PERCEPTIONS OF PRIMARY SCHOOL TEACHERS TOWARDS THE SOUTH AFRICAN MUSEUM AS AN ENVIRONMENTAL EDUCATION RESOURCE

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by

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ABSTRACT

This study examines the perceptions of a small group of primary school teachers from Gugulethu in Cape Town, of the various exhibitions and education services currently offered at the South African Museum. Their perceptions of proposed services are also examined in order to find out which of these proposals, as well as existing services, best meet the needs expressed by this group of teachers. An attempt was also made to determine their level of understanding of environmental education and awareness of environmental issues.

This study suggested the need for greater emphasis to be placed on the 'hands-on' components of the Museum's education programmes. The need for syllabus related and enriching educational programmes and resource materials was also identified. In this regard, the exhibits perceived to be of greatest benefit to the pupils were those relating either to the syllabus or their culture, whilst exhibits seen to be 'out of the pupils' experience' (eg. Fossils) were perceived as unimportant. The teachers also expressed a strong desire for training sessions to be held at the Museum that would help them improve their knowledge of the displays and programmes.

It was found that the teachers understanding of environmental education ranged from syllabus-related definitions to more holistic views. The environmental issues perceived to be of greatest importance were mainly social issues such as poverty, violence, child abuse and street children as well as water pollution and cruelty to animals. The production of posters and resource materials, drama, story-telling and programmes for parents were seen to be among the choices most favoured for the Museum to adopt in promoting environmental awareness in the community.

PREFACE

Museums have an important role to play in educating their visitors about the natural, urban and cultural environments. In the face of increasing concern for the degradation of the environment, and the need for an improved education system in South Africa, the researcher felt that the facilities and programmes offered at the South African Museum had the potential of addressing these issues in a way that is seen by its communities to be relevant to their respective needs. This could only be achieved if the perceived needs of different sectors of the Museum's local community were investigated. Since the scope of this research did not allow for samples of the entire community to be surveyed, the research sample was chosen from primary school teachers who had participated in one of the education programmes offered at the Museum. The broad aim of this research was to determine the perceptions of a group of Xhosa speaking primary school teachers in Cape Town towards the South African Museum as an educational resource in general, and as a resource for environmental education in particular.

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"Museums can offer unique opportunities for environmental education. Not only can they offer programmes to educate the public about their local natural, urban and cultural environments, they can also utilize their collections and displays to demonstrate the current and historical aspects of human interaction with the environment. Similarly, museums can play an important role in promoting a greater understanding of the varying cultures in this country and how these affect the man-environment interface."

(Coetzee, I., 1988)

"The continued existence of natural history museums is - in the last resort - dependent on public awareness of the importance of environmental protection and preservation. Without a general acceptance of the need to preserve our natural and cultural inheritance, and of the role played by natural history museums in this process, natural history museums face a bleak future. It is that kind of future we wish to avoid. . .. At a time when ecology is becoming more and more the science of the survival of life, natural history museums should be pointing the way forward: researching and publicizing, explaining consequences and suggesting courses of action."

(Anderson,C., 1988)

CHAPTER 1

INTRODUCTION AND LITERATURE REVIEW

This chapter is concerned with contextualizing the research and giving an overview of the relevant literature.

1.1 Introduction

Museums have been through a series of developmental changes and at each successive step their purpose has changed. Museums today can be viewed as something like a reference library, with collections of specimens which people can consult as they would books in a library. In addition a museum is a research and educational institution, a recreational facility, a cultural amenity and many other things.

Early collections were often made for private, individual pleasure. The process of collecting unusual objects for someone's personal collection, their safe-keeping and conservation were the elements which established the traditions of modern museum practice. Collections were later used for study and contemplation by a scholarly few.

With the admission of the public, the museum's main function became that of exhibiting and its role that of collecting, conserving and researching in order to educate. Museums became public institutions of visual education "open to all but never used by all." (Singleton, 1979)

Museums are now evolving into community services with an even wider educational and social role (Gilmour, 1979; Oloffson, 1979; Bloom, *et al.* 1984; Weingartner, 1984; Ames, 1985; Ambach, 1986; Ambrose, 1987; Heighton, 1987;). Within this role, museums may be seen to have three important functions : (1) to preserve the past, (2) to interpret the past to the present, and (3) to project alternative pathways to the future (Hubendick, 1972; Noble, 1984).

Singleton (1979) highlighted the need for museums, as part of the social and cultural world, to reflect a changing rather than static view of the world around them. Much of what has been written about the role of the museum in society identifies the need for museums to become less static and to reflect the issues pertinent to their local communities (Mead, 1970; Moffat, 1989). Museums are being challenged today by a demand for

relevance to the issues of the day: "race relations, the population explosion, the ravished environment and the concerns of the imprisoned children of the slums who are often the museum's nearest neighbors" (Mead, 1970). Museums are now becoming less self centered, realizing that "in order to fulfill their purpose, they must not remain isolated; they must be prepared to establish and develop collaborative links with other organizations and services." (Singleton, 1979; Coetzee, 1988; Stuart, 1985; van Zyl, 1988).

Whilst museums and monuments in South Africa have been accused of being "eurocentric" and "irrelevant" to the majority of South Africans, (ANC, 1992) steps are being taken to amend this (Berning, *et al.* 1992; Malan, 1992; Turnbull, 1992). The question posed by Smith in 1987, "where can museums be most relevant in our changing society . . . ?" has been asked many times since then and formed the basis for the themes of recent South African Museums' Association (SAMA) conferences namely: "New initiatives: museums for a future South Africa" (1991) and "Taking up the Challenge: the positive approach for museums in a new era" (1992).

The concept of introducing South African museums to a wider audience, was the subject of the 1987 SAMA annual meeting in Pietermaritzburg. The conference highlighted the fact that museums have the capacity to perform a multitude of roles dealing with education, entertainment and the creation of social and ecological awareness. At this conference, Dr John Kinnard, Director of the Anacostia Neighborhood Museum, Washington D.C., challenged delegates to communicate with their local communities in order to establish their needs so that museums could then attempt to address those needs. This challenge was seen by the researcher to echo the Tbilisi Principles for Environmental Education (Appendix A) which stress the importance of "local . . . co-operation" and involvement of "learners . . . in planning their learning experiences . . ." This concept forms the basis of the research where an attempt has been made to discover from a small group of primary school teachers what their perceived needs are concerning the educational role of the South African Museum.

1.2 The potential value of Museum Education in South Africa.

The need for an improved education system in South Africa is well known (Ashley, M. 1989; Mphahlele, 1990). It is the researcher's contention that in the light of this, the educational role of museums could do much to ensure that museums are seen as relevant in post-apartheid South Africa if the service they offer is seen to be beneficial to the communities they serve.

The philosophy of museum education has changed over the years. According to Pitman-Gelles (1981: 47) "the 'sight-seeing' tours and 'canned lectures'" in museums are being replaced by "experiences which involve and stimulate the learner's interest in acquiring more information". This approach "aims to reveal meanings and relationships through the use of real objects, by firsthand experience, and by illustrative material, rather than simply to communicate actual information" (Tilden, 1967: 47). This is in direct contrast to the teacher-centered approach prevalent in most Black schools. In this regard, Mphahlele (1990) calls for

> *"a richer and more stimulating curriculum in schools, which would help students deal with their own environment, know themselves more deeply, and comprehend the problems of race, colour, and ethnicity in a painfully fragmented country. . .."*

It is the researcher's belief that museum education programmes, utilizing three-dimensional objects, can offer interdisciplinary learning opportunities illustrating the geographical, historical, cultural and social themes that are unique to the community in which the museum is situated. Museums moreover, are not bound by the ideologies that dominate the present education system in South Africa (Ashley, 1989). They also do not have to adhere to the curricula laid down by the various education departments in this country. Museum education therefore should not manifest itself in a form of education which involves "classroom scenarios of discipline-bound, uncritical, transmissive teacher practices aimed toward cognitive development and behaviour manipulation through the use of text books and rote learning" (Naidoo *et al.* 1991: 15). Instead the researcher believes that museum education could offer a holistic, pupil-centered approach to education by incorporating the use of all the senses in varied object centred, discovery-oriented learning situations as described by many authors including Pitman-Gelles, 1981; Bradt, 1982; Herbert, 1982; Fines, 1983; Cole, 1984, 1985; Carson, 1985; Greenglass, 1986; Hooper-Greenhill, 1988. The researcher also feels that museums could apply the Guiding Principles for Effective Environmental Education Programmes as adopted at the 1977 Intergovernmental Conference on Environmental Education held at Tbilisi, USSR (the so-called Tbilisi Principles - Appendix A) as guidelines for planning their museum education programmes. In doing so, the researcher believes that museums could be seen to offer worthwhile education programmes that address the needs expressed by those calling for an improved education system.

Museums could also take heed of suggestions outlined by Naidoo *et al.* (1991: 16) (Table.1.1) in their education practices.

Table. 1.1 Suggestions for improved education practices

- joint planning of teaching, curriculum and curriculum materials by teachers

- the use of groupwork and other co-operative classroom techniques

- problem-solving which goes far beyond the use of exercises

- the type of dialogue between pupils and teachers where mistakes and unusual ideas are welcomed. This frees and challenges all concerned.

- the acknowledgement of the actual possible significance of one another's ideas.

- the exploring of links with all fields of knowledge that may be relevant.

- the willingness to try out ideas.

Naidoo *et al.*, 1991: 16.

These developments could begin to address the hope expressed at the 1991 South African Museums' Association (SAMA) Conference that museums could play a meaningful role in the improvement of South African education.

1.3 The need for environmental education generally and in museums specifically

If museums are to be seen as relevant in society, they need to address the topical issues of the day. The last decade has seen increasing attention paid by scientists and educationalists to the causes and consequences of the world-wide environmental degradation we are currently facing (Irwin, 1984; Agarwal, 1986; Timberlake, 1986, 1987; Seymour, 1987; Tyler Miller, 1988; Allaby, 1990; Goldsmith & Hildyard, 1990; Toke, 1990).

South Africa is not excluded from the many and varied environmental problems that face the rest of the world. These include issues such as the greenhouse effect, depletion of the ozone layer, air and water pollution, soil erosion, invasions of alien plants and animals as well as the numerous social and health problems associated with human poverty and overcrowding (Richards, 1975; Gribbin, 1988; Boyle & Ardill, 1989; Huntley *et al.* 1989, Huntley, 1989; Wilson & Ramphele, 1989).

Historical factors that have led to the deterioration of the natural environment include increasing population pressure, advanced technology, and an attitude of man dominating over nature that has prevailed in industrialized Western societies (Ittelson *et al.* 1974). Authors such as Huckle (1986) and Milbrath (1984) suggested that if human survival is to be ensured and the quality of life improved, a shift in emphasis towards humans living in greater harmony with nature is needed. This viewpoint is encapsulated by Irwin (1988a: 3): "a new ecological ethic is called for. . . which recognizes man as an integral part of nature, living in harmony with his environment". The notion that environmental conservation should be concerned with people and their needs is emphasized in the first World Conservation Strategy developed in 1980 and revised in 1991 (IUCN, 1980, 1989).

In South Africa, C.K. Brain in his presidential address to the SAMA Conference in April 1970 stated

> *fact that museums, through their displays, seldom draw impelling attention to the current problems facing us and the natural world, means simply that our museums are not topical. With few exceptions, they assume a peripheral role in the societies which they serve. The fact is as tragic as it is true.*

In the researcher's opinion, little has changed in South African museums in this respect. However, discussions at recent museum conferences indicate that museologists are aware that environmental issues need to assume a much higher profile and are investigating ways in which to incorporate the current and historical aspects of human interaction with the environment in their public programmes.

Parallel to the emerging concern for the environment has been the development of environmental education which may be regarded as "a major means, if not the most important potential means, of achieving responsible attitudes and effective behaviour towards the management of our total environment" (Irwin, 1988b: 7).

Concern for the environment and human survival has prompted the rapid development of environmental education programmes in South Africa and world wide (Stapp *et al.*, 1969; Giliomee, 1977; Carson, 1978; Connect, 1978; IUCN, 1980; WSSA, 1980; Knamiller, 1981; O'Riordan, 1981; Clayton, 1982; Curror, 1984; Hurry, 1984; Irwin, 1984; Park, 1984; Richards, 1984; Okot-Uma & Wereko-Brobby, 1985; Hale, 1986; Gough, 1987; Grieg *et al.* 1987; Slingsby, 1987; Ballantyne & Oelofse, 1989; Dept. Environment Affairs, 1989; Hancock, 1989; Opie, 1989; Irwin 1990; Gamble *et al.*, 1990; Geach & Cohen, 1991).

Mead (1970) is one of many authors (including Hubendick, 1972; Campbell, 1980; Baldwin, 1982; Wilmot, 1984; Coetzee, 1988; Kruger, 1990; Ballinger, 1991; Coles,

1991 and Harrison, 1991) who see the museum as "a perfect setting in which to represent the hazards of the environment, the devastation wrought by man and how it can be prevented or corrected, the price of overcrowding, the restoration of balance and beauty . . . . This is because of what museums are - places to come and experience different parts of the world, over and over." Museums can therefore be identified as ideal places in and from which to conduct environmental education programmes.

Naidoo *et al.* (1990: 15) contend that "if the environmental crisis is to be overcome, society needs more than environmental education, it needs a better education system based on a new epistemology . . ." and suggest that "environmental education should act as a transformation agent which will bring about better education by being "proactive" to bring about epistomological change" (p.17).

The researcher believes that the holistic nature of environmental education which recognizes the complexity and dynamism of social, cultural and political processes is vitally important in empowering people to address environmental problems through a participatory, problem-solving process (Greenall, 1986; Huckle, 1986; Brennan, 1991). It is her opinion that museums are well placed to offer the kind of "emancipated form of environmental education" referred to by Naidoo *et al.* (1990: 16). It is also her opinion that museums could offer these educational opportunities long before such a curriculum is accepted in schools, thereby enhancing their relevance as educational institutions.

1.4 The concept of environmental education

The concepts, definitions and historical development of environmental education internationally are dealt with by Irwin (1982). Currently, the most widely accepted definition is the IUCN (International Union for the Conservation of Nature and Natural Resources) definition which reads as follows:

> *Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his biophysical surroundings. Environmental education also entails practice in decision making and self-formulation of behaviour about issues concerning environmental quality.*
>
> (IUCN 1971: 17)

This definition has been expanded by a series of writers to place greater emphasis on the interrelatednes between the social, political, cultural and ecological dimensions comprising the total environment. Such authors include Huckle, 1986; Greig *et al.*, 1987; O'Donoghue & McNaught, 1989; Irwin, 1990.

Environmental education embraces the need to critically understand both the ecological principals and political processes that affect environmental issues in order to make properly informed decisions regarding these issues on a local, national and global scale (Irwin, 1990).

1.5 Environmental Education in South Africa

Irwin (1982) described the status of environmental and conservation education and awareness in South Africa to that point in time. He also pointed out that due to lack of suitable information, it was difficult to determine the levels of environmental awareness among the different racial and cultural groups in South Africa.

Khan (1990) claimed that it could not be said that "the majority of the population is any more environmentally aware or knowledgeable about their natural heritage than at the start of the decade" (pp. 1-2). She pointed to the international trend for the better educated and more affluent sectors of society to demonstrate an interest in environmental matters. Conversely,

> *"environmental issues are often considered in isolation from, and sometimes at the expense of, the basic needs and aspirations of poverty stricken local communities"* (Khan, 1990: 5).

In South Africa, this trend has been exacerbated by the stratification of society along colour lines resulting in

> *"the generally negative environmental perceptions and attitudes of many blacks - attitudes which often take the form of hostility and resentment against the traditional environmental movement, since the latter is perceived as promoting the values and aspirations of the privileged"* (Khan, 1990: 3-4).

Whilst this sentiment may be true of some, there are those who offer alternatives to this viewpoint. Mdluli (in Irwin, 1982) drew attention to a number of factors affecting environmental awareness among black people and contended that "Culturally and traditionally, Black people of Southern Africa have lived in harmony with nature rather than opposed to it." Irwin (1982: 52) argues that "an average group of Black teachers has a higher overall level of environmental awareness than an average group of white

teachers, despite the latter group's generally higher level of formal education." The researcher's experience has shown that there are many Black people who have a genuine concern for the deterioration of the environment in which they live and are involved in attempts to improve their local environment and promote an environmental ethic amongst their local communities.

There is, however, a need to address environmental issues that are perceived by the Black community as appropriate to their particular circumstances. In this way, the "negative attitudes" alluded to by Khan (1990) might be changed towards a greater concern for their environment. The researcher sees this as yet another need to be addressed by South African museums in their quest to be seen as relevant in the New South Africa.

1.6 The research problem: choice of research topic

The Education Service at the South African Museum in Cape Town, offers a number of educational programmes incorporating aspects of environmental education. These include guided tours, syllabus enriching activities utilizing objects from the Museum's collections, a loan service, a Discovery Room and Resource Centre, teacher training workshops, field trips, holiday activities, public lectures, videos and film shows. It is the researcher's experience that many of these services are not utilized to their full potential. It was therefore of interest to her to try and determine (a) how aware teachers in a certain area of Cape Town were of the services offered, and (b) which of these services were perceived by the teachers to be of greatest or least benefit to their pupils.

In view of the participatory nature of environmental education it is felt by the researcher that there is a need for Education Service staff at the South African Museum to be aware of the needs of the teachers themselves before planning further programmes or resource materials. Research by O'Donoghue & McNaught (1989) has shown that resources planned without the involvement of teachers has resulted in under-utilization of these resources.

As yet, no attempt has been made to determine the perceptions of teachers in Cape Town towards the South African Museum as an educational resource in general and an environmental education resource in particular. Nor has any research been conducted as to which of the services available at the Museum are of most benefit to these teachers and if there are any needs that have not yet been adequately addressed. It is therefore the considered opinion of the researcher that such research is necessary before any further programmes or resources are developed at this museum where she is employed as an Education Officer.

The researcher has a strong interest in environmental education motivated initially by a love of nature and the outdoors. This interest was enhanced by her involvement in Black tertiary education and community health work in Ciskei before taking up employment at the South African Museum. Her interest in environmental education is encouraged by her employers, who see it as an important aspect of the Museum's education programme. Although the researcher's duties over the past five years have not allowed her to devote as much time as she would have liked to the development of the education programmes for the (until recently) neglected Black audiences, her interest in this aspect of the Museum's education programme is deep seated.

The appointment of a Xhosa speaking education officer at the South African Museum in 1989 marked the beginning of a permanent education programme for the Xhosa speaking sector of the community. Prior to this appointment, programmes were run on an *ad-hoc* basis dependent on the availability of sponsorship and Xhosa-speaking guides. The researcher has a strong interest in seeing this programme develop along the lines advocated by Naidoo *et al.* (Table 1.1).

The Xhosa Language Programme; recently renamed *Fumana* (meaning discover) is growing in popularity as more schools become aware of its existence. Prior to this research it consisted of a syllabus related lecture/demonstration with a few museum objects available for pupils to touch, a video, and a guided tour of the Museum. Time and weather permitting, pupils were taken to the adjacent Public Gardens for the environmental awareness part of the programme. Pupils are then taken to the Escom Information Centre where they participated in a programme about electricity. The researcher is of the opinion that although pupils are excited by their visit to the Museum, the existing programme could be improved to offer the pupils a more meaningful learning experience.

In the light of the challenge issued at the 1987 SAMA conference to communicate with the local community, together with the similar philosophy advocated in the Tbilisi Principles (Appendix A), the researcher felt that before attempting to introduce changes to the *Fumana* programme, it would be more appropriate to investigate the perceptions of teachers towards the existing programme. It was also felt necessary to investigate their awareness of other programmes offered by the Museum's Education Service as no research had previously been conducted in this respect. It was also considered appropriate to investigate which of the services available at the Museum were perceived to be of most or least benefit to teachers, and if teachers had any other needs that had not yet been adequately addressed by the Museum.

The researcher is keen to incorporate a greater environmental education component into the various education services offered at the South African Museum. Before this can be done she believes it important to assess how the various audiences who visit the Museum understand the concept of environmental education and which environmental issues are perceived by these audiences to be of greatest importance to them. The researcher was aware of the potential for Black communities to perceive environmental issues differently from more affluent White communities (Khan 1990). She was therefore interested to examine which environmental issues were perceived to be of greatest importance to a sample of Black primary school teachers who had previously visited the South African Museum.

1.7 Research aim and goals

The broad aim of this research was to determine the perception of a group of Black primary school teachers in Cape Town towards the South African Museum as an educational resource in general, and as a resource for environmental education in particular .

Within this framework, specific goals are as follows:

(1) To assess which of the educational services and resources presently offered by the Museum are perceived by a sample of primary school teachers to be of greatest and of least value to them and why?

(2) To determine whether or not, in the view of these teachers, there are any additional services and resources which the Museum should offer to help meet their needs.

For the purpose of this study perceptions are seen to be the way in which the sample teachers understand and react to the various services offered at the South African Museum based on their personal range of experiences.

This study should be regarded as a pilot survey to gain insights into the perceptions of a sample of Black primary school teachers towards all the services currently offered at the South African Museum, proposals for future services, and any services the teachers themselves may suggest. It is therefore proposed that this survey be used to highlight areas which could be further researched or developed together with willing teachers in a participatory, action research programme. (The concept of Action Research has been described by authors such as DiChiro & Stapp, 1986; Robottom, 1987; Bull *et al.*, 1988; O'Donoghue & Taylor, 1988; Cohen & Manion, 1989; O'Donoghue & McNaught, 1989 and Wals *et al.*, 1990).

The following chapter examines the methodology used to conduct this particular research.

CHAPTER 2

METHODS OF RESEARCH

2.1 Choice of research paradigms

An examination of the history of educational research reveals that two main paradigms have been employed in researching educational problems. The positivist paradigm, modelled on natural history research, places its emphasis on empirical quantifiable observations. Cohen & Manion (1989: 12) quoting from Giddens (1975) identified that the analysis of the positivistically inclined social scientist needs to be expressed in " 'laws' or 'law-like' generalizations" similar to those of the natural scientist. This approach has been criticized when applied to the study of human behaviour by such authors as Harre (1981), Reason (1981) and Cohen & Manion (1989). According to Cohen & Manion (1989: 12) "the immense complexity of human nature and the elusive and intangible quality of social phenomena contrast strikingly with the order and regularity of the natural world." The anti-positivists claim that "science's mechanistic and reductionist view of nature . . . excludes notions of choice, freedom, individuality and moral responsibility" and believe that social science is a "subjective rather than objective undertaking, as a means of dealing with the direct experiences of people in specific contexts" (Cohen & Manion, 1989: 23). The German philosopher, William Dilthey (1833-1911) (referred to by Husen, 1988) noted that the difference between the natural sciences and the humanities was that the former tried to explain whereas the latter tried to understand. The humanistic paradigm is represented by three schools of thought - phenomenology, ethnomethodology and symbolic interactionalism (Cohen & Manion, 1989: 35). Cohen & Manion believe that they " 'fit' naturally" to the multi-faceted social (including educational) research.

The humanistic or *interpretive* researcher begins with an individual and sets out to understand how that individual interprets the world around him/her. Theory is generated by the data collected and does not precede the research (as in the case of the normative or positivistic researcher who attempts to validate theories by the methods of natural science). The theory generated by the interpretive investigator should make sense to those to whom it applies and yield insight into and understanding of the multifaceted images of peoples' behaviour and social contexts (Cohen & Manion, 1989). The methods that are associated

with the interpretive paradigm include participant observation, role-playing, non-directive interviewing, episodes and accounts (Cohen & Manion, 1989).

Research in education is suggested to be problematic by authors such as Husen (1988), Kaestel (1988) and Rochford (1983). Husen pointed out that educational research is conducted by scholars with many disciplinary affiliations . . . "thus there cannot be any prevailing paradigm or 'normal science' in the very multifaceted field of educational research." Rochford (1983) stated that "because the field of education is so complex, vast, unstable, diverse and multi-disciplinary, there is no one basic methodology which can reveal the truth that is to be known about education."

The paradigm of modern environmentalism is seen by authors such as Huckle (1986) to be holistic, integrated, non-reductionist and essentially humanistic in nature recognizing the complexity and dynamism of social, cultural and political processes. In keeping with this paradigm the researcher has therefore adopted a research approach that whilst eclectic, attempts to be holistic and employs methods based in social enquiry.

A semi-structured interview technique was used as it was seen by the researcher to be in keeping with the interpretive paradigm suggested by Cohen & Manion (1989). This technique allowed the researcher the flexibility of pursuing a line of questioning not in the interview schedule or of probing specific issues in more detail. Where large volumes of data were required, questioning techniques (described in section 2.2.3.2) yielding quantifiable results were seen to correspond more closely with the positivistic paradigm. This research therefore employs both positivistic and interpretive methods. The need for a "pluralism of approaches" was noted by Husen (1988: 19) who saw "dogmatic evangelism for particular philosophies and ideologies . . . (as) detrimental to the spirit of inquiry." Husen was of the opinion that the positivist and "neopositivist" paradigms were "not mutually exclusive, but complementary to each other" (Husen, 1990: 20).

2.2 Research design

According to Burroughs (1975: 3) "Research is ultimately a personal matter, dependent mainly on individual thought and insights; it is, consequently fallible, productive of results which permit alternative explanations and demanding of creative endeavor."

Descriptive data pertaining to people's attitudes and/or perceptions is commonly collected through questionnaire or interview surveys (Gay, 1987). Given the multi-disciplinary nature of educational research and the fact that, by its definition, environmental education is integrated, holistic and essentially humanistic in its nature (Huckle, 1986), the researcher felt that interpretive survey methods, as described by Cohen & Manion (1989) best suited the requirements of this particular research problem.

2.2.2 The research sample

The subjects of the research were Black primary school teachers in Cape Town. The reasons for selecting this group are outlined in section 2.2.2.1 below.

2.2.2.1 Identification of population to be surveyed

Of all the services currently offered at the Museum, the *Fumana* programme at the South African Museum (still in its early stages of development) was considered by the researcher to be most worthy of participatory research. Since primary school children constitute the largest audience of the Museum's Education Service in general and of the *Fumana* project in particular, it was decided to restrict the research to teachers of this group. Teachers were chosen as subjects for research in preference to pupils because it was felt that their knowledge of teaching requirements combined with their observations of the pupils' experiences at the Museum would be most beneficial to the research. Further research could include the pupils' opinions of their visits to the Museum.

While there are many Black primary schools in and around Cape Town, the specific study area, Gugulethu, (Appendix B) was chosen for its proximity to the researcher's place of work (20 minutes drive). In addition, the research assistant lives in the area and is more familiar with the location of schools in the area than in Langa or Nyanga, which are slightly closer to Cape Town. Khayelitsha was not chosen as a study area as it is located more than 45 minutes drive from Cape Town. Since time was a constraining factor in that all interviews had to be conducted during work hours, it was felt that time saved in travelling would not adversely affect the results obtained. In terms of the appropriateness of the target population, it was felt that a sample from Gugulethu would be reasonably representative of the opinions of Black primary school teachers from other areas of the greater Cape Town area.

2.2.2.2 Selecting the sample

A purposeful sample (Cates, 1985) of one teacher from each of the 17 junior and senior primary schools in the study area that had visited the South African Museum was selected. The main criterion for selection of teachers was that they had to have visited the South African Museum with their pupils during 1990 or 1991.

