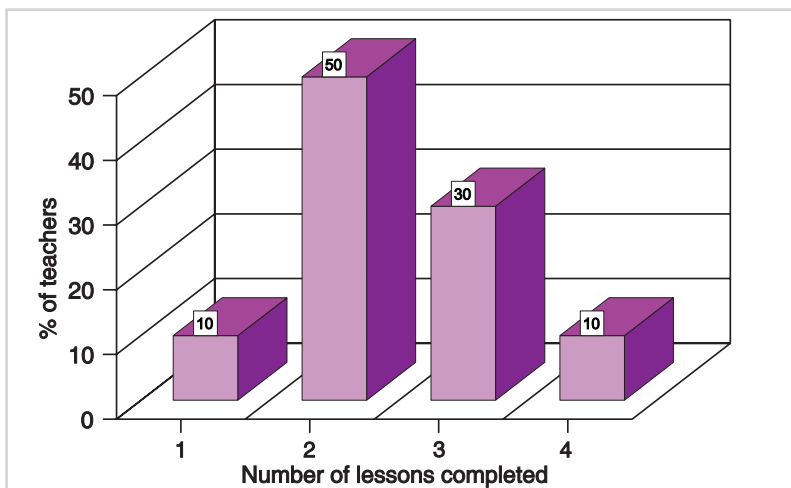


Figure 2: The number of lessons completed by teachers two months after the materials became available

iii) The grade levels at which the lessons were introduced

The lessons were taught mainly in the Intermediate Phase (Grades 4, 5, 6), followed by the Foundation Phase (Grades 1, 2, 3). Teachers seemed to favour Grade 4 as a level to present lessons (Fig. 3 below). This could be based on the perception that pupils had a better command of English by then.

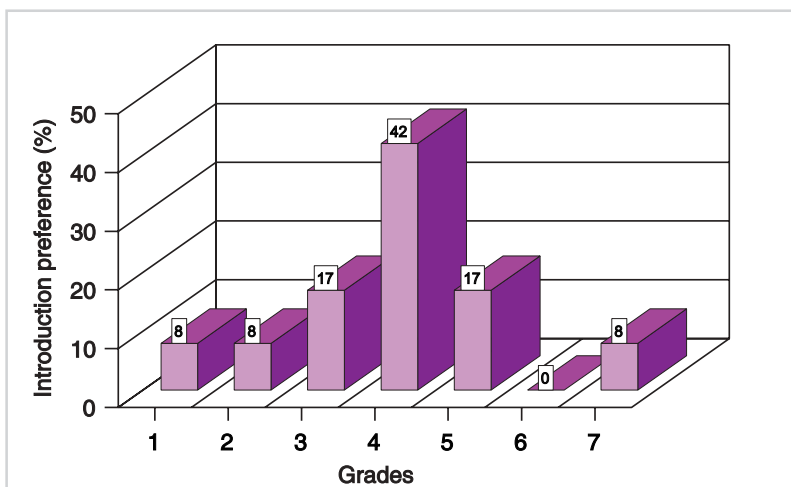


Figure 3: The Grades in which lessons were introduced.

iv) The learning areas used for the lessons

Life Orientation was the most frequently used learning area, followed by Language, Literacy and Communication. Natural Science is also a key learning area where these lessons might be accommodated. Teachers also introduced the lessons via: Mathematics, Humanities and Social Sciences, Arts and Culture, and to a lesser extent, Technology. The extent to which teachers used *Learn about Worms* in different learning areas is summarised in Table 2 (on page 9).

Table 2: Teacher's use of <i>Learn about Worms</i> in different learning areas.	
Learning Areas	% of teachers
Life Orientation	60
Language, Literacy and Communication	50
Natural Science	30
Mathematics	20
Humanities and Social Science	20
Arts and Culture	20
Technology	10

\* The results do not add up to 100% because teachers work across grades, learning areas and units.

## b) Programme materials

### i) Language

All participants who attended the training received a copy of the programme materials in English, because they were not available in Xhosa at that time. Many teachers found that this complicated the use of materials in the classroom, especially with Foundation Phase learners. Children's responses were inhibited, as indicated by comments made by teachers:

“Children feel shy when it comes to answering in the second language, whereas they are comfortable in Xhosa.”

“ It should be translated into Xhosa so that children can read by themselves.”

Teachers were therefore adamant that the materials had to be in the children's own language: “The materials should be in their mother tongue, especially in the Junior Phase.”

At the same time, there were teachers who recognised the value of the materials in terms of acquiring the skills of English in the course of learning about health.

### ii) Age appropriateness (Table 3, overleaf)

Teachers felt that the materials were most appropriate to learners in the Foundation Phase (Grades 1-3). They recommended that pupils in Grade 3 would benefit the most. They also thought that the lessons could be presented in the Intermediate Phase (Grades 4-6). While two teachers were of the opinion that the lessons could be presented in Grade 7, one teacher was particularly strong in disagreeing about this: “Too easy for Grade 7!”

