

*THE INFLUENCE OF CHILDREN ON DECISION-MAKERS
IN THEIR HOMES : A CASE STUDY IN
ENVIRONMENTAL EDUCATION*

Submitted in Partial Fulfillment
of the requirements for the degree of
MASTER OF EDUCATION
of Rhodes University

by
JACQUELINE KRUGER

January 1992

ABSTRACT

This study explores the possible influence of twenty children on their 'parents', with a view to better understanding the potential 'multiplier effect' of children regarding environmental responsibility. The criteria employed to study the potential influence included certain of the environmental activities learnt by the children during an Environmental Education programme. The programme was undertaken by the researcher with a Std 4 class from Ryneveld Primêreskool in Graaff-Reinet. An action research approach was adopted and results were analysed qualitatively. Due to the short duration and exploratory nature of the project, these results should be viewed as tentative. Proposals are made for increasing the *impact* of Environmental Education programmes in peri-urban township communities, and recommendations are put forward to help facilitate related studies in the future.

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PREFACE

Professor P.R. Irwin from the Department of Education, Rhodes University, supervised the study. Despite his very full schedule, Professor Irwin offered generous and interested supervision for which the researcher expresses her heartfelt appreciation and gratitude!

Acknowledgement is due to the Department of Culture, House of Representatives for allowing the study to take place in one of their schools. The researcher is especially grateful to the headmaster, staff and Std 4B pupils of Ryneveld Primêreskool, Graaff-Reinet whose friendliness and co-operation contributed significantly to this study.

The financial assistance of the HSRC towards the cost of the research is acknowledged. In all cases, however, opinions expressed and conclusions reached are those of the researcher and not the HSRC.

The researcher would also like to thank her husband, Graeme, and sister, Bridget Judd, for their invaluable encouragement and assistance with the transcription of tapes.

This study represents original work by the researcher. As far as she is aware, this is the only research of its kind in Southern Africa - no similar project could be found to

draw on for guidance. Quotations used to substantiate findings are faithfully rendered, including errors. As Afrikaans is an official language in South Africa, English translations have been kept to a minimum.

CHAPTER ONE
INTRODUCTION

In common with the rest of the world, South Africa is faced with many environmental problems of both local and global origin. These include, for example, rural poverty, soil erosion, urbanisation, species extinction, desertification, over-population, acid rain and global warming. Many of these problems have, by common consent, reached crisis proportions and there is common cause that they need, amongst other ways, to be addressed through education.

As society increasingly realises that "the environmental crisis is an outward manifestation of a crisis of mind and spirit.....[a crisis] concerned with the kind of creatures we are and what we must become in order to survive" (Caldwell 1970), Environmental Education is increasingly evolving away from acting as a 'bandaid' for environmental issues (Naidoo *et al.* 1990) to a "major means....of achieving responsible attitudes and effective behaviour towards the management of our total environment." (Irwin 1988:7)

This holistic emphasis and anthropocentric shift in Environmental Education is succinctly stated by Irwin (1989:2):

"Over the past five decades, Environmental Education has evolved from a surrogate for nature conservation and a vague notion relating to better *quality of life*, to a sophisticated concept embracing ecological knowledge and understanding, total people-environment relationships, ethics politics, sociobiology and public participation in decision-making."

These notions are embraced in the Tbilisi Declaration (UNEP 1978) and the IUCN definition of Environmental Education (IUCN 1971).

Furthermore, Environmental Educationists are increasingly arguing that the *gap* between educational processes and real life needs to be closed. Environmental Education, it is argued, must be relevant for communities (Knamiller 1981; O'Riordan 1981; Okut-Uma and Wereko-Brobby 1985; Agarwal 1986; Naidoo *et al.* 1990). Such a focus includes the development of programme activities around the environmental problems that are faced by particular communities. This approach, it is further argued, helps communities to begin to understand the complex nature of the environment, to acquire the relevant knowledge, attitudes and practical skills which would better *empower* them to participate responsibly and effectively in anticipating and solving environmental problems, and to manage the quality of the environment (UNEP 1978).

Although many Environmental Educationists would agree that Environmental Education is a *life-long process*, as expressed

in the Tbilisi Principles (UNEP 1978), some debate exists as to which age group Environmental Education programmes and initiatives might be most effectively directed. Bailey (undated) suggests that it should be at the present generation of young adults whom he considers more sensitive than other age groups to the moral issues which are central to many of the environmental crises facing humankind. Forbes (1987: 133-134) considers it necessary to accord priority to the post school age group as people require "thinking tools" *before* they are able to participate effectively in society. Knamiller (1981), on the other hand, identifies the important role of children in the process of environmental change and emphasises the 'multiplier effect' of formal education, a view supported by Okut-Uma and Wereko-Brobby (1985).

In reality, many Environmental Education endeavours throughout the world are aimed at children, both in a formal and non-formal context. In South Africa, nearly all formal Environmental Education is aimed at children. It could however be argued that even if all children reach an improved level of environmental consciousness, to wait until they become the decision-makers in society might be too late to resolve some of the more critical environmental problems facing society. Bandara (1989:445), for example, states that

"schools are at best only places where seeds of change which may have long gestation periods can be sown. However, there are many areas where something has to be done urgently before irreparable damage is caused to the environment".

On the other hand, children may be effective *vehicles* for encouraging environmentally responsible lifestyles in the present generation of decision-makers. Although expressed outside of Environmental Education, this notion is supported by a number of authors. Remmer and Weltman (1947) and Fontana (1981) are of the opinion that children help create the atmosphere in the home and that the relationship between parents' behaviour and the child's behaviour is a fully integrated one. Brembeck (1966) expresses the view that parents share with their children the authority that springs from superior knowledge and expertise. He argues that "in a rapidly changing world like ours, the young are frequently the repositories of knowledge and wisdom, since it is they who frequently learn the latest and most effective way of doing things" (p.123). Alanen (1988) too identifies and encourages the idea of viewing children as social actors in their own right and not primarily as objects being acted on.

On the basis of the latter arguments, the researcher decided to conduct a small scale case-study aimed towards assessing, qualitatively, the extent to which children who are exposed to selected environmental concepts/skills might influence their parents/guardians (ie. adult decision-makers in their homes) in these respects. As this is, to the researcher's



FIGURE 1.1: A TYPICAL 2-ROOMED SEMI-DETACHED HOUSE IN KROONVALE, GRAAFF-REINET.

knowledge, the first study of its kind in Southern Africa, it was largely exploratory. A primary aim was to gather insights and data on child-parent influence, with particular reference to a peri-urban South African township context. It was hoped that the findings might contribute to the planning of future related studies.

For the purpose of this study, the family is defined as the social unit that accepts the primary responsibility for the socialisation and nurture of the child (Lerner and Spanier 1978). According to Klein *et al.* (1978), some families have either more or fewer than two *functioning parents* due to cultural, social structural, and situational factors. Following this, the term '**parent**' is used in this study to describe any adult member, resident in the child's home, who interacts with the child and who would contribute to family decision-making. As it so happened, the term 'parent' in this research included mother, aunt or grandmother. The issue of gender is discussed in Chapter 7.

The research design was informed by post-positivist or 'new' paradigm principles and assumptions (Reason and Rowan 1981). It is therefore considered appropriate for the researcher to further contextualise the study for the reader by describing the area in which it occurred.



FIGURE 1.2: ONE OF THE LESS COMMON 'DETACHED' HOMES IN KROONVALE, GRAAFF-REINET.



FIGURE 1.3: BACKYARD SHACKS ARE COMMON IN KROONVALE, GRAAFF-REINET.

The Ryneveld Primêreskool is situated in the 'coloured' township of Kroonvale, in Graaff-Reinet. More specifically, the school serves a relatively poorer section of the township community. Of Graaff-Reinet's total population of 31 600 persons, 14 600 are resident in Kroonvale (Sister C. Sheard 1990, pers. comm., CPA Family Planning Clinic). The housing in Kroonvale typically consists of four- or two-roomed semi-detached houses on small erven. Many of these homes have tin shacks erected in the backyard to accommodate extended family or tenants. Figures 1.1, 1.2 and 1.3 refer. Very few of these homes are electrified. Water is provided 'on tap' at central points, approximately one tap per six to ten houses, with no resident having to walk more than 75m to their water source (Mr Marks 1991, pers. comm., Engineers Office, Graaff-Reinet Municipality.). Services provided by the Graaff-Reinet Municipality include the removal of rubbish and night-soil on a bi-weekly basis, some maintenance of roads, and the provision of streetlighting in certain areas.