The teachers were interviewed during the period 11 June to 16 October 1991. Teachers were not available for interviews during school holidays and examination periods. Sample bias was as far as possible excluded from the study by ensuring that each of the 17 schools in the study area was contacted in order to arrange an interview. Of the 17 schools contacted, 4 schools canceled or postponed their appointments (n=13). Follow-up contacts were made to try and include these in the sample, but 3 of the interviews could not be rescheduled in the time available. The results obtained from the fourth school had to be disregarded after the third re-scheduling attempt because the teacher who was eventually sent by the principal for the interview had not visited the museum. The final sample of 15 comprised 13 teachers from Gugulethu and the two pilot samples. Both the pilot samples were considered by the researcher to represent similar views to the study sample and their results were therefore included in the analysis.

2.2.2.3 Description of the sample

All teachers in the sample had visited the Museum at least once with their pupils. Of these, 11 had visited most recently in 1991, whilst the remaining four had visited in 1990. Since most of the sample had visited the Museum in the year that the interviews were conducted, the experience was readily recalled.

At the start of the interview, the teachers were asked which standards and subjects they taught in order to allow possible correlations between the subjects taught and the areas of the Museum perceived to be of greatest importance. Any differences between the responses of lower primary (LP) and higher primary (HP) teachers could also be noted. The data pertaining to teacher codes, their gender, and which standards and subjects they taught are tabled in Table 2.1 below. Responses to questions B.1, B.3 and B.4 pertaining to the date of their last visit and the standard and number of children brought are also tabled below (Table 2.1).

Of the 15 teachers included in the final analysis, estimated ages ranged from approximately 25 to 50 years. The majority of the sample were estimated to be between 25 and 29 years (n=7) and 30 to 34 years (n=5). The remaining 3 teachers were estimated to be over 40 years in age.

The research assistant assured the researcher that all teachers interviewed had a three-year teaching diploma or certificate. Since the researcher felt that personal questions relating to age and educational qualifications might have been seen as intrusive, it was not ascertained whether the teachers had obtained a Matriculation Certificate or only Standard 8 before completing their teaching qualifications. This omission is not seen to be of great importance to the overall research.

2.2.3 Collecting the data
The data was collected by means of a semi-structured interview. Before the data collection could begin, initial preparations and pilot surveys had to be undertaken.

2.2.3.1 Preliminary preparation
Since the research interviews were to be conducted during work time it was essential that the proposed project was seen by colleagues to be of potential benefit to the future planning of programmes run by the Education Service at the South African Museum. Decisions made on the choice of research topic, areas to be investigated, and sample selection were based on the researcher's own experience and perceptions, as well as ideas and comments expressed by colleagues in her department.

In particular, the opinions of the Xhosa-speaking research assistant, an education officer employed at the Museum, were considered. Since he was familiar with the various projects run by the Museum's Education Service as well as the community under study, his comments, advice and ability to speak Xhosa when necessary proved invaluable throughout the study period.

Table 2.1: Teacher code, gender, standards taught, standards brought on last visit to the Museum, number of children brought, year of last visit, and subjects taught by teachers in sample

TEACHER CODE	GENDER	STANDARD(S) TAUGHT	/ BROUGHT	NUMBER BROUGHT	YEAR	SUBJECTS TAUGHT
[1]	M	HP	4&5	3&4	150	1991	Languages, Health, R.E.
[2]	F	SEC	6&7	7	35	1990	English Science (5)
[3]	F	LP	2	2	80	1991	*All
[4]	M	HP	5	5	80	1991	Maths, Science, English
[5]	F	LP	2	2	60	1991	All
[6]	F	LP	Sub B	B	160	1991	All
[7]	F	HP	4	4	100	1991	Science, Maths, Geography, Health
[8]	F	LP	2	2	60	1990	All
[9]	M	HP	3,4,5	5	40	1991	Science
[10]	M	HP	5	5	140	1991	Maths, Geography
[11]	F	LP	2	2	80	1991	All
[12]	F	LP	2	2	100	1991	All
[13]	F	LP	1	1&2	30	1990	All
[14]	F	LP	2	2	60	1990	All
[15]	F	LP	2	2	89	1991	All

* Note: All includes: Maths, English, Xhosa, Afrikaans, Environmental Studies, Health Education, Scripture, Writing.

2.2.3.2 Developing the research interview schedule

The research interview has been defined as

> *"a two person conversation initiated by the interviewer for the specific purpose of obtaining research relevant information, and focussed by him on content specified by research objectives of systematic description, prediction, or explanation."*
>
> (Cannell & Kahn in Cohen & Manion, 1989: 307).

According to Burroughs (1975: 103) "No device has been more thoroughly discredited than the interview and none continues in such regular use". The essential criticism of the interview is its low reliability due to lack of response by, for example, failure to attend interviews (Gay, 1987). The interview technique has, however, remained in regular use due to its validity being "very reasonable" (Burroughs: 103). According to Brenner *et al.* (1985) the central value of an interview as a research tool is that it allows interaction between the interviewer and interviewee, thereby providing opportunity to explore and clarify the meanings of questions and answers. This is true in particular of the less formal interviews, such as the semi-structured interview which is defined as follows:

> *"The interviewer has the schedule before him for completion during or immediately after the interview. It represents a guide as to all the information he must have secured by the time the interview is finished, but it leaves him free to decide how best to secure the information."*
>
> (Burroughs, 1975: 104.)

It was felt that a semi-structured interview combining both open questions and scales of fixed alternatives would be the best method to employ. Open ended questions are defined by Kerlinger (in Cohen & Manion, 1989: 313) as "those that supply a frame of reference for respondents' answers, but put a minimum restraint on the answers and their expression". The scale is "a set of verbal items to each of which the interviewee responds by indicating degrees of agreement or disagreement." (Cohen and Manion, 1989: 314). "The use of scales along with open questions is a comparatively recent development and means that scale scores can be checked against data elicited by the open ended questions" (Cohen and Manion, 1989: 314). These questioning techniques would allow as much non-directed discussion as respondents were willing to engage in, whilst covering a wide range of topics. Key issues identified could then be followed by more in-depth research at a later stage.

When designing the questionnaire, the researcher used scales of fixed alternatives where an overall impression of a list of services or suggestions was sought. For example, respondents were asked to indicate whether they felt a service was "very useful, useful, not useful or not sure". The advantage of such responses was that they were easy to analyze and, where a lot of responses to one basic question were needed, relatively quick to answer. The disadvantage of these questions was that detail as to why each service was seen as useful or not useful was lost. This was, however, compensated for to some degree by the more open-ended questions at the end of each section where respondents were asked to explain why they felt services they had identified were most or least important. These open questions allowed respondents to word their answers in their own way. The researcher was able follow up with prompts or probes to encourage more in-depth answers where she felt it necessary. The answers to the open-ended questions were, however, difficult for the researcher to organize into categories in order to analyze them.

There were two parts to the interview schedule. The schedule of questions used by the researcher is presented in Appendices D and E. A separate hand-out (Appendix E) was prepared for teachers to complete during the interview. This was done in order to facilitate the answering of the scale of fixed alternative type questions where participants were asked to indicate their response to the various options listed. It was found that this approach was especially beneficial for those respondents who had difficulty with the English language. They were able to study the questions carefully in their own time and ask for clarification if they did not understand a particular word.

The interview was divided into a number of sections. Each section was designed to elicit information on the following areas of interest (letters in brackets refer to the section number in the interview schedule).

(A)   Teachers' attitudes towards educational outings in general.
(B)   The teachers' most recent visit to the Museum and the perceived value thereof.
(C)   The teachers' perceptions of educational activities that could be considered by Museum education staff when planning educational programmes.
(D)   The perceived educational benefit of the display areas within the Museum.
(E)   The level of awareness of existing educational services offered at the Museum and the perceived educational benefit of these services.
(F)   Teachers' attitudes towards educational services that could be offered by the Museum in the future.
(G)   Teachers' perceptions of environmental education in general and specific environmental issues perceived to be of greatest importance for their pupils to be aware of. Included in this section is a question attempting to elicit teachers' attitudes towards the type of service that could be offered by the Museum to promote environmental awareness in the future.
(H)   The potential for involvement of teachers in the future planning of educational programmes at the South African Museum.

Since the researcher was working with subjects whose first language was Xhosa (in one case Sotho) the wording for the questions needed to be clear, precise and unambiguous. The language used was therefore kept as simple as possible. A trial interview was conducted with the research assistant in order to check for potential problem areas. The research assistant was present during all the interviews so that he could translate questions or answers should the need arise.

When designing the interview schedule, the researcher was careful not to presume that respondents had prior knowledge that would influence their understanding of the question. She also made an effort to avoid asking questions in a way that would lead them to a particular answer.

2.2.3.3 The pilot survey

The objective of the pilot survey was to test the research interview and identify any problems that might have been overlooked prior to this stage.

Pilot interviews were conducted with two teachers on 30 May and 6 June 1991 prior to starting the main study on 11 June 1991. One of the teachers selected for the pilot survey was aware of the proposed research and had volunteered his involvement. Since he taught at a school in Khayelitsha, which does not fall within the proposed study area it was decided to involve him in the pilot survey. The second teacher was from Langa and had worked as an Education Officer at the South African Museum. It was felt that because she understood the functioning of the programmes offered at the Museum, she would be able to offer critical comments about the interview schedule. Although she did not have many comments regarding the interview schedule itself, her comments in response to the questions were numerous. Her interview therefore took over 4 hours to complete in two separate sessions. Since few changes had to be made to the original interview schedule, and the responses of the two pilot teachers were not significantly different from those of the Gugulethu teachers, they were also included in the main survey.

The only changes made to the interview schedule occurred where questions such as "Which service do you consider most/least important. . .second most/least important" were asked. Attempting to be so precise in eliciting responses was seen to stress both the teachers involved in the pilot survey, as they had difficulty in selecting only one choice. Such questions were re-phrased to read "Which services do you consider most/least important/beneficial?" The researcher was of the opinion that allowing for a range of responses to such questions would in no way alter the validity of the results as these responses would indicate a trend in general feeling towards types of services offered and would still be quantifiable.

The major problem noted during the pilot survey was the potential for the interview to take longer than the one hour estimated for its completion. The researcher found that it was possible to break the interview where the subject matter changed from museum education to environmental education without losing the thread of the interview. In total, only two interviews had to be broken during the course of the survey, one of which was a pilot sample.

2.2.3.4 Conducting the interviews

In order to overcome the potential problem of lack of response, every effort was made to ensure that appointments for interviews were kept. The researcher was advised by the research assistant that personal contact with school principals in arranging interviews would be preferable to written requests, as these were often ignored or lost among all the other correspondence received. This was confirmed by one of the interviewees who commented that, as a principal himself, he was glad that personal representation had been made rather than a written request that "might never have been seen" and he would then have missed "this wonderful opportunity".

The research assistant phoned each school to arrange an appointment with the principal. The principals were then visited by the researcher and research assistant to ask permission to conduct research pertaining to the value of school visits to the Museum and to arrange a date for an interview with one of the teachers who previously had visited the Museum with his or her pupils. If a school did not have a telephone, the principals were visited without prior contact. Wherever possible the teachers concerned were also contacted on an informal basis to ensure that they were informed of the date and time of the interview. This was done after the researcher observed that the principals sometimes forgot to inform the teachers of the appointments and would just call them out of the classroom at the appointed time.

the teachers of the appointments and would just call them out of the classroom at the appointed time.

When discussing the nature of the research with principals and teachers, no mention was made of its contribution to an academic qualification for fear of stimulating feelings of inferiority amongst them. The need to evaluate the Museum's programmes for the benefit of its users and to consult the users themselves in order to do this was emphasized. It was intended that this approach would gain the support of the principals and teachers rather than alienating them. This proved to be the case.

All teachers willingly agreed to take part in the research programme. Comments made by some of the teachers after the interviews indicated that they had not only valued the opportunity to express their opinions, but had also been made more aware of the potential of the Museum as an educational resource.

All interviews were audio-recorded and notes were made of participants' responses throughout the interview. Where applicable, notes were made of the interviewer's observations of respondents' reactions to certain questions. At the start of the interview, teachers were given a handout on which questions requiring them to tick their responses were printed (Appendix E). They were told to turn to the relevant page only when asked to do so by the interviewer. The interviewer read each question aloud to the respondents. Where questions were repeated in the handout, those who had difficulty in understanding were allowed time to read the questions again for themselves.

All respondents were asked at the start of the interview if they had any objections to the interview being audio-recorded and were assured that all responses would be kept anonymous and confidential. For this reason, each respondent was assigned a code number by which he or she is referred to throughout this report (eg. [x]).

The researcher was careful to try and put the respondents at ease right from first meeting them. The teacher's name and name of the school were asked in order to break the ice and put him/her at ease with the researcher, who used the teacher's name intermittently throughout the interview in order to maintain a congenial atmosphere. Questions that may have been perceived as personal (e.g. age) or intrusive (e.g. qualifications and teaching experience) were not asked.

Response bias was avoided to a large extent by using only one interviewer, the researcher herself, who made every attempt to ask the questions in the same manner for each respondent. This was facilitated by the use of the interview schedule. Where questions needed further explanation, for example, certain of the environmental issues in question G.8, the researcher attempted to give standard explanations throughout.

Since this was a semi-structured interview, the researcher was able to use her discretion and prompt responses or ask additional questions where she felt it was necessary. This could have introduced an element of bias, but the researcher was careful not to form opinions for the respondents.

The researcher was advised of the possibility of respondents trying to please and being uncritical in their responses. In order to cope with this problem, notes were made whenever the researcher felt that responses were being made without the respondent really understanding the question. This proved particularly valuable in the case of question G.8 (section 6.3.2).

Questions were also designed to check for validity. An example of one such question is the environmental issue of "sea-urchin bloom" mentioned in section 6.3. This was an issue fabricated by the researcher in order to check if respondents queried the question or merely answered without thinking. In most cases these distracting variables were queried, indicating that respondents were answering honestly.

In all but one pilot case, the interviews were held at the schools where the respondents taught. This was to ensure a high response rate and to relieve the respondents of travel costs and time pressures that might have resulted in a lower response rate. One of the two pilot subjects found it more convenient to be interviewed after school hours at the Museum. Since she was familiar with the Museum, it was considered unlikely that she would have been influenced by the surroundings in a way that would have biased her results.

Conducting interviews in the school during school hours did not seem to affect the quality of the interview to any marked degree. There were distractions such as telephones, children's voices, and other teachers moving in and out of the room (usually the staff room or principal's office). On the whole, these distractions did not appear to affect the quality of the interviews, except in one case where the noise from building operations was

so loud that questions and responses could hardly be heard. In this case extra care was taken by the researcher to ensure that written notes were taken of everything that was said as the audio-tape could not be relied on.

The greatest disadvantage of the interview was the time it took to conduct. The times taken ranged from 45 minutes to 4 hours. The average time taken was approximately 1.5 hours. It was realized that this could be a potential problem and respondents were warned beforehand that each interview would take at least 1 hour. After an hour had lapsed the respondent was asked if he or she was willing to continue or would prefer to break and continue another time. Only two interviews were interrupted at the end of section F of the interview schedule and concluded at a later date.

2.3 Data analysis and presentation

Once the collection of data had been completed, each respondent was assigned a code number to ensure anonymity. A separate interview schedule was used for each respondent. Careful notes were made on these of responses throughout the interviews in the spaces provided. These proved to be extremely useful when analyzing and checking the data. These notes were used to compile tables of all responses to each question. Transcriptions were then made of the taped interviews and checked against the written notes. Any additional responses gleaned from the transcriptions were added to the tables.

The interview data were then read carefully to in order to try and group and quantify similar responses to particular questions according to qualitative data analysis described by Miles & Huberman (1984). Issues repeatedly mentioned throughout the interview were then sought in order to determine if any particular trends or patterns were evident.

Where questions required respondents to tick one of a range of fixed alternatives (scales), the results were analyzed by assigning comparative index scores to each choice. For example, a choice of "Very Important" was assigned a score = 3; "Important" = 2; "Not Important" = 1; "Not Sure" = 0. The scores for each service or museum gallery under discussion were added together to achieve a cumulative index score (C.I). These scores were then ranked so as to identify the most popular and least popular service or gallery.

The results were arranged and discussed in terms of the specific aims of the research. These discussions are presented in Chapters 3-6 of this report.

2.4 Evaluation of the methodology

In retrospect, the decision to use a semi-structured interview technique was justified. The interviews allowed interaction between the researcher and the respondents that could not have occurred had a questionnaire been used. The importance of personal contact with the community under study was stressed by both the research assistant and some of the respondents themselves. Use of written questionnaires would have resulted in a much lower response rate.

One of the most beneficial outcomes of the interviews was the public relations' function they performed, since they served in promoting a greater awareness of the services offered by the South African Museum. Many of the respondents commented on how pleased they were to have been involved in the study and how much they had learned.

The fact that the researcher and research assistant were employed at the South African Museum had both positive and possible negative impacts on the collection of data. Positive aspects included logistical support in terms of transport and ease of access to the participating schools. The results may have been influenced by respondents being less critical of the services offered than they might otherwise have been with neutral parties. The researcher is of the opinion that this did not appear to have a significant impact.

From the respondents perspective, the fact that the researcher was a White, English-speaking female may have been slightly threatening. The researcher made every attempt to ensure that respondents were not embarrassed by their apparent lack of knowledge or understanding of, in particular, environmental issues. The research assistant's presence and ability to explain issues in Xhosa was a great help in this regard.

The major drawback of this research was the time taken to conduct each interview. Some of the respondents found the duration tiring, whereas others said that they did not mind as they felt the research was important and worth spending time on.

The teacher's handout proved extremely useful as teachers were not only able to make their decisions in private if they wished, they could also read the questions for themselves which aided their understanding of what was required of them. In addition, the completed handout provided a data record that was relatively easy to analyze.

For question C.1 only the scale of fixed alternatives questioning technique (section 2.2.3.2) was used. Although the teachers were asked to comment further where

necessary, few comments were made. The researcher is of the opinion that this lack of comment reveals a flaw in the research design where there was not enough opportunity to force comment by asking more open-ended questions such as "Which of the above mentioned issues do you consider most important and why?". Nevertheless, an overview of the samples' perceptions of the issues in question was obtained and can be investigated in greater depth through further research.

The approach of using one interview schedule per respondent with spaces in which to make notes, was found to be an efficient way of recording data. The audio-tapes were used mainly as a back-up and to capture the longer responses. However, the transcriptions did not yield much more usable data than did the notes taken by the researcher during the interview. It is concluded that this method proved useful as a pilot study in order to identify key areas that could be followed up in greater detail at a later stage.

If this research was to be repeated in order to survey the perceptions of a larger population, a better method might be to conduct the interview with separate groups of lower and higher primary teachers from different geographical areas representative of different population and income groups. One might lose a certain amount of individual detail, although audio-recording of discussions between individuals would help in this respect. Valuable information could be gleaned from group discussions of the various questions. The questions requiring individuals to tick one of a range of options could also be administered in a group setting - each person having his or her own handout to complete.

The following chapters examine the results from the interview survey. Chapter 3 examines the perceived value of educational outings in general. Chapter 4 deals with teachers' perceptions of existing resources at the museum whilst Chapter 5 considers their perceptions of future needs. The final analysis chapter examines the teachers' perceptions of environmental education and the role of the museum in this regard.

CHAPTER 3

THE SAMPLE TEACHERS' ATTITUDES TOWARDS EDUCATIONAL OUTINGS
AWAY FROM SCHOOL AND THEIR RECOLLECTIONS OF THEIR MOST
RECENT MUSEUM VISIT

In order to plan educational programmes at the Museum, it was important to know firstly if teachers perceived outings to be educationally beneficial to their pupils. Secondly, it was necessary to determine the most appropriate time and duration of such visits. Other practical issues, including the degree of approval of the pupils' parents and the Department of Education and Training (DET) were also considered important to investigate.

The data used in this chapter are derived from selected questions from sections A and B of the interview schedule (Appendix D). Section A (Educational outings away from the school) was designed to put respondents at ease by asking non-threatening, general questions about educational outings and their practical aspects. Certain questions in section B (". . . most recent school visit to the South African Museum") were concerned with the appropriate timing of visits to the Museum.

3.1 Outings conducted by the study group within the past two years

The teachers were asked (Question A.1) what outings they had taken their pupils on during the past two years. Table 3.1 below shows which teachers took their pupils on outings and where they had taken them.

Table 3.1 below reveals that 5 teachers in the sample [4;5;9;12;14] did not mention having taken their pupils on outings anywhere besides the Museum. It was of interest to note that although all teachers mentioned their visit to the Museum, only 3 indicated that they had visited the Eskom Information Centre. Since Eskom share the costs of transporting the pupils to the Museum, all pupils participating in the *Fumana* programme are taken to the Eskom Information Centre after they have completed their Museum visit. It would be interesting to investigate if the lack of mention of this venue is due to:

(a) Eskom being visited after the Museum visit and forgotten because the teachers (and pupils?) were too tired to notice at that stage.

(b) The visit to Eskom is seen by the teachers as less important than the Museum visit. If this is the case, the possibility of bias due to the interview being conducted by Museum staff and specific to Museum visits should be carefully considered.

The researcher is of the opinion that, although the shared transport costs have proved financially beneficial, the combined visit is too much for the pupils to cope with in one day. She feels that it may be more educationally beneficial to split the visit over two separate days.

Table 3.1: Outings conducted by the sample teachers in the past 2 years

TEACHER	n	PLACE
All	15	MUSEUM
1,7,12	3	Eskom
6,7,15	3	Beach
3	1	Happy Valley, Noordhoek
3	1	Oudtshoorn - Cango Caves, Crocodile Farm
10	1	George
1	1	Cape Point
1	1	Kirstenbosch
7,15	2	Table Mountain
2	1	Castle
2	1	Irma Stern Museum
11	1	Goodwood show grounds
8	1	Goodwood - careers exhibition
13	1	Good Hope Centre
15	1	D.F. Malan airport
15	1	Tygerberg Zoo
15	1	Art Gallery

Later during the interview No.15 also mentioned taking pupils on weekend camps to the beach.

N=15

Examination of Table 3.1 does not reveal any particular pattern to the venues for other outings, except to indicate that there is some attempt to take pupils away from the school environment. Some teachers appear more active than others namely: [1,2,3,7 and 15].

The researcher had often heard that Black schools with female principals were generally more motivated than those with male principals. The observation that three of the more active schools [1,3 and 15] had female principals, supported this viewpoint. The fact that teacher 15 was able to organize at least 5 separate outings as well as an overnight camp (mentioned later in the interview) also indicates that it is possible for teachers to arrange the time and finance for such excursions if motivated to do so. Teacher [2] had a male principal, but the teacher concerned was possibly motivated by her own museum background and was aware of the potential benefit of such outings. During the interview she alluded to the lack of motivation from her principal, thereby further supporting the notion suggested above.

Teacher [1] teaches at a school situated in a squatter section of Khayelitsha and has a female principal who ensures that pupils are exposed to a variety of environmentally educational experiences away from the school. A poster in the room where the interview was held gave a list of the outings for the year, the information to be covered as well as the objectives to be met on each outing. The respondent told how the entire staff had been taken on a weekend course at Potberg Environmental Education Centre as a form of in-service training and morale boosting. He also told of how the teachers had been encouraged to "visit the pupils" whilst they were attending a week-long environmental education course at Cape Point so that they "could be aware of what the pupils were doing". The researcher sensed an air of enthusiasm emanating from the staff at this school. This was especially noticeable in the respondent whom she interviewed. It is of interest to note that this was the only school that had made use of the environmental education facilities available at Cape Point and at Kirstenbosch (Table 3.1).

3.2 The perceived importance of educational outings

When asked if they thought educational outings were important, (Question A.2) all teachers (n=15) thought they were either necessary or important. They generally believed that educational outings were important for the following reasons: they presented an opportunity for the pupils to learn and increase their general knowledge (n=9); the pupils were able see things "not normally seen" (n=8); they were able to link what they had learned in the classroom with the outside world (n=7); and that they lacked facilities in the locations (n=5).

Two teachers [3;9], mentioned the sensory aspects of "learning practically by touching" and "feeling". The researcher presumed this to relate to their previous experience in the Museum where touch was an aspect of the programme that was encouraged. It was therefore interesting to note this aspect being referred to in questions that did not relate to the Museum specifically. These teachers' responses may however have been influenced by their cognisance of the researcher's affiliation with the Museum. Two teachers [3,13] also mentioned the importance of seeing "real objects" as opposed to "two-dimensional TV" [3].

One teacher felt that the children are more open-minded outside of the classroom situation and that they "learn while they are playing" [1] - an aspect dealt with in greater detail in section 4.2.

3.3 Teachers' perceptions of parents' attitudes to educational outings

A question pertaining to the pupils' parents' thoughts about educational outings (Question A.3) was considered important because the researcher had repeatedly heard comments from her research assistant and teachers visiting the Museum that parents were not interested in their children's educational activities. The results depicted in Fig. 3.1 below tend not to support this claim.

The researcher was encouraged to hear that 11 of the respondents felt that the parents thought that educational outings were important for their children. When asked to explain their viewpoint, the comments included:

[1] "It encourages kids to come to school"
[3] "They are happy to pay - even if expensive"
[8] "Parents (who don't go to school) learn from pupils"
[12] "Those who are enlightened get impressed"

Other comments revealed that perhaps more parents were disinterested in outings than initially indicated (Fig. 3.1). Responses to this effect included:

[2] "Most (parents) are not really involved in their kids' work. There are many parents who don't even look at the children's books"
[4] "They are only interested in exam results"
[7] "Some parents are illiterate . . . they don't see the need especially if they have to pay some fares . . .. Some don't know why we are taking them . . . they are not interested whether you take them out or you do not . . . they don't care what they do as long as there is little trouble and as long as child is not on his/her disposal at that moment"
[6] "Some are less interested through financial reasons"
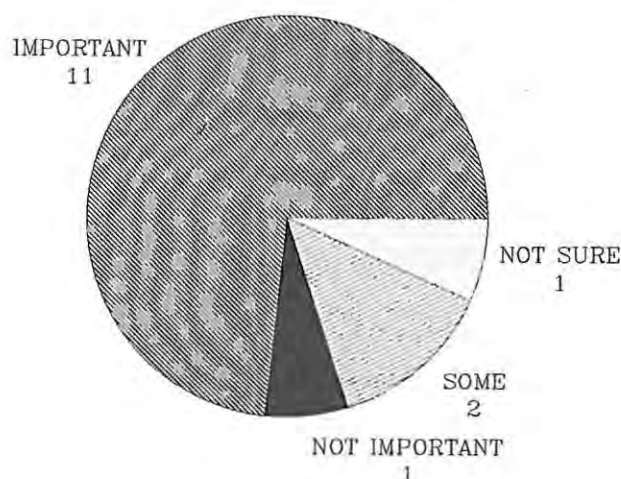
Figure 3.1: Teachers' perceptions of parents' attitudes towards outings

N=15

3.4 Perceived ease of arranging educational outings away from school

Prior to this research, the researcher was alerted to the fact that teachers experienced bureaucratic problems from the Department of Education and Training (DET) regarding the arrangement of outings and was given as a reason for Black schools not visiting the Museum or going on other outings. However, when asked if it was easy for them to arrange educational outings (Question A.4), 7 of the 15 teachers said that they had "no problem"/"no difficulty" arranging outings - they were "easy to arrange". Conversely, 6 teachers indicated that outings were not easy to arrange. Of these, none appeared to have experienced problems with the DET. The researcher was, however, concerned by one response that the DET determines specific days for outings. It is speculated that this could cause a problem if teachers wished to co-ordinate their outings to coincide with what they were teaching at a particular time.

One teacher [7] said that although the DET had not caused any problems granting permission for outings, teachers did not use "the affidavit forms because the DET would not pay any damages". She said that many parents did not understand the meaning of indemnity forms and were under the misconception that if they completed them, their children would be safe, and if anything happened it would be paid for by DET. She therefore felt it best not to use them. This lack of parental understanding will need to be carefully addressed by those wishing to arrange educational outings for children - perhaps by ensuring that indemnity forms, for example, are carefully worded in language that can be understood by illiterate or semi-literate people.