**Table 3: Age appropriateness of *Learn about Worms*, according to teachers**

<b>Grade<sup>a</sup></b>	<b>Phase</b>	<b>Number of teachers<sup>b</sup></b>
1	Foundation	6
2	Foundation	6
3	Foundation	8
4	Intermediate	5
5	Intermediate	5
6	Intermediate	5
7	Advanced	2

<sup>a</sup> Grade of learners.

<sup>b</sup> The number of teachers who would implement the materials in the corresponding grade.

### iii) Durability

Teachers expressed concern about the durability of the materials and they made a suggestion for making them last longer: “They should be laminated so as to last for a long time.”

Emphasis was also placed on the covers of the books: “...the book cover must be harder and should be colourful”.

### iv) Visual appeal

The teachers had many ideas for improving the visual appeal of *Learn about Worms*. These ranged from suggestions for the covers of the component books, to the contents and the worksheets. They felt that colour was most important and some comments were:

“Covers should be more appealing to the kids.”

“Make the covers more glossy and colourful.”

“Please make them larger [than the original A5 size] and more colourful.”

“I think the materials need to be more colourful, to make the learners more interested in them, especially the worksheets.”

“We need colour pictures to make it live.”

### v) Practical implication (especially size)

Many participants recommended that the page size for the storybooks should be made larger than A5 and that small print should be avoided:

“The page size is too small.”

“The materials should be at least A4 size.”

“Teacher’s Guide printing is too small.”

“Should be written in bigger words.”

Teachers felt that size was most important for sharing the stories with the whole class:

“I still feel that bigger words are needed for shared reading.”

“The size of the pictures in the stories is not big enough for the whole class to see.”

“Size needs to be enlarged to accommodate everybody.”

#### vi) Assessment

Teachers felt that it was most important for learners to understand lessons, and it seems that the materials helped them to communicate with their pupils: “Learners understand the lessons and they always pass.”

#### vii) Content

Teachers found the content of *Learn about Worms* to be clear, as well as easy to understand and use:

“It is clear and it makes my task easier.”

“No difficulties at all because it is clear, simple and straightforward.”

Teachers offered suggestions for improving the content of the materials:

“We need more drama.”

“There must be some more dramatic stories.”

#### viii) Wall charts

There was a request from teachers for wall charts (posters) to supplement the materials. These should be used to carry additional health messages as well.

“There need to be wall charts showing more dangers of worms.”

“Health charts are needed” [that are comprehensive].

#### ix) Photocopying

There were some problems with the necessity for photocopying the materials for learners, but these did not seem to deter the teachers from implementing lessons.

“Shortage of papers, ink and master prints for use in the photocopy machine.”

“The school had a shortage of *Canon* papers but this has been sorted out.”

#### x) General

Overall, the *Learn about Worms* materials have been well received by teachers. Rather than complaints, there were proactive suggestions for improvements. The learners have also responded positively. The following comments from teachers reflect some responses from learners to the materials:

“Like and impressed.”

“Very positive.”

“They were excited and they enjoyed and loved it.”

“The learners enjoy the lessons about worms.”

“Seeing the deep and great interest of my learners - that meant something and was enjoyable.”

The fact that the children enjoyed the lessons was quite evident during the classroom observation. The teachers put a lot of energy into the lessons and seemed to have fun with the children. Not only were the lessons participatory with lots of group work, but children responded freely to questions asked by the educator. They received positive feedback to their responses and they remembered clearly what they had been taught previously. The children were attentive and responsive throughout the lessons. Teachers also added their personal touch to the lessons. One teacher had devised her own song to help the children remember what they had learned. Another teacher had devised her own stories to supplement those in *Learn about Worms*.

Teachers also placed worksheets that learners had coloured in, on the classroom walls. This served to reinforce the learning process and to brighten the classroom walls. Teachers were also creative with the lessons in other ways.

Learners played games relevant to the lessons, wrote on the board, cut out pictures, and placed appropriate answers into various voting boxes. Even though the lessons were conducted mainly in Xhosa, it was quite evident that the response was positive and enthusiastic.

### c) Support

#### i) School Principal

During the interviews, it became clear that the role of the Principal was of great importance to ensuring that *Learn about Worms* was implemented.

“Makes sure the implementation is done.”

“The Principal makes sure it is done.”

Other teachers felt that their Principal was supportive of their efforts to implement the programme:

“He’s supportive.”

“Supportive.”

On further investigation, however, it appeared that the interaction was more one of encouragement than taking an active role in the process.

Where the Principal was involved directly, teachers felt that his presence served to motivate the project. Relevant comments were:

“He is directly involved in the environment committee and is active.”

“Sometimes he attends meetings and motivates.”

#### ii) Circuit Manager

Teachers were not sure about the role of the Circuit Manager of the WCED in supporting use of the new material. Generally the comment was: “Not sure.” A few teachers mentioned that they had received some form of encouragement:

“He is supportive and encourages us.”

“He attends meetings and also motivates.”

Unfortunately, it seems that support from the Circuit Manager is largely not forthcoming, as shown by comments like:

“Not this year.”