Compared to the homes in the vicinity, the Ryneveld Primêreskool is well-equipped and in good condition. Classrooms are lit with electricity, children are seated in desks and teachers are able to make use of large chalkboards mounted on the walls. There is an adequate supply of school books. A photocopying machine is housed in the office for use by the teaching staff. The school boasts a tennis court which



FIGURE 1.4: A SECTION OF THE RYNEVELD PRIMÊRESKOOL IN KROONVALE, GRAAFF-REINET.



FIGURE 1.5: THE TENNIS COURT AND GARDENS AT THE RYNEVELD PRIMÊRESKOOL, GRAAFF-REINET.

has recently been fenced, and there are sports fields which are used for netball and soccer. Figures 1.4 and 1.5 refer.

The town of Graaff-Reinet is almost surrounded by the Karoo Nature Reserve, with all of the residential areas bordering directly on the Reserve. A map of the area is included as Figure 1.6. Although the population is limited in their utilisation of the natural resources of the Reserve by provincial conservation legislation and regulations, the Reserve management does have a resource utilisation policy. This allows for the collection of fruits and medicinal plants under permit or supervision, as well as the regulated collection of firewood from a designated wood collection area.

The researcher has explored the literature available on intergenerational influence and the associated methodological dilemmas. These findings are reported in Chapter 2. The methodologies employed in this study are detailed and substantiated in Chapter 3, including the reasons for choosing an embedded case-study as the research design and action research as an approach. Chapters 4, 5 and 6 elucidate the researcher's findings on perceived environmental problems in Kroonvale, the responses of the children to the Environmental Education programme and the children's influence on their 'parents' respectively. For the purpose of anonymity, the children and 'parents' have

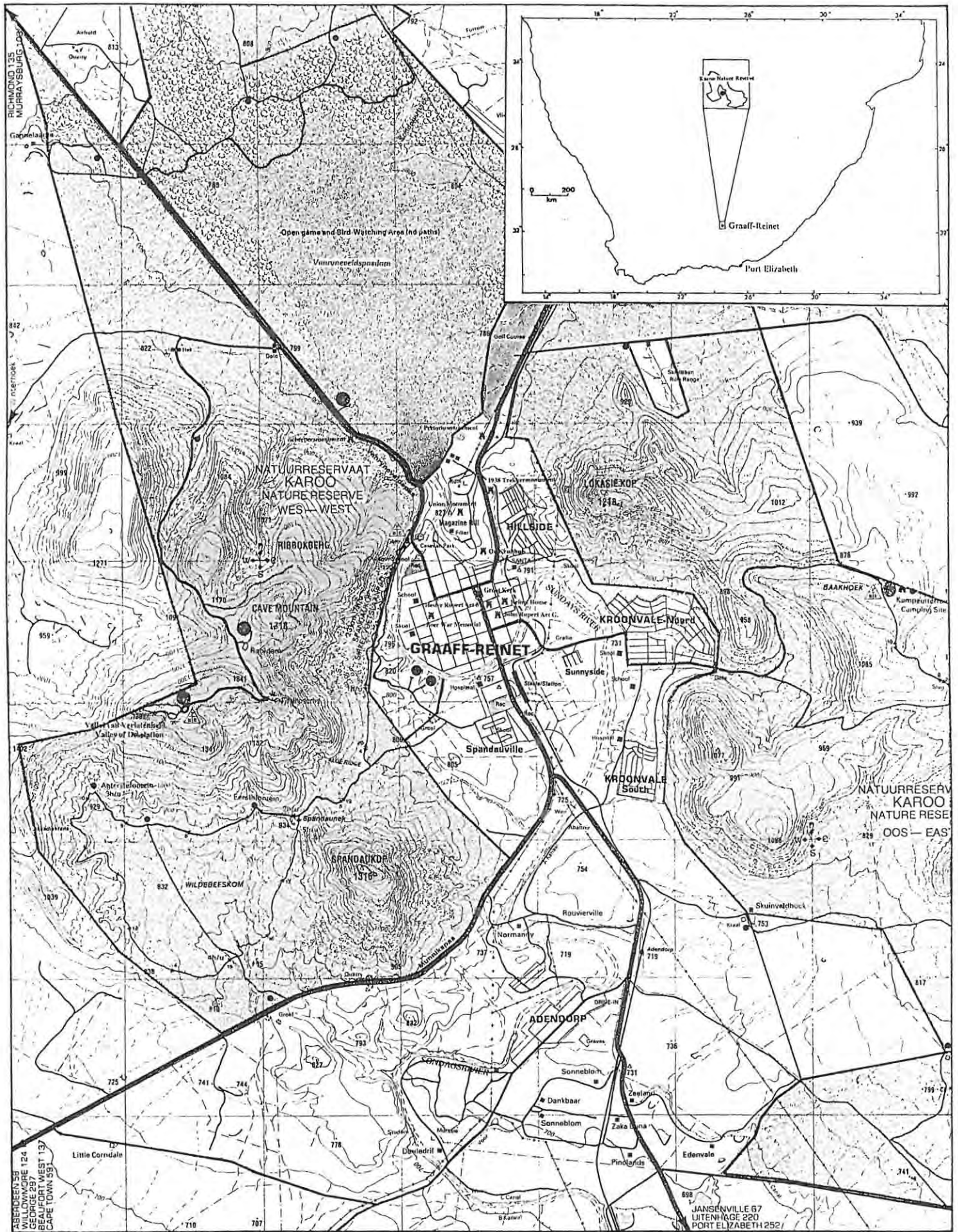


FIGURE 1.6: STUDY AREA LOCALITY MAP.

arbitrarily been assigned a 'Home Number' and are referred to, for example, as Child 9 or 'Parent' 9. In Chapter 7, the researcher has drawn together her results with a view to identifying and attempting to explain perceived insights regarding child-'parent' influence in Kroonvale. The consequent implications for Environmental Education in the area are also explored. The final chapter also provides an evaluation of the study aimed towards improving or developing the approaches for future related studies.

The variables and subtleties which may operate in such a study, as well as the likelihood of indeterminate and tentative conclusions, were foremost in the mind of the researcher. For these reasons, amongst others, the generalisation of results would be an inappropriate expectation from this study.

In new paradigm research, there is generally considered to be value in researchers giving some personal background to elucidate their involvement in a specific project. In this case, the researcher is a white English-speaking woman working as an Environmental Education Officer for the Chief Directorate of Nature and Environmental Conservation of the Cape Province. She is based at the Camdeboo Environmental Education Centre in the Karoo Nature Reserve, Graaff-Reinet. Her academic background is in Nature Conservation and Forestry. Her working career of 4 years has been in the

field of Environmental Education, the greatest emphasis being Environmental Education with a conservation bias. Besides contributing to the debate as to which age group Environmental Education initiatives would best be directed, the researcher also hoped that this study would inform her 'community' approach to Environmental Education and identify groups of people who are *now* able to actively contribute to local environmental improvements. The study also afforded her the opportunity to introduce the concept of Environmental Education to local schools and the Kroonvale community. Furthermore, given the town's position relative to the Karoo Nature Reserve, the researcher considered increased environmental awareness amongst the community as integral to the 'survival' of the Reserve. Simultaneously, the Reserve's potential contribution to the well-being of Graaff-Reinet's residents, economic and otherwise, could be promoted.

CHAPTER 2
LITERATURE REVIEW

The purpose of this chapter is to examine the state of environmental research as it relates to the thesis topic, and to appropriate methodologies. A review of the Social Sciences Index of the computer search CD ROM at the Rhodes University Library using the delimiter "children/influence/parents" produced eleven relevant abstracts. The Rhodes University Library Catalogue produced nine other sources. No review is ever exhaustive, but the limited number of studies clearly indicates that research on children's influence on their parents is still at an early stage of development.

2.1 THE INFLUENCE OF CHILDREN ON THEIR PARENTS

Most work to date on the interactions between parents and their children has taken place in the realm of Developmental Sociology in particular, and in Developmental Psychology. Until recently, the 'influence arrow' in models of socialisation pointed from parent to child, where socialisation is defined as a process through which adults prepare the young for life in an adult society (Hess 1981). Hartup (1978) states, for example, that although many earlier studies can be placed under the rubric of *parent-*

child relations, most of them told more about parenting than about parent-child interaction. He argues that these studies "reflected the unidirectional bias of *social mould* theories" (p.29).