Lack of finance appears to be the major difficulty experienced in arranging outings. The majority (n=8) of the sample mentioned financial difficulties as the main problem in arranging outings. One teacher said that it was "no financial problem to go to the Museum" - the researcher assumes this is probably because the trip is sponsored. The same teacher continued that "even where you do pay fees . . . it is still no problem because the parents are game to give the pupils money to go out". Another teacher, however, indicated that although parents are willing to pay for outings, they found it expensive if they are repeatedly asked for money for this purpose.

Two of the respondents indicated that they had experienced a lack of parental co-operation partly due to financial reasons and partly because some parents did not understand and therefore had to be persuaded that outings were educational. This relates to the responses of [6 & 7] in section 3.3 above.

3.5 Time available for educational outings

The researcher was interested to find out how much time teachers were normally able to spend on outings away from school (Question A.5). This question was asked in order to determine how much time visiting groups could spend at the Museum so that programmes could be planned accordingly.

The times indicated by the entire sample were all of more than three hours duration. This was confirmed by responses to question B.9 (Fig. 3.2 below) where teachers were asked how long they had spent at the Museum on their last visit.
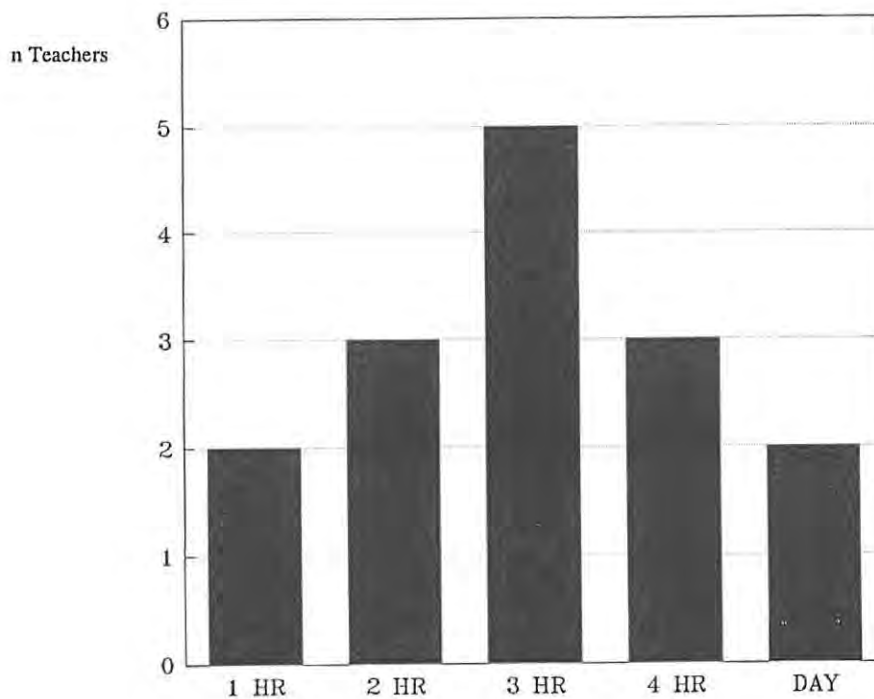
Figure 3.2: Time spent at Museum   N=15

These results are of interest to the researcher who deals mostly with groups who usually spend an hour at the Museum. The fact that the Black schools appear to have more time at their disposal might be a reflection of their financial situation ie. if they have to hire a bus at approximately R150.00 per day, and therefore want to make the most of it.

3.5.1 Adequacy of time spent at the Museum

Respondents were asked if the time they had spent at the Museum was "too long, too short or just right" (Question B.10). As can be seen in Table 3.2, the majority (n=9) felt that the time had been too short. (Where "whole day" is mentioned - this probably refers to the school hours and includes the time taken for transport.)

Table 3.2: Duration of visit considered by the teachers to be "too long, "too short" or "just right"

RESPONSE CODE	TIME SPENT	n
TOO LONG None		
TOO SHORT [2;15]	1hr	n=2
(n=9) [3]	2hr	n=1
[6;7;13]	3hr	n=3
[8;10]	4hr	n=2
[11]	whole day	n=1
JUST RIGHT [1;9]	2hr	n=2
(n=6) [4;14]	3hr	n=2
[12]	4hr	n=1
[5]	whole day	n=1

3.5.1.1 Reasons given as to why the visit was considered "too short"

The main reason given for the visit being too short was that the pupils didn't see everything (n=4) [8;10;11;15]. Only one teacher [10] mentioned that one should rather be selective instead of trying to see everything. The strong emphasis on the need to see everything is explained by [3]:

> "in our society there is not much time, or else the parents do not see the need to take pupils to the museum to see the Bushmen, all the different species - everything. The only chance they get is when they are at school".

Another reason given by two teachers [3;6] was that there were too many children. This may be a valid point when only one education officer attempts to run the entire programme for more than 100 children. One teacher [7] suggested that they should have 5 hours at the Museum with varied activities that would not give the children an opportunity to become bored or tired. Teacher [2] felt that her visit had been rushed with no structure and that she therefore did not meet the objectives that she had planned.

3.5.2 Best time to bring children to the Museum

Respondents were asked when they considered the best time to bring school groups to the Museum (Question B11). The results are depicted in Fig. 3.3 below.
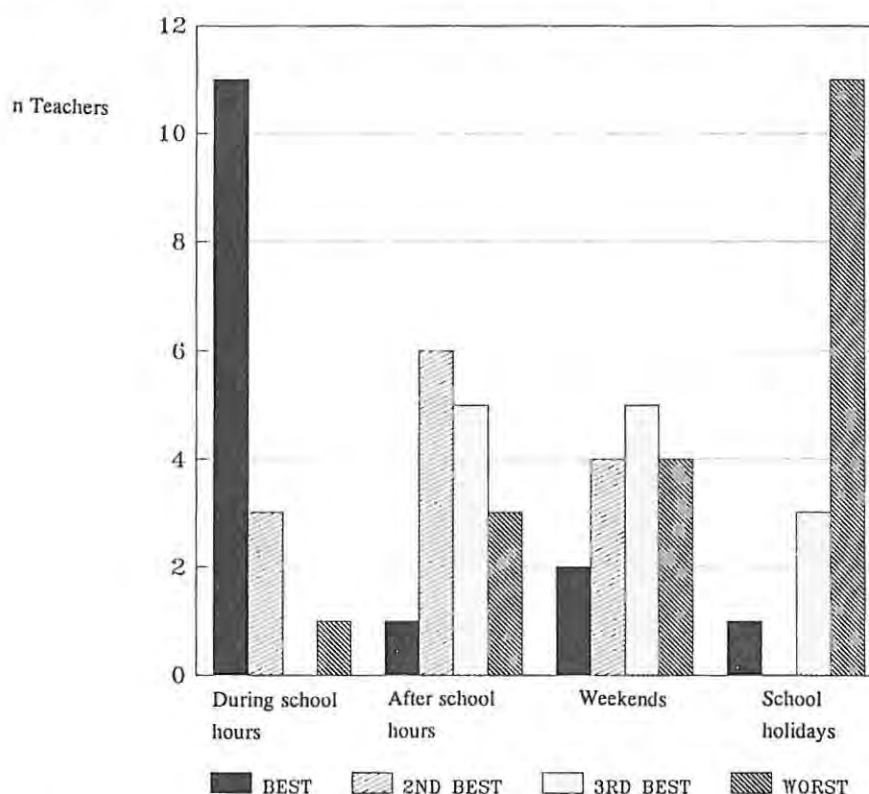
Figure 3.3: Most appropriate time to bring school groups to the Museum

N=15

The above diagram suggests that most teachers (n=11) felt that during school hours was the best time to bring pupils to the Museum. During the holidays was considered by most (n=11) to be the worst time. One teacher [6] indicated that "All have disadvantages".

It would appear that the majority of teachers find that during school hours is the best or only time to take pupils on educational outings. Two of the teachers felt that it would be time consuming and pupils would miss other subjects or disturb their timetable [10;13].

After school hours was a less popular choice because teachers felt that either the children would be too tired [1;3] or would not pay attention because they knew they were supposed to be at home. Conversely, another teacher felt that since this was an extra-mural activity, the children would be free and enjoy themselves more in the afternoon. Teacher [2] felt that if pupils used public transport, they would only arrive at the Museum at 4 p.m. and

have an hour to spend at the Museum which would not be sufficient. If, however, a bus was provided, the pupils would definitely come. Teacher [10] felt that 3-4 hours could be spent at the Museum after school. (This, however, would not be possible unless buses were provided to transport the children.)

There were both positive and negative feelings towards weekend visits. Those in favour felt that it would be a constructive way to occupy the children thereby avoiding mischievous behaviour. Teacher [2] felt that weekends would be the best time if they had their own transport. However, she said that the pupils would have to be motivated by giving them an assignment that counted for marks. On the other hand, some teachers felt that pupils would be too busy on weekends attending church, doing schoolwork, housework, preparing their uniforms and participating in sporting activities. The parents were also seen to be too busy to take pupils to the Museum as exemplified by [13] who said "mothers attend funerals".

The school holidays proved to be the worst of the four choices. The teachers saw themselves arranging outings for the whole class/group which would be impractical since many children go away to the Ciskei/Transkei to visit relatives [3;5;10;15]. Teachers felt that it was important to have as many children as possible attending the outings. It was apparent that teachers perceived these outings as a formal educational experience rather than an informal "fun" outing as a holiday activity. Comments such as "away with books" [4], "it is difficult to motivate to work" [2] suggest this. The researcher asked teacher [9] what his response would be if the outing was to be a "fun outing". The response was that school holidays would be the best time.

Other arguments against taking pupils out during the holidays were that the pupils must rest [11]; respondent [13] felt that such outings would be inconvenient for the teacher thereby indicating that they need a rest too! Teacher [2] said "It is worst during the holidays because at the moment, we have problem motivating kids to work over holidays - especially December - besides some of them have jobs." Another response was "It is worst during holidays because they become rowdy" [7].

The main point of interest regarding the attitude towards holiday outings was the feeling that because many of the children went away, they would not be able to attend. The researcher's concern, however, is for those children who do not go away, but remain behind in the townships with little to do except play in the streets. This would suggest that holiday programmes would need to be carefully planned ahead of time to allow for

teachers and parents to be notified of venues, dates and times so that transport and supervision could be arranged. This was confirmed by [14] who felt it would be "OK to use the holidays if arrangements are made with the parents beforehand."

In the light of these sentiments, the researcher feels that it would probably be most convenient to run these programmes at a venue in the townships rather than arranging costly transport to the Museum and run the risk of few children attending. She feels this would seem to be the most sensible solution until such time as Museum-based holiday programmes gained wider acceptance and popularity.

3.7 Summary and Conclusions

The results discussed in this chapter serve to indicate that teachers in the study group perceive educational outings in general and to the Museum in particular as beneficial. Information with respect to the timing and duration of visits by Xhosa speaking school groups to the Museum has been established. The obvious conclusion to be drawn from the responses to question B.11 is that the best time to organize school visits to the Museum continues to be during school hours for an approximate three hour duration.

The following chapter examines the teachers' recollection of their most recent Museum visit as well as the perceived value of museum visits and specific exhibits at the South African Museum. The level of awareness amongst this group of teachers towards educational services offered at the Museum is also explored.

CHAPTER 4

TEACHERS' PERCEPTIONS OF EXISTING RESOURCES AT THE MUSEUM

To date, no research has been conducted regarding teachers' perceptions of educational services offered at the South African Museum. Before new programmes were planned or attempts made to improve existing services, it was considered essential to ascertain how teachers perceived the existing services. The data referred to in this chapter are drawn from sections B, D and E of the interview schedule (Appendix D).

4.1 Teachers' recollections of their most recent visit to the South African Museum

The respondents were asked (Question B.5) if they had been assisted by one of the Museum's Education Staff. This was to identify any teachers who had perhaps conducted their own visit instead of being involved in the Museum's *Fumana* programme. All 15 respondents indicated that they had been assisted by a museum education officer.

All the teachers were then asked how the Museum's education staff had helped them (Question B.5.1). This was to attempt to find out which aspects of the programme they remembered best. Two features which teachers clearly recalled were how they were taken "right round" the Museum (n=15) and shown "everything" as well as the "teaching", "lecturing" or conducting of lessons which occurred (n=8). This is not surprising as these aspects, together with the video, formed the basis of the visit.

The researcher was disappointed to note that the hands-on component of the programme was not alluded to. This seems to indicate that more emphasis was placed on teaching about specimens, than on allowing the pupils to handle and observe them for themselves. If children's museums "have a niche among the pioneers of contemporary education (by) appealing to the child's otherwise neglected tactile sense in exploring his environment" (Wittlin, 1963) then this aspect of the *Fumana* programme needs to be improved (see also sections 4.2, 4.4 & 5.1.2).

It is of interest that only four teachers mentioned the video and only one the introductory slide presentation. In view of comments pertaining to the value of seeing "the real thing" as opposed to "two dimensional TV" [3] in section 3.2, the researcher views this pattern as an indication that the teachers were more impressed by the personal contact of the education officer during the hands-on lesson and the tour of the museum than the more passive watching of slides and videos.

In this regard, it has been observed that on occasions some of the pupils have been left to watch the video on their own whilst the education officer takes the rest of the group around the Museum. This has been a way of coping with the large groups of 100 or more pupils that sometimes visit. Unfortunately the pupils are sometimes bored by the video (perhaps not understanding it adequately), resulting in them not paying attention and behaving in a rowdy fashion. It is the researcher's contention that if the video continues to form part of the programme, attention should be paid to planning activities that involve the pupils and teachers in some form of participatory interaction with it. In this way it is hoped that the video component could be made into a more meaningful exercise. (Useful references in this respect would be: Alt, 1981; Wolins, 1983; and Stone & Philips, 1988.)

A correlation between the Museum and what is taught at school was made by 3 teachers. One subject referred to "each and every aspect which is in their syllabus" being taught at the Museum. When asked to clarify what he meant by this, he referred to the history, geography and biology syllabus. The researcher believes that it would have been impossible for "each and every aspect" to have been covered in one visit to the Museum. This may be related to the emphasis on seeing "everything" on the tour itself (n=6) which is referred to again in sections 4.2.4 & 5.2. This alerted the researcher to the potential problem of certain teachers being unable to distinguish important aspects from those of lesser importance.

It would appear that the education officer responsible for conducting the *Fumana* programme was well liked by the teachers and pupils that he dealt with. Two teachers mentioned his kindness [9] and the way he "waited on them" [1]. Respondent [9] referred to the fact that the pupils were "excited . . . and can't forget his name". This was confirmed by the researcher's observation of the excited way in which children greeted him when the schools were visited to arrange or conduct interviews.

4.2 Perceived benefit of visits to the South African Museum

The teachers were asked if they thought it was important for their pupils to visit the Museum (Question B.6). All respondents felt that it was important and their reasons for this opinion are discussed below.

The most important reason perceived by teachers for their visiting the Museum appears to be the educational aspect of the visit (n=7). This was illustrated by comments such as

"they learn more"
"it is educating for them"
"they get more"

Closely related to this was the emphasis placed by four respondents on the syllabus related aspects of the visit such as:

> Bushmen (n=2)
> Animals / mammals / different vertebrates (n=4)
> Cultures (n=1)

Three respondents referred to syllabus enrichment:

> [1] "other information applicable to their age"
> [7] "they learn more . . . even if it is not in the syllabus . . . they get ideas out of the subject itself and therefore become more interested on the subject"

These observations suggest that teachers consider that the Museum fulfills its role as an educational institution.

The lack of educational facilities such as laboratories, libraries and books in the township schools (mentioned in section 3.2) was seen by teachers (n=7) to reinforce the need to visit the Museum where the pupils "can see things they've never seen before except in pictures in books". One teacher asked if it would be possible to borrow videos from the Museum. This response indicated to the researcher that on one hand, the loan service already operating from the Museum might be used by teachers in the townships if more widely advertised. Another teacher mentioned that they did not have a museum in the location. This response indirectly suggested to the researcher that the idea of 'satellite' or 'community museums' in the townships might be seen as useful. (This is dealt with further in sections 5.2.3 and 5.2.4).

The importance of seeing things, sometimes for the first time was stressed (n=7). Two teachers referred to the importance of looking at reality rather than abstractions thereof. The potential for involving other senses was only mentioned by two respondents. The lack of awareness of the potential of the Museum to stimulate the different senses of the child again highlights the need for greater emphasis to be placed on sensory aspects of the programme (see also sections 4.1, 4.4 & 5.1.2). In this way it is hoped that teachers exposed to this kind of learning will realize its value and incorporate it in their own teaching practices.

4.2.1 Enjoyment as part of the learning process

The teachers were asked whether they felt that it was important for pupils to enjoy themselves on an educational visit to the Museum (Question B.7). This question was asked in order to find out whether or not teachers felt that enjoyment was an important aspect of the leaning process. All 15 respondents felt that this was an important aspect of educational visits to the Museum. The majority (n=9) felt that it was important for the pupils to enjoy themselves and feel free to experience things. The freedom referred to was interpreted by the researcher to mean relaxed and away from the classroom situation. This was substantiated by teachers' reference to the need for pupils to break free from the classroom environment (n=4) where they were seen to be tense or stereotyped. The teachers felt that if the pupils were relaxed or free, they would learn more easily (n=5). Comments to this effect include:

> "They are tense in class . . . outside they are free therefore it is easier to learn" [1]
> "It does a lot" [4]
> "If they enjoy themselves, they learn better" [5]
> "Fun doesn't stop learning" [8]
> "That is how they learn . . . mostly when they are enjoying themselves" [8]
> "more free in the sense that sometimes in the classroom situation there are pupils that are shy and don't want to touch certain things. In the Museum they are allowed to touch each and every thing. Now they come back and see that it is their privilege to touch each and every species they see. Even in the street they ask questions. . . they are more open now". [7]
> "They must gain . . . so they must enjoy everything" [9]
> "Free . . . not bound to classroom situation kids should be free in education . . . to experience things" [10]
> ". . . back at school they answered their questions properly . . . if they had been bored, they wouldn't have paid attention." [11]

Although the researcher feels that the use of the term "each and every thing" is somewhat exaggerated, the value of the experience of being able to touch something that previously may have frightened the child has been highlighted.

One teacher cautioned against the children enjoying themselves too much and disturbing other visitors. This was substantiated by another who suggested that "a tight programme is needed" to ensure that the educational aspect is stressed and that the pupils do not try and "change the whole outing into some kind of picnic" [4].

Concern was expressed for the effects of the teacher-centred approach found in Black primary schools.

"The teacher tells them beforehand to behave, therefore at the Museum most Black kids are reserved. . . they follow the teacher and you don't even find kids remaining behind trying to scrutinize whatever is of interest to him or her. White kids you see <u>running</u> around the place because that's how they're encouraged to learn and discover on their own. Black kids usually keep to themselves, follow the teacher, listen to what he says and regurgitate that matter back to the teacher at school. Most of the time they are not spontaneous in learning - they follow" [2].

This confirms the sentiments expressed in section 1.2 of this report and although it may not be advisable to encourage pupils to <u>run</u> around the Museum discovering things for themselves, the opportunity for Black pupils to move away from total reliance on the teacher to provide all the answers needs to be encouraged.

4.2.2 Museum display areas perceived by the sample teachers to have been of most benefit to the pupils

In response to Question B.8 (Fig. 4.1) the majority of teachers (n=13) felt that the visit had been beneficial to their pupils. Comments such as those listed below confirm this:

"It was a fascinating day for them . . . don't have anything they disliked" [1]
"They were excited by everything" [8]
"Everything was up to date" [13]
"They liked it" [15].
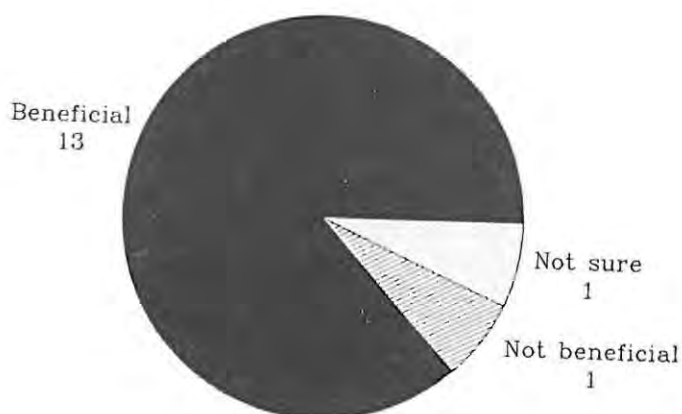
Figure 4.1: Perceived value of visit

N=15

Only one teacher [3] felt the visit had not been beneficial and said that this was because it had been too short. Teacher [2] was "not sure" because no follow up activities had been done, so she could not evaluate the impact for herself. She was the only teacher to have mentioned follow-up evaluation.

The teachers were then asked to describe what they thought had benefited the pupils most from their visit to the Museum (Question B.8.1). This question was asked before teachers had an opportunity to examine the handouts (Appendix E) which contained a list of the Museum's display areas. The responses therefore reflect what the teachers remembered best of their most recent visit to the Museum.

The most important feature of the responses was the tendency for teachers to remark on aspects of the Museum that relate to what they teach at school ($n=9$). Their own cultural background was also mentioned as important ($n=2$). Comments that reflect the syllabus link are tabled below (Table 4.1).

Table 4.1: Comments confirming syllabus link

TEACHER CODE	COMMENT
[3]	". . . animals, Bushmen, birds."
[5]	"Birds, animals, Bushmen . . . everything."
[6]	"Preparing for history; their cultural background - Nguni and San."
[8]	"When they get to Std. 3 it's not new to them . . . Bushmen in Std. 3 syllabus. Seeing our traditional culture is exciting."
[9]	"Their background and the Cape . . . the San; also sea, birds and snakes."
[11]	"Important for environment studies."
[12]	"They saw animals that even we teachers didn't know."
[14]	"I gave them a story to write . . . Bushmen."
[15]	"Animals, Bushmen, Whale sounds."

These results correlate with the responses to Question D.1 (Question 2 of the handout) where the teachers were asked to identify on their handouts which of the display areas listed they thought would be of greatest educational importance to their pupils. The results to Question D.1 are depicted in Table 4.2 (section 4.3) where it can be seen that mammals ("animals"), birds and reptiles as well as the Iron Age (Nguni) and Khoi-San displays are favoured (Fig. 4.2). (Insects were not mentioned among the responses to Question B.8.1 (Table 4.1) since the Insect Gallery was not open to the public at the time of writing and would not have been visited by any of these teachers.)
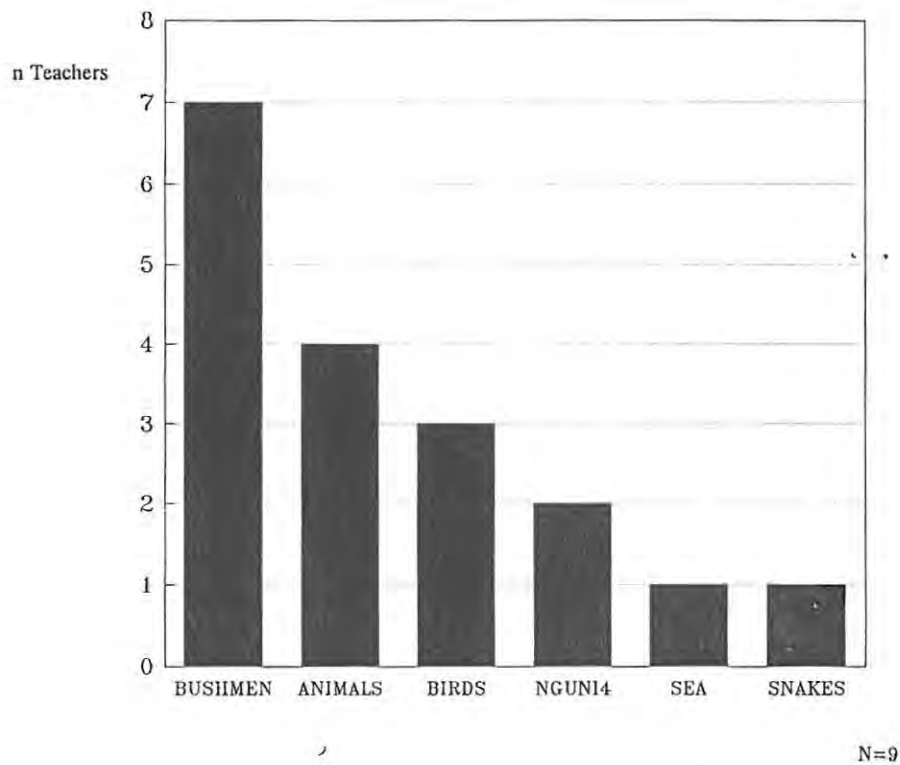
Figure 4.2:   Frequency of mention of specific syllabus related exhibits

It was noticed that eight of the nine teachers who emphasized the syllabus link were Lower Primary teachers which suggests a stronger emphasis on syllabus relatedness amongst this group. Perhaps the perceived importance of this syllabus link is explained by [8] . . . "When they get to Std. 3 it is not new to them because they've seen it before. The Bushmen are in their Std. 3 History syllabus and other standards." Interestingly

however, other Std. 2 teachers [14,15] later indicated that Bushmen were not important because they were not in the syllabus. This suggests a difference in teachers' attitudes towards preparing their pupils for what lies ahead as opposed to teaching only what is in the syllabus.

The video was seen by 4 respondents [1;3;4;6] to be beneficial to their pupils. Teacher [8] saw the video as a novel experience for some pupils. . . "They were excited by everything - even TV because some haven't got it at home."

The comment made by teacher [12] that they "saw animals that even we teachers didn't know" underpins the need for teachers to be made aware of what is in the Museum before they bring their groups so that they are able to answer questions the children might ask during or after the visit. (This aspect will be discussed in section 5.2)

Other comments by the teachers referred to reactions of and questions asked by the pupils:

> "The kids have problems identifying where people (San) are now."
> "The kids ask 'How can such a big animal (whale) survive in the sea?'"
> "They were surprised by ALL the birds and snakes."
> "I had to explain the people in the museum . . . kids ask 'why does the museum take people
>   and put them there instead of trying to get dead things?'"
> "They want to know how do you keep the animals alive?"

It is useful to teachers and museum education officers to be aware of the kind of questions that pupils ask on museum visits so that they can be prepared to answer them.

The practice of children imitating things they saw at the Museum was reflected in the comment of [12] "They pass jokes (here at school) the way the 'old people' danced . . . they imitate them." Teacher [13] recalled that she had visited the Museum at a time when a group of story-tellers were performing which she had found very interesting (particularly since she was a story-teller herself, a fact the researcher only found out after the interview). This experience had influenced the children to the extent that they imitated the story-tellers when they read books at school. This suggests that drama, role play and story-telling would be important techniques to employ in education programmes particularly for lower primary pupils. (This aspect will be referred to again in sections 4.6 & 6.4.)

4.2.3 Museum display areas perceived by the sample teachers to have been of least benefit to the pupils

Since only 1 of the teachers responded to Question B.8 that her trip to the museum had not been beneficial because it was too short, question B.8.2 was not asked of the remaining teachers. In order to find out which of the display areas were considered to be least beneficial to the pupils, the results from Question D.3 were used. Most teachers named the fossil gallery (n=6) and the Stone Age gallery (n=5) to be the least beneficial to their pupils (Fig. 4.3). These were referred to as:

> "Things they hadn't seen before e.g. dinosaurs . . . less interested in things they saw for first time. What really interested them was what they'd heard of before . . . things they'd learned in the classroom" [4].