“Nothing.”

#### iii) Subject Advisors

Teachers’ experience of support from their Subject Advisors (WCED) seemed to be limited to provision of programme material, as indicated by comments about interaction, such as:

“Provides material.”

“To provide material.”

One teacher specified that the school needed more support and that the Subject Advisor should assist in this regard: “The school still needs more support, maybe from the Subject Advisor.”

Others felt that they were receiving adequate support from their Subject Advisor: “She is supportive.”

One teacher visualised the role of the Subject Advisor as motivating teachers in terms of implementing *Learn about Worms*. Sadly, there were teachers who reported that they had received no support from their Subject Advisor. They commented:

“Not yet.”

“Nothing.”

#### iv) School Health

The health sector has clearly been very helpful and supportive in terms of the programme. Their support ranges from assisting learners with deworming, provision of health promotion materials, cleaning, and so on. Comments included:

“Make sure the learners are clean.”

“They give schools materials.”

“They are involved. They also deworm the children.”

“Fully involved in the programme.”

“See to it that a cleaning programme is in place.”

#### **d) Parent/Community involvement**

Where parents have been informed about the programme, they are positive and supportive. Learners, parents and cleaning staff are also informed about the programme and are trained to take appropriate

health measures. These include the cleaning of the school yard and the toilets, both regularly and more often. Monitoring of cleanliness is the responsibility of staff and prefects, while the learners are also given soap to wash their hands. All this makes parents feel that teachers and caretakers care about the health of their children. One teacher noted that the parents work hand-in-hand with the teachers to keep children clean and healthy.

Another teacher noted that, while parents are informed about the programme, the language that is used mostly in workshops and meetings, does not encourage parents to contribute to discussion.

Information on the interaction between schools and parents is summarised in Table 4 (below). Although, most of the schools had not yet had parental meetings to tell them about the programme, most schools do have a policy on the prevention of worms. The development of a healthier environment is clearly a priority for most schools.

<b>Table 4: Schools' progress and policy on parent involvement</b>		
<b>Progress and/or Policy</b>	<b>Yes</b>	<b>No</b>
Meetings to inform parents about the programme	40%	60%
A school policy on the prevention of worms	60%	40%
Policy to promote a clean environment	80%	20%
Promotion of environmental health: broad based <sup>a</sup>	80%	20%

<sup>a</sup>Involving learners, parents and the community, in combination.

### 4.3 Unmet Needs of Teachers

The needs identified by teachers in order to successfully implement the programme were presented as follows.

#### a) Training

Teacher expressed the need for further workshops. They felt that these contact sessions would be useful for the identification of problems and for effective problem-solving: “We need further workshops to compare and resolve problems.”

Teachers also felt that more training was needed in terms of the contents of the programme. They felt that this would be particularly useful for the Foundation Phase teachers (Table 3 on page 10): “There should be more training for the Foundation Phase teachers.”

An important issue raised by teachers was that all staff members should be trained, especially caretakers. There were teachers who had experienced problems in trying to educate other staff members about the problem of worm infestation, in a holistic way. They felt that training all staff members would maximise involvement of

everyone in the school: “All the staff must be trained so that each and everyone will be involved.”

#### **b) Materials**

Teachers recommended that more teaching aids should be used. They expressed a need to share information with parents, so that the message the children were receiving reached the whole family. This could be done by: “bringing more teaching aids like charts, pamphlets, posters and booklets to the attention of the children and their parents.”

The role of the Subject Advisor as an important motivator was emphasised. The teachers expressed a desire to be visited by the Subject Advisor once a quarter, or more often: “Subject Advisors should visit and motivate us at least once a quarter.”

#### **c) Parents**

Teachers felt strongly that parents needed to be fully informed and educated about the need to prevent and treat worm infestation in their children. They were concerned that the messages the children were receiving at home about worms were not corresponding with information provided at school. They did not see themselves, however, as the best people to speak with parents, but rather felt that a representative from the Department of Health would be more effective:

“We need people from the Health Department to address the parents about health.”

“School Nurses should visit the schools to address the parents more about worms.”

An important issue which was raised was that the information and messages that parents received should be in their own language. It would not be very useful if information was conveyed in English only: “It must be brought to parents in their mother-tongue language.”

Teachers also suggested that pamphlets and posters about worms, hygiene and sanitation should be produced with clear pictures and simple stories, so that parents could get the message quickly.

#### **d) Environmental issues**

It was particularly striking that the teachers identified structural issues as critical to ensuring the success of the programme. Thus they considered that sinks and wash basins in each class and in the toilets were very important. Since they found it hard to determine whether the children were practising what they had learned, they would have liked to have basins in their classrooms to ensure that the children were washing their hands. They also stressed that they needed soap for the children. It was of particular concern to the teachers that often the municipality would turn off the water supply in their area, making it impossible for children to wash their hands. The lack of water also caused blockages of toilets. Very often there were not

enough cleaning staff (if any) at schools to keep the toilets clean. Although it is illegal to use children to clean school toilets, some teachers felt that it was the only way to control the situation and solve the problem.