According to Hess (1981), contemporary writers reject the traditional model of unidirectional, parent-to-child influence in favour of a view of the family as a group of individuals who exert potentially equal influence on one another. He furthermore points out that this is not a novel idea : As early as 1926 Burgess, a family sociologist, described the family as "a unity of interacting personalities", and, in 1951, Sears suggested that "the unidirectional paradigms of personality development has exhausted their usefulness" (p.220). Bell (1968) argued that influence in parent-child relationships should be examined *bilaterally*, criticising the one-sided view of parents as agents and children as targets of influence. Mead (1970) suggested that since the pace of contemporary technosocial change is becoming so rapid, the old must learn from the young.

To conceptualise the complexity of family dynamics, researchers have come to view the family as a social system (Gjerde 1986 ; Hess 1981) where parent-child influence processes are bidirectional and dynamic (Cowan and Avants 1988). Bengtson and Troll (1978) write from the perspective

that the interactions involved in socialisation affect all participants, whatever their time in life. If youth adopt new behaviours and values, for example, it is conceivable that these will influence and perhaps modify their parents' prior orientations. In other words, each interacting generation will change, develop or be socialised anew, a view supported by Lerner and Spanier (1978). Clearly the new description of the family that has emerged in the child development literature is based on concepts of reciprocity and mutuality.

2.1.1 Studies on Child-Parent Influence

Despite the above views, relatively few studies have tested the influence of children on their parents. Keniston (1968) reports that parents of youthful radicals changed their views after confrontations with their children. Chaffee *et al.* (1971) reported that adolescents influenced their parents' television behaviour. Angress (1975) found that mothers of radical college students altered their views on co-habitation as a result of their children's behaviour. Hagestad (1984), in her studies on college students and their parents, reports that about two-thirds of the parents and one-third of the children reported 'successful' influence by children in her three generation sample. Acock

(1984) states that evidence that children influence their parents is largely derived from interviews with mothers.

Curiously, studies of reciprocal influence began and have continued in the realm of parent-infant interaction (Lewis and Rosenblum 1974; Sackett 1979; Stevenson 1983) despite the fact that older children are often considered more capable of changing parents' stated beliefs or behaviour (Bell and Harper 1977; Lerner and Spanier 1978; Bengtson and Troll 1978; Hagestad 1984). Glass *et al.* (1986) challenge the latter viewpoint as their results revealed that child influences were significant and equal in magnitude across younger and older dyads for three attitude domains embracing religious, political and gender ideology.

Although relatively few, the above studies are both significant and relevant. Firstly, they provide support for a 'new' sociology of childhood which grants children the status of participants and constructors in the very processes that make their - and our - world (Alanen 1988). This approach recognises children as capable of both individual and collective action and therefore capable of engaging in social 'struggles'. Secondly, studies like those of Glass *et al.* (1986) provide evidence of significant influence upward through the generations and suggest that "the family may act as an agent of change, not an impediment to change as is implied by many conceptualisations of family

socialisation" (p.696). This view is supported by Lerner and Spanier (1978 : 5), proponents of a "life-span" and "dynamic interactional" approach to family socialisation, who consider the family to be society's adaptational unit.

According to Spanier *et al.* (1978), one of the reasons contributing to the limited number of studies relating to reciprocal child-family interactions is that advocates of reciprocal theoretical models have not offered sufficient, concrete indications of just how and where studies of child and family reciprocities can enrich specific research programmes. In the context of this research, the researcher felt strongly that it should not be esoteric, but that it should contribute to further research plans in this area as it is, in her view, an aspect of Environmental Education with wide implications.

2.1.2 Towards Understanding the "How" Of Child-Parent Influence

Besides attempts at estimating the magnitude of inter-generational influence, some authors have tried to explain the 'mechanics' of this influence. As early as 1952, Mannheim put forward the notion of "forerunners" (p.308) ie. non-conformist parents with respect to their own generation. The non-conforming values that they transmit to their children are adaptive to the circumstances of the younger

generation. Peers of these children adopt these new values and influence their own parents in the non-forerunner families. Acock (1984) takes this to what he considers its logical conclusion, by stating that most families have the bulk of the influence going from the child to the parent, at least with respect to the issue of "generation cleavage" (p.158). Mannheim (1952) also recognised that intrafamily socialisation is not only affected by extrafamily processes, but also by the differential susceptibilities to influence at different stages of the life course. He spoke of the 'fresh view' that each new age cohort of youth brings to interactions both with its parents and with other members of society. According to Bengtson and Troll (1978), human developmentalists generally would agree that although there is always reciprocity and mutuality of influence between child and parent, there are times when the influence vector is likely to be stronger in one direction and other times when the strength of the vector is reversed. Furthermore they state that

"in times of rapid developmental change, particularly when this change is associated with processes traditionally labeled as maturational, the individual is more likely to be open to new influences than during times of relatively slower change" (p.227).

Bengtson and Troll (1978) also argue that different generational processes interact to affect the strength of the influence of one generation upon another. They state

that "period, cohort and generational-unit effects arising from societal processes may mediate parental or youth influences" and that "differential time of life effects may influence the strength of reciprocal flow of socialisation pressure, or at least the perceptions by members of each generation of the strength of this pressure" (p.227). The view that adaptation involves, in part, an adjustment of the individual's characteristics in order to meet the demands of his/her ecological milieu is further expounded by Lerner and Spanier (1978). They believe that the study of development is the study of processes of individual-environment relations. Table 2.1 aims to highlight the multi-faceted and complex components pertaining to individual-environment relations as described by Lerner and Spanier (1978). This in turn highlights, in the view of the researcher, the types of complex considerations that need to be borne in mind when analysing intra-family influence - see Section 6.2.

2.2 RESEARCH METHODOLOGIES FOR CHILD-FAMILY RECIPROCITIES

It has been suggested above that the reciprocal influence between generations of youth and their parents, which characterises the process of adopting new ways and attitudes, is neither uniform or unimodal. It is also increasingly apparent that influence is mediated, qualified, and otherwise affected by a host of variables and conditions

Table 2.1 THE COMPONENTS OF INDIVIDUAL-ENVIRONMENT RELATIONSTHE COMPONENTS OF DEVELOPMENT

1. **MATURATION** - The qualities of maturation changes are shaped by the quality of timing of the experiential context in which they occur.
2. **EXPERIENCE** - The effects of experience are limited by the maturational status of the organism. The same experience may lead to a different developmental outcome depending on the maturational level of the organism.
3. **ORGANISM INDIVIDUALITY AND ITS ROLE IN DEVELOPMENT** - As each person's maturation-experience interactions intermesh to provide a singular individual, this individual consequently interacts differently with his/her environment.
4. **CIRCULAR FUNCTIONS AND SOCIAL INTERACTIONS** - The dependency for existence of one organism on another appears basic to all life matter and suggests that individuals exist in relation to one another.

SOCIOCULTURAL-HISTORICAL DIMENSIONS

People are always embedded in a sociocultural setting. This, in turn, also influences the physical setting of any social interaction, and it may be expected that in relation to changes in physical environmental variables such as noise level, pollution level, housing conditions, crowding, and recreational facilities, the quality and timing of person-person exchanges will vary and provide differential feedback to all individuals involved. Moreover, it must be recognised that all sociocultural milieus are embedded in history, a view supported by both Glass *et al.* (1986) and Elder (1984).

THE DYNAMIC AND CHILD-FAMILY RELATIONSHIP

Individual development may only be adequately understood in the context of the constant reciprocal interaction between a changing person and his/her changing environment. This environment is necessarily composed of other people, themselves developing within a dynamic environmental setting. The setting, too, is shaped and textured by the evolving cultural and historical contexts within which all of the actors are embedded.

(Whitbeck and Gecas 1988). It appears that such complex interplays can currently, at best, be only approximately understood. (Hess 1981) states unequivocally that researchers who study families encounter perplexing methodological problems, especially if they try to trace the influence that family members have on one another. Spanier *et al.* (1978) confirm this methodological dilemma by stating that no existing method of data collection or technique of analysis adequately deals with the "circular relations" that exist in child-family interactions (p.329). They consider the methodological inadequacies as the major obstacle in exploring child-family reciprocities.