A similar trend is reflected in the opinions expressed in section 4.3.

An education officer at the Natal Museum reported that she had experienced similar attitudes towards palaeontology and archaeology with her Black school children (Mtshali, 1991 pers.com.). She has found that by involving children in archaeological digs in the field during school holidays, they have become excited by the subject. It is the researcher's contention therefore that these areas that are perceived by teachers to be of little benefit should be dealt with in such a way as to stimulate the interest and understanding of the unknown.

Comments to the effect of: "They were afraid of the Karoo reptiles" [9]; "scared of the animals" [15] are understandable since the area where the so-called Karoo Dioramas are housed is dimly lit and the first exhibit to be seen in this gallery is not enclosed by glass. The animal reconstructions look quite lifelike (Appendix C) and frighten many children (including the researcher when she was a small child).
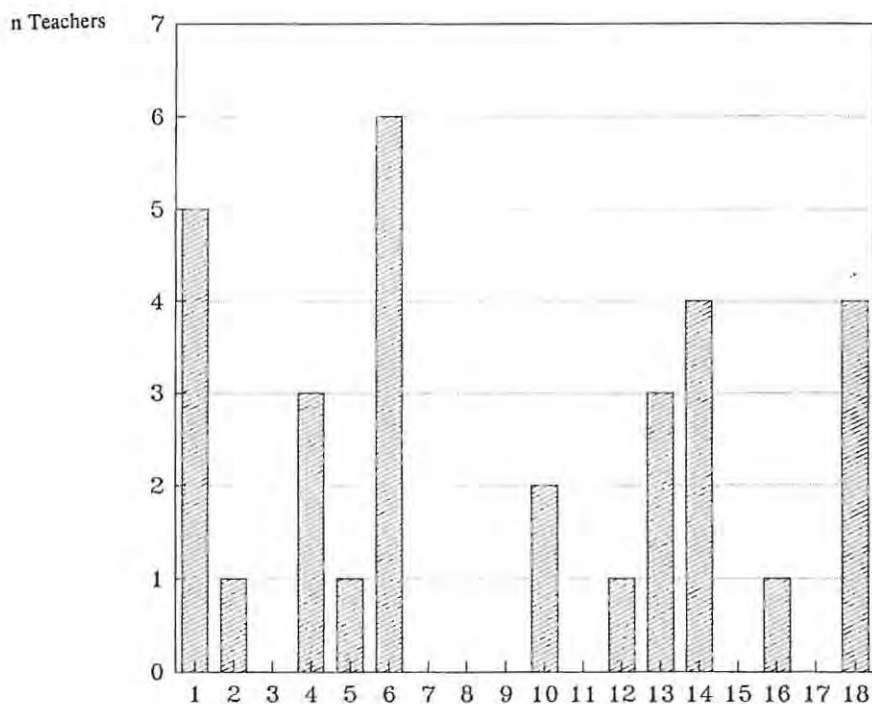
n Teachers

1. Stone Age gallery	7. Land Mammals	13. Printing
2. Khoi-San	8. Marine mammals	14. History
3. Iron age gallery	9. Fish	15. Discovery Room
4. Great Zimbabwe	10. Reptiles	16. Exploratorium
5. Birds	11. Insects	17. Resource Centre
6. Fossils	12. Wonders	18. Planetarium
	of Nature	

Figure 4.3: **Museum galleries considered by the teachers to be least beneficial to their pupils**

4.2.4 Suggestions for improvement

Some teachers offered suggestions at various stages of the interview as to how the service could be improved. Teacher [4] suggested that the visit be divided into smaller sessions with breaks in between . . . "Vary the activities, otherwise they get bored quickly". The researcher concurs with this suggestion, and plans have been made to incorporate this idea into the 1992 programme.

The same teacher said that one should "try to let them see everything you talk about - what they see they can easily remember. . . that influences what the officer is trying to put across." This suggestion is a goal that the education staff at the Museum strive for, but they are often thwarted by the large numbers in the groups. The *Fumana* project especially is faced with this problem as it has only one Xhosa speaking officer. The need for greater teacher involvement has been suggested as a means of alleviating this problem (Gibb, 1987).

One teacher requested that labels be translated into Xhosa for the Lower Primary pupils because the medium of instruction is Xhosa. The concept of translating labels into Xhosa is one currently being debated at the South African Museum.

Teacher [3], referring to the human body casts in the Ethnographic display areas, indicated that pupils would enjoy seeing "how to mould the statues because they think they are real people". There is a small display at the entrance to the Iron Age gallery illustrating how the body casts are made, as well as a section of the 'History of the Museum' display that deals with taxidermy techniques. The researcher is of the opinion that both these displays should be incorporated into all the school tours as her experience has shown that many pupils (and adults) are interested in this aspect of museology.

Three respondents [3;9;10] complained that the time was too short to ask questions. Teacher [10] emphasized that

> "they are too rushed if they try to see everything, they are just browsing. Rather concentrate
> on a specific thing on a specific day and learn it thoroughly. Use the first visit to browse."

This contrasts with the opinion of many teachers who think it important for their pupils to "see everything" on their visit to the Museum (see 4.1, 4.2.4, 5.2). Teacher [2] made a relevant criticism in this respect:

> "an unstructured visit without clear objectives of what they're supposed to learn - that's
> when they don't learn. . . They see lots of things but don't selectively learn therefore must
> have objectives and follow-up. There must be guidelines of what to see. If this is not done,
> the trip will be a waste".

When asked whether she thought it important to see everything, she replied

> "Not exactly because it is natural for a child not to remember everything. Even in books, the words
> in bold type must be remembered. . . the same in the Museum - need guidelines of what to
> remember. . . it is good to see everything for experience or to keep them occupied but must be
> selective in learning."

This sentiment is repeated by [10] who stressed that learning should be selective as it is more beneficial to see specific things about a certain topic.

The researcher agrees in principle with these two teachers but often receives requests from teachers for general tours of the Museum. The major problem faced by many schools is the lack of finance and time allowed for outings. It is the researcher's experience that teachers from these schools feel that it is important that their pupils see as much as possible in one day. In some cases, pupils are taken to three or more different venues on the same day. It is the researcher's experience that children visiting the Museum after having already spent two hours at other venues are tired and not able to concentrate fully on what they see and hear. This is a problem faced by many museums and other non-formal educational institutions. Education staff from these institutions have also commented that it would be preferable for teachers to be more selective in what they want their pupils to see on an outing if maximum educational benefit is to be derived from the experience.

The need for illustrative material that can be taken back to school was highlighted by [2]. She was not sure if the visit had been of any benefit to her pupils because she was unable to do follow-up work back at school because the education officer didn't have pictures to give her pupils as reinforcement. The objective of her visit had been to identify certain animals which appeared in their English setwork in order to have some idea of what they looked like. She was not able to follow-up because her pupils did not have pictures to paste in their log book to keep reminding them of what they had seen at the Museum. The researcher feels that it is important to take note of this need for illustrative material, especially in the light of the lack of books and other facilities in the township schools (sections 3.2 & 4.2 and Table 6.2). This demonstrates the potential value of well illustrated worksheets that can be taken back to school or home. When asked specifically if she thought pictorial reminders were important, [2] replied "Definitely. . . especially for kids from schools without libraries. . . the pictures would be a source of reminder from time to time".

4.3 Perceived value of specific exhibits at the South African Museum

Questions D.1 - D.2 were asked in order to establish which of the exhibits in the Museum were perceived by the teachers to be of greatest educational benefit to their pupils. Since the education staff at the Museum are often asked to give general tours' of the Museum, knowledge of what is perceived by teachers to be of greatest importance will not only help the planning of these tours, but should also help in the prioritisation of specific programme planning.

The teachers were asked to tick on their handouts whether they considered the galleries listed to be "very important, important, not important or not sure" with respect to their educational importance to their pupils. The results were ranked according to their cumulative index scores (section 2.3) and depicted in Table 4.2 below. (The interactive exhibits will be discussed separately in section 4.3)

Table 4.2: Museum exhibits, interactive exhibits ranked according to comparative index (C.I.) scores.

EXHIBITIONS	C.I. VALUE	RANK SCORE
Land Mammals	43	2
Iron Age	42	3
Reptiles	42	3
Khoi/San	39	4
Birds	39	4
Insects	39	4
Fish	38	5
Marine Mammals	37	6
Planetarium	35	7
History of the Museum	34	8
Wonders of Nature	32	9
Printing	28	10
Stone Age	26	11
Great Zimbabwe	26	11
Fossils	26	11
INTERACTIVE EXHIBITS		
Discovery Room	44	1
Resource Centre	43	2
Medical Exploratorium	42	3

Table 4.2 shows again (Table 4.1 - section 4.2.2) that the exhibits perceived to be most beneficial are those that relate to what is taught at school whereas those exhibits that do not relate to the child's prior experience are perceived to be less important. In this respect, it is of interest to note that the fossil gallery has a low ranking. This confirms the findings described in section 4.2.3, but is in contrast to the researcher's experience of white school groups who highly favour the fossil gallery.

In order to confirm which of the exhibits listed in Question D.1 were considered to be the most and least beneficial overall, the teachers were asked to identify these in Questions D.2 and Question D.3 respectively. Each mention of a specific gallery was counted and the results tabled below (Table 4.3).

Table 4.3: Responses indicating which of the various museum displays were perceived by the teachers to be most or least beneficial to their pupils.

MUSEUM GALLERY	n RESPONSES MOST BENEFICIAL	n RESPONSES LEAST BENEFICIAL
Birds	9	1
Insects	9	0
Khoi-San	8	1
Land Mammals	8	0
Fish	8	0
Iron age	7	0
Reptiles	6	2
Wonders of Nature	5	1
Marine Mammals	3	0
Stone Age	3	5
Fossils	1	6
Great Zimbabwe	0	3
Printing Gallery	0	3
History of the Museum	0	4
All important	2	

N=15

The results displayed in Table 4.3 confirm the trends described in sections 4.2, 4.2.2 and 4.2.3 where syllabus related exhibits are considered by the teachers to be important whilst the unfamiliar exhibits or those not in the syllabus are perceived to be the least beneficial as confirmed by the comments in Table 4.4 overleaf.

Table 4.4 Comments indicating why the teachers perceived individual museum displays to be beneficial or not beneficial for their pupils

GALLERY	PERCEIVED AS BENEFICIAL	PERCEIVED NOT BENEFICIAL
STONE AGE	[4] very important to learn about early humans. [7] What is meant by human evolution? . . . included in `historical culture'. [15] Most educational for their age.	[2] syllabus enrichment - not very important. [4] Not technical - not what we use - teach for survival. [8] Still in Std. 2 - won't know the value of the stones. [10] In some cases don't stimulate the child's mind. [12] Not part of syllabus - not for LP - not dealing with it. [14] Not very important for young ones. Not `not important' but syllabus most important.
KHOI-SAN	[2] Kids start laughing at campsite display . . . Fascinated by the deposit of fat . . . Important that they see Bushmen as no different from any other person . . . concept of cultural relativity where you see one group as better than another therefore important to know their ancestors used to dress in a similar fashion. Young children especially lose the reality of time . . . the perception is that is the life they live now . . . I used to emphasize the 'back to nature concept when teaching there because we've lost store of those things needed to survive in the veld because of the rate of civilization and urbanization resulting in the idea that the more you distance yourself from nature, the better you are. [2;3;9;11;14] History - Std. 3. [7] Part of syllabus so very important - includes historical culture. [6] Increase knowledge.	[12] NOT part of Lower Primary syllabus so not important at all. [13] Bit advanced for Std. 1. [15] Not our environment - want to link what we teach at school with what they see in the location - hunter/gatherers we only see on TV.
IRON AGE	[1] Enjoyed looking at those people - some male some female - you know kids like looking at funny things. Think they are playing and while they play they learn. [3] Related to syllabus. [2] Xhosa syllabus section on general knowledge . . . Most kids never been to rural areas therefore don't see things like a beer strainer. The examiners assume because its your culture you should know, but no books! [6] Increase knowledge. [7] Includes historical culture. [9] Important to learn something of their history . . . where they came from - their historical culture. [13] Discover their backgrounds. [14] Things in the syllabus are most important.	[12] Not part of syllabus (L.P.) not dealing with it - NOT important.
GREAT ZIM- ~~BABWE~~		[2] Don't see any relation to our culture in SA therefore not sure about

Table 4.4: cont.

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GREAT ZIM-BABWE		[2] Don't see any relation to our culture in SA therefore not sure about its relevance. [4] Didn't see - Not their immediate environment. [15] Want to link what we teach at school with what they see in the location.
BIRDS	[1] For further learning in higher standards (Std. 5) . . . if they have seen its easier to learn. [4] Not sure. [5;7;11;10;12;14;15] Syllabus. [6] Increase knowledge - because they don't know them.	Not important. We never have contact with these things - A bird is just a bird - doesn't matter if you know its name. It is syllabus enrichment, I don't think the syllabus says you have to identify birds - only the pigeon is studied.
FOSSILS	[1] Important. [4] Not sure.	[2] So remote - Don't think there's any emphasis on this - therefore not important. [7] To them - not much important - haven't got the understanding. Not in syllabus - not going to use in future - not even a course that would lead them to a job - some of these things only of whites, not blacks according to the curriculum. [11] Out of syllabus. [13] Not sure - leads them to science. [15] What is it?
LAND MAM-MALS	[2] Important - that is what they study. [5;7;9;10;12] Syllabus. [7] Std. 4 they do reproduction, in Std. 5-10 the structures [8] Animals - don't know animals have feelings . . . throw stones therefore they must learn	
MARINE MAMMALS	[2] I've always respected the sea & never known most of the animals in the sea - just leave them to be peaceful - I can't swim. [5;12;] Syllabus.	
FISH	[4;5;7;9;11;12;15] Part of syllabus.	
REPTILES	[1;5;7;9;12] Part of syllabus. [2] important because we encounter on a regular basis - the sooner we have factual information instead of myths, we may be able to contribute to their conservation (laughs). If I see an animal I want to have it killed immediately, but most are harmless. If we had information, we might be able to dispel our fears about reptiles.	[15] I'm scared of those . . . ested. Don't think they'd be inter-
INSECTS	[1;2;5;7;9;12;14;15] Syllabus. [4] In syllabus - more than that they should be aware of the importance of insects in the environment.	
WONDERS OF NATURE	[1] child must have various objects to look at so he can conceptualize objects in his own way - he may be able to assimilate knowledge - Syl-	

Table 4.4: cont.

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Table 4.4: cont.

killed immediately, but most are harmless. If we had information, we might be able to dispel our fears about reptiles.

INSECTS

[1;2;5;7;9;12;14;15] Syllabus.
[4] In syllabus - more than that they should be aware of the importance of insects in the environment.

WONDERS OF NATURE

[1] child must have various objects to look at so he can conceptualize objects in his own way - he may be able to assimilate knowledge - Syllabus.
[2] nice to see kids 'oohing & aahing' over things they never see.
[4] Educationally important - way of consolidating whole syllabus - from smaller to largest animal also important.
[8] Elephant tusk - must know bracelets come from ivory.
[9] Kids must know whole world scientifically - anything in nature must be exposed to kids so that they must not be new to anything that comes out.

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[7] Not important to Std. 4. Do some in Std. 5.
[6] Take them to Mondi factory (instead).

HISTORY OF THE MUSEUM

[7] For Std. 6 pupils - not Std. 4.
[10] People can learn from museum without learning its history - although it is important to know history of something.
[13] For adults - boring for children.

4.4 Perceived value of interactive exhibits at the South African Museum.

As indicated in Table 4.2 (section 4.3), the interactive exhibits were perceived by the sample to be among the most beneficial services offered at the Museum. This was confirmed by the responses to questions D.2 and D.3 (Table 4.5).

Table 4.5: Interactive exhibits perceived by teachers to be the most and least beneficial to their pupils

INTERACTIVE EXHIBIT	n RESPONSES MOST BENEFICIAL	n RESPONSES LEAST BENEFICIAL
Discovery Room	7	0
Resource Centre	5	1
Medical Exploratorium	3	1
Planetarium	3	5

n=15

Reasons given as to why teachers perceived the interactive exhibits as most or least beneficial are tabulated in Table 4.6 overleaf. These observations confirm once again the need for more opportunities for sensory experiences to be incorporated into the Museum's education programmes (sections 4.1, 4.2, 4.2.2, 4.4 & 5.1.2).

4.5 Teachers' awareness of existing educational services at the South African Museum

In order to plan improved education programmes at the Museum, the researcher thought it important to find out which of the existing services were best known (therefore most utilized) and which were considered to be the most and least useful to the pupils. This information could then be used to determine where greatest effort should be placed by the education staff at the Museum to further develop those services perceived by the teachers to be most useful.

The teachers were asked to tick on their handouts which of the services they knew or did not know were offered by the S.A. Museum (Question E.1 / Question 3 of handout). The researcher suspected that many of the services would be unfamiliar to the majority of teachers. Therefore, in order to avoid making respondents feel ignorant, the researcher attempted to put them at ease by saying that she wanted to see how efficiently the Museum had been advertising its services. The researcher's suspicions were confirmed as can be seen from the results depicted in Fig. 4.4 below which reveals how few services were known by the teachers in the sample.

Table 4.6: Comments indicating why the teachers considered the `interactive' exhibits at the South African Museum are perceived as beneficial or not beneficial

EXHIBIT/SERVICE	PERCEIVED AS BENEFICIAL	PERCEIVED AS NOT BENEFICIAL
DISCOVERY ROOM	[3;4;9;10;12;15] Discovery for themselves. To increase knowledge. Touch & see / feel [4] I can't deny the kids the right to be exposed . . . previously some careers not open to us - so I'm worried about not letting them - especially kids who are interested . . . surely it will stimulate? Discover for themselves - remember easily - more interesting Build confidence in approaching tasks. [6] very important - all senses.	
RESOURCE CENTRE	[2] Kids now admitted to schools where they haven't been admitted before - get assignments that parents never done before - we are fortunate that we have this place where we can get pictures etc. [4] Will develop research skills. Prepare kids for degrees. . . [6] Library - very important. [12;15] Discover something new - enjoy	[7] Too young - only important for teacher.
MEDICAL EXPLORATORIUM	[2;8;15] Preparing for higher stds. [2] Haven't seen it yet . . . but . . . Howcome Dumisani hasn't translated into Xhosa - who are they catering for if so much money spent and only English & Afrikaans are used - especially if they have something that can benefit the whole community.	[3] Too advanced.
PLANETARIUM	[4] Links directly with geography syllabus. [6] To increase knowledge. How do we get there - [wants to make appointment] [14] Interesting.	[2] My experience is that geography teachers usually skip over this section. Will be valuable especially to pre-school kids - important to inculcate an interest as early as we can - may even develop an interest. [5] Don't know anything about the stars etc. [7] Only important for their curiosity - especially the boys. Only girls who are brilliant that are curious. [9] Astronomy isn't in the syllabus [13] Too advanced.

The service best known by the sample was the general guided tour, which was to be expected since all the teachers had participated in this activity.
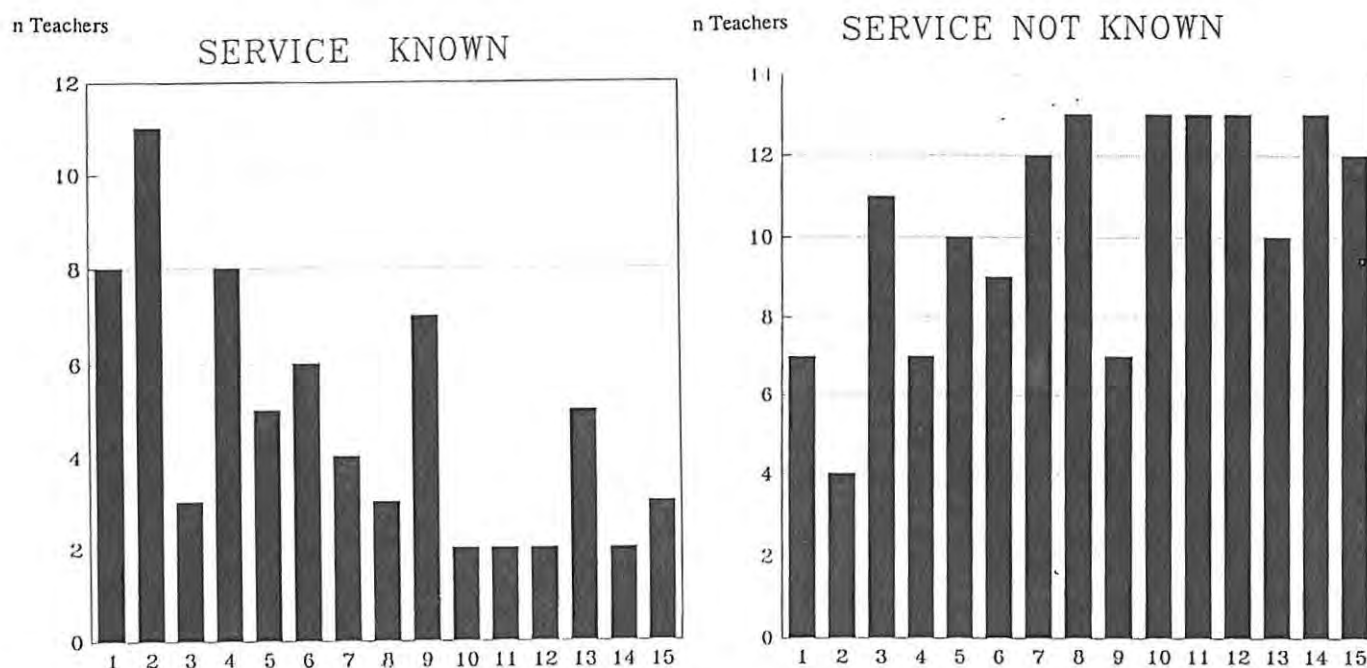
1. Museum tour without Guide
2. General tour of Museum with guide
3. Tour of specific gallery with guide
4. Educational video
5. Discovery Room
6. Resource Centre
7. Hands-on activity with museum objects
8. Behind the scenes tour
9. Illustrated talk/lecture by Museum scientist
10. Talk given by Museum staff at school
11. Field trip conducted by Museum staff
12. Specimen loan service
13. Combination of above on request
14. Museum Club
15. Holiday activities

Figure 4.4: Existing services offered by the S.A. Museum Education Service known / not known by teachers in the sample

4.6 Services perceived to be of most and least benefit to their pupils

In order to find out which of the educational services offered at the Museum should be given most attention with respect to further development by the education staff, the teachers were asked to identify those services listed in Question 3 of their handout (Question E.1) that they considered to be of greatest or least potential benefit to their pupils (Questions E.2 and E.3 respectively).

Table 4.7 overleaf reveals that the services mentioned most often as beneficial were the hands-on activities (n=6); video (n=5); Discovery Room (n=5); talk by Museum staff at school (n=5) and field trip (n=5). Of greatest interest to the researcher was the emphasis placed on the importance of touching, handling and feeling the objects. The statement by [14] that "when they use their senses they remember easier" probably most accurately describes why the teachers perceive this aspect to be important. This yet again highlights the need for more hands-on activities using real objects to be incorporated in the *Fumana* programme.

The need for some form of teacher training or enrichment programme is highlighted by comments [8,9] expressing the need for a guide to compensate for the teachers' lack of knowledge. They also felt that they could learn from talks and activities conducted by museum staff [7].

Teacher [6] stated that she felt that drama and story telling were important because the pupils liked it. This was the third lower primary teacher to have spontaneously mentioned this aspect (section 4.2.2) as this option only appeared in question G.12 of the interview schedule (section 6.4). As seen in Table 6.9 drama and story telling was perceived to be one of the most favoured options. This indicates a need to incorporate this kind of activity into the South African Museum's education programmes. Ideas incorporating these activities may be found in the writings of authors such as Gladwinfield, 1978; Hubner, 1981; Brown, 1982; Clive & Wilson, 1988; Craig, 1988; Jenkinson, 1988; Perry, 1982; Sorrell, 1988; and Whitlock, 1988.

Services perceived as least beneficial were behind the scenes tours (n=4); holiday activities (n=4); and the tour without a guide (n=3). Reasons given for why these services were perceived least beneficial are tabulated in Table 4.7 overleaf.

Table 4.7: Responses indicating whether individual educational services are perceived as beneficial or not beneficial.

SERVICE	PERCEIVED AS MOST BENEFICIAL	PERCEIVED AS LEAST BENEFICIAL
	ALL BENEFICIAL: (n=2)	NOTHING NOT BENEFICIAL: (n=4)
TOUR WITHOUT GUIDE		(n=3) Random - surely need guide to take them through big museum? [4] Because we teach kids - don't need staff - but they should go with them to see things. [3] Not even teachers know therefore guide beneficial. [12]
GENERAL TOUR WITH GUIDE	(n=1) Person like Dumisani knows everything - can explain. Don't even know the names of things myself [8]	
SPECIFIC TOUR	(n=1) Tour of specific gallery important so dont spend too much time looking at so many things without much knowledge or insight on them. [10]	(n=1) They must see everything if possible [11]
VIDEO:	(n=5) To discipline kids to watch educational TV *(Researcher asked if this would be best at school or at the Museum?)* At school would need tight security. [4] [6] Educational - prepare for the future. [14] When they use their senses they remember easier.	
DISCOVERY ROOM	(n=5) Able to touch, feel objects. [3] Kids get more information.[10]	
RESOURCE CENTRE	(n=3)	(n=1) Only teacher can benefit - kids want to watch videos & move around - not interested in books (would be useful to borrow books for school. . . see notes) [7]
HANDS ON ACTIVITIES	(n=6) Able to touch, feel objects. [3] Educational - prepare for the future. Most things they only see on TV - dont know how it feels. [8] I believe when teaching kids must handle/feel objects - esp L.P. We learn by playing method. [12] Touch. [15]	

Educational - prepare for the future.

Most things they only see on TV - dont know how it feels. [8]
I believe when teaching kids must handle/feel objects - esp L.P. We learn by playing method. [12]
Touch. [15]

BEHIND SCENES TOURS	(n=1)	(n=4) . . . more important for Standards 9 & 10 - those who are preparing for a career. [4] Too advanced. [3] All right for adults - not for them. [12] Not for this age group. [14]
TALK BY SCIENTIST	(n=2) Open childrens' eyes widely - if listening to someone not familiar - listen more. [1] . . . knows answer to technical questions. [2]	(n=1) Too advanced [13]
TALK AT SCHOOL	(n=5) Educational - prepare for the future. [6] Because knows more about the subject - even teacher could learn more from the talk. [7] So those unable to go to museum can also get information from staff. [11] Will it be in their language? {can arrange or translation] Will be useful to have before coming to museum. [14] If staff can come - **we don't know everything** - at museum only limited number can go - at school everyone can know what's happening. [15]	
FIELD TRIP	(n=5) Any technical questions can be answered - know what to look for - they've been doing this for some time so will have better knowledge than the teacher. [2] [11] Is this conducted at the museum? .. That is OK also - things not living at the museum?. . . So can actually see them living. *(lack of understanding here)* [10] Could stimulate kids' interest in nature and conservation - also fun.	
SPECIMEN LOAN	(n=3) Educational - prepare for the future. [6] Important if no time to go to museum. [10] [13] I'm very much in love with stories - would like to borrow animal masks.	
COMBINATION	(n=2) can design visit to meet different standards' needs. [4]	

Will it be in their language? {can arrange or translation} Will be useful to have before coming to museum. [14]

If staff can come - **we don't know everything** - at museum only limited number can go - at school everyone can know what's happening. [15]

FIELD TRIP   (n=5)

Any technical questions can be answered - know what to look for - they've been doing this for some time so will have better knowledge than the teacher. [2]

[11] Is this conducted at the museum? .. That is OK also - things not living at the museum?. . . So can actually see them living. *(lack of understanding here)*

[10] Could stimulate kids' interest in nature and conservation - also fun.