## 5 Discussion

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This section will draw together and summarise key issues emerging from the research findings. It will focus specifically on the overall success of the programme, suggestions for improvement of the materials, the factors that facilitate implementation of the programme, as well as those factors that impede progress.

### 5.1 The Educational Programme

The evidence presented in the findings suggests strongly that the educational programme designed for the prevention of helminthiasis in children is highly successful. The teachers have started to implement the programme in their classrooms. The lessons are presented mainly during the Life Orientation period, but are also being infused into other learning areas such as Language, Natural Sciences, Mathematics and Social Science. Teachers are enthusiastic about using these materials and translate from English for their Xhosa-speaking pupils. Much energy and effort is placed into providing exciting lessons.

### 5.2 Implementation of the Programme

#### a) Factors that facilitated implementation

The master training which teachers received before implementation was a major contributor towards implementation of the programme. It helped teachers to integrate the programme into the curriculum, to modify lessons to suit various grades, and to link the lessons to other learning areas. The training served to alleviate uncertainties or anxieties that the teachers may have had about the programme. It also enabled teachers to implement the programme with confidence. Furthermore, since the materials themselves were used for the master training, it allowed teachers to work through the materials beforehand.

Support from the Principal of the school was also regarded as crucial to ensuring implementation. The Principal was also important in motivating teachers with regard to the programme. Teachers who had received support from their Subject Advisor also found that this motivated them to implement the programme.

The health sector and school health in particular were regarded as most helpful and supportive in terms of the programme. The KTT and the Health-Promoting Schools group, also provided support in terms of implementation.

A particularly important factor that facilitated implementation, was the involvement of teachers in the initial design of the materials. They said that they thoroughly enjoyed working with the materials, especially when they saw their stories and ideas being incorporated into the programme.

#### **b) Factors that impeded implementation**

Some teachers found it difficult to train the rest of the school staff in the way that they had been trained. This method is called “cascading”. They thought that it would be better if all staff were trained together. This would have resulted in greater understanding and support for implementation of the programme in their school. Other teachers who had not received master training regarded competing curriculum activities as more important than implementing the worms programme.

Where the Principal was not supportive, teachers felt alienated in their efforts to introduce the programme and implementation was *ad hoc*, as compared to being treated as an important part of the curriculum and a priority learning area. Lack of support from Subject Advisory Services and the Circuit Manager added to the difficulties teachers experienced with implementation.

Structural issues were regarded as important impediments to implementation. Teachers felt that it was important to provide soap for the children to wash their hands, while wash basins were needed in the classrooms and the toilets. Teachers also found that the sudden stoppages of water without warning by the municipality, greatly hampered their efforts as it led to blocked toilets and stopped the children from washing their hands.

Conflicting messages from the community were also an impediment to the programme. There are many myths about worms, and teachers found that these often confused the children. Information provided by teachers conflicted with such myths from parents and other adults and teachers therefore stressed that adult education about worms should be a high priority.

### **5.3 The Materials**

Teachers feel that the materials are clear and easy to use, as they stand. They are also able to add their own ideas and modify the materials according to their needs. Teachers are particularly pleased by the fact that the learners enjoy the lessons and they see them as participatory with lots of emphasis on group work. The use of worksheets allows for feedback and assessment of lessons, and further helps the children to remember what they have learned about worms, through the programme.

While teachers did not have any fundamental problems with the materials, there were some suggestions for improvements. For example, the teachers requested that the materials be produced in colour. They felt that this would enhance the visual appeal of the materials and, by

making the proceedings more lively, the lessons would become more interesting for the children. For the same reason, there should be more dramatic stories.

The teachers also requested that the materials be available in Xhosa, the home language of most of the pupils. They felt this was particularly important at Foundation Phase level because these young children have major difficulties with English. Another request was for the page size to increase to A4. They would like the pictures to be bigger so that the whole class could see them more easily, when displayed by the teacher. Larger print size would have the same advantage. Teachers also felt that wall charts and posters would complement health messages to the children. Pamphlets for parents, should be used to convey the same information provided to their children at school. These pamphlets would have to be in the home language of the adults, and would need to be simple and easy to understand.

## 6 Conclusions and Recommendations

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The development of this health education programme, which was designed for the prevention of helminthiasis in children, holds many valuable lessons in terms of the design and implementation of school-based programmes in general. First and foremost, the need for the programme was determined by the community of Khayelitsha themselves, based on accurate information and visual proof of excessive worm infestation in their children. Because the teachers are familiar with the community and the children they teach, they were the best people to give input into what would work for them in their classrooms. The pride of ownership that resulted from this was evident during the classroom observations. Their having participated in the design of the programme served as a strong motivation to the teachers who implemented the programme. Herein could lie the key to many issues related to successful implementation of school-based programmes. A common criticism of many other programmes is that they are not relevant or appropriate to their target audiences, and consequently they are not used.