In reviewing trends in family interaction research, Hartup (1978) concludes that the interview and the questionnaire were historically the most commonly used techniques used for studying family interaction. He states that up until the period just after World War II, field studies based on home interviews and home observations were dominant, but that laboratory studies gained pre-eminence thereafter. From about the 1970's experimental studies, involving either family members or non-related individuals in situations simulating family interaction, enjoyed an increased vogue. Most often these studies focussed on parent effects on child behaviour rather than the reverse. Hartup (1978) labeled this a transitional period in socialisation research where contemporary views emphasised adaptation, and socialisation

began to be studied "in polydirectional terms from developmental, ecological and historical perspectives" (p.41). He notes too that although laboratories were being successfully utilised in the study of family interaction, there was a resurgence of field settings.

Klein *et al.* (1978) are of the view that most knowledge on reciprocal relations is based on two general research strategies - the survey, and direct observation. They concur with Hartup (1978) that the survey relies primarily on two reportage techniques, the questionnaire and interview, and that data gathered by the survey method are usually represented numerically for purposes of quantitative analysis, although qualitative responses of respondents are often blended in to illustrate statistical findings. Klein *et al.* consider the survey method useful for tapping subjective data such as feelings, perceptions, normative standards, values, aspirations and so on, but limited for capturing reciprocal intrafamily influences. They substantiate the latter point by stating that it is difficult to validate reciprocity using self-report techniques because respondents may be unaware of or insensitive to the nature of reciprocal causality. They nevertheless consider surveys to be useful as an additional approach to direct observation, as the researcher is able to focus on specific behaviours and to make comparisons between reports and observations.

Klein *et al.* (1978 : 130) consider direct observation a more appropriate method of research as it allows for more direct contact with family members, "bringing behaviour and mutual effects much closer to the investigator's own sensory capabilities" and, thereby, providing a more sound basis for drawing generalisations about reciprocity. Hess (1981), however, warns that there is discontent with a method that relies exclusively on the analysis of observable behaviour as this can misrepresent the underlying perceptions of participants. From this viewpoint, he claims that "beliefs, attributions, interferences, and other cognitive operations offer more parsimonious methods for capturing the significant parts of an exchange" (p.226). He is, nevertheless, aware of the subjectivity of data interpretation and agrees that *inferences about internal states are risky* and probably unnecessary since the essential component of interaction is the observable acts between participants. The researcher finds herself in agreement with this viewpoint.

Acock (1984) expresses the view that there are few areas of social research that have used less appropriate sampling designs than those used to study intergenerational relations. In reviewing studies that depict evidence of parent-child similarity, Bengtson and Troll (1978) ignore the results of two types of studies due to, what they

consider to be, methodological flaws. The first kind involves group instead of pair (dyad) comparisons, where data from each generation are aggregated and contrasts between generations are based on group means instead of lineage comparisons. The second kind of study they ignore are ones in which one generation provides the information about the others - where there is no examination of different generations independently. Following this, Hess (1981) states that there has been a tendency to reject techniques of data collection that rely on self-reports, ratings and other diffuse judgements about either overt behaviour or inner states of mental activity in favour of recording observable events. Researchers want to know what families did, not what they said they did. The researcher appreciates this view, but is cautious of the subjectivity which would operate during data collection and analysis.

Lerner and Spanier (1978) state that the human development literature has always emphasised that conceptual issues determine not only the form of research questions, but also suggest which methods and analytic techniques are needed to study these questions. They consider that the invention of new methodological and data analytic techniques may be required to provide the data necessary to address developmental questions, particularly when conceptualising dynamic-interactionism as involving a circular function, a notion that does not fit the usual linear statistical

models. Towards this end, Lerner and Spanier propose "new, pluralistic, descriptive and explanatory approaches to developmental research" (p.14). This notion is supported by Hartup (1978) as well. It is the researchers opinion that this approach aligns itself closely to the principles of new-paradigm research, which she considers appropriate for this study.

Despite the above theoretical innovations, it appears to date that the methodological problems that have plagued child-parent interaction studies remain, including data volume (Hess 1981) and extremely complex and inappropriate methods of statistical analysis (Acock 1984). To add to these dilemmas, the network of exchange becomes even more complex in large or 'atypical' families eg. extended families (Hess 1981). Klein *et al.* (1978) suggest that a multidisciplinary perspective towards development as a reciprocal phenomenon will require much greater exploration and discussion before it will yield significant methodological advances. Spanier *et al.* (1978), on the other hand, consider that it is not lack of appreciation for inter-disciplinary action, but rather the lack of an appropriate, interdisciplinary unit of analysis, the absence of a unifying conceptual scheme, and the unavailability of necessary empirical tools that have limited true interdisciplinary projects. Needless to say, the literature indicates very few methodological advances since 1978.

Alanen (1988) looks forward to the methodological breakthrough envisioned above as it is his opinion that these more democratic research methods may help to produce evidence on the remarkable competence that children - even small children - have in constructing their everyday social relations. This in turn may contribute to children being seen not just as objects primarily being acted on, but also as social actors in their own right.

Many authors warn against the generalising of results beyond the research group itself (Klein *et al.* 1978; Lerner and Spanier 1978; Hess 1981). This is attributed to the fact that studies of families offer only glimpses of reality, and that these are often distorted by the impact of the research procedures. Moreover, family behaviour varies across socio-cultural groups and among families within a given demographic category (Hess 1981).

Every field of substantial research develops a body of basic knowledge about the properties of the phenomena and subjects it studies. Such knowledge accumulates slowly in normative (ie. descriptive) investigations. The researcher seeks to address this through the details and nuances of the case-study. The methodological contribution of normative studies is to provide data that are essential for research planning (Hess 1981). It is in this context that the researcher has increasingly seen her work.

CHAPTER 3
METHODOLOGY AND RESEARCH PROCEDURE

The purpose of this chapter is to inform the reader of the researcher's choice of research method, as well as the procedures followed. In order to facilitate the planning of possible future projects, the researcher has integrated methodological evaluations within the text rather than presenting them summatively at the end of the chapter. This reflects the *action-orientated* nature of the research where evaluation was inductive and continuous throughout its duration.

3.1 THE METHODOLOGICAL APPROACH

In its broadest sense, this research project takes the form of an *embedded case-study* in that the influence that Environmental Education in formal education has on the children and, in turn, the children's influence on their parents is used in the analysis of the case (Yin 1984). The researcher considered the case-study an appropriate method as it enables one to observe, probe and intensively analyse the characteristics of an individual unit (Cohen and Manion 1989). Given the novel nature of the research however, coupled by methodological dilemmas outlined in Section 2.2,

this study offers, unlike many case-studies, only the most tentative results.

Although this particular study was designed to establish the influence of children on their 'parents' regarding environmental behaviours, a substantial part of it was directed towards the analysis of the children's responses to the Environmental Education programme to which they were exposed. This was done in order to both enhance the researcher's understanding of the children, and to inform the methodological procedures for assessing 'parental' response to their children's influences upon them. In this sense, and in the sense that the researcher was an integral part of the 'developing' Environmental Education programme in which the children participated, the project has an *action-research approach* (McNiff 1988). Although not always fully achieved, the approach was intended to reflect a spiral of planning, acting, observing and reflecting - processes integral to true action research (Carr and Kemmis 1986). The action research approach is further supported by Cohen and Manion (1989 : 125) in so far as their definition describes this type of study :

"[Action research] is a small-scale intervention in the functioning of the real world and a close examination of the effects of such intervention".

The researcher favoured an action research approach as it is suitable for work in classrooms because of both its

flexibility and adaptability. Its intrinsically evaluative frame of reference also boosts the "functional knowledge of the phenomena" with which the researcher deals (Cohen and Manion 1989 : 218). Action research furthermore relies inter alia on observation and behavioural data, techniques considered appropriate by the researcher for the qualitative analysis she intended.

To test the reliability of some of the results being sought a quasi-experimental approach was also introduced into a minor aspect of the research through the use of a control group (Cohen and Manion 1989). This is discussed in more detail in Section 3.2.4.

Within the context of child-parent studies Hartup (1978) would classify this study as one in which the 'natural environment' was employed as the locus for both treatments (school) and outcome measurements (home). A certain degree of structure was imposed by the researcher, but within a 'natural' observational setting; she was both participant and observer. According to Cohen and Manion (1989), the researcher would classify as *participant observer* as she engaged in the very activities she set out to observe, albeit sometimes less obviously than at other times.