SPECIMEN LOAN   (n=3)

Educational - prepare for the future. [6]

Important if no time to go to museum. [10]

[13] I'm very much in love with stories - would like to borrow animal masks.

COMBINATION   (n=2)

. . . can design visit to meet different standards' needs. [4]

MUSEUM CLUB: (n=3)

Enriching. [4]

Learn more - how to care for animals - to be interested in nature. [14]

(n=1)

. . . restricted - numbers *(told her not any more - then changed to holidays)* [2]

HOLIDAY ACTIVITIES: (n=3)

Enriching - can gather more information than just learning for exams. [4]

Keep the kids off the streets & educational. [3]

No - don't think they'd go. [15]

(n=4)

Go away   *asked about kids who stay* - no facilities. . .. [2]

Kids away. Who will be responsible - need people to go with them. [6]

L.P. kids little - must rest & relax during holidays. [12]

Won't come - especially young ones. [15]

4.7 Summary and conclusions

This chapter highlights the sensory aspects of seeing "things never seen before" and touching objects as important aspects of a visit to the Museum. This points to the need for more interactive and hands-on activities to be included in the *Fumana* programme. The video component of the programme, although seen to be useful, should include greater interaction between teacher, pupils and the information portrayed by the video. Drama and story telling activities were suggested by some teachers to be useful and enjoyable educational approaches. Interactive displays such as the Discovery Room, Medical Exploratorium and Resource Centre were seen to be the most important areas in the Museum for the pupils to visit.

Emphasis was placed on the need for syllabus related and syllabus enriching programmes. Museum galleries perceived to be of greatest importance were those relating to the school syllabus namely land mammals, reptiles, birds, insects and fish as well as those pertaining to their culture. Displays of unfamiliar objects such as fossils and Stone Age implements were seen to be less important.

The need for enrichment programmes for teachers was also identified in order to assist teachers improve their own knowledge. It is hoped that this will encourage teachers to be more involved in programmes run at the Museum, thereby assisting the education staff at the Museum with the large groups that visit.

The following chapter examines the content and educational methodology that Museum staff need to consider when planning educational programmes for Black primary school groups.

CHAPTER 5

TEACHERS' PERCEPTIONS OF FUTURE NEEDS

The questions in sections C & D of the interview schedule were asked in order to attempt to establish what teachers perceived to be the most useful methodological approach(es) to consider when planning and improving educational programmes at the Museum.

5.1 Educational activities to be considered when designing educational programmes at the Museum

In order to determine the most appropriate educational activities to include in future programmes at the Museum, respondents were asked to indicate how useful they considered the options suggested in Question C.1 (Question 1 of the handout). The results were ranked according to comparative indices as before (section 2.3 & 4.3). The results are depicted in Table 5.1 below and discussed in sections 5.1.1 - 5.1.5 according to related topics.

Table 5.1: Educational methods and issues to be considered by the Museum's Education Service in future planning ranked according to comparative index (C.I.) scores.

EDUCATIONAL METHOD/ISSUE	RANK SCORE	C.I.	n
Reading skills	1	46	15
Library/research skills	2	45	15
Group work	3	44	15
Interdisciplinary activities	4	42	15
Problem solving activities	5	41	15
Writing skills	6	40	15
Laboratory apparatus	7	39	15
Syllabus enrichment	8	39	15
Local environmental issues	9	39	15
Microscopes	10	38	15
Worksheets at the Museum	11	38	15
Syllabus related activities	12	37	15
Own observation	13	37	15
Computers	15	37	15
South African envir. issues	16	34	15
Education officer telling	17	33	15
Environmental awareness	18	32	12
Individual work	19	32	15
Worksheets at school	20	31	14
World envir. issues.	21	29	15

5.1.1 Incorporating the school syllabus

The perceived importance of relating museum education programmes to the school syllabus has already been highlighted in sections 4.2 and 4.2.2. Fig. 5.1 below reveals that the teachers perceived syllabus enrichment and interdisciplinary activities as more important than syllabus relatedness. These terms were defined to the teachers as follows:

syllabus related - exactly what is covered by the syllabus
syllabus enrichment - expand on what is covered in the syllabus
interdisciplinary - draw different parts of the syllabus together to show how they could relate to each other)
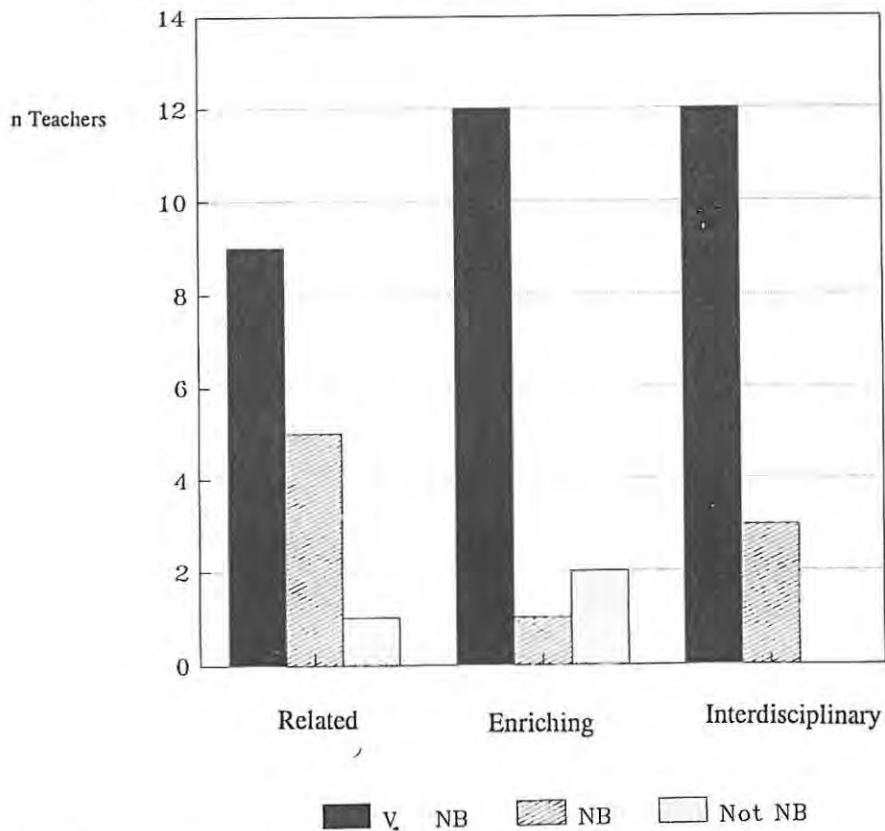
Figure 5.1: Teachers' responses as to whether they considered syllabus related, syllabus enriching and interdisciplinary activities "Important", "Not Important" or were "Not Sure"

The researcher's opinions regarding syllabus related programmes are echoed by teacher [2] who said "If you repeat at Museum what they learned at school, they won't learn much more." However, the researcher was somewhat alarmed at the response of teacher [10] who felt that covering exactly what was in the syllabus was more important than enrichment. Other responses which concur with that of [10] are two Std. 2 teachers [11;14] who indicated that syllabus enrichment was not important. Teacher [11] commented that it was "useless to cover what was out of the syllabus because the pupils will never use that information". She continued "what we'd like is they must see what we are going to teach or have taught." This rather limited viewpoint contradicts what most museum educators perceive to be their role, namely supplementing and enriching the school syllabus (Pitman-Gelles, 1981) rather than replicating it. The attitude of not being able to use additional knowledge is seen by the researcher to be a direct result of the inadequate education received by most Black people in this country. She is of the opinion that such statements could serve as an indicator to museum educators of a larger body of Black school teachers with similar attitudes. This should serve as a challenge to encourage teachers to widen their perspective on education for the benefit of their pupils.

Teacher [2] commented that syllabus enrichment would help children to learn more and increase their general knowledge. She indicated that Black school children lack general knowledge and gave an example of an inter-school general knowledge quiz where the Black entrants scored very poorly against their white counterparts.

Since environmental education is interdisciplinary in nature the researcher was interested to see how teachers perceived this concept. Fig. 5.1 indicates that interdisciplinary activities were the most highly favoured of the syllabus choices. Teacher [2] commented that interdisciplinary activities were very important in order to overcome the tendency for the pupils to compartmentalize what they learn. This teacher's views in some instances appear more enlightened than most others in the sample. This may be due to her higher academic qualification (she holds an Honours degree in psychology and a B.Ed) as well as her previous experience as a museum educator.

5.1.2 Teaching Methods

Table 5.2 below suggests that emphasis should be placed on designing activities that involve the children in group problem solving exercises involving their own observation and incorporating worksheets to be completed at the Museum. The researcher was pleased to note the trend advocated by the sample teachers' responses. It concurs with the kind of activity she understands to be in keeping with current trends in environmental and museum education.

Table 5.2: Suggested teaching methods at the Museum ranked according to comparative index (C.I.) scores.

EDUCATIONAL METHOD	RANK	C.I.
Group activities	1	44
Problem solving exercises	2	41
Worksheets at the Museum	3	38
Own observations	4	37
Handling of museum objects	5	35
Education officer telling	6	33
Individual work	7	32
Worksheets back at school	8	31

The researcher was surprised to note that handling of museum objects was only ranked fifth. Perhaps this is because these teachers perceive museum objects only to be behind glass where they may not be touched. On the other hand, it is speculated that if these teachers had experienced a greater hands-on component in their previous visit(s) to the Museum, this response may have been assigned greater importance (refer to sections 4.1, 4.2, 4.2.2 & 4.4).

Only one teacher [11] indicated that she was not sure of whether or not time should be allocated for the pupils own observation of museum objects. She felt that there must be someone to guide them. This type of response points to the lack of confidence displayed by some teachers in allowing children to observe things that might lead to questions that the teacher cannot answer.

As discussed earlier (Section 5.1, Table 5.1) group work was the method most highly favoured by the sample. Some teachers (n=4) viewed both group and individual work as equally important and indicated that time should be set aside for each. It was suggested that, depending on their ability, the pupils first work in a group and then individually once they had overcome their shyness (n=2). An ideal group size of 4-5 was recommended by [4] since a "very big group is useless."

5.1.3 Library/research skills

The Museum has a Resource Centre which functions as a source of reference material to assist school pupils with their school projects. Originally the Centre was designed with disadvantaged schools in mind. Experience has shown, however, that this facility is poorly utilized, especially by the township schools. The researcher attributes this partly to poor advertising and partly to its geographical position seen to be remote from the disadvantaged areas. She has also been told that most disadvantaged schools do not set projects for their pupils. She feels that these aspects should have been investigated when the Resource Centre was first planned. It is nevertheless felt that the resources available in this Centre can be utilized to good effect by incorporating a component of library and research skills into the *Fumana* programme.

Respondent [4] was very enthusiastic about this idea.

> "a lot of projects and activities can be done in order to cover what is not in the syllabus. I think if you go out of your way of the syllabus it is much more meaningful for the child in his or her everyday life" [4].

Another comment which highlights the need to introduce pupils to library and research skills was that of [2] who said that

> "the kids are spoiled, they expect the teacher to provide everything. . ... we need to prepare them for tertiary education - they must get these skills as early as they can - the high failure rate at tertiary level is because they are not prepared for the type of learning there."

Since reading and library/research skills are ranked highest of all the possibilities offered in this section (Table 5.1), the researcher concludes that there is a need to incorporate these aspects into future programming.

5.1.4 Use of scientific apparatus

At the 1991 SAMA Conference there was a call for greater emphasis on science in museums. Although the South African Museum is a natural history museum, there is no reason why scientific apparatus cannot be incorporated into biological-type activities and interactive programmes such as the Discovery Room. The researcher was therefore interested to see what type of scientific apparatus namely computers, microscopes and laboratory apparatus, were perceived by teachers to be of greatest benefit to them.

All three kinds of apparatus were perceived by most (including lower primary) teachers to be "very important". Microscopes are one of the most popular aspects of the Discovery Room and are always enjoyed by pupils if they are incorporated into any of the other programmes. Respondent [2] thought they were very important, especially since microscopes are portable and could be borrowed from time to time. This again (section 4.2) raises the concept of a loan service which will be further dealt with in section 5.2.3 below. Teacher [11] at first did not think microscopes were suitable for Lower Primary pupils. However, she did not know what a microscope was. Once it had been explained to her, she changed her mind and indicated that it was "very important".

According to the comparative index scores (Table 5.1), computers were perceived to be the least important of the three types of apparatus suggested. Respondent [2] considered computers at the Museum to be idealistic at the moment since few children would have access to them at home. She perceived them to be of little use at the Museum as it was geographically remote.

Teacher [4] highlighted the problem faced by Black students regarding the availability of laboratory apparatus:

> "this is a part which we are lacking. That's why few Blacks take science towards Std. 10.
> The difficulty is caused by not touching the apparatus."

This points to the need to incorporate some form of simple scientific experimentation into the programmes for Black pupils in particular. Teacher [2] on the other hand felt that this would burden the Museum with a responsibility that does not belong to it. She felt that the DET should provide such apparatus. She emphatically stated that "the Museum is NOT about the school syllabus - but an enrichment." Her point is well taken, but the researcher still feels that simple biological activities using basic apparatus would provide such enrichment.

5.1.5 Environmental issues

Perhaps the slightly lower degree of importance ascribed to environmental awareness is best described by [2] who saw this as

> "Important with some reservation. . ... Although I know how important it is to be environmentally conscious there are some things which people of a different socio-economic status are concerned with at a particular time. For example the taxi war - their concern is survival at the moment. No matter how they survive, they are not concerned with environment. But they know its important to look after environment. . . Most students are highly politicized at the moment and their concern is with students rights. . . they want to get decent schools, books on time etc. . . when we talk about environmental awareness they will see whatever idea you are trying out as a form of victimization."

Awareness of environmental concerns in the local area was perceived to be of greater importance than other areas. The world as a whole was ranked lowest of all 3 suggestions. The reason for this was most probably reflected by the comment of [2] who said "I wonder if a child who has only been in Cape Town and Transkei can visualize what is going on in America?".

5.2 Perceptions of future educational services that could be offered at the South African Museum

Teachers in the survey were asked to indicate how useful they considered each of the proposed future services listed in Question F.1 (Question 4 of the handout). Comparative index scores for the proposed services were ranked to determine the services perceived most to least useful. The results are depicted in Table 5.3 below.

As can be seen from Table 5.3, teacher training workshops, Resource Packs and discussion with the education officer before the visit were perceived to be of most potential benefit. The idea of teacher training workshops in particular was greeted with great enthusiasm by all respondents. This supports the observations discussed in sections 4.2.2.

Tours of specific galleries was ranked lowest of all suggestions. This concurs with the need to see everything described in sections 4.1 & 4.2.4 and the lack of enthusiasm for specific tours discussed in section 4.2.4.

Table 5.3: Proposed services ranked according to comparative index (C.I.) scores

RANK	C.I.	PROPOSED FUTURE SERVICE
1	43	Teacher training workshops
1	43	Resource Packs
1	43	Discussion with museum staff
2	41	Worksheets designed WITH museum staff
2	41	Museum staff conduct General tours of Museum
3	40	Museum staff conduct hands on activities
4	37	Mini-bus
5	36	Theme related tour and hands-on activity
6	35	Worksheets BY museum staff
7	34	Information leaflets
7	34	Teacher borrows specimens from Museum
7	34	Community exhibition - during school hours
7	34	Community exhibition - after school hours
8	33	Theme related tours
9	32	Museum staff take teaching specimens to schools
10	31	Museum staff conduct tours of specific galleries

5.2.1 Proposed services to be conducted by Museum staff.

In response to Question F.1.1, general tours of the Museum were the most highly favoured option of the activities to be conducted by Museum staff (Table 5.4). The general guided tour of the Museum is offered at present and should have been familiar to all the teachers in the sample. The researcher is therefore not sure if its apparent favour is due to its familiarity, or because the teachers really want to see everything as mentioned in sections 4.1, 4.2, 4.2.4 & 5.2. The low favour granted to specific tours and the comment of [13] that it is "better to see everything" indicates that the latter assumption is probably more accurate. Teacher [10] was the only one in the sample to feel strongly that the teacher should take his/her own pupils to specific exhibits rather than to see everything. His strong feelings are evidenced by his repetition of the same sentiments earlier in the interview (section 4.2.4).

The concept of theme related tours was among the three least popular suggestions. It would appear that teachers likened this concept to specific tours as evidenced by [12] and [13] who suggested that a general tour and hands-on activity would be better. Comments made with respect to the proposed services are tabulated in Tables 5.4, 5.5, & 5.6 below and overleaf.

Table 5.4: Comments concerning proposed services to be conducted by Museum staff.

PROPOSED SERVICE	TEACHER	TEACHER COMMENT
GENERAL TOUR	[10]	Can be conducted by teacher who can take the kids with a specific aim. If the teacher has a bit of knowledge of museum, he can conduct the tour.
TOURS OF SPECIFIC GALLERIES	[10]	Can also be done by the teacher. The museum staff are trained in that specific field, but the teacher can do more (than in class) because he is teaching the subject and now has all objects around him so not sure about this one.
	[13]	It is better to see everything.
HANDS ON ACTIVITIES	[2]	The children will be involved in the activity.
	[10]	Can also be taken by teacher
THEME RELATED TOURS	[2]	Very useful. It will be focussed on a specific thing, most probably related to a specific section of the syllabus, therefore likely to make up one lesson
	[10]	Museum staff can do it but it would be better if teacher can do it there.
	[11]	Suitable for Higher Primary.
	[12]	Not sure for little kids. It is OK for older ones
THEME RELATED TOURS AND HANDS ON ACTIVITIES	[2]	Even more useful than very useful!
	[12]	Better if general tour and hands on.
	[13]	Better if general tour with hands on.

5.2.2 Support services to assist teachers to take their own tours

It was noted at the recent SAMA Education Officers' Conference in Port Elizabeth (1991) that many museum education staff are attempting to encourage teachers to take their own tours. This trend has arisen from the need to accommodate the large number of school groups who wish to visit museums and the limited numbers of museum education staff available to assist these groups. This viewpoint was echoed by [2] who felt that this would be **ideal** since there was only one Education Officer and many schools.

It has also been observed by many museum educators in South Africa, including the researcher, that many teachers who bring their groups to museums, see the visit as time off. The researcher feels that this attitude is unacceptable. She also feels that if the teachers are actively involved in the programmes offered at the Museum, the pupils theoretically should receive greater benefit from their visit.

In the light of the above sentiments, the researcher was interested to find out how best Museum staff could assist teachers to take their own tours. The sample teachers were therefore asked which of the options listed in Question F.1.2 would be the most useful in assisting them to bring their own pupils to the Museum.

Table 5.5: Comments pertaining to different support services that could assist teachers to conduct their own visits to the Museum.

PROPOSED SERVICE	TEACHER	COMMENT
TEACHER TRAINING WORKSHOPS	[2]	IDEAL because there's only one Education Officer and many schools
	[10]	Think it will help
	[15]	We will know what's going on and can bring ideas back to kids
INFORMATION LEAFLETS DESIGNED BY MUSEUM STAFF	[12]	You can give leaflets, but if I don't know museum, it won't help
WORKSHEETS DESIGNED BY MUSEUM STAFF	[2]	Not really useful - I'd like, to see . . . oh - next question!
WORKSHEETS DESIGNED TOGETHER WITH THE TEACHER	[2]	Dearly like to see
	[12]	More useful than (c)
	[15]	More useful than (c)
DISCUSSION WITH THE MUSEUM EDUCATION OFFICER BEFOREHAND	[2]	VERY useful - Both of you prepared
	[10]	Very useful. We could both could come to some useful agreements. By making the member of staff at museum to know what you are teaching - therefore he can prepare something to help
RESOURCE PACK	[2]	The teacher might have chance of giving ideas that can be added

The comments regarding teacher training indicate that the sample appear to need the enrichment offered by such training in order to help them increase their knowledge and thereby improve their teaching. This apparent lack of confidence in their knowledge of the Museum exhibits is reflected in sections 4.2.2 & 5.1.2. The aspect of informing teachers what resources are available is an important one to consider when planning teacher training programmes.

Resource Packs containing ideas for pre-visit preparation, activities to be conducted in the museum and ideas for follow-up activities are not new to museums. This concept is one that the researcher is very keen to develop at the South African Museum and she was therefore gladdened to see the enthusiasm with which the concept was received by the sample. The only comment received concerning the Resource Packs was from [2] who thought that "the teacher might have chance of giving ideas that can be added." This points to the need for consultation with teachers in developing new resources. It is proposed that an action research programme involving a small group of interested teachers in the development of Resource Packs be initiated in 1992.

The need for teacher consultation is further highlighted by the fact that the development of worksheets together with the teachers was ranked second whilst the suggestion of the museum staff designing them alone was ranked sixth. Discussion of the proposed tour with the Museum Education Officer beforehand was perceived by 13 of the teachers to be very useful thereby further highlighting the need for collaborative work between teachers and Museum staff.

5.2.3 Outreach programmes

The concept of taking the Museum into the community has been used by many museums worldwide. Examples of museum outreach programmes are travelling exhibitions; mobile museums; community museums; school visits and loan services. The researcher was interested to see if any of these services were perceived to be needed in the Cape Town community (Question F.1.3). Table 5.6 overleaf reveals that although the outreach services generated more comment than any other suggestion, they were perceived to be of lesser importance than teacher training, consultation with museum staff and visiting the actual museum. Of the outreach programmes suggested, the mini-bus or mobile van was perceived to be the most useful suggestion. Comments pertaining to the outreach suggestions are tabulated in Table 5.6 overleaf.

One objection to the proposal of school visits was that the environment at the school is different to that of the museum [8] and the objects would therefore have less impact on the pupils. The fact that more children would get to see the objects was the most important issue in favour of school visits (n=3).

The reservations concerning teachers borrowing specimens concerned the time and finance involved in going to the Museum to fetch and return the objects borrowed (n=3). This loan service was seen by one teacher [7] to be the least beneficial of all the suggestions because of the financial implications. Teachers also expressed a lack of confidence in their own ability. The comment of [9] (Table 5.6), although understandable, should not be seen as a reason to abandon this idea. Instead, teachers should be empowered through training workshops to teach with specimens. This need was reinforced by [15] who said "It depends on whether you've attended workshops and know much about specimens."

An alternative of having different exhibitions at a community centre was suggested by [10] in section 4.2 and Table 5.6. This gives support to the idea of a community museum, a concept favoured for some time by museologists such as Marsh, 1968; American Association of Museums 1972; Stevenson, 1982; Kinnard, 1985. The researcher was quite surprised to see this suggestion ranked low on the list. Teacher [3] perceived community museums to be the least useful suggestion "because they would get burned up". Transport was seen by some (n=3) to be a problem even within the community. Lack of motivation on behalf of the pupils and problems with teenage girls who go out on the pretext of visiting the museum and "come home pregnant instead" [7] were seen as negative aspects of this suggestion. Of the teachers that commented on community museums, six said that it would be more useful to visit community museums during school hours whilst three felt that this would interfere too much with school lessons. Teacher [13] indicated that it would be easier to control a large group of young children in an environment that was familiar to them. A community museum was seen by [10] to benefit not only school pupils, but other sectors of the community as well.

Mobile museum vans have been used successfully in Botswana (Madondo (1982) and elsewhere in the world (Harms, 1979; Rees, 1981; Porter, 1982) and have been considered by the South African Museum in the past. This suggestion was perceived by the sample to be the most useful of the outreach suggestions. Teacher [2] was very enthusiastic about this suggestion but made an interesting comment in support of the Museum visit.

"Costwise the mobile van comes out tops. BUT if they visit the Museum teachers might find something that hopefully they can come back to later on. If they rely on museum staff coming to school, they might not be aware of other services that they might get at the museum. It's just like going to the supermarket, you tend to buy things you never intended to, nevertheless you are going to use them!

Table 5.6:Museum outreach to the community

PROPOSED SERVICE	TEACHER	COMMENT
TEACHING SPECIMENS BROUGHT TO SCHOOL WITH MUSEUM STAFF CONDUCT-ING LESSON	[1]	By handling things I think they learn easier. By requesting things to be brought along after I have chosen lesson - when children go there and see things - it will be easier for me to (praat?) with them
	[2]	useful - could add variety to chores of museum E.O. Are you going to make it for 1 class - we have 4 Sub B classes . . . will it be monthly or just that day?
	[8]	NOT important because environment not the same as where things on display. Objects at museum must be AT the museum, e.g. elephant at school different to at museum.
	[9]	Better than mini-bus because more choice.
	[10]	Would be good to use a section of the R/C in Gugs where a branch of the museum could be taken and visited by different schools
	[14]	Would it be to all kids? . . . would depend on space avail. Numbers - Nice to take them out, but can't
	[15]	Can't take all objects to school - maybe if relating to specific lesson eg birds. Better for museum staff to go to school because limited number can go to museum - esp if school hall - teach more kids
TEACHER BORROWS SPECIMENS	[9]	Teacher borrows not as useful as if it comes from (museum staff). .. the person who is involved with the whole thing . . . if you do it time and again with various you will see things that be disappointed in this area. Teacher using thing once only therefore no time to "scrub off mistake"
	[7]	Useful but will take MORE TIME for teacher to get to museum to fetch and return. No money from school therefore becomes "extras" to do on own = problem
	[8]	More useful (than above) because maybe school doesn't have money to buy therefore useful that museum willing to GIVE things - If I'm going to give bird lesson - so I can borrow bird . . . WASTE OF TIME TO COME and COLLECT for class.
	[6]	Are you going to leave specimens, e.g. Science teacher who would want them for experimentation. . . Difference between (3 and 4) depends on how its handled
	[10]	In terms of transport system - need section in R/C at Gugs - Can arrange with schools in Gugs - arrange timetable where different schools can go there. Work out schedule of different displays eg. birds, mammals . . .
	[14]	Won't have much TIME to organize that
	[15]	Depends on whether you've attended workshop and know much about specimen
EXHIBITIONS IN COM-MUNITY - DURING SCHOOL HOURS	[2]	Might work eg. in a library - get better attendance during Hrs
	[3]	Museum far from us - during hrs
	[7]	Due to DET regulations it would be more suitable during/after school hrs - depends on principal - some principals flexible, some not . . . won't be problem if principal sees need or if teachers push. Really . . . some people don't know facilities available at museum and other places should hold workshop for Std 5 teachers (and pupils)
	[9]	(problem). transport to that area?

Table 5.6 cont.

Table 5.6 cont.