It is nevertheless a cause for concern, that teachers found it hard to determine whether the learners were implementing the information provided in the classroom. Owing to the lack of wash basins in classrooms, or in the toilets, and the lack of soap and toilet paper, it was very hard for them to monitor the impact and success of the lessons. This raises many questions about how the success of programmes should be evaluated. The compounding factors that influence the success of programmes, such as the lack of facilities for washing hands, cannot be ignored. If a programme is to imbue its practitioners with a strong sense of purpose and ownership so that they may go further and convince others to support the programme, then such advocacy has to be measured in some way. The whole question of “going to scale” or “roll-out” depends entirely on the goodwill and active support of advocates and their ability to foster new advocates in adjacent communities.

The following recommendations are offered in order to ensure the success of the programme:

## 6.1 Training

- a) All teachers should receive training on how to use and implement the programme. “Cascading”, whereby selected teachers are trained and then train colleagues, was not effective.
- b) The time allowed for training should be sufficient to ensure that teachers understand the programme fully and have time to ask questions. The pace needs to suit the audience.
- c) The myths about infestation by worms that are perpetuated in the community should be discussed during training and consensus reached about some confusing issues.

## 6.2 Implementation

- a) The programme should be implemented in the Foundation and Intermediate Phases. In the Foundation Phase, extra care should be taken to ensure that the learners understand and that communication takes place. Reading tasks in the home language are more appropriate from Grade Two onwards.
- b) At the Intermediate Phase, the level of complexity of lessons should be adapted accordingly.
- c) The lessons should be infused across the curriculum from Life Orientation to Literacy, Mathematics, Natural Sciences, Social Sciences and all other learning areas.

## 6.3 Materials

- a) The materials should be produced in colour, particularly the stories. The work-sheets could remain in black and white, for the children to colour in.
- b) The covers of all the books should be in card and perhaps varnished so as to ensure that they are durable.
- c) The materials should be available in the language of the learners, particularly in the Foundation Phase. This will also encourage the learners to read the stories on their own.
- d) Books should be made available to all learners so that they can take them home to read. This would also expose parents to the materials.
- e) Teachers should have a master set of the stories in A3 format, for sharing with the whole class. There should be more stories and they should be dramatic and interesting, especially for the older children.
- f) There should be supplementary wall charts in classrooms. These should depict health messages in a clear and simple way, and should be bright and colourful, too.

- g) The information on prevention and treatment of worms should be available to parents as well in the form of well-prepared pamphlets. These should be in the languages of the parents, with good illustrations that help to explain the health messages clearly. Technical and bureaucratic jargon must not be used.

## 6.4 Support

- a) Principals should be encouraged to actively support the implementation process. They should encourage and motivate teachers with regard to the programme.
- b) Circuit Managers should support the implementation of the programme at all schools in their areas.
- c) Subject Advisors should visit schools at least once per term to see if they can assist teachers with implementation of the programme in classrooms. They need to provide assistance with the planning and preparation of lessons.
- d) School Health should be recognised as a committed and valuable supporter of the programme and be hailed as an example to other support providers.
- e) The KTT should continue with its positive support of teachers in terms of the implementation of this programme. They could also encourage other stakeholders from outside the area to visit schools often and offer their support.
- f) The Health-Promoting Schools group should continue to strengthen their ties and links with schools and offer support to teachers.
- g) Educational Management Development Centres (EMDCs) should endorse the programme and co-ordinate district-level service provision for support of the programme,

## 6.5 Parent/Community Involvement

- a) Parents need to be trained in terms of the health messages of this programme, so that conflicting information to children from school and at home, is eliminated.
- b) Personnel from the health services and non-governmental organisations in the area should assist in the above regard, clinics included. Wall charts should be displayed in all health service facilities, and information pamphlets should be distributed.

## 6.6 Environmental Issues

- a) Continuous advocacy with service providers and all other sectors should be used to strive for the provision of clean water and some form of toilets throughout the community.

- b) Fund-raising to provide facilities for children to wash their hands in the classrooms, as well as other basic necessities, needs to take place continuously.

## 6.7 Further Research

KTT intends to complement this research process with an impact study later on to determine the effectiveness of the programme in terms of:

- a) Creating awareness of problems outlined in this report.
- b) Addressing the problems.
- c) Fostering parent-community participation.
- d) Changing behaviour, especially in terms of sanitation and hygiene.
- e) Sustainability.

Action research should be the method of choice because it involves constant feedback through all stages of progression, with the objective of improving and strengthening practice and delivery.

## 7 References

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## Section B: Action

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### 1 Introduction

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This section outlines a crucial aspect of the action research process, which involves feedback to the relevant stakeholders and records action plans intended to improve the project and contribute to its continued success. It is necessary to reflect first on action research as an important component of community-based research overall, and then proceed to consider how KTT's holistic approach to prevention and treatment of worm infestation, is demonstrating the process.

### 2 Action Research in Practice

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The success of community-based interventions resides largely in active participation by members of the community, as well as feedback of the process at regular intervals. As a result, action research has gained prominence as a relevant and necessary methodology in conduction of community-based research.