In analysing the results of the project, the researcher chose to use a *qualitative method of assessment* which relies

heavily on the descriptions of her findings. The reasons were threefold. Firstly, as noted in Chapter 2, the tools for statistical analysis for this type of work presently do not exist. Given the fact that this avenue of Environmental Education research has not yet been explored, the researcher felt that involvement in complex statistical analysis would be quite inappropriate in that it would rob the study of the more important details and nuances that might emerge from it. Secondly, authors such as Lerner and Spanier (1978), have suggested that appropriate analytic techniques are informed by new conceptualisations of child-family interactions. Given the novel nature of this study, it would be premature to suggest complex analytic techniques before a substantial body of basic knowledge is built up (Hess 1981). It is hoped that the methodological approach implemented in this study will begin a dialogue that may contribute to the development of innovative frameworks for the analysis of future studies of this kind.

Thirdly, because Environmental Education fundamentally deals with human behaviour and the ethics upon which this behaviour is based (Irwin 1990), it seems appropriate to evaluate its implementation using a research method which is descriptive and generative rather than vericative. Taft (1988), in arguing for an ethnographic approach to research, supports the notion that research on groups of people is essentially a description of events, with special regard

being given to the social structures and the behaviour of individuals within those structures. He regards appropriate methodologies to be naturalistic and qualitative, rather than controlled and quantitative. The researcher concurs with the above views.

The *research tools* employed for the collection of data included observations recorded in a research diary, a post-Environmental Education programme questionnaire completed by the children, and semi-structured interviews (Burroughs 1975) with members of the community, the children and their 'parents'. Although evaluative in some senses, the questionnaires and interviews were designed as precursory steps before making direct observations on the influence of the children on their 'parents'. This allowed the researcher to focus on a delimited number of behaviours and to make comparisons between reports and observations (Klein *et al.* 1978). In both the questionnaires and interviews the researcher used a conversational style as she considered an informal, non-threatening approach to be the most conducive to 'honest' and worthwhile interactions between herself and those with whom she was interacting (Sanders and Pinhey 1983; Nachmias and Nachmias 1987; Cohen and Manion 1989).

3.1.1 The Research sample

Further to the points made about the study group in Chapter 1, the subjects of the study were twenty Std 4 pupils from Ryneveld Primêreskool, Kroonvale, and a 'parent' of each. The pupils belonged to a single mixed ability class, Std 4B. No classes in the school are divided according to academic performance (Mr Gabriel 1991, pers. comm., Headmaster : Ryneveld Primêreskool) The subjects are Afrikaans speaking and the researcher accordingly conducted the study in Afrikaans. They were selected for the following reasons :

- * Other than its location in Kroonvale, the school was selected on a purely random basis. The headmaster of the first school approached by the researcher agreed that the study could take place at the school. The other schools in the township, all of which are known to the researcher, could have been selected equally well.
- * The Std 4 curriculum, in particular the Science and Geography syllabuses, lends itself potentially well to Environmental Education (Boltt G. 1990, pers. comm., Senior lecturer in Science Education at Rhodes University.)

Although the researcher originally intended to analyse only twenty cases - considered an appropriate figure for a small-scale research project of this nature - she began work with the entire class of 30 pupils for reasons of class and school logistics. Over a period of one and a half terms, ten pupils were effectively lost to sample mortality, particularly after examinations when no formal teaching took place and, as a consequence, truancy levels rose noticeably.

It was during this time that critical analysis of the children's responses to the Environmental Education programme took place. As it was not possible to recover the analyses of the missing cases during the school holidays, it was decided to return to the original sample size of twenty.

With respect to the interviews with the 'parents', the researcher initially pre-arranged meetings - through the pupils - with the adult in the home with whom the child considered he/she related to best. This, however, proved not to be practical as some of the named adults did not keep to arrangements, and others were not available for the scheduled interview due to work and other commitments. It was thus decided to visit the homes at the researcher's convenience and to speak with the adult person who was most frequently at home with the children during daylight hours. Where no adults supervised the children in the afternoons, the researcher interviewed the first 'parent' to return from work.

Due to the small size of the sample it was decided that gender would not be a variable in this study.

3.2 RESEARCH PROCEDURE

There were three phases of data collection in this study. During the first phase the researcher attempted to 'conscientise' herself regarding perceived environmental needs in Kroonvale and familiarise herself with the school environment and syllabuses. Chapter 4 and Section 3.2.2 refer respectively. The second phase focussed on the children, with emphasis being placed on their responses to the Environmental Education programme - Chapter 5 refers. The final phase included a visit to the homes of the subjects with a view to gaining some insights into the possible influence of the children on their 'parents' regarding environmental behaviours - Chapter 6 refers.

3.2.1 Towards community relevance

The researcher was acutely aware of the 'distance' between herself and the Kroonvale community in terms of cultural norms, aspirations and standard of living. She also suspected possible differences in the way in which environmental issues were perceived. Community development is fraught with examples of well-meaning people and organisations imposing their help on communities without first taking cognisance of each of the latter's knowledge, lifestyle, culture and wishes. This has often led to

unsuccessful operations, and, sometimes worse, to the destruction of traditional community life and values (Goldsmith and Hildyard 1988; Wilson and Ramphele 1989; Harrison 1990). Concomitant with present-day Environmental Education thinking regarding community sensitivity, relevance and participation, the researcher attempted to 'conscientise' herself about the community by doing a pre-study survey of environmental opinions in the form of a semi-structured interview with a small 'random sample' of occupants from the Kroonvale community.

It must be emphasised that the above effort was relatively crude in the sense that the sampling technique would not classify as statistically sound in terms of sample size and randomness. A spectrum of thirty persons, ranging from teachers, nurses, shop owners, labourers and domestic servants to the unemployed, were asked to identify their key perceived environmental needs and their possible solutions. The individuals were selected by chance, the researcher having driven to relevant institutions, knocked on doors of homes, or simply having stopped people in the streets. She explained that she was doing a project at university which required knowledge on the needs of the people in Kroonvale and asked the subjects if they'd be willing to provide the necessary information.

Although the researcher administered the interview and recorded the results in keypoints herself, she sensed that the presence of an 'official looking' interview schedule clearly gave the endeavour credibility, possibly as it contributed to the notion of being taken seriously. This can be illustrated by relating the events in a furniture store where a gentleman approached the researcher and requested that he too be given 'a hearing'. On discovering that he lived in Umasizakhe - the neighbouring 'black' township - and not Kroonvale, the researcher tried to explain that she did not need to disturb him as she required information only on Kroonvale. He was insistent, however, and proceeded to give a half-hour rendition of his views, making sure that the researcher was carefully recording all the points.

Later in the study, a related exercise took place with the Std 4B Ryneveld Primêreskool pupils in which a question was asked on what they considered to be the biggest problems in Kroonvale. The question was administered verbally to the entire group by the researcher, and the pupils were required to record their individual responses on blank pieces of paper. This exercise was motivated by the researcher's difficulty in reconciling adult perceptions of community problems with the school syllabus and a realisation and sense that, after conducting 4 lessons, she had achieved

little more than a 'regular' subject teacher. The researcher felt that the children might reveal different problems to the adults - thereby providing new and even more relevant issues. These results are shown in Figure 4.1.

It was intended that the results from these two surveys should inform the researcher about the issues around which lessons could be planned (see Chapter 4), thereby increasing both their real and their perceived relevance to the community. However, a number of constraints, explained in Sections 3.2.2, 3.2.3 and Chapter 4, resulted in the limited actualisation of these intentions, with the researcher resorting to lessons which she considered environmentally appropriate. It was nevertheless a valuable exercise as it did afford the researcher the opportunity to 'see' life from another perspective and, most certainly, *began* to 'conscientise' her about those issues foremost in the minds of the Kroonvale residents.

3.2.2 Towards Syllabus Relevance

In an effort to implement cross-curricula Environmental Education lessons applicable to the Std 4 syllabus, the researcher held meetings with all the relevant subject teachers at Ryneveld Primêreskool. During these meetings each subject syllabus, as well as the first two terms'

teaching schedules, were examined with a view to identifying suitable areas to introduce an environmental emphasis and potential link-ups between subjects. This exercise also afforded the researcher the opportunity to develop working relationships with the teachers and to iron out any misunderstandings about her presence in the school. The staff were clearly willing to co-operate with the researcher, but none indicated any desire to get involved.