HOURS	[3]	Museum far from us - during hrs
	[7]	Due to DET regulations it would be more suitable during/after school hrs - depends on principal - some principals flexible, some not . . . won't be problem if principal sees need or if teachers push. Really . . . some people don't know facilities available at museum and other places should hold workshop for Std 5 teachers (and pupils)
	[9]	(problem) -transport to that area? . . . depends on when/how often exhibition takes place . . . taxis and busses moving around therefore not such a problem as taking them all the way to C.T.
	[11]	DURING - because more than 1 school here
EXHIBITIONS IN COMMUNITY - AFTER SCHOOL HOURS	[2]	useful, but not very because children not motivated to go there . . . some have extra mural activities eg dancing, karate and come to town for these
	[3]	Useless - Tey'd burn it up!
	[4]	More beneficial than actual museum
	[5]	During school hrs because not all will go after hrs - but if in community can be visited Still needs assistance of Ed Officer
	[6]	Caters for pupils - venue in community they can visit after school so can't interfere with school and just nearby
	[7]	Problem with teenage girls - lie - get pregnant - teacher blamed because supposedly on school outing
	[8]	Useful - avoid missing so much at school on outings to Museum and Art Gallery. After school still FRESH and excited because seeing something new - some don't even have TV. (Most useful service) - finance , transport -time difficult to decide
	[10]	Most useful because can help other people not at school - small kids, parents etc.
	[12]	Better
	[13]	Transport - working with small kids so to control better, take them to an environment they know. Doesn't have to be during Hrs - can even visit after hrs. so doesn't interrupt normal curriculum / timetable
	[14]	Numbers - Nice to take them out, but can't take all
	[15]	No use - not wise - some kids have transport problems because live far
MINI-BUS	[1]	Easier than museum staff bringing things
	[2]	V.useful if we can get - mobile therefore may be able to do 3 schools in 1 day - costwize better than (2) BUT IF IN MUSEUM, SEE OTHER THINGS
	[3]	Most useful because could request
	[6]	Don't forget to make arrangements (with school) first
	[7]	Makes everything convenient for teacher
	[9]	Is it routine or request? . . . Problem if you're requested to some other school at same time (time table). . . not as useful as exhibitions in community because I fear you won't be able to come to our school today.
	[8]	Very difficult to take objects of museum to a different environment. BUT REF BOOKS and VIDEOs NB
	[11]	Some children haven't got busfare - with this project, museum can see what to do and contact us
	[10]	V. much appreciated, but venue in community better
	[12]	Best - pupils can get information from `expert'
	[15]	NB to have specimen for specific subject

5.2.4 Most beneficial group of services overall

The teachers were asked which of the proposed services they considered would be the most useful (Question F.2).

With respect to the Museum education staff conducting various activities 2 teachers found this to be easy and convenient for them. The lack of confidence expressed by some teachers was reflected in the comments of [6] who was concerned about making mistakes when teaching the child and the feeling that the museum staff should take the tour because they know the museum better than the teachers. One teacher was worried that if a child asked "How do you make these animals?" the teacher would have to go and find out.

It was concluded that there was a need for greater teacher support and guidance to help with the guided tours and by assisting teachers to learn more about the contents of the Museum. One teacher [3] felt that teacher training was not necessary as the teachers could teach themselves. This initiative unfortunately does not appear to be the norm. The suggestion of assisting the teacher to conduct his or her own visit received comments such as

> ". . . happy to bring my own pupils with assistance" [5]
> "we should work together" [7]
> "We need teacher training workshops ANYWAY so that we know what's going on - like kids we don't know what's going on" [6].

Individual aspects of the outreach programmes were mentioned. The community museum and mobile van were seen to cater for the pupils, whilst the mobile van was seen as the most useful as it would come on request [7]. Community museums were seen by [9] as the most important outreach if exhibitions in the community were also done according to a routine. The pupils would then be able to go on a regular basis for their studies and observations.

Teacher [5] asked if the pupils would have to visit a community museum on their own? She was concerned that they would not be assisted by an education officer. This reflects the dependence of some teachers on the Museum staff.

Teacher [4] felt that all suggestions were worthwhile.

> "For a start it will be proper to take kids to the Museum and also to have training. Then set up things in community because we really do need these things. There is a need to develop an interest in the value and meaning of educational things. The kids have been driven off by a wave of politics. Politics is put forward and education forgotten."

This suggestion best describes the feelings of the researcher who would like to see the Museum's education programme develop along the lines described. She therefore asked how best to attract the pupils to the Museum. The teacher replied "First take the kids, then train teachers to "train disciples" to feed back into the community" [4]. This, the researcher feels, is sound advice.

5.2.5 Other services that could be offered

Question F.3 was asked in order to determine if there were any additional services, other than those already mentioned, that could be offered by the Museum to help meet their needs as teachers. The responses are tabulated in Table 5.7 below.

Table 5.7: Additional services suggested by the sample

TEACHER	SUGGESTED SERVICE
[1]	Posters and world charts for the classroom
[9]	Science kits with information on how to build invertebrate collections etc.
[3]	Competitions and prizes
[4]	Make kids used to using library and other educational facilities. Evaluate the kids' feelings. Bring the good results to the attention of others. Get them to see the value/importance of education
[6]	Cater for food - otherwise the teachers have to pay
[11]	Something for scripture
[13]	Mini-bus to collect kids and take them to the Museum
[14]	Tours twice a year to get more kids to see the museum
[15]	Textbooks, booklets informing us of what's happening at the Museum

Although the suggestions are varied, the need for resource materials (booklets, posters etc.) was mentioned most often (n=3) and, if combined with the request for science kits, gives additional support to the Resource Pack idea. The interest in competitions is repeated in Table 6.8 and should therefore be considered in future planning.

5.3 Summary and conclusions

This chapter has highlighted the need for syllabus enriching, interdisciplinary programmes incorporating group work, opportunities for individual observation and problem solving activities. The Resource centre was seen to be an important facility for the teaching of library and research skills.

Of the outreach programmes suggested, the mini-bus or mobile van was perceived to be the most useful suggestion. The idea of a community museum also met with favour. The idea of a loan service was seen to be problematic due to the financial implications of fetching and returning specimens. Teachers also expressed a lack of confidence in their own ability to teach with or about borrowed specimens.

The most important issue to emerge from this chapter was the need for greater collaboration between teachers and museum staff in planning activities. The need for teacher support in the form of workshops and resource materials was highlighted.

The concept of the need for pupils to be aware of environmental issues was introduced in this chapter. Local environmental issues were perceived by the teachers to be the most important to address. The following chapter further examines the teachers' perceptions of environmental education and the role of the Museum in this regard.

CHAPTER 6

TEACHERS' PERCEPTIONS OF ENVIRONMENTAL EDUCATION AND THE
ROLE OF THE MUSEUM

This chapter deals with teachers' perceptions of environmental education and the role of the Museum in this regard. The questions in section G of the interview schedule were asked in order to gain some understanding of what the teachers understood by the term `environmental education, the environmental issues percieved to be of greatest importance to them and how they thought the Museum could assist them to address these issues. The teachers were also asked if they would be prepared to be involved in the palnning of future environmental education programmes at the Museum (Section H).

6.1 Teachers' understanding of the term environmental education ` ·
The researcher felt that it would be important to gauge the teachers' understanding of the term environmental education at the beginning of this section of the interview. The teachers were therefore asked what they understood environmental education to mean." (Question G.1). She was surprised at the diversity of aspects of the environment mentioned and the general holistic views expressed by some of the teachers as shown in Table 6.1 below.

According to the research assistant, the Xhosa word for environment is *ingiqi* which means region and does not have connotations of nature (*indalo*) or conservation. This interpretation may be seen in some of the responses in Table 6.1 below, but it is difficult to determine, with any accuracy, the extent to which either interpretation affected the responses. The researcher feels that some of the references may well be syllabus related. Environmental Studies is taught at Lower Primary level, and covers topics such as those mentioned by respondent [15] in Table 6.1 below.

6.2 Teachers' perceptions of their pupils' awareness of environmental issues
The teachers were then asked how aware they thought their pupils were about environmental issues (Question G.2). Eight teachers believed that their pupils were not very aware of environmental issues. By contrast seven teachers claimed that their pupils

Table 6.1 Responses reflecting teachers' understanding of what is meant by environmental education

BIOPHYSICAL TYPE RESPONSES:

[3] Nature and all surroundings
[7] Educating about plants and animals around . . . how to keep the environment clean
[8] Learn about plants and animals. . . the importance of rivers and trees
[12] Nature
[13] Includes child's environment - everything, animals and birds.

HOLISTIC TYPE RESPONSES:

[1] Taking everything into totality - save roads, railway lines, different areas in the environment, different kinds of houses . . . everything in totality
[2] Learn about places we live in - how we have affected them by living there and how we should preserve them for future generations
[4] Taking care of the environment - how important it is to care . . . have long and short term goals - something must be done.
[6] Animals, buildings, plants, houses, cars, even the priest
[9] Things around us - everything - living and non-living things: buildings, roads, townships, atmosphere.
[11] Things in surroundings - people, transport, shops, buildings, plants, weather, mountains
[14] Get acquainted with where one stays - occupation. How to take care of animals . . . shooting birds . . . know animals breathe, have feelings, pain etc.

DEFINITION TYPE RESPONSES:

[3] Nature and all surroundings;
[3;6;8] . . . things around us
[5] Education about the environment
[9;10] Everything; everything in the area
[11] Things in surroundings
[15] Environment is surroundings - churches, schools, playgrounds, centres, hospitals, libraries.

Question G.3 was asked in order to ascertain what factors the teachers thought contributed to their pupils' awareness or lack of awareness of environmental issues. Teachers who felt that their pupils lacked environmental awareness offered various reasons for this. Important factors included the poor conditions in the townships (n=3); lack of motivation (n=2) and the political situation (n=1) The impact of the township environment on the pupils was highlighted by [9] "Our kids stay here in these shacks - exposed to garbage and always mention garbage and disease."

Two teachers [5 & 11] indicated that their pupils were only aware of their immediate environment because they were "not taken on outings". Conversely, [6,12 & 15] mentioned outings as important factors in improving environmental awareness. This points to a perceived need for outings as discussed in section 3.2. Parents, peer groups and siblings [n=2] as well as the Fairest Cape's awareness programmes and clean-ups (n=1) were also mentioned as contributing to pupils' awareness of environmental issues. Most teachers (n=5) however indicated that their pupils learned about the environment at school. This could limit the pupils' outlook on the environment if the teacher sticks rigidly to the text book and does not attempt to expand on the syllabus in any way.

An issue mentioned by six teachers was that of cruelty to animals. This unprompted mention of a specific issue indicates the potential severity of this problem. Comments in this regard include:

[4] "Especially in our environment"

[8] "Problems with animals . . . thrash dogs - don't know how important is an animal or bird. . . . People have not been taught from childhood . . . . Plants too, children take a stick and beat flowers."

[13] "The teachers make them concerned to look after animals. Teach them how important an animal is to us."

[14] "How to look after animals (and) . . . how important animals are to us".

[15] ". . . how to take care of animals . . . shooting birds . . . know animals breathe, have feelings, pain etc."

6.2.1 Attempts to develop pupils' awareness of environmental issues

Teachers were asked if any attempts were being made at their schools to develop the pupils' awareness of environmental issues (question G.4). From the responses, it would appear that most schools (n=10) in the sample are making some attempt at environmental awareness. Of those that said that there were no attempts being made at schools regarding environmental awareness, two teachers later mentioned involvement in tree planting activities. Two of the teachers who responded negatively alluded to their principals being a reason for a lack of pupil involvement. Prior to this research, the researcher had heard that some principals do little to motivate or guide their staff. A list of the types of activities conducted in the sample schools are presented in Table 6.2 below.

Table 6.2 Environmental activities conducted in the sample schools

SCHOOL	ACTIVITY
[3]	Visits to Noordhoek farm etc., Showgrounds
[4]	Timetable - class to class
[6]	Outings, picking up litter.
[7]	Fairest Cape Awareness Programme - Club in Std. 5. Through the teacher in charge. . . at least lecturing on environmental issues . . . once a month. . . . Today they are out on an outing.
[8]	Had a pigeon in the classroom to teach the children how useful is birds. All animals have feelings like you - animals will also be hurt if beaten. Tell them . . . flowers beautify, trees give shelter when its hot, also furniture, pencils etc. from trees.
[9]	Excursions to see robots - last week they were taken there. They've got a garden there on the corner - they garden Collect rubbish . . . old apples, vegetables etc. to make compost for the garden. They are aware, although not much facilities to be much aware.
[10]	(Said no initially, but after interview showed where they had planted trees)
[11]	Only taking out children to particular places. The teachers try to make charts etc.
[12]	Outings
[13]	Planting trees for soil erosion. Flowers to beautify. (*Observation: This school had a well tended garden and vegetable patch and was beautifully painted with murals including one of Keep Gugulethu clean)
[14]	Arbor Day - Competitions . . . the kids like to win, so they participate. Each.class has two trees to look after - important to the environment.
[15]	Took them to tree planting somewhere else (ie not at the school). Outings.

6.3 Teachers' perceptions of the most important environmental issues they think their pupils should be aware of

The teachers were asked what they considered to be the most important environmental issues their pupils should be aware of in their local area; South Africa and the world as a whole (Question G.5). They were also asked why they considered these issues to be important. The responses to each question are tabulated in Table 6.3 overleaf.

There are three main issues that can be identified with respect to local environmental issues (Table 6.3). The first is the reliance of the lower Primary teachers on the syllabus [5;11;12;15]. This was reflected in the range of local issues identified including shops, libraries as well as the need to know about the Houses of Parliament and Prime Minister. There was also a noticeable reference to litter and cleanliness (n=4) which was blamed on the poor administration of the Local Authorities.

The researcher was interested to note issues such as acid rain [4], recycling and equatorial forests [1] mentioned. She had thought that these might not have been perceived important by this population group.

Table 6.3 Environmental issues considered by teachers to be most important for their pupils to be aware of in their local area; South Africa generally and the world as a whole as well as the reasons why they are considered important.

SCHOOL	LOCAL AREA	SOUTH AFRICA GENERALLY	THE WORLD AS A WHOLE
[1]	Activities in the environment - what is actually happening: To develop a love for things.	Natural conservation: How to look after plants, animals. etc. They have a tendency of killing everything - just throw aside, which is bad. Everything must keep on living.	Pollution: which is a danger
[2]	In our area we hardly have industries so toxic waste not an issue.... Sewerage (meaning refuse) disposal. Reaction towards local authorities and strikes and bins not collected therefore litter.	Some issues raised in EE programmes are far removed from the pupils' lives... Poverty, urbanization ... community nurses need to teach women about pad disposal (Discussed the problem of women moving from rural areas into the once `single mens' quarters' whose plumbing was not designed to carry the extra load.)	Waste that is thrown away at random eg. stationery. This could be recycled and earn the school some money.
[3]	Library: It is where they are able to read and write rather than going around (the streets)	Whew! ... The political crisis: So they know where they're from... the ups and downs... motivating them to read more and learn. To be curious - why does this happen...	Communication: They must be taught so they fit anywhere - can accommodate themselves.
[4]	Decentralization of industry	Urban migration	Acid Rain - damaging effects of manufacture
[5]	Police station, colours, flags: Nothing musch to learn in the township.	Prime Minister, cabinet and things happening on TV: They must know what is going on.	What's gooing on - TV: Because they see things going on on TV's.
[6]	Litter: To keep their environment clean for health puroposes.	Keep South Africa clean and take good care of animals: Some tend not to like animals 'till aware - till you create to them that animals are just like them.	Complicated for Sub. B's. More important to be aware of things around them.
[7]	Cleanliness: Our locations are very dirty due to poor administration by local authorities. So people should be made aware so they can see the need.	Types of animals and laws of South Africa: This is their country!	Also - First our country, then environments of other countries: If no knowledge of their own, then not interested in others.

[7]	Cleanliness: Our locations are very dirty due to poor administration by local authorities. So people should be made aware so they can see the need.	Types of animals and laws of South Africa: This is their country!	Also - First our country, then environments of other countries: If no knowledge of their own, then not interested in others.
[8]	Dangerous animals - snakes: Sometimes seen.	Bombs: What they look like	Not sure.
[9]	Dumping site on the way to Mitchell's Plain where garbage taken for recycling of some sort: It is important to know garbage can be recycled.	Water and pollution: If you go to the North East of South Africa... shortage of water... tried many ways to rescue the water, including accross the mountain. The kids must know about water crisis. Here in the Cape - no water crisis YET. So must know they must save eg. dripping taps and how reserved.	Historical and geographical problems eg. Volcanic eruptions, tornadoes: They must be aware and identify so they know if they experience ... move to another area. Equatorial forests: pollution being conducted there ... they give us oxygen.
[10]	Cleaning yards at home and at school: Will extend from home to school and other areas. Organize programmes to do this and enjoy - give them caps...	Pollutoion generally, especially air pollution. What causes it and how to avoid and get rid of it.	
[11]	Parliamental House, visit white schools, factories, hospitals, prisons: In curriculum. Want to compare - some of them not used to white people and get scared, so if they see small children like them, its good for them.	De Klerk - President. other cities, one or two - like Johannesburg.	Customs of different people: When they grow up, it is possible they go overseas and know nothing of the customs there.
[12]	Sub. A & B cars and streets, animals, trees, birds: What is in syllabus.	Std 1 - Plants, protea, animals, insects, trees: Syllabus.	Not in Lower Primary. Travelling methods: Syllabus.
[13]	Animals and vegetation: Important to us.	Water: Important to everybody - plants and animals.	Human being: Because some people don't think humans important - just a fly.
[14]	Many shacks, therefore safety - where is the door in emergency.	Must be educated. Even a streetsweeper needs Std. 10. Need motivation.	Air hostess - must be aware of other places - be of assistance and help others /community / world...nurses, pilots.
[15]	Schools, libraries, centres, playgrounds, shops: Because they are things they use daily therefore must know what route to take, how to cross the road ... get medical service ... when and where to play ... where to borrow books.	Towns - big ones: Because parliament in Cape Town, Court of Appeal in Bloemfontein, Baragwanathe Hospital in Johannesburg. Airports...	Important but above their comprehension.

Urbanization was also mentioned by [4;2] as an important issue. Teacher [4] proposed "long . . . and short term goals" to deal with this problem and suggested that "decentralization of industry" would help.

Teachers were asked to rank the three areas in order of importance (Question G.6). The results are depicted in Fig. 6.1 below.

It can clearly be seen from the above diagram that the teachers thought it more important for their pupils to be aware of environmental problems that exist in their local area than the other options. Reasons given for this choice include:

[1] If they know local, they know South Africa.
[2] To know environment of South Africa, they must know local area first. Once aware of the close problem, it takes care of the rest.
[9] Must start at home, then go out - put everything right, then go out.
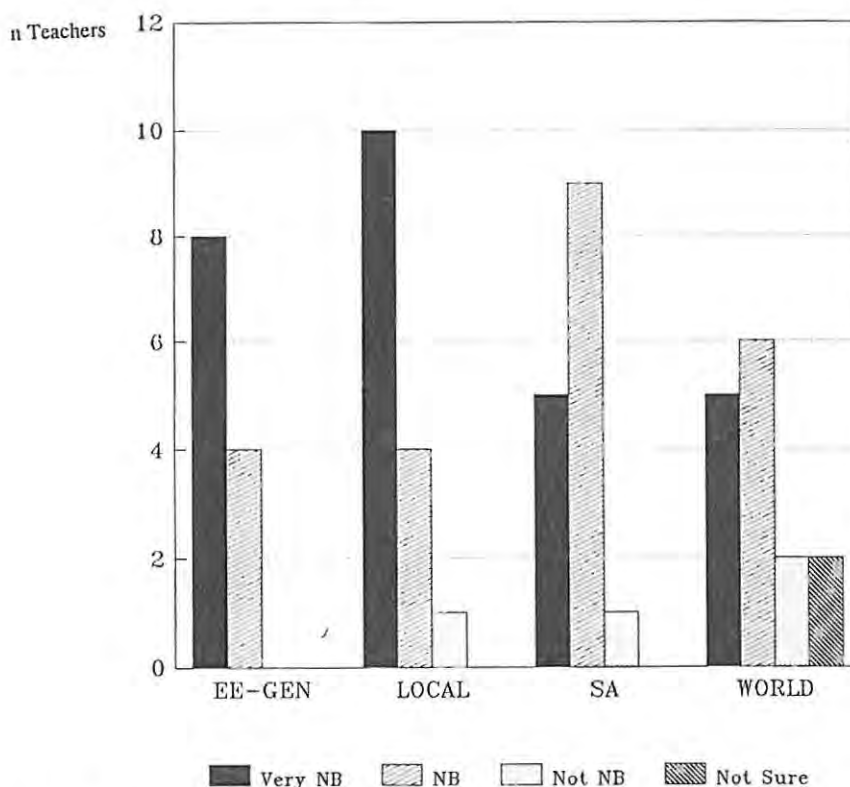
Figure 6.1: **Responses indicating whether teachers thought it more important for their pupils to be aware of environmental problems in their local area, South Africa generally or the world as a whole**

6.3.1 Teachers' suggestions as to how pupils could become involved in environmental issues

In response to Question G.7, all 15 teachers in the sample indicated that they thought their pupils should become involved in environmental issues. They were then asked how they thought their pupils could become involved (Question G.7 cont.). The responses to this question are tabled below (Table 6.4).

Table 6.4 Teachers' suggestions of how pupils could be involved in environmental issues.

TEACHER	SUGGESTIONS FOR PUPIL INVOLVEMENT
[1]	By organizing some assemblies or workshops where they can be made aware of these things. River Day clean-ups in the river furrows in the townships . . . . River Day should gain momentum and spread to other areas.
[2]	Even from the planning stage - I think that's most beneficial because they're likely to co-operate. But once you bring issues that are seen as imposed, they're not likely to help . . . . The sound of money would motivate most of them - they must see they are going to benefit. eg. Recycling competition - class competition for the class who collects the most waste paper . . . so all the paper torn from the text books will contribute! Nobody will throw away papers at home.
[3]	Help others - hospitals, S.P.C.A etc.
[4]	Educators drawing up programmes to include pupils in immediate environment. eg. Clean-ups in uniform which will alarm society therefore everyone will want to know why?
[5]	Kids clean the streets . . .
[6]	Taking care of each and everything around them.
[7]	Form clubs on environmental issues and all that.
[8]	Special days / occasions - have an activity . . . at school and invite the community.
[10]	Workshops where people are informed of what is environment, what is danger and how to avoid . . . . By people from the Museum to schools.
[11]	Practical involvement . . . take them round to see things.
[12]	They should know what's going on. They planted trees.
[13]	Organize clean-up campaigns etc.
[14]	Cleaning up areas.
[15]	Like libraries where they spend their time reading, discussing in groups, even acting. The play grounds where they can play. Centres where they can do dancing and drama.

The activity mentioned most often was that of clean-up campaigns. This may be due to the fact that litter is a major problem in township areas. It is speculated however, that it is more likely that the teachers have been influenced by environmental organizations such as the Fairest Cape Association (mentioned in section 6.2 who were responsible for co-ordinating River Day clean-ups (see [4] Table 6.4).

6.3.2 Teachers' awareness of environmental issues

The researcher was interested to see how aware the teachers were of various environmental issues. She was also interested to see if there was any difference in their responses towards biophysical and social issues; she hypothesized the latter would be perceived as more important than the former.

A very long list of different environmental issues was drawn up by the researcher after consultation of the various references referred to in Chapter 1. Teachers were asked to indicate how important they considered it for their pupils to be aware of each of these (Question G.8). Comparative index scores were assigned and ranked as described in section 2.3. The results depicted in Table 6.5 overleaf.

There is little difference between the cumulative index scores, as most respondents felt that it was very important or important to be aware of all the issues listed. Nevertheless a trend towards a greater emphasis on the social issues may be seen. Issues such as the Greenhouse effect, acid rain and dune mining which receive much attention from environmentalists appear among the lower rankings. Attention is once again drawn to the issue of cruelty to animals which appears among the highest rankings. **Water** and **river pollution** appear to be the biophysical issues of greatest concern to the sample. This is understandable when one sees the lack of adequate water supplies in some of the townships as well as the polluted state of waterways running through these areas.

Table 6.5 Environmental issues perceived by the sample teachers as important ranked according to comparative index (C.I.) scores.

ISSUE	C.I.	RANK SCORE
Poverty	44	1
River pollution	44	1
Violence	44	1
Hunger	44	1
Cruelty to animals	44	1
Water pollution	43	2
Child abuse	43	.2.
Street children	43	2
Interrelatedness of all things	43	2
Education crisis	43	2
Social relationships	43	2
Transport	43	2
Unemployment	43	2
Endangered animals	42	3
Endangered plants	42	3
Sewage disposal	42	3
Litter	42	3
Poisons & Pesticides	42	3
Recycling	42	3
Crime	42	3
Illiteracy	42	3
Gangs	41	'4'
Fire	41	4
Soil erosion	41	4
Poaching	41	4
Oil pollution	40	5
Wetlands	40	5
Toxic waste	40	5
Air pollution	40	5
Natural resources	40	5
Environmental health	40	5
Deforestation	40	5
Housing	40	5
Water provision	40	5
Electricity	40	5
Shortage of recreation facilities	40	5
Fynbos	40	5
Ozone Hole	39	6
Infant mortality	39	6
Dog droppings	39	6
Marine pollution	39	6
Sexism	39	6
Overcrowding	39	6
Desertification	38	7
Nuclear Power	37	8
Urbanization	37	8
Acid rain	37	8
Plastic pollution	37	8
Green house effect	36	9
Coastal development	36	9
Alternative energy	34	10
Seal culling	34	10
Ecosystems	34	10
Sea urchin bloom	29	11
Alien plants	27	12
Gill nets	26	13
Endangered sharks	26	13
Dune mining	25	14

The respondents were asked to identify what they considered to be the three most important environmental issues from the list (Question G.11). The individual results and ranked cumulative index scores are tabulated below (Table 6.6).

Table 6.6 **The issues perceived by the sample to be the most(1), second most(2) and third most(3) important ranked according to comparative index (C.I.) scores.**

C.I.	ISSUE	INDIVIDUAL RESPONSES		
		Most NB.	2nd.	3rd.
12	Environmental health	2;4;5	14	11
11	Education crisis	7;8;13	1	
9	Street children	12;14	11	3
7	Child abuse	6	7;15	
7	Endangered plants & animals	10;11		8
6	Illiteracy	1	13	15
6	Shortage of recreation facilities		2;13	3;7
5	Crime		11;12	1
5	Sewerage Disposal	3	6	
5	Natural resources	9	4	
4	Cruelty to animals	15		10
4	Violence		6;1	
3	Gangs		11	1
3	Pollution		10	9
3	River pollution	2		
3	Poverty	6		
2	Urbanization		6	
2	Litter		6	
2	Toxic waste		3	
2	Water provision		9	
2	Endangered plants		5	
2	Coastal Development		2	
2	Air Pollution			5;6
2	Things of the whole world (Ozone, greenhouse)		8	
1	Fire			6
1	Social relationships			12
1	Electricity			4
1	Marine pollution			2
1	Soil erosion			14

These results reflect an interest in issues that are seen by the teachers to directly affect their community. This is in keeping with the findings of Corder (1990).

The teachers were asked if they had any comments concerning any of the issues listed (Question G.10). This question was asked in order to try and promote discussion about

some of the issues. There were, however, few responses to this question as most of the comments were made whilst the issues were being read out. These comments are discussed below.

Teacher [4] said that one should first look at the "immediate problems" of overcrowding and squatting. The responses of teacher [2] in particular exemplify the emphasis placed on community related issues. Electricity was seen to be very important because of the awareness of Escom's electrification programme. The transport issue was perceived to be important because of the recent taxi war crisis in the townships. Sewerage and dog droppings were seen to affect her directly. The issue of dog droppings had originally been included as a distracting variable (section 2.2.3.4). After hearing the response of [2] however, the researcher realized that perhaps dog droppings may indeed be a problem in a township area where dogs roam freely and the streets are not regularly cleaned.

Relationships between certain social issues such as poverty and hunger which indicated that they were thinking carefully about their answers, rather than simply trying to complete the interview. Unemployment, the education crisis, crime and street children were seen by [4] to be interrelated.
The problem of housing were linked by [1 & 7] with crime, violence and poverty. Teacher [7] said that "an illiterate person does not see the need for birth control. This leads to poverty and overcrowding." Gangs and violence were linked by [11]. Concern for personal safety was expressed by [6] with respect to overcrowding - "Shacks are dangerous".

The issue of street children was commented on by four teachers who thought that it was very important for pupils to avoid becoming street children themselves. They felt that the consequences of running away from home should be discussed. Children should also know that they should speak to the social worker if they were neglected by their parents. One teacher asked for teaching resources in the form of written materials which discussed issues such as street children and overcrowding.