There are different conceptions of action research because this method is still evolving and is adaptable, with relevance and form determined by the particular intervention. For the purposes of the KTT project, it is defined partly as a process that involves the conduction of the required research; the documenting of findings; the presentation to relevant stakeholders; and then informing future practice. Once an intervention has been applied according to the criteria, the cycle begins again. The aim is to improve on practice and ensure the success of interventions.

### 3 Action Plans

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Upon completion of the draft education evaluation report, feedback was given to the management of KTT on the research findings. Discussion followed about the most effective way to act on the recommendations of the evaluation and to proceed from the pilot schools to the roll-out phase. Specific recommendations were as follows:

#### 3.1 Training Model

There was consensus that the “cascade” model of training has a poor record of success. Alternative models were considered, and it was agreed that:

- a) A successful school in Site B and one in Site C should be used as models of best-practice, to other schools;
- b) A cluster system of support around the best-practice schools, would be developed;
- c) Networking among schools would be encouraged for the sharing of ideas and resources.

### 3.2 Curriculum Planning

It was agreed that the best way to proceed with curriculum planning for the implementation of *Learn about Worms* was to engage with activities that were already in place at schools and to integrate the worms programme with others, such as the HIV/AIDS programme for primary schools. In order to successfully achieve this, it was agreed that:

- a) The Life Orientation learning area should serve as the main entry point;
- b) Curriculum planning should occur on site;
- c) Best-practice model schools should assist other schools with curriculum planning;
- d) A curriculum plan should be drafted for the full year;
- e) Curriculum Services of the EMDC, would be asked to assist.

### 3.3 Materials

The Management Committee resolved to make the recommended changes to the materials as outlined in the report a matter of urgency. Additional recommendations were added:

- a) The materials should be endorsed by the WCED;
- b) The materials should be available to all schools for implementation in January 2002;
- c) The materials should be available in the required languages.

### 3.4 Roll-out Plan

It was decided that the best way to proceed would be to continue in the initial 12 schools until June 2002. Thereafter the extension of the project into primary schools in the Western Cape should proceed as follows:

- a) July 2002: continue the project in 12 schools;
- b) January 2003: roll-out to 20% of schools;
- c) January 2004: roll-out to a further 40% of schools;
- d) January 2005: roll-out to the remaining 40% of schools;
- e) January 2006: undertake external evaluation of the programme.

### 3.5 EMDC (WCED) Involvement

It was proposed that contact be made with the EMDC for support of the programme and that feedback be given with regard to progress and further development of the programme. Accordingly, it was decided that:

- a) Representatives of KTT management should arrange to meet EMDC in order to acquaint them with the evaluation report;
- b) and to discuss the findings and recommendations of the report.

### 3.6 Community Involvement

There was consensus that communities must buy into solutions to their health and hygiene problems. Measures to assist this process were proposed:

- a) Mothers from the community should be involved in deworming and health practices, such as monitoring of hand washing, disposal of faeces and litter, advocacy, and so on.
- b) School Governing Bodies and Management need to take responsibility for maintenance of toilets.

### 3.7 Feedback to the Community

It was agreed that the community must be kept fully informed regarding all aspects of KTT research. The following decisions were taken:

- a) A date would be set for formal feedback to residents of Sites B and C;
- b) The evaluation results and recommendations would be presented at the meeting;
- c) Discussion around action plans should then take place.

## 4 In Conclusion

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The overall positive response from all stakeholders in this exercise, is such that all concerned have gained valuable insights in terms of community-based research practice. There is a firm commitment to act on the recommendations and improve the education programme. This ongoing action research therefore has real value and meaning for all concerned. It not just another narrow, short term, academic formality.

There is no doubt that this particular education programme has the potential to be highly successful owing to its participatory and inclusive nature, as well as commitment to making a difference to the lives of children.

# Appendices

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1. **The Research Questionnaire.**
2. **Deworming results for 1999 - 2001.**
3. **Extracts from *Learn about Worms*.**

# Appendix 1: The Research Questionnaire

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## IMPLEMENTATION OF THE EDUCATIONAL MATERIALS DESIGNED FOR THE PREVENTION OF PARASITIC (WORMS) INFESTATION OF CHILDREN IN PRIMARY SCHOOLS IN THE WESTERN CAPE

NAME : \_\_\_\_\_  
GRADES TAUGHT: \_\_\_\_\_  
DATE : \_\_\_\_\_  
NAME OF SCHOOL: \_\_\_\_\_  
AREA / DISTRICT OF SCHOOL: \_\_\_\_\_  
NAME OF PRINCIPAL: \_\_\_\_\_  
NAME OF CIRCUIT MANAGER: \_\_\_\_\_  
NAME OF SUBJECT ADVISOR: \_\_\_\_\_

### QUESTION 1: PROGRAMME TRAINING BY CURRICULUM SERVICES

a. Was the training sufficient to implement the programme with confidence? Why? Why not?:

\_\_\_\_\_

### QUESTION 2: A HOLISTIC APPROACH TO IMPLEMENTATION OF THE PROGRAMME

a. Have parents been informed of the programme. If yes, what are some of the comments from the parents about the programme?