When implementing the study, however, the researcher found herself to be severely limited by the practical difficulties of co-ordinating cross-curricula lessons where different teachers teach different subjects. Although she suspects that this problem can be alleviated where 'Environmental Education-attuned' teachers are operating in a full-time capacity, the researcher doubts that a true cross-curricula approach can ever be fully realised in a school that operates on a subject-teacher basis. In the researcher's opinion it is only the exceptional teacher who will go out of his/her way to set-up cross-curricular lessons in what is generally considered an already overloaded syllabus. Where one teacher is responsible for teaching most, if not all, of the subjects, there is, in the researcher's opinion, far more flexibility and a better awareness of the children's entire education programme - a situation more conducive to innovative and holistic teaching.

It should also be mentioned that it was difficult to extract syllabus related issues that were directly related to the problems identified by residents of Kroonvale. The researcher increasingly discovered that her research ideals were not always practicable within the realities in which she was working.

3.2.3 The Environmental Education Programme with the Children

As suggested earlier in this chapter (Section 3.2.1), the researcher to some degree modified her intention to use a *strictly* action research approach in the development of environmentally orientated, cross-curricular lessons in favour of developing lessons which she considered appropriate for the children. Chapter 4 clarifies this modification as the reader will note that the most prominent problems forthcoming from the community were not incorporated into the lesson-plans. Instead, the researcher chose to work around problems - however minor - that best suited her time schedule and pre-planned activities.

The above decision was motivated largely by time constraints imposed by the university requirements for a half-thesis. It was also the researcher's perception that the 'evolutionary' nature of action research lesson development would not reveal sufficient *activity-based criteria* for evaluating

the influence of the children on their 'parents' within the given study period. The situation was further exacerbated by a half-term hold-up resulting from the Department of Education and Culture's (House of Representatives) delay in approving the project. The proposal was submitted to them in September 1990 and only approved in April 1991 after repeated pleadings. Finally, most of the more common community needs expressed by residents in the pre-study environmental opinion survey concerned issues to which the researcher doubted children could contribute significantly within the short study period.

In retrospect the researcher considers that it may have been more advantageous to concentrate the lessons around one or two major issues rather than use the relatively widespread approach which she did. Besides the possibility that the development of fewer thorough projects from out of the community may well have revealed clearer influences due to their greater relevance, the researcher considers that she may have overloaded her teaching programme to the extent that the children's involvement and concentration was diluted. It must nevertheless be stated that in the researcher's experience and opinion it is extremely difficult to institute action research teaching procedures in short (30 to 35 minute) lessons where there is relatively limited continuity due to the continual changes in teachers for different subjects - a point made in Section 3.2.2.

This situation may have been exacerbated by the researcher's professional involvement in informal education where time constraints such as these are virtually unknown. Teachers who are experienced in formal education are probably better placed to develop the necessary skills to overcome this type of time constraint.

The researcher was involved with the class, in a teaching capacity, for sixteen school lessons, one two-day camp at the Camdeboo Environmental Education Centre, two day-visits to the Karoo Nature Reserve, and a total of seven hours of afterschool time. Her involvement stretched over a period of one and a half terms. An overview of her interactions with the class is given in chronological order in Table 3.1. Relevant detail is given in Chapter 5 where it is more appropriate.

The researcher found that the nature of her employment sometimes intruded into the research project in the sense that when the Camdeboo Centre was booked for several consecutive days or weeks she was unable to take time to teach the Ryneveld children, resulting in loss of continuity for certain sections of the Environmental Education programme. Although the projects *per se.* were not jeopardised, the researcher considers that this may have contributed to the diminished consolidation of certain ideas and principles for the children. There was, for example, a

TABLE 3.1: A CHRONOLOGICAL OVERVIEW OF THE ENVIRONMENTAL EDUCATION PROGRAMME WITH THE CHILDREN.

RESEARCHER'S AGENDA	PROGRAMME CONTENT	OCCASION OF INTERACTION	SYLLABUS RELATEDNESS	COMMENTS
<ul style="list-style-type: none"> • Establish rapport • Get to know children 	<ul style="list-style-type: none"> - verbal introductions - children completed value shields Appendix 1 	English lesson	<u>Partial</u> : Oral introductions in English	The value shield was used by the researcher as a tool to get to know the children as it enabled her to crudely assess what the children regard as important, valuable and fun
<ul style="list-style-type: none"> • Encourage full participation from children • Build trust • Supplement syllabus • Recreation on Reserve 	<ul style="list-style-type: none"> • Orienterings course, hiking, story-telling, role-playing salient feature analysis, self-discovery 	Two day visit to Camdeboo EE Centre	<u>Full</u> : Geography - map-reading, adaptations of plants to climate Science - nutrient cycles History - Xhosa culture and survival in the veld Music - Xhosa traditional songs Art - drawing English - vocabulary	<p>The cross-curricula programme was designed as a 'hands-on' and fun experience.</p> <p>An old Xhosa man was invited to tell stories around the campfire, while two Xhosa women assisted with the role-playing on Xhosa culture/traditions.</p>
<ul style="list-style-type: none"> • Water appreciation 	<ul style="list-style-type: none"> • Classroom discussion initiated by researcher - the importance of water - the water cycle - water and industry - practical water conservation 	Geography lesson	<u>Partial</u> : Programme attached to general theme "Rivers in Africa" including water schemes like the Orange River Water Project	Unemployment has been sited as a serious problem by Kroonvale residents in the pre-study survey. The researcher attempted to show that this is exacerbated in Graaff-Reinet by the lack of water which inhibits the creation of industry
<ul style="list-style-type: none"> • Nature Conservation-the interrelationships between animals, plants and soil 	<ul style="list-style-type: none"> • Classroom discussion initiated by researcher (Also analysis of feeding by step-by-step observations of child eating an apple). 	Double Science Lesson	<u>Partial</u> : Programme attached to theme "Feeding of herbivores, carnivores and omnivores".	Researcher referred back to interrelationships discovered during the Camdeboo visit.

FIRST TERM

.....continued

RESEARCHER'S AGENDA	PROGRAMME CONTENT	OCCASION OF INTERACTION	SYLLABUS RELATEDNESS	COMMENTS
• Gain insights into what children perceive as serious problems in Kroonvale	Children recorded their views on serious problems in Kroonvale	Afrikaans lesson	<u>Partial</u> : Clarity of expression using the written word.	An attempt to supplement "Community-relevance" approach and to ascertain whether children view these matters similarly or differently to adults. See Chapter 4.
• Consolidate concept of nutrient cycles • Develop food gardening skills	Discussion initiated by researcher : Preparation of trenches	Science lesson After school	<u>Non-related</u>	Referred back to Camdeboo visit, introducing food gardening techniques as a follow-up of what had been learnt from Nature. Chapter 5 refers.
• Working with nature - natural insect control	Planted first seed bed Discussion was initiated towards understanding the disadvantages of monocultures	History lesson and after school	<u>Non-related</u>	
• Introduce concept of recycling	Discussion initiated by researcher - clean earth wise use of resources, income generating potential. Group work to identify local possibilities, potential problems and problem-solving.	Double Science lesson	<u>Non-related</u>	
• Working with nature - Enviro-friendly alternatives for pest-control	- Planted 2nd seedbed - shared recipe for insect spray - workshopped problem of birds eating seedlings in 1st bed	English lesson and after school	<u>Non-related</u>	

RESEARCHER'S AGENDA	PROGRAMME CONTENT	OCCASION OF INTERACTION	SYLLABUS RELATEDNESS	COMMENTS
* Theme "We can make the difference" - Confidence building	Theory of formal letter writing taught by researcher Children wrote formal letters towards solving recycling programme problems	Afrikaans lesson Art lesson	<u>Full</u> : Formal Letter Writing <u>Non-related</u>	The phrase "If we're not part of the solution (or working towards one), then we're part of the problem" was coined in these in these two lessons.
* Theme "We can make the difference" - Becoming Innovative	Workshopped in groups the recreational ideals of the children and ways of realising (or attempting to realise) them	Afrikaans lesson History lesson	<u>Partial</u> : Vocabulary and oral <u>Non-related</u>	
* Food gardening skills	Planted 3rd seedbed	Afternoon		
* Appreciation of trees	Discussion initiated by researcher. Planted seeds - 2-litre bottle technique See Appendix 2	English lesson	<u>Non-related</u>	Made reference to water conservation through use of "dome" over seed.
* Discover recreational opportunities on Reserve	Visited game viewing area and picnicked. Visited Valley of Desolation and hiked.	2 day-trips to Karoo Nature Reserve (Weekends)	<u>Non-related</u>	
* Gain insight into children's environmental knowledge and main spheres of interest	Children completed questionnaire Appendix 3	Unspecified lesson after exams	<u>Non-related</u>	

two-week break between the introduction of the concept of recycling and the writing of formal letters requesting business assistance with such a project. See Sections 5.2 and 7.2.