An issue that appeared to cause a great deal of concern, particularly among female teachers, was that of child abuse. This was judged not only by the comments and stories told, but also by the facial expressions and head shaking displayed by the concerned teachers. An example of an apparently fairly frequently occurring incident was given by [7] of a "5 year old abused by her father . . . . They can't say no!" The same teacher recounted other incidences of incestuous sexual abuse that she had encountered as a

teacher. Teachers felt that the pupils should be made aware that they could potentially all be victims of child abuse and should be taught to avoid strangers and not take anything from them.

By contrast a male teacher [9] understood child abuse to mean giving a child a hiding at school. He felt that this should be a "last resort" and said that he preferred to talk about the problem first.

The issue of sexism was perceived by the research assistant to be the most contentious in the list. Certainly many of the respondents giggled at this point. This was seen by the researcher to reflect a degree of embarrassment. Teacher [1] laughed, shook his head and said "This thing!" Teacher [2] described how she perceived this issue in her society . . . "Because of the way its handled in a traditional setting, it seems as if men - Black especially - seem to go for everything that protects their status. . ." She discussed this issue at length, describing how in the schools, the female teachers were the ones who did most of the work for lower salaries than their male counterparts and were less likely to be promoted.

Comments pertaining to biophysical issues were made primarily in relation to the school syllabus and at what level the issues could be dealt with. Natural resources, urbanization and water provision [9,12] were seen to be syllabus related. Infant mortality, deforestation and desertification were seen to be inappropriate for primary school and should rather be dealt with in high school [1,9,12]. The Greenhouse effect, ozone hole, and dune mining were seen to be suitable for higher primary [10,11].

The issue of deforestation was perceived by one teacher to be beneficial in that she felt that trees near developed areas provided hiding places for criminals and should therefore be cleared. This is an aspect of deforestation that had not been considered by the researcher.

The researcher noted with interest that issues perceived by many environmentalists to be of great importance were those queried most often by the respondents. Either they had never heard of these issues or did not understood their meaning due to the language difficulties. The researcher made a note of each issue queried by a teacher. The results are tabulated in Table 6.7 below. Environmentalists should therefore be alerted to the prevailing lack of understanding among many Black people of environmental issues perceived by affluent communities to be important.

The fictitious sea urchin bloom issue was deliberately included to check if respondents would query this issue. Since this issue was the one queried most often, the researcher assumed that the responses were reliable.

Table 6.7 Environmental issues not understood by respondents

ISSUE NOT UNDERSTOOD	n TEACHERS
Sea Urchin Bloom	11
Alien Plants	10
Wetlands	9
Fynbos 9	
Acid Rain	9
Alternative energy	8
Seal culling	7
Desertification	7
Poaching	7
Green House Effect	6
Infant mortality	6
Deforestation	6
Toxic waste	5
Dune Mining	5
Coastal Development	5
Ozone Hole	4
Ecosystems	4

One of the most interesting misunderstandings was the confusion between the words endangered and dangerous. This was reflected in comments such as "You mean animals are dangerous?" [9]; and with respect to endangered plants [12] asked "Does this mean dangerous or wild?" A reason given as to why it was important to know about endangered sharks was because the children go to the beach and are not aware of sharks. The researcher presumed this to mean that the children should be made aware of the potential **danger** of sharks.

The perception that it is not necessary to protect animals that can harm people (for example the widely held belief that snakes should be killed on sight) was reflected by [6] who asked in response to the seal culling issue "Aren't seals dangerous?". A long discussion followed regarding the reasons for not killing animals just because they were seen to be dangerous.

Respondents were asked if there were any other environmental issues that they considered important (Question G.9). Most teachers felt either that they had no new ideas (n=7) or that everything had been covered (n=3).

One teacher [4] suggested that one should start by encouraging people to plant flowers and vegetables at home in order be practical and to make the front of the house more attractive.

Other suggestions were the health hazards of asbestos buildings; public indecency of writing socially unacceptable slogans for political reasons and diseases caused by animals (eg. rabies).

One teacher said that pupils should respect colour, creed etc. and be friendly to everyone.

6.4 Teachers' perceptions of the most useful approach the museum could use to help the pupils become more aware of environmental issues

In order to establish the most useful approach the museum could use to help the pupils become more aware of environmental issues, the teachers were asked to indicate how useful they perceived each educational approach suggested in Question G.12. The results are ranked according to comparative index scores and tabled below (Table 6.8).

Table 6.8 Most useful approach ranked according to comparative index (C.I.) scores

EDUCATIONAL APPROACH	C.I. SCORE	RANK SCORE
Posters	44	1
Resource booklets	44	1
Competitions	44	1
Lectures at schools	42	2
Teacher workshops	42	2
Activity ideas	41	3
Videos	41	3
Literacy classes	40	4
Exhibitions at school	39	5
Field trips	39	5
Drama and story telling	39	5
Exhibitions at the museum	38	6
Enviro-clubs	37	7
Camps	36	8
EE for parents	36	8
Lectures at the museum	36	8
Holiday workshops	23	9

The need for written resource materials is highlighted by these results. Competitions were said to be particularly popular amongst primary school pupils. An example of an inter-class competition for collecting paper for recycling was suggested by [2].

The lack of popularity of holiday activities described in sections 3.5.2 and 4.6 is confirmed by the results shown in Table 6.8 above. This was re-affirmed when respondents were asked to specify which of the programmes were perceived to be most, second most, least or second least useful (Question G.13). The results are tabulated below (Table 6.9 & 6.10). Comments relating to each of the services are listed in Table 6.11 overleaf.

Table 6.9   Most and second most useful approach - ranked according to comparative index (C.I.) scores.

C.I.	APPROACH	MOST USEFUL	2ND MOST
10	Parents programmes	4;13	1;3;6;11;12;14
7	Drama & storytelling	6;14;15	4;
6	Teacher training	1;8	9;10
5	Resource booklets	5;7	1
4	Lectures - school	11	7;8
4	Field trips	2;3	
4	Camps	2;9	
3	Lectures - museum	12	7
3	Exhibitions - school	7	9
3	Exhibitions - museum	7	12
3	Competitions		6;12;13
2	Lectures (community centre)	10	
2	Videos		5;6;
2	Posters at schools	15	
2	Discussions at museum	3	
1	Competitions	8	
1	Enviro-clubs		2

Tables 6.9 and 6.10 shows the mixed feelings expressed towards the idea of parents programmes. Most teachers (n=8) felt that this would be very important to educate unemployed parents and so that they could discuss these issues with their children. Other teachers (n=3) felt that working parents would be too busy.

Table 6.10   Most and second least useful approach - ranked according to comparative index (C.I.) scores.

C.I.	APPROACH	LEAST USEFUL	2ND LEAST
8	Holiday workshops	5;6;11	7;8
5	Camps	1;7	12
5	Parents programmes	2;12	15

Drama and story telling were perceived to be one of the most important methods (sections 4.2.2 & 4.6), as were written resources.

When asked if there were any other ways in which the Museum could be used as a resource for environmental education (Question G.14), most teachers (n=11) had no new ideas. Two teachers felt that they needed more time to think since "We have not been used to the museum because of not there. Now we have that privilege of getting there . . . we still need to concentrate" [9]. One teacher [15] suggested that both pupils and teachers write tests after attending workshops in order to show "how they've grasped that particular thing." She also suggested that group discussions involving teachers, pupils and museum staff be introduced.

6.5 Teacher involvement in planning environmental education activities at the Museum

In keeping with the principle of enabling learners to play a role in planning their learning experiences (Tbilisi Principle 11 - Appendix A), the teachers were asked if they felt that they should be involved in developing education programmes together with the Museum staff (Question H.1). All teachers said that they should be involved in future planning and all said they would be prepared to be personally involved (Question H.2). When asked if they would still be prepared to be involved if it meant participating in one or two workshops at the Museum in their own time, most (n=10) answered "yes" and teacher [7] said she would if the workshops were held during the holidays. The remaining responses were as follows:

[3] "Maybe"
[5] "No - you must come to the school"
[6] "Depends on how and when"
[9] "I don't think its necessary"
[11] "scared to say I'll be involved then don't"

The teachers were asked (Question H.1) how they thought they should be involved in developing education programmes together with Museum staff. Their responses are tabled below (Table 6.12).

Table 6.12: Responses indicating how teachers thought they should be involved in developing education programmes together with Museum staff.

[1] Do you usually have a problem doing it on your own? . . . I don't think its too necessary, you are also teachers. . . (Perhaps) about specific issues, we could give guidance about things in programmes that you have already set up - but not the whole thing combined . . . If there is a specific area, just give us a ring

[2] The teacher could add on once they've seen the basics of the programme at the Museum that has been designed by Museum staff . . . because Museum staff might be aware of more information than the teacher is at the moment. The teacher with his or her experience of the syllabus might be able to add on to what the museum staff has developed . . . use initiative and ask for input - especially for follow-up activities and ask for results of follow-up . . . eg. maybe the kids have written essays - ask for the 5 best essays that might highlight the impact of the visit on the kids . . . when inviting pupils to museum tell her (teacher) that her input would be appreciated especially with follow-up activities and the results thereof.

[3] If museum staff works on his own - might be irrelevant or can't cover everything. Teachers can say this is right or can't you try this one?

[4] Should be great link - Museum staff working on own is an island. Museum should empower teachers in EE . . . run workshops so we gain greater understanding

[5] Can Museum staff come to schools? . . . Bit difficult to get to Museum

[6] Updating with everything - information - we are not aware of what's going on in the Museum and changes and sharing ideas.

[7] Should contact Museum staff and plan / organize trips etc.

[8] Teachers must be able to learn about Museum because they can see the real thing and tell the kids from experience. Need to know more about history behind objects - where from - what is important

[9] Do you have our syllabus? Sometimes the teacher has difficulty in approaching certain portions of the syllabus - maybe because of lack of facilities. If we get together and plan that portion, we can plan what apparatus can be used.

[11] Discussions at school

[12] Go there and be shown - we need to be shown for example De Klerk - we do not have even a picture of him! . . . Teachers and staff must get together and discuss HOW and WHO can help us in these fields - other places to go (eg. scripture).

[13] Giving lectures so we can deliver message to kids before they visit museum

[14] Workshops

These responses indicate that some teachers feel the need for information about the museum exhibits and programmes so that they can improve their own preparation and teaching. A need was also expressed for information about other places and people to contact for assistance with other areas of the school syllabus [12]. They teachers see

themselves as being able to contribute their knowledge of the school syllabus in order to assist Museum staff in their programme planning.

The researcher was pleased with the responses to the questions in Section H of the interview schedule as she felt that the basis had been laid for future collaboration with these teachers in planning programmes that would be seen to be relevant to their community. Her feelings were confirmed by the comments volunteered by some of the teachers at the end of the interview as outlined below:

[9]   I enjoyed sitting with you . . . it shows there is going to be something coming from the Museum at grassroots level.
[10] . . .Something that's very much constructive . . . . If most things mentioned here can be a success . . . because I am a person who cares about the environment. I want to make a club of adults who can discuss the environment and how to make kids aware . . .)
[13] I gained something!
[14] For these things . . . follow-up should be shortly after the visit, otherwise we forget what's there.
[15] It was nice to be with you!

6.6 Summary and conclusions

This chapter was concerned with finding out what the term environmental education meant to the sample of Black primary school teachers. Their level of understanding of various environmental issues was investigated together with how best these could be incorporated into museum education programmes.

The understanding of the meaning of environmental education ranged from the need to care for nature and keeping the environment clean to more holistic views that incorporated the environment in its totality. Some of the definitions were seen to be syllabus related since environmental studies is taught at Lower Primary level.

There were mixed feelings as to the level of environmental awareness exhibited by pupils. Reasons given for lack of environmental awareness included the poor conditions in the townships; lack of motivation and the political situation in South Africa. It would appear that most schools in the sample were involved in environmental awareness programmes. Tree planting and litter clean-ups were the most frequently mentioned activities.

It was considered most important for pupils to be aware of environmental problems that exist in their local area. The reliance of the lower Primary teachers on the syllabus was reflected in the range of local environmental issues identified as important. These included shops, libraries and the Houses of Parliament. Emphasis was also placed on litter and cleanliness. All the teachers in the sample indicated that they thought their pupils should become involved in environmental issues.

Most respondents felt it important for pupils to be aware of all the environmental issues listed. A greater emphasis was placed on social issues. Poverty, river pollution, violence, hunger and cruelty to animals were identified as some of the most important environmental issues listed in Question G.8. Issues such as the Greenhouse effect, acid rain and dune mining which receive much attention from environmentalists appear to have been perceived amongst the least important. Issues such as cruelty to animals, street children and child abuse prompted most discussion from the teachers.

Comments pertaining to biophysical issues such as natural resources, urbanization and water provision, were made primarily in relation to the school syllabus and at what level the issues could be dealt with.

The researcher noted with interest that issues perceived by most environmentalists to be of great importance, were the ones questioned most often by the respondents. Either they had never heard of these issues or did not understood their meaning due to the language difficulties. Environmentalists should therefore be alerted to the prevailing lack of understanding among many Black people of environmental issues perceived by affluent communities to be important.

Posters, resource booklets, competitions, lectures at schools, drama and story telling and teacher workshops were among the most important methods suggested that the Museum could use to promote environmental awareness. Environmental education programmes for parents were also perceived to be important, especially for the unemployed.

All teachers said that they should be involved in future planning and all said thy would be prepared to be personally involved. Most were prepared to help in their own time if necessary.

Their comments reinforced the need for teacher enrichment programmes and greater liaison between teachers and museum staff.

CHAPTER 7

CONCLUSIONS

This final chapter examines the value of the research in terms of the public relations function it served amongst the schools involved in the survey. The methodology employed is also evaluated. The implications for the South African Museum's Education Service arising from the results of the survey are discussed. The teachers'perceptions of environmental education and the issues seen to be of greatest importance are briefly discussed in relation to the role that museums could play and the need to continue collaborative work with members of the Museum's various communities highlighted.

7.1 Evaluation of the research project

The researcher is of the opinion that the greatest value of this research lay in the public relations function it performed among the teachers who were interviewed. Comments made by some of these teachers after the interview as well as the feedback that has been received in the form of the continued interest shown by some of these teachers in the development and improvement of the education services offered at the South African Museum, bear testimony to this. Many of the subjects indicated that they had not been aware of the potential that existed in the form of educational resources available at the Museum. The increased participation in the Museum's *Fumana* and outreach programmes that have been initiated by the Museum's Education Service since 1991 indicate that the value of these services is gaining recognition amongst Xhosa speaking teachers in Cape Town.

The use of semi-structured interviews proved to have been a useful approach to adopt, as it allowed personal contact with the subjects of the research. The importance of personal contact, specifically in the Black community, cannot be underestimated, not only for reasons alluded to in section 2.2.3.4, but also to facilitate the explanation of terms perhaps not fully understood by respondents whose home language is (in this case) Xhosa. The researcher firmly believes that a postal survey would have had a very low response rate and certainly would not have had the same public relations effect. Nor would a more structured interview have given any opportunity for the explanations that were sometimes

of how the respondents viewed certain displays, resources, teaching methods etc. The reasons as to how or why they felt the way they did was often lost, although attempts were made to determine this by using open ended questions. It is felt, however, that the need to complete the long interview schedule may have resulted in these questions being answered more briefly than may otherwise have happened. Nevertheless, the researcher feels that important strengths and weaknesses in the Museum's education service were highlighted together with directions for future development.

7.2 Implications for the South African Museum Education Service arising from the analysis of the research results

The findings of the research indicated that the teachers viewed educational outings as important for their pupils to increase their general knowledge and environmental awareness. They highlighted the opportunities offered on visits to the Museum for their pupils to see things that they would not otherwise have the opportunity to see in the townships. The greatest limiting factor regarding taking pupils on outings to the Museum or anywhere else, was one of finance.

Of greatest interest to the researcher was the noticeable lack of mention by the teachers of their pupils having benefited from tactile sensory stimulation during their museum visit. Instead, emphasis was placed on the teaching, lecturing and showing aspects of their visit. This was not seen to be the fault of the teachers themselves resulting from their disadvantaged background in the Black education system, since they perceived the interactive hands-on exhibits to be of greatest potential benefit to their pupils. Instead, the researcher feels that the Museum, at the time the research was being conducted, did not offer a large enough hands-on component in the *Fumana* programme. Attempts are currently being made to address this issue.

A strong emphasis was placed on the need for syllabus-related and syllabus-enriching programmes. In this regard, the Museum galleries that were perceived to be of greatest importance were the Khoi-San, land mammals, birds, fish and insects. Displays of unfamiliar objects such as fossils and Stone Age implements were seen to be of least importance. The staff in the Museum's Education Department do not see themselves as teachers of the school syllabus, preferring to offer syllabus-enriching, interdisciplinary

programmes instead. These were also seen by the teachers to be important along with the need to incorporate opportunities for group activities, individual observation and problem solving activities which, it is hoped, will be important considerations in the future planning of education programmes at the Museum. The use of drama and story telling activities were suggested by some teachers to be a useful and enjoyable educational approach which is yet to be investigated at the Museum. The need for greater collaboration with school teachers in planning activities that will supplement their classroom activities has been noted as an important outcome of the research.

The teachers should, in turn, be encouraged to be more aware of the facilities that the Museum has to offer so that they can prepare their pupils for what they can expect to see when they visit the Museum. In this way, it is hoped that the teachers will be able to teach the syllabus in the classroom which will lay the foundation for the enrichment at the Museum. The need for teacher training programmes to assist the teachers to improve their knowledge was strongly identified in the results of the survey. This gives support to the above recommendation and such programmes have already commenced.

The need for structured visits with clear objectives of what pupils are supposed to learn during their visit was identified by one teacher. Only two teachers promoted the idea of being selective in learning. Most preferred their pupils to see as much as possible during their visit. Tours of specific galleries were perceived to be of little importance. It is hoped that as the teachers become more familiar with the Museum and how to use it effectively, this perception will change to reflect that of the current minority.

The researcher feels that it is important to take note of the expressed need for written resources and illustrative material. Since many schools lack books and other resources in the township schools, such material could be used for follow-up activities after a Museum visit or as resource material in the classroom. In this regard, a collaborative project between interested Black primary school teachers, the Museum and Urban Foundation Primary Science Unit has since been initiated in order to design a series of Resource Packs for use in the schools. Although the initial idea of the Resource Packs was to provide teachers with information that would assist them in taking their own groups around the Museum, note was taken of the need for syllabus-related resources pertaining to their local environment arising from this research and subsequent discussions with teachers. This has formed the basis for the trial set of vertebrate packs, with the Museum visit being seen as an option for further enrichment.

7.3 Environmental education - implications for museums

The researcher was surprised at the range of responses related to the teachers' understanding of the meaning of environmental education. These ranged from the need to care for nature and keeping the environment clean to more holistic views that incorporated the environment in its totality. Some of the definitions were seen to be syllabus related since environmental studies is taught at Lower Primary level.

All the teachers in the sample indicated that they thought their pupils should become involved in environmental issues particularly in their local area. It would appear that most schools in the sample were involved in environmental awareness programmes. Tree planting and litter clean-ups were the most frequently mentioned activities. There were, however, mixed feelings as to the level of environmental awareness exhibited by pupils. Those teachers who felt their pupils lacked environmental awareness blamed the poor conditions in the townships, the political situation and resultant lack of motivation for this.

Of the environmental issues suggested, the teachers emphasized social issues such as poverty, river pollution, violence, hunger and cruelty to animals as important to include in environmental education programmes. Comments pertaining to biophysical issues such as natural resources, urbanization and water provision, were made primarily in relation to the school syllabus and at what standard these issues could be dealt with. Issues such as the Greenhouse effect, acid rain and dune mining which receive much attention from environmentalists were considered amongst the least important issues.

The researcher noted with interest that issues perceived by most environmentalists to be of great importance, such as alien plants, wetlands, Fynbos and acid rain, were the ones questioned most often by the respondents. Either they had never heard of these issues or did not understood their meaning due to the language difficulties. Environmentalists should therefore be alerted to the prevailing lack of understanding among many black people of environmental issues perceived by affluent communities to be important.

The need for posters and resource booklets and teacher workshops were once again emphasized, this time as a means of promoting environmental education. Other methods favoured by the teachers for the promotion of environmental awareness by the Museum included competitions, drama and story telling activities and lectures at schools. Environmental education programmes for parents were also perceived to be one of the more useful approaches that could be adopted by the Museum. These were seen to be of

particular benefit to the unemployed who could learn from environmental literacy programmes.

7.4 The way forward

This research has proved useful as a *pilot study* by highlighting areas of strength and weakness in the Museum's education programmes. Indications of how a small, but representative sample of the Museum's local community perceive its services, give support to some of the directions that the education staff at the South African Museum would like to take their programmes. Links with part of Cape Town's township community have been improved and continue to be developed, ensuring that the South African Museum's programmes will no longer be developed in isolation from its participants.

It is envisaged that future research and collaborative work will involve other sectors of Cape Town's community working together to develop different aspects of the Museum's education programmes. In this way it is hoped that the richness of the community's cultural diversity may be better understood and shared for the benefit of all concerned. Opportunities to address environmental issues that are perceived by different sectors of the community as appropriate to their particular circumstances can, in this way, be utilized to encourage a greater concern for each others' problems and the environment as a whole.

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LIST OF APPENDICES

Guiding Principles for Effective Environmental Education Programmes as adopted at the 1977 Intergovernmental Conference on Environmental Education held at Tbilisi, USSR

GUIDING PRINCIPLES FOR EFFECTIVE ENVIRONMENTAL EDU-
CATION AS ADOPTED AT THE 1977 INTERGOVERNMENTAL
CONFERENCE ON ENVIRONMENTAL EDUCATION HELD AT
TBILISI, USSR.

Environmental education should:

- consider the environment in its totality - natural and built, technological and social (economic, political, cultural-historical, moral, aesthetic);
- be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and nonformal stages;
- be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;
- examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas;
- focus on current and potential environmental situations while taking into account the historical perspective;
- promote the value and necessity of local, national and international cooperation in the prevention and solution of environmental problems;
- explicitly consider environmental aspects in plans for development and growth;
- enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences;
- relate environmental sensitivity, knowledge, problem-solving skills and values clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;
- help learners discover the symptoms and real causes of environmental problems;
- emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills;
- utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience.

APPENDIX B

Map of Cape Peninsula indicating location of study area
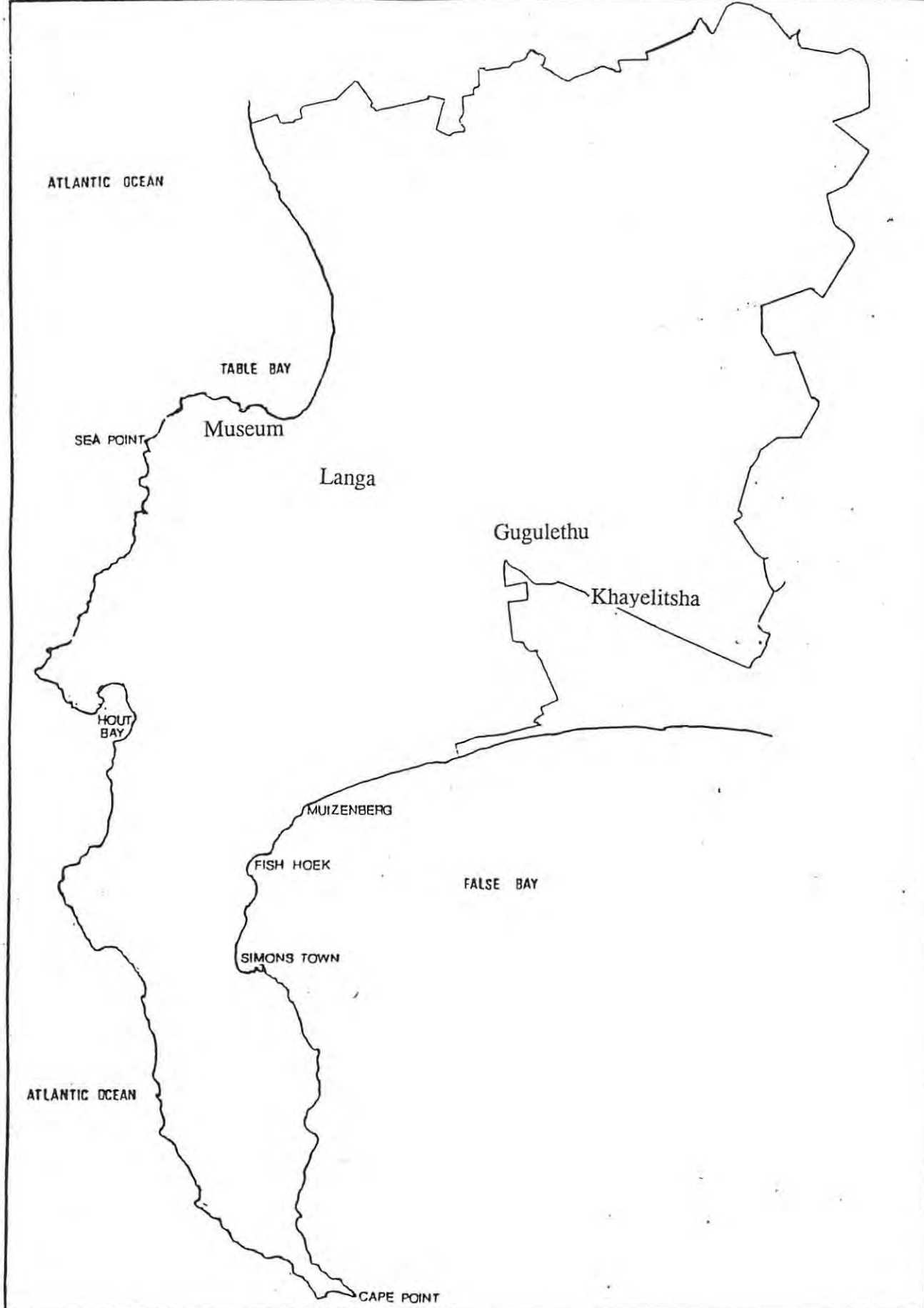
ATLANTIC OCEAN

TABLE BAY

SEA POINT

Museum

Langa

Gugulethu

Khayelitsha

HOUT
BAY

MUIZENBERG

FISH HOEK

FALSE BAY

SIMONS TOWN

ATLANTIC OCEAN

CAPE POINT

CAPE TOWN METROPOLITAN TRANSPORT AREA

(01 REGION AND KUILS RIVER)