\_\_\_\_\_  
\_\_\_\_\_

b. Has the school developed some form of policy around the problem of worms?

\_\_\_\_\_

c. What measures have been taken to implement a healthier environment to combat the problem?

\_\_\_\_\_  
\_\_\_\_\_

d. How are the learners/parents/community involved in creating a healthier environment?

\_\_\_\_\_  
\_\_\_\_\_

### QUESTION 3: PROGRAMME MATERIALS

a. Have you received your own copy of the programme materials? If no, why not?

\_\_\_\_\_

b. Are the materials adequate? Why? Why not?

\_\_\_\_\_  
\_\_\_\_\_

c. What are some of the problems that you have encountered with regard to the materials?

\_\_\_\_\_  
\_\_\_\_\_

d. For which age groups / grades are the materials most appropriate?

\_\_\_\_\_  
\_\_\_\_\_

e. How have the learners responded to the materials?

\_\_\_\_\_  
\_\_\_\_\_

f. What were your experiences with regard to assessment of your lessons?

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g. Have you encountered any difficulties with regard to the language of the materials?

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h. What were your experiences with regard to the printed size of the materials?

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i. What are some of the difficulties that you have encountered in copying the materials?

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j. What suggestions do you have for the improvement of the materials?

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#### QUESTION 4: LESSONS IMPLEMENTED IN CLASS

a. Please indicate whether the programme has been implemented in class. If no, why not?

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b. How many lessons have you managed to complete?

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c. Which areas have you covered?

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d. To which grades have you taught the lessons?

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e. Into which learning areas have the lessons been integrated? (Please indicate the learning area and the topic)

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f. Please list any incidents or difficulties with the implementation of the programme in class.

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g. Please list any highlights or successes with the implementation of the programme in class.

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#### QUESTION 5: ROLEPLAYERS

a. Please indicate the extent to which the following role players are involved in the programme:

The Principal

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The Circuit Manager

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The Subject Advisors

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School Health

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**QUESTION 6: SUPPORT**

a. What kind of support has the school received with regard to the programme since training?

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b. What kind of support do you need to implement the programme effectively at your school?

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**QUESTION 7: GENERAL**

a. How successful has the implementation of the programme been at your school?

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b. Do you have any suggestions on how the programme could be more successful?

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Once completed, please fax to: Bridget Johnson, UWC, Fax 959 2647.

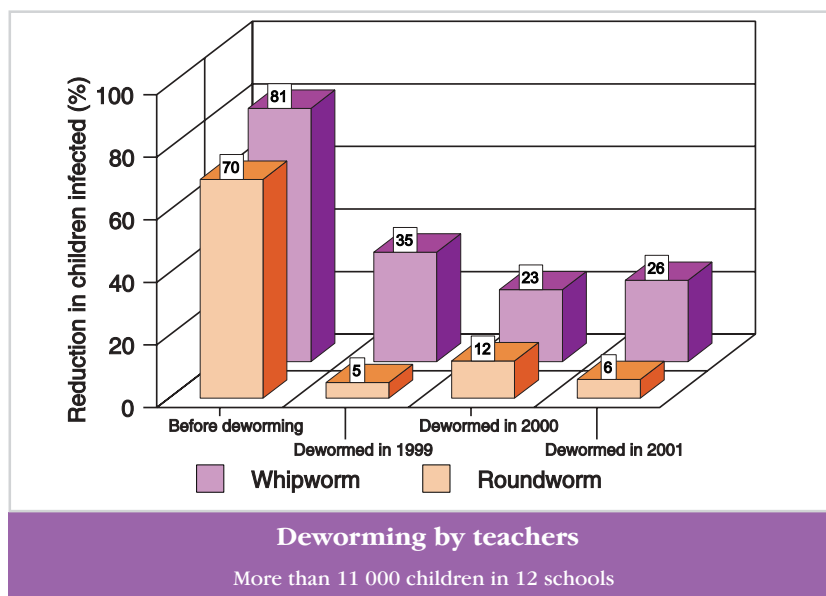
**If you have any queries please phone me at 959 2282 (w).**



## Appendix 2: Deworming results for 1999-2001

It is important to note that the excellent results summarised in the graph below, were possible because teachers dewormed all children simultaneously at school. There is no other way to achieve this. Erratic, sporadic deworming of children, such as by parents or voluntary presentation to clinics, achieves nothing in terms of public or community health, although it may benefit individual children.

The graph shows the improvement in all 12 schools combined since the start of the deworming programme. The slight increase in whipworm infection is probably because of the very wet conditions in 2001.



Foundation Phase: Teachers' Guide

# Learn about Worms!



# Welcome to *Learn about Worms!*

## Why *Learn about Worms?*

*Roundworm* and *Whipworm* are two parasites that live inside our bodies. These worms eat our food and make us sick. Children with worms do not have energy to play or learn. So, if we want our learners to get the most out of their schooling, we need to teach them about worms and worms safety.