3.2.4 The Collection and Recording of Data

The methods of collecting and recording data for the pre-study environmental opinion survey have been noted earlier in this chapter.

During her period of **teaching the children**, the researcher kept a file for each child in which she collected the products of their various Environmental Education activities (including class lessons), as well as her own observations on their responses to these activities. In her additional role as teacher, however, she found it very difficult to make detailed and thorough observations on each child. She is aware that those that showed great enthusiasm, total disinterest or made outstanding statements were noticed more than the others.

In an attempt to supplement what was considered to be incomplete observations, it was decided to formally interview the children before visiting their homes to

interview their 'parents'. In order to ensure that the interviews with the children were meaningful, the researcher, in consultation with her supervisor, decided to construct a questionnaire (post-Environmental Education programme) which would be used to inform the interview schedule. To avoid the 'test syndrome' and encourage explicit answers, the questionnaire was constructed as an imaginary conversation between the child and an imaginary friend. See *. See Appendix 3 for an example of the questionnaire, and Appendix 4 which summarises the motivations for the various questions included in the questionnaire.

Prior to administering the questionnaire, it was tested on five Std 4 children from other schools. Minor changes were made, although it needs to be stated that it was difficult to assess whether inappropriately answered questions were due to poor wording or simply because the concepts being tested were outside of the pupils' experience.

*When evaluating the responses of the children to the Environmental Education programme, the researcher discovered that the questionnaires had proved far more informative than the interview; a situation she had not anticipated. On reflection, she realised that the children had probably felt far less inhibited 'communicating' with an imaginary peer (Bennie), than with an adult of a different race, culture and, for that matter, language. Although the questionnaire as such had a number of problems, the researcher feels strongly that this approach should be further investigated for evaluative work with children.

It was decided at this point to introduce an element of quasi-experimentation - referred to in Section 3.1 - by incorporating into the questionnaire programme a 'control group' who had not participated in the project. This was done with a view to better assessing the influence that the environmental projects had had on the children.

The 'control group' consisted of twenty six pupils from the other Std 4 classes at the same school. The questionnaires were administered separately by the researcher to the two groups. The questions were read out individually and enough time allocated for the children to complete their responses. No strict time schedule was adhered to. The children were permitted to ask questions, but in order to prevent overflow of ideas to others, they were asked and answered in confidence. Question No.6, which pertained to the choice of gardening bed, was accompanied by pictures on the blackboard which clarified the researcher's meanings for "gemengde beddings" (mixed beds) and "aparte beddings" (separate beds).

When reading out the conversation between the child and his/her imaginary friend Bennie (who, it was explained by the researcher, could be either male or female), the researcher added relevant expression. This was aimed at both encouraging the children to respond to the conversational tone of the questionnaire, with the hope that

they would extend themselves in their answers, and to eradicate potentially restrictive perceptions that the questionnaire may be a test.

The interviews between the researcher and the children comprising the sample were semi-structured and undertaken on an individual basis. Certain of the questions were repeated for all the children, and the remainder were designed to clarify specific concepts that had been inadequately explained in their individual questionnaire responses. In this way the researcher hoped to create a more accurate picture of each child's environmental knowledge, specific environmental interests, environmental actions and motivations. An example of an interview schedule used is included as Appendix 5. These interviews were tape recorded and then transcribed.

Subsequent to the Environmental Education programme and the post-programme questionnaires, the researcher paid visits to the homes of her now twenty class subjects and conducted a semi-structured interview with each child's 'parent'.

Although a schedule of largely open-ended questions was drawn up (see Appendix 6), conversations were allowed to flow their natural course. Some 'parents' needed however more coaxing than others. It must also be remembered that each child's response to the Environmental Education programme was used to inform these interviews and that where

a child showed a particular interest, the 'parental' interview was given a corresponding emphasis by the researcher. This is in accordance with the views of Bengtson and Troll (1978) who stress that individual 'parent'-child dyads are the important focus when measuring intergenerational influence, rather than the aggregated results of groups of adults and their children. Fifteen of the twenty interviews were tape-recorded and then transcribed. Of the remaining five, four were not recorded due to extremely high winds that rattled roofs to the extent that recording was made impossible. One parent was noticeably uncomfortable with the recorder and it was accordingly switched off. In all five cases key notes were made by the researcher during the course of the conversation and elaborated upon immediately after the interview.

On arrival at each home, the researcher introduced herself and spent some time in casual conversation with the 'parent' in order to establish some rapport. During this time she briefly explained her connection with Rhodes University and described her research as an attempt to find out whether children share with their 'parents' some of the things that they learn at school. Once the conversation began to flow, she requested permission to switch on the tape-recorder, explaining that she was not able to record the conversation accurately by hand. Her opening question usually pertained

to whether the children had said anything about what they were busy with at school.

As has been mentioned earlier, the researcher was aware that her different race, class, culture and language contributed, albeit in subtle ways, to the interaction - and consequently the results - between herself and the study subjects. This was most noticeable when visiting the 'parents' as expressed in the following examples: The researcher was aware of commotions in the house on her arrival and statements like "daar kom die wit vrou". Furthermore, she was often addressed as "Madam" and certain responses by the subjects were accompanied by apologies such as "jy weet mos hoe is ons bruin mense". Also, despite her ability to communicate in Afrikaans, the fact that it is not her home language coupled with her unfamiliarity with Kroonvale dialect, led the researcher to suspect that she may well have 'missed' some of the more subtle nuances and inferences. Such experiences are of course not unique and are to be found in the literature. Henderson (1981), for example, makes reference to the constraints placed on family-studies by the researcher's own background.

3.2.5 Analysis of Data

As noted with reasons in Section 3.1, data was analysed qualitatively. In the correlation and analysis of data gathered, use was made of tables in order to facilitate comparisons and the identification of trends. Where appropriate, quotations were used to supplement descriptions of findings.

The very nature of action research results in the generation of vast amounts of data. The researcher has extracted and categorised, for the purpose of this thesis, only those data that she considered related closely to the assessment of the children's influence on their 'parents'. The results are reported in Chapters 4, 5 and 6.

CHAPTER 4

RESULTS OF THE ENVIRONMENTAL OPINION SURVEYS

The purpose of this chapter is to briefly examine the results of both the 'community' and Std 4B environmental opinion surveys. Where appropriate the problems perceived by the adults have been compared with those perceived by the children. This chapter will reveal that the surveying of perceived problems of Kroonvale residents was a useful exercise towards 'conscientising' the researcher about life in Kroonvale, and that it did inform her further work, albeit not strictly in the way she originally intended - Section 3.2.1 refers.

Thirty adults and twenty eight children (at this stage the researcher was still working with the whole class) partook in the surveys. No limits were placed on the number of items listed by each subject, some expressing as many as six 'main problems', while others gave only one. A summary of the results is displayed as Table 4.1, which shows some interesting correlations as well as differences. The researcher has categorised the results, but appreciates that both the items listed and the categories are not necessarily mutually exclusive.

Before commenting on the outcome of the surveys, it should be noted that in interpreting the results, the researcher

TABLE 4.1: A SUMMARY OF THE RESULTS OF THE ENVIRONMENTAL OPINION SURVEYS ON THE MOST SERIOUS PROBLEMS IN KROONVALE (The bold numbers indicate the number of individuals that made reference to a particular problem)

ADULTS	CATEGORY	CHILDREN
ALCOHOL - 6	SOCIAL	TOO MUCH FIGHTING ON WEEKENDS - 6
LACK OF RECREATIONAL FACILITIES - 5		THEFT - 5
DAGGA - 1		LACK OF CHURCH ATTENDANCE - 3
MORAL DEGENERATION - 1		ALCOHOL - 2
HOOLIGANISM - 1		INSUFFICIENT FOOD - 2
AGED NEGLECTED - 1		
SHORTAGE - 6	HOUSING	SHORTAGE - 2
INADEQUATE - 5		NO ELECTRIC LIGHTING - 2
EXPENSIVE - 5		EXPENSIVE - 1
OVERCROWDING - 2		NO TAPS IN HOUSES - 1
UNEMPLOYMENT - 9	ECONOMIC	UNEMPLOYMENT - 9
LOW SALARIES - 8		LOW SALARIES - 2
INADEQUATE FINANCIAL MANAGEMENT - 1		SHOPS EXPENSIVE - 1
		NO POCKET MONEY - 1
WATER FOUL - 10	INFRASTRUCTURE	WATER FOUL - 10
ROADS UNTARRED - 8		ROADS UNTARRED - 5
SERVICES UNRELIABLE - 2		WATER SHORTAGE - 3
INSUFFICIENT STORM-WATER DRAINAGE - 1		BROKEN STREET TAPS - 2
BUCKET SYSTEM UNHYGIENIC - 1		LACK OF RECREATIONAL FACILITIES - 2
FEW TREES - 1		FEW TREES - 1
NO STREET LIGHTS - 1		NO STREET LIGHTS - 1
LACK OF SINGLE MUNICIPALITY - 2	OTHER	LITTER - 4
LACK OF SINGLE EDUCATION SYSTEM - 1		
APARTHEID - 1		