APPENDIX C

Photographs of selected display areas in the South African Museum

Karoo Reptiles
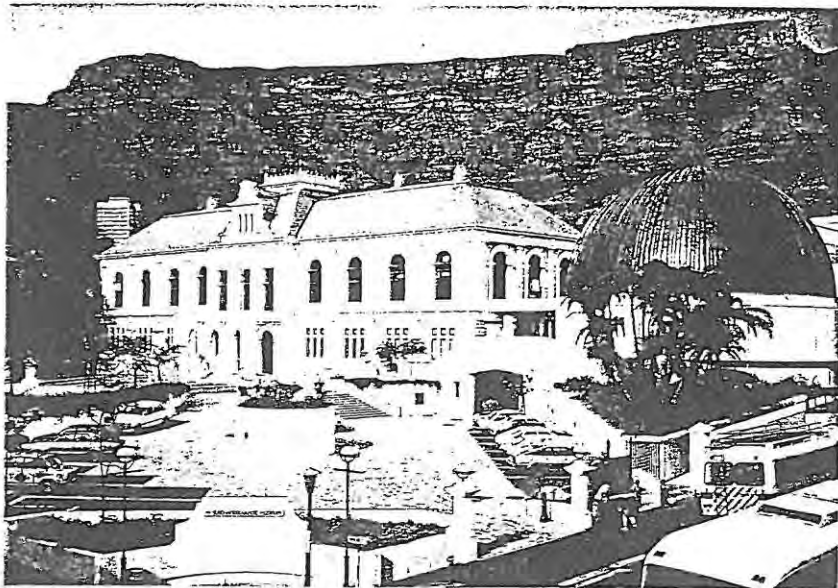
South African Museum

Bushman Diorama
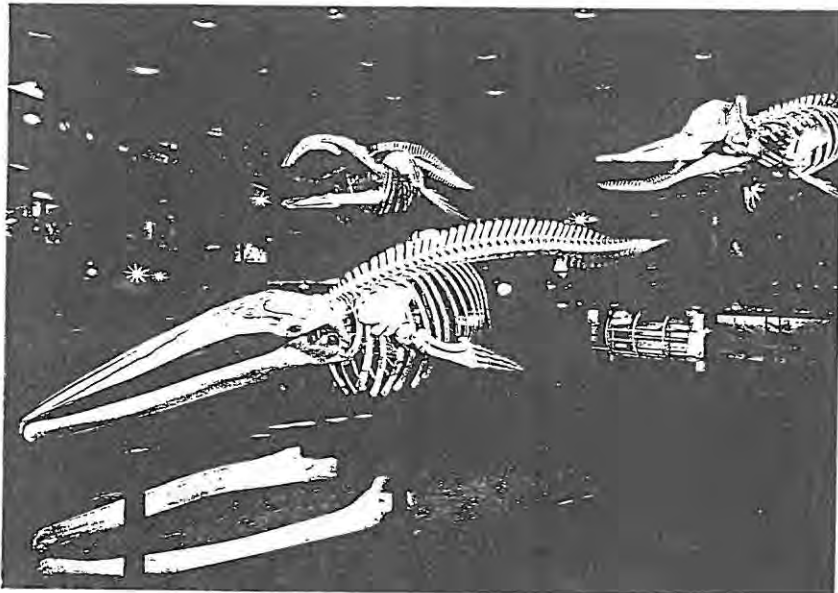
Whale Well
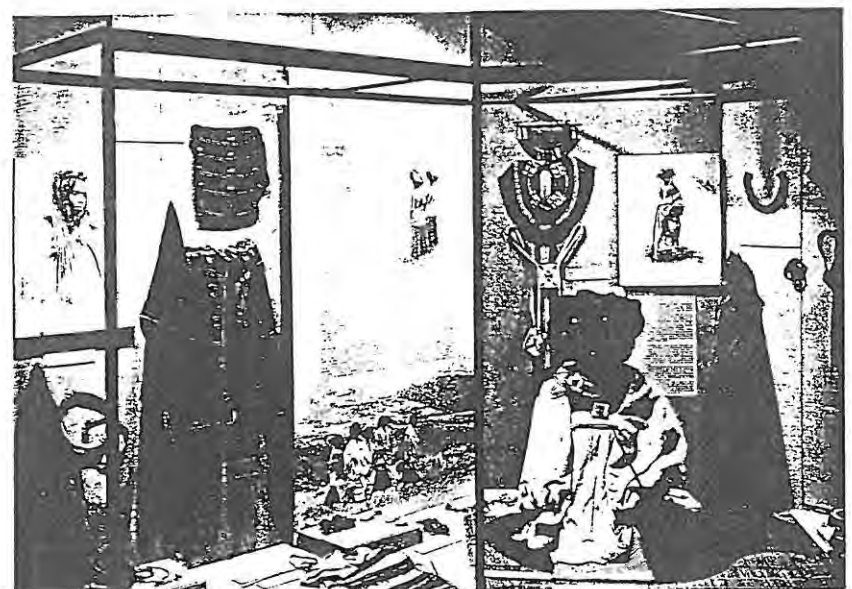
Iron Age Gallery - Xhosa material culture

APPENDIX D

Interview Schedule

INTERVIEW SCHEDULE - TEACHERS' PERCEPTIONS OF THE SOUTH AFRICAN MUSEUM AS AN ENVIRONMENTAL EDUCATIONAL RESOURCE

TEACHER - NAME ....

SCHOOL ....

STANDARD/S TAUGHT ....

SUBJECT/S TAUGHT ....

A. EDUCATIONAL OUTINGS AWAY FROM THE SCHOOL

A.1 What outings have you taken your pupils on in the last two years? ....

A.2 Do you think it is important to take pupils on educational outings away from school? ....

Why? ....

....

....

A.3 Do the pupils' parents think that it is important for their children to participate in educational outings? ....

Explain: ....

....

....

A.4 Is it easy for you to arrange an educational outing for your pupils? ....

Explain ....

....

....

A.5 How much time are you normally able to spend on outings away from school? ....

....

A.6 Have you ever visited the South African Museum with your pupils? ....

B. THE FOLLOWING QUESTIONS RELATE TO YOUR MOST RECENT SCHOOL VISIT TO THE SOUTH AFRICAN MUSEUM

B.1 Date of visit - *Month* .... *Year 19*...........

B.2 Were you invited by our Education Officer? ....

OR Did you bring your pupils on your own initiative? ....

B.3 Which Standard/class did you bring? ....

B.4 How many pupils did you bring? ....

B.5 Did one of the Museum's education staff help you? ....

　　　　　B.5.1 IF YES: How did the Education Officer help you? ....

　　　　　...

　　　　　...

　　　　　B.5.2 IF NO: Why do you think not? ....

　　　　　...

　　　　　...

B.6 Do you think that it is important for your pupils to visit the Museum: ....

　　　　　B.6.1 IF YES: Why? ....

　　　　　...

　　　　　B.6.2 IF NO: Why not? ....

　　　　　...

B.7 Do you think it is important for the pupils to enjoy themselves on an educational visit to the Museum? ....

　　　　　Explain your viewpoint: ....

　　　　　...

　　　　　...

B.8 Do you think that the time spent on your last visit to the Museum was beneficial for your pupils? ....

　　　　　B.8.1 IF YES: Describe what you think benefited the pupils most from their visit to the Museum. ....

　　　　　...

　　　　　...

　　　　　B.8.2 IF NO: Describe what you think benefited the pupils the least on their visit to the Museum ....

　　　　　...

　　　　　...

B.9 How long did you spend at the Museum? ....

B.10 Was this time *Too long, too short, just right?* ....

B.11 When is the best time for you to bring a school group to the Museum
　　　(Rank 1=best 4=worst)
　　　　　(1) During school hours　　　　　　　..
　　　　　(2) After school hours　　　　　　　　..
　　　　　(3) Weekends　　　　　　　　　　　　..
　　　　　(4) School holidays　　　　　　　　　..

C. EDUCATIONAL VALUE OF MUSEUM VISITS:

C.1 *Turn to QUESTION 1 of your handout.*

What do you think are the most important issues the Museum Education Service should consider when designing educational programmes for your pupils?

Please tick each of the following ideas according to whether you consider it to be VERY IMPORTANT, IMPORTANT, NOT IMPORTANT, NOT SURE. Please comment further where necessary.

1.   Activities should be syllabus related (*exactly what is covered by the syllabus*)

2.   Activities should be syllabus enriching (*expand on what is covered by the syllabus*)

3.   Activities should be inter-disciplinary (*draw different parts of the syllabus together to show how they could relate to each other*)

4.   Activities should include the handling of museum objects.

5.   Activities should promote awareness of environmental concerns:

5a.   - in their local area

5b.   - in South Africa generally

5c.   - in the world as a whole

6.   Activities should include literacy skills i.e.:

6a.   - reading skills

6b.   - writing skills

6c.   -library/research skills

7.   Activities should include "hands on" experience with scientific apparatus eg:

7a.   - computers

7b.   - microscopes

7c.   - laboratory apparatus

8.   How important do you think it is that time spent at the

Museum is allocated to pupils' own observation of museum objects?

9. How important do you think it is that the Museum education officer spends time telling the pupils about the museum objects?

....

10. How important do you think it is that activities are accompanied by problem solving exercises?

....

11. How important do you think it is for pupils to complete worksheets at the Museum?

....

12. How important do you think it is for pupils to complete worksheets back at school?

....

13. How important is it for the child to learn to work on his/her own (ie as an individual)?

....

14. How important is it for pupils to learn to work together as a group?

....

D. SECTION OF THE MUSEUM DISPLAY AREA THAT IS OF MOST BENEFIT TO PUPILS

D.1 *Turn to QUESTION 2 of the form provided.*

Which display area(s) of the Museum do you think would be of greatest educational importance to your pupils?

Please tick the following display areas according to whether you consider them to be VERY IMPORTANT, IMPORTANT, NOT IMPORTANT, NOT SURE.

1.	Stone Age gallery: *Human evolution, stone tools, Rock art*	....	....	....	....
2.	Hunter-gatherer societies: *Khoi-San*	....	....	....	....
3.	Iron age gallery: *Material culture of Nguni speaking peoples.*	....	....	....	....
4.	Great Zimbabwe	....	....	....	....
5.	Birds	....	....	....	....
6.	Fossils / Pre-historic life	....	....	....	....
7.	Land Mammals	....	....	....	....
8.	Marine mammals *whales, dolphins etc.*	....	....	....	....
9.	Fish	....	....	....	....
10.	Reptiles	....	....	....	....
11.	Insects	....	....	....	....
12.	Wonders of Nature	....	....	....	....
13.	Printing Gallery	....	....	....	....
14.	History of the Museum	....	....	....	....
15.	Discovery Room	....	....	....	....
16.	Medical Exploratorium: *(Human Biology Health/Aids)*	....	....	....	....
17.	Resource Centre	....	....	....	....
18.	Planetarium: *Astronomy*	....	....	....	....

D.2 Which display area(s) do you most beneficial to your pupils? ....

....

....

....

Why? ....

....

....

....

....

D.3 Which display area(s) do you consider least beneficial to your pupils? ....

....

....

....

Why? ....

....

....

....

....

E. EXISTING EDUCATION SERVICE PERCEIVED TO BE OF MOST POTENTIAL BENEFIT TO PUPILS

E.1 *Turn to Question 3 of the handout:*

Of the existing education services offered at the South African Museum, please tell us which services you (A) KNEW EXISTED (B) CONSIDER MOST TO LEAST USEFUL to your pupils.

(A) In the first column, please tick those services that you KNEW WERE OFFERED at the S.A. Museum.

(B) In the second column, please tick those services that you DID NOT KNOW WERE OFFERED at the S.A. Museum.

You may ask the interviewer to explain any service that you do not understand.

		SERVICE KNOWN	SERVICE NOT KNOWN
1.	Museum tour without guide	....	....
2.	General tour of Museum with guide	....	....
3.	Tour of specific gallery with guide	....	....
4.	Educational video	....	....
5.	Discovery Room	....	....
6.	Resource Centre	....	....
7.	"Hands-on" activity with museum objects	....	....
8.	Behind the scenes tour	....	....
9.	Illustrated talk/lecture by museum scientist	....	....
10.	Talk given by museum staff at school	....	....

11.	Field trip conducted by museum staff	....	....
12.	Specimen loan service	....	....
13.	Combination of above on request	....	....
14.	Museum Club	....	....
15.	Holiday Activities	....	....

E.2 Which service(s) do you think would be most beneficial to your pupils?

....

....

....

Why? ....

....

....

....

E.3 Which service(s) do you think would be least beneficial to your pupils?

....

....

....

Why ?...

....

....

....

F. EDUCATIONAL SERVICES THAT COULD BE OFFERED AT THE SOUTH AFRICAN MUSEUM

F.1. *Please turn to QUESTION 4 of your handout.*

Which of the following services do you think the Museum Education Service should offer in future?

Please tick according to whether you consider the following services VERY USEFUL; USEFUL; NOT USEFUL, NOT SURE.

You may ask the interviewer to explain each service where necessary.

1. **Museum Education staff conduct:**
    (a) General tours of the Museum ....

    (b) Tours of specific galleries ....

    (c) "Hands-on" activities using museum objects ....

    (d) Theme-related tours *eg: "Patterns in nature".* ....

    (e) Theme-related tours **and** "hands-on" activities ....

    Which of the above choices (a-e) do you consider most useful? ....

2. **Teachers conduct their own visits assisted by:**
    (a) Teacher training workshops run by museum staff ....

    (b) Information leaflets designed by museum staff ....

    (c) Worksheets designed by museum staff ....

    (d) Worksheets designed **together with** museum staff ....

    (e) Discussion with the Museum Education Officer beforehand ....

(f) Resource Packs prepared by Museum staff. *These include ideas for pre-visit preparation, work-sheets/activities in the museum and post-visit follow-up. These could be borrowed by teachers before coming to the museum to help them preparefor and conduct their own visit.*

....

Which of the above choices (a-f) do you consider most useful? ....

3.   Museum staff bring teaching specimens to the school and conduct activities in the classroom

....

4.   Teacher borrows specimens from the Museum and con-ducts lesson in the classroom

....

5.   Museum sets up exhibitions at a venue in the community which can be visited by pupils during school hours.

....

6.   Museum sets up exhibitions at a venue in the community which can be visited by pupils after school hours.

....

7.   Museum obtains a mini-bus which travels from school to school and contains museum objects, reference books and videos. Museum education staff then conduct activities at the various schools on request.

....

F.2 Which of the above mentioned services (1 - 7) do you consider most beneficial to your pupils?

....

Why? ....

....

....

F.3 Which of the above mentioned services (1-7) do you consider least beneficial to your pupils?

....

Why? ....

....

....

F.4 **OTHER SERVICES THAT COULD BE OFFERED BY THE MUSEUM**: Is there any ser-vice, other than those already mentioned, that you think the Museum should offer to help meet your needs as a school teacher?

....
....
....
....
....
....

G. TEACHERS' PERCEPTIONS OF ENVIRONMENTAL EDUCATION:

G.1 What do you understand "environmental education" to mean? ....
....
....
....

G.2 How aware do you think your pupils are concerning environmental issues? ....
....
....

G.3 What factors do you think contribute to your pupils awareness / lack of awareness of environ-
mental issues?) ....
....
....

G.4 Is any attempt being made at your school to develop pupils' awareness of environmental issues?
If yes, what? ....
....
....
....

G.5 What do you consider to be the most important environmental issues that your pupils should be
aware of:-
- in their local area? ....
Why? ....
....
- nationally? ....
Why? ....
....
....
- in the world as a whole? ....
Why? ....
....
....

G.6 In which area do you think it is most important for pupils to be aware of environmental problems
that exist:-
(Rank 1=MOST IMPORTANT - 3=LEAST IMPORTANT)
- in their local area?   ....
- nationally?   ....
- in the world as a whole?

G.7 Do you think your pupils should become involved in environmental issues? ....

       If yes, how? ....

              ....

              ....

G.8 *Please turn to Question 5 of your handout.*

       Which of the following environmental issues do you think your pupils should be aware of?

       Please tick each of the following issues according to whether you consider it to be VERY IMPORTANT, IMPORTANT, NOT IMPORTANT, NOT SURE. Please feel free to comment or ask questions where necessary.

Endangered animals

Endangered plants

Sewage disposal

Oil pollution

Wetlands

Toxic waste

Litter

Nuclear Power

Alternative energy

Poverty

Green house effect

River pollution

Violence

Alien plants

Seal culling

Ozone Hole

Water pollution

Gangs

Air pollution

Hunger

Dune mining

Cruelty to animals

Child abuse	....	....	....	....
Urbanization	....	....	....	....
Recycling	....	....	....	....
Fire	....	....	....	....
Infant mortality	....	....	....	....
Acid rain	....	....	....	....
Soil erosion	....	....	....	....
Interrelatedness of all things	....	....	....	....
Education crisis	....	....	....	....
Social relationships	....	....	....	....
Desertification	....	....	....	....
Natural resources	....	....	....	....
Environmental health	....	....	....	....
Ecosystems	....	....	....	....
Deforestation	....	....	....	....
Poaching	....	....	....	....
Transport	....	....	....	....
Housing	....	....	....	....
Crime	....	....	....	....
Water provision	....	....	....	....
Dog droppings	....	....	....	....
Coastal development	....	....	....	....
Unemployment	....	....	....	....
Electricity	....	....	....	....
Plastic pollution	....	....	....	....
Marine pollution	....	....	....	....
Sea urchin bloom	....	....	....	....
Gill nets	....	....	....	....
Shortage of recreation facilities	....	....	....	....
Street children	....	....	....	....
Sexism	....	....	....	....

Illiteracy ....

Endangered sharks ....

Fynbos ....

G.9 Are there any other environmental issues you can think of that have not been mentioned above that you think your pupils should be aware of? ....

....

....

G.10 Do you have any comments concerning any of the issues mentioned above?

....

....

....

G.11 Which of the environmental issues listed above do you consider the three most important issues that should be addressed by the Museum?

(1) ....

(2) ....

(3) ....

G.12 *Please turn to question 6 of your handout*

What do you consider the most useful approach the Museum could use to help your pupils become more aware of the environmental issues you have just identified as important?

Please tick the following suggestions according to whether you consider them VERY USEFUL, USEFUL, NOT USEFUL, NOT SURE.

		VERY USEFUL	USEFUL	NOT USEFUL	NOT SURE
1.	Exhibitions on specific environmental issues at the Museum	....	....	....	....
2.	Exhibitions on specific environmental issues at the school	....	....	....	....
3.	Lectures at schools	....	....	....	....
4.	Lectures/discussions in the Museum	....	....	....	....
5.	Field trips	....	....	....	....
6.	Organize camps for school groups	....	....	....	....
7.	Holiday workshops	....	....	....	....
8.	Videos	....	....	....	....
9.	Competitions	....	....	....	....
10	Enviro-clubs at the schools	....	....	....	....
11	Teacher training workshops	....	....	....	....
12	Literacy classes incorporating environmental issues	....	....	....	....
13	Environmental education programmes for parents	....	....	....	....
14	Developing environmental resource booklets for use in the schools	....	....	....	....
15	Developing environmental posters for use in the schools.	....	....	....	....
16	Developing environmental activity ideas for use in the schools	....	....	....	....
17	Drama/story-telling presentations at the Museum	....	....	....	....

G.13 Which of the above suggestions do you consider
       (a) Most useful ....
       (b) Second most useful ....
       (c) Least useful ....
       (d) Second least useful ....

G.14 Do you have any other ideas as to how the Museum could be used as a resource for environmental education? (please specify) ....

....

....

....

H. TEACHER INVOLVEMENT IN PLANNING ENVIRONMENTAL EDUCATION ACTIVITIES AT THE MUSEUM.

H.1 Do you think that teachers should be involved in developing education programmes together with Museum staff? ....

    IF YES: How do you think teachers should be involved? ....

    ....

    IF NO: Why not? ....

    ....

H.2 Would you be prepared to be involved in developing education programmes together with Museum staff for the benefit of your pupils? ....

H.3 If this involves participating in one or two workshops at the Museum in your own time, are you still prepared to be involved? ....

Thank you very much for your co-operation!

APPENDIX E

Teachers' Handout

QUESTION 1:

What do you think are the most important issues the Museum Education Service should consider when designing educational programmes for your pupils?

Please tick each of the following ideas according to whether you consider it to be VERY IMPORTANT, IMPORTANT, NOT IMPORTANT, NOT SURE. Please comment further where necessary.

VERY IMPORTANT   IMPORTANT   NOT IMPORTANT   NOT SURE.

1.   Activities should   ....
be syllabus related
(exactly what is
covered by the syl-
labus)

2.   Activities should   ....
be syllabus enrich-
ing (expand on what
is covered by the
syllabus)

3.   Activities should   ....
be inter-
disciplinary (draw
different parts of
the syllabus
together to show
how they could
relate to each
other)

4.   Activities should   ....
include the hand-
ling of museum
objects.

5.   Activities should   ....
promote awareness
of environmental
concerns:

5a   - in their local   ....
.   area

5b   - in South   ....
.   Africa generally

5c.	- in the world as a whole	....
6.	Activities should include literacy skills i.e.:	....
6a.	- reading skills	....
6b.	- writing skills	....
6c.	- library / research skills	....
7.	Activities should include "hands on" experience with scientific apparatus eg:	....
7a.	- computers	....
7b.	- microscopes	....
7c.	- laboratory apparatus	....

8.   How important do   ....
      you think it is
      that time spent at
      the Museum is allo-
      cated to pupils'
      own observation of
      museum objects?

9.   How important do   ....
      you think it is
      that the Museum
      education officer
      spends time telling
      the pupils about
      the museum objects?

10   How important do   ....
 .   you think it is
      that activities are
      accompanied by
      problem solving
      exercises?

11   How important do   ....
 .   you think it is for
      pupils to complete
      worksheets at the
      Museum?

12   How important do   ....
 .   you think it is for
      pupils to complete
      worksheets back at
      school?

13   How important is it   ....
 .   for the child to
      learn to work on
      his/her own (ie as
      an individual)?

14   How important is it   ....
 .   for pupils to learn
      to work together as
      a group?

QUESTION 2:
Which display area(s) of the Museum do you think would be of greatest educational importance to your pupils?

Please tick the following display areas according to whether you consider them to be VERY IMPORTANT, IMPORTANT, NOT IMPORTANT, NOT SURE.

		VERY IMPORTANT	IMPORTANT	NOT IMPORTANT	NOT SURE
1.	Stone Age gallery: *Human evolution, stone tools, Rock art*				
2.	Hunter-gatherer societies: *Khoi-San*				
3.	Iron age gallery: *Material culture of Nguni speaking peoples.*				
4.	Great Zimbabwe				
5.	Birds				
6.	Fossils / Pre-historic life				
7.	Land Mammals				
8.	Marine mammals *e.g. whales, dolphins.*				
9.	Fish				
10.	Reptiles				
11.	Insects				
12.	Wonders of Nature				
13.	Printing Gallery				
14.	History of the Museum				
15.	Discovery Room				
16.	Medical Exploratorium: *(Human Biology Health/Aids)*				
17.	Resource Centre				
18.	Planetarium: *Astronomy*				

QUESTION 3:

Of the existing education services offered at the South African Museum, please tell us which services you (A) HAD HEARD OF BEFORE (B) HAD NOT HEARD OF BEFORE

> *(A) In the first column, please tick those services that you KNEW WERE OFFERED by the S.A. Museum.*
> *(B) In the second column, please tick those services that you DID NOT KNOW WERE OFFERED by the S.A. Museum.*

You may ask the interviewer to explain any service that you do not understand.

		SERVICE KNOWN	SERVICE NOT KNOWN
1.	Museum tour without guide	....	....
2.	General tour of Museum with guide	....	....
3.	Tour of specific gallery with guide	....	....
4.	Educational video	....	....
5.	Discovery Room	....	....
6.	Resource Centre	....	....
7.	"Hands-on" activity with museum objects	....	....
8.	Behind the scenes tour	....	....
9.	Illustrated talk/lecture by museum scientist	....	....
10.	Talk given by museum staff at school	....	....
11.	Field trip conducted by museum staff	....	....
12.	Specimen loan service	....	....
13.	Combination of above on request	....	....
14.	Museum Club	....	....
15.	Holiday Activities	....	....

QUESTION 4:

Which of the following services do you think the Museum Education Service should offer in future?

Please tick according to whether you consider the following services VERY USEFUL; USEFUL; NOT USEFUL, NOT SURE.

You may ask the interviewer to explain each service where necessary.

	VERY USEFUL	USEFUL	NOT USEFUL	NOT SURE

1.   **Museum Education staff conduct:**

(a) General tours of the Museum ....

(b) Tours of specific galleries ....

(c) "Hands-on" activities using museum objects ....

(d) Theme-related tours *eg: "Patterns in nature".* ....

(e) Theme-related tours **and** "hands-on" activities ....

   Which of the above choices (a-e) do you consider most useful? ....

2.   **Teachers conduct their own visits assisted by:**

(a) Teacher training workshops run by museum staff ....

(b) Information leaflets designed by museum staff ....

(c) Worksheets designed by museum staff ....

(d) Worksheets designed **together with** museum staff ....

(e) Discussion with the Museum Education Officer beforehand ....

(f) <u>Resource Packs</u> prepared by Museum staff. *These include ideas for pre-visit preparation, worksheets/activities in the museum and post-visit follow-up. These could be borrowed by teachers before coming to the museum to help them prepare for and conduct their own visit.*

....

Which of the above choices (a-f) do you consider most useful? ....

3. Museum staff bring teaching
    specimens to the school and con-
    duct activities in the classroom
    ....

4. Teacher borrows specimens from
    the Museum and conducts lesson
    in the classroom
    ....

5. Museum sets up exhibitions at a
    venue in the community which can
    be visited by pupils during school
    hours.
    ....

6. Museum sets up exhibitions at a
    venue in the community which can
    be visited by pupils after school
    hours.
    ....

7. Museum obtains a mini-bus which
    travels from school to school and
    contains museum objects,
    reference books and videos.
    Museum education staff then con-
    duct activities at the various
    schools on request.
    ....

QUESTION 5

Which of the following environmental issues do you think your pupils should be aware of?
Please tick each of the following issues according to whether you consider it to be VERY IMPORTANT, IMPORTANT, NOT IMPORTANT, NOT SURE. Please feel free to comment or ask questions where necessary.

	VERY IMPORTANT	IMPORTANT	NOT IMPORTANT	NOT SURE
Endangered animals				
Endangered plants				
Sewage disposal				
Oil pollution				
Wetlands				
Toxic waste				
Litter				
Nuclear Power				
Alternative energy				
Poverty				
Green house effect				
River pollution				
Violence				
Alien plants				
Seal culling				
Ozone Hole				
Water pollution				
Gangs				
Air pollution				
Hunger				
Dune mining				

Cruelty to animals ....

Poisons & Pesticides ....

Child abuse ....

Urbanization ....

Recycling ....

Fire ....

Street children ....

Sexism ....

Overcrowding ....

Illiteracy ....

Endangered sharks ....

Fynbos ....

QUESTION 6

What do you consider the most useful approach the Museum could use to help your pupils become more aware of environmental issues?

Please tick the following suggestions according to whether you consider them VERY USEFUL, USEFUL, NOT USEFUL, NOT SURE.

		VERY USEFUL	USEFUL	NOT USEFUL	NOT SURE
1.	exhibitions on specific environmental issues at the Museum	....	....	....	....
2.	exhibitions on specific environmental issues at the school	....	....	....	....
3.	Lectures at schools	....	....	....	....
4.	Lectures/discussions in the Museum	....	....	....	....
5.	Field trips	....	....	....	....
6.	Organize camps for school groups	....	....	....	....
7.	Holiday workshops	....	....	....	....
8.	Videos	....	....	....	....
9.	Competitions	....	....	....	....
10	Enviro-clubs at the schools	....	....	....	....
11	Teacher training workshops	....	....	....	....

	VERY IMPORTANT	IMPORTANT	NOT IMPORTANT	NOT SURE
Infant mortality				
Acid rain				
Soil erosion				
Interrelatedness of all things				
Education crisis				
Social relationships				
Desertification				
Natural resources				
Environmental health				
Ecosystems				
Deforestation				
Poaching				
Transport				
Housing				
Crime				
Water provision				
Dog droppings				
Coastal development				
Unemployment				
Electricity				
Plastic pollution				
Marine pollution				
Sea urchin bloom				
Gill nets				
Shortage of recreation facilities				

12	Literacy classes incorporating environmental issues	....
13	Environmental education pro-grammes for parents	....
14	Developing environmental resource booklets for use in the schools	....
15	Developing environmental posters for use in the schools.	....
16	Developing environmental activity ideas for use in the schools	....
17	Drama/story-telling presentations at the Museum	....