## Children need to know:

- Why worms are a problem
- Where worms come from, and
- How to protect themselves from worms.

## To keep safe from worms we need to:

- Take deworming medicine every six months
- Keep our hands and bodies clean
- Keep our school and home environments clean and healthy.

## An overview of the learning programme

We have divided this learning programme into three units:

Unit 1 - **What are worms?**

Unit 2 - **Where do worms come from?**

Unit 3 - **Let's stop worms spreading!**

**You need to complete all three units!**

## Learning support materials

This learning pack consists of:

- A teacher's guidebook consisting of three units
- 3 story books
- A set of worksheets for learners

**Together, these materials form an integrated learning programme for Grade 1, 2 and 3 learners.**



## A problem solving approach

Units 1 & 2 help learners understand why worms are a problem, evaluate their own behaviour and identify danger zones in their environment. But is important to move beyond identifying problems and to start working towards solutions. Unit 3 helps learners take responsibility and focuses on what learners can do to protect themselves from worms. You need to choose and implement at least one solution ...

### Sharing what you know

If you are committed to really improving the health of learners, you need to share what you have learnt with the broader community. We need to work together with parents to build a safe and healthy environment for our children. One solution is to plan a school **open day** where you invite parents and community members.

### You could...

- act out a play or sing a song about worms that make you sick
- take parents on a guided walk around the school to show them the danger zones
- make a display of children's work in your classroom
- make posters to educate parents about children's health rights
- show parents what you have done to make your school a safe environment
- talk about what we can do to keep our home environments safe and healthy, or
- write a letter inviting local government representatives to attend your open day...



## Integrating *Learn about Worms* with the broader curriculum

This learning programme is not just about worms. Many other diseases (like diarrhoea and cholera) are also caused by lack of sanitation and poor health and hygiene practices. The following grid will help you integrate this learning programme with broader health, environmental and human rights issues.

You and your body	Unit 1: Activities 4-5; Unit 3: Activities 2-5
Rights and responsibilities	Unit 1: Activity 6; Unit 3
Healthy lifestyles	Unit 2: Activity 5; Unit 3: Activities 1-5 & 7
Healthy environment	Unit 2: Activities 1-4; Unit 3: Activities 6, 8 & 9
Healthy eating	Unit 2: Activities 4 & 6
Problem solving	Unit 3: Activities 1, 9 & 10

## Thandi's story: Worms that make you sick

Thandi lives in Site C, Khayelitsha with her mother, father, brother and baby sister. She is eight years old.

Her teacher, Mrs Dlamini, is worried because Thandi is always tired in class. She is falling behind with her school work and at break time, Thandi doesn't want to play with the other children. Mrs Dlamini asks Thandi what is wrong. Thandi says she feels fine, but her tummy feels sore.

Mrs Dlamini decides to visit Thandi's parents. Her mother, Nosipho, says she is also worried about Thandi and agrees to take Thandi to the clinic.

At the clinic, the doctor asks Thandi some questions. He also asks her to pooh in a jar. He sends the pooh away to be tested. He asks Thandi and Nosipho to come back to the clinic in a week's time.

When Thandi and Nosipho come back to the clinic, the doctor says that Thandi has worms. He shows Thandi and Nosipho pictures of the worms that are living inside her body. He says the worms are eating Thandi's food so she does not have enough energy to play and to learn.

The doctor says Thandi needs medicine to kill the worms.

The clinic sister gives Thandi the medicine. She explains that the medicine might give her a runny stomach or make her vomit. She may even see the worms coming out in her vomit or pooh. She mustn't worry about this, because the medicine will make her better.

Thandi asks where the worms come from. How did they get inside her?

The sister tells her that the worms lay many eggs inside a person's body. "These eggs come out with your pooh. If the eggs get inside your mouth and you swallow them, then they will start to grow inside you. Worm eggs are so small you can't see them. So it is easy to swallow them without knowing."

"Is there nothing we can do to stop the worms?" asks Thandi. "Yes," says the sister, "it helps to keep things clean. Always wash your hands after using the toilet and before touching food. Keep flies away and keep your house and yard clean. Always use a toilet and don't pooh outside."

Nosipho is angry: "Are you saying my child has worms because she is dirty? Are you telling me I don't keep a clean home?"

"No," says the sister, "clean hands, clean food and a clean home help stop worms from spreading. But even if you do all these things, you could still get worms. These eggs can be blown by the wind or carried into your home by flies or pets. That's why we say that all young children should be given deworming medicine two times a year. It is better to be safe than sorry."

After taking the medicine, Thandi feels much better. She has more energy for her schoolwork and for her friends. Mrs Dlamini is happy to see the change in Thandi. She asks Nosipho what happened at the clinic. Nosipho tells her what she learnt about the medicines and about keeping things clean. "But I am worried that other children at the school could also have worms."

Mrs Dlamini decides to ask the headmaster to call a parents' meeting. She wants all the parents to learn more about worms.