**'Lack of recreational activities' has been placed in different categories for adults and children as they were expressed in different contexts. The children expressed this lack purely from a recreational point of view, whereas the adult focus attributed socially irresponsible behaviour by the youth to their lack in recreational opportunities, and consequent boredom.*

found it far easier to establish the context of the adults' statements due to the interview milieu. The children's responses were written only and, in many cases, their brevity failed to elucidate the context in which they were intended. On such occasions the researcher took the liberty of inducing their contexts, basing her decisions on perceptions she had acquired during the period of working with the class (which at that point amounted to 4 lessons and a two-day visit to the Camdeboo Centre).

Furthermore, given the limited sample and the haphazard sampling technique, the researcher did not consider it appropriate to place any emphasis on the overall rank order of responses. The category items are nevertheless listed in a descending order of mention; the reader will note that there is an interestingly high degree of congruence in the order of the most common responses, possibly suggesting that, above common experience, some communication does occur between adults and children in the Kroonvale community. It is from a category perspective, using what the researcher considers the most salient items or items that suited her Environmental Education programme-agenda, that Table 4.1 is discussed.

In the *SOCIAL* category, the researcher suspects that the children's reference to 'too much fighting on weekends' is closely related to the misuse of alcohol. It is interesting

that the adults highlighted the *cause*, whereas, except in two cases, the children highlighted the *results* of drunkenness. The researcher also noted that two of the children made reference to lack of food. Although not a common complaint, she felt that this issue could begin to be addressed in the short Environmental Education programme by incorporating a project on food gardening skills. She further justified her decision by visiting the Midland Day Hospital where it was confirmed that malnutrition is a serious problem in Kroonvale (Sister M. Williams 1991, pers.comm.).

The adults' responses in the *HOUSING* category reveal four avenues of emphasis. These include the severe shortage of houses in Kroonvale, over-crowding, dissatisfaction with the 'high' rentals and incomplete building structures eg. no ceilings. The researcher found it interesting that some children, but no adults, made reference to the absence of taps in houses and the lack of electric lighting. There could be a number of reasons for this, including the idea that the adults are perhaps more accepting of their present lifestyle due to years of living under such conditions. The researcher, however, suspects that the children dislike what is usually their chore to fetch and carry water from the street taps. Note too that in the category *INFRASTRUCTURE*, the children are the ones who notice that the street taps are broken, a point not mentioned by the adults.

When reviewing the *ECONOMIC* category the researcher considered that Environmental Education endeavours that could perhaps supplement low salaries and the children's pocket money would be appropriate. Using this and the 'litter' mentioned by the children in the category *OTHER*, she justified her decision to incorporate recycling as a component in the Environmental Education programme with the children. If pursued on a larger scale, the food garden project also had the potential to generate additional income for residents and reduce present expenditure.

Foul water - category *INFRASTRUCTURE* - was undoubtedly the most prevalent issue arising from the survey, with residents complaining that it smelt sulphurous and was causing stomach problems. The Graaff-Reinet Municipality had recently acquired a farm near to the town and was pumping borehole water to supplement the town's water supply. This borehole water was piped to Kroonvale. The researcher decided not to pursue the matter as she was aware that the Municipality were investigating the issue at the time (Mrs J. Thornton 1991, pers. comm., Graaff-Reinet Town Councillor). At the time of writing up the thesis, the researcher again approached Mrs Thornton for an update on the matter and was informed that water tests had revealed that Kroonvale water was actually of a higher quality than Graaff-Reinet water. The councillor's response to the apparent decline in complaints regarding sickness from the

water was to state that the residents simply needed time to grow accustomed to the "unusual, initially somewhat unpleasant smell" of the water, which they had conveniently blamed for stomach ailments common in the community.

Remaining with *INFRASTRUCTURE*, the researcher found it interesting that both the adults and the children were dissatisfied with the untarred roads. Although drivers do not enjoy dust roads, the researcher suspects that it is more the unpleasantness of being a pedestrian on those roads that troubled residents, accounting for the children's responses in this case. Furthermore, dust roads aggravate housecleaning, adding to the frustrations of not only the adults, but also the children who tend to have a variety of household responsibilities.

In her search for additional activity-based components for the environmental education programme, the researcher noticed that the lack of trees in Kroonvale had been mentioned - albeit it by only two individuals - in both the children and adults' responses reported under the category *INFRASTRUCTURE*. This stimulated the researcher to incorporate into the programme the growing of trees from seed in 2-litre plastic cooldrink bottles.

Finally, motivated by her workplace and using the lack in recreational facilities as justification (see categories

INFRASTRUCTURE and *SOCIAL*), the researcher felt it necessary to introduce to residents the opportunities offered at the Karoo Nature Reserve to which there is, at present, no charge for access. As has been mentioned in Chapter 1, the researcher simultaneously hoped to convey to the children the notion that the Nature Reserve exists for the benefit of all residents of Graaff-Reinet, for recreation and needs-related purposes, but that its sustainability depends largely on users' decisions and actions.

This chapter has shown that, although not strictly used as a means for identifying potential projects for the Environmental Education programme, the environmental opinion surveys provided useful information for justifying the researcher's choice of projects throughout the study period viz. food gardening; recycling; growing trees from seed and recreational opportunities in the Karoo Nature Reserve. A comparison of Table 4.1 and Table 3.1 will reveal that the researcher altered her intentions to incorporate into the Environmental Education programme the most salient issues identified by Kroonvale residents, in favour of implementing projects which she perceived as more easily practicable. The reasons for, and evaluation of, this decision have been detailed in Sections 3.2.1 to 3.2.3 and Sections 6.3 and 7.2. The environmental opinion surveys also contributed significantly to the researcher's sphere of employment as

she now has better insight into life in Kroonvale, useful information for future community projects.

*CHAPTER 5**THE CHILDREN'S RESPONSES TO THE EE PROGRAMME*

Having completed the Environmental Education programme with the children, the researcher was able to identify four main 'themes' which had emerged.

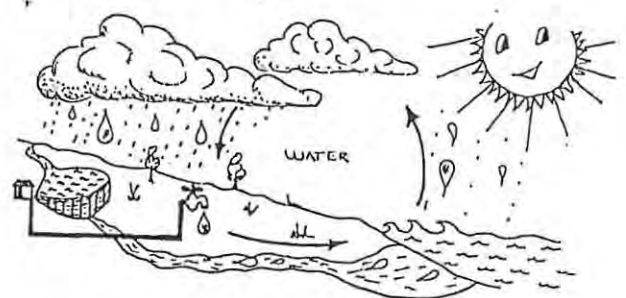
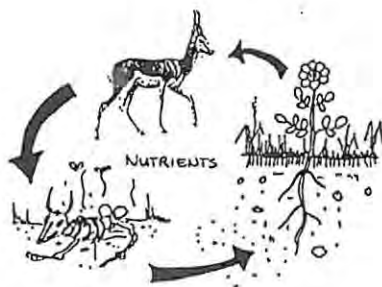
- *Food gardening
- *Recycling
- *The value of trees
- *Recreational opportunities at the Karoo Nature Reserve.

The children's responses to a programme encompassing these themes are reported in this chapter, in order to provide both background and understanding to the criteria employed for the assessment of the children's influence on their 'parents' (discussed in Chapter Six). The main focus is to identify those issues that had strongly captured the children's imagination, attention and enthusiasm.

Each of the four themes is discussed in a descriptive manner; information, inferences and nuances being drawn from the post-programme questionnaires, the researcher's observational notes, interview transcriptions and the children's products from lessons. Although formal evaluation of the programme and instruments of data collection is not the purpose of this chapter, elements of evaluation are included where relevant - particularly where they may help the reader to better understand the context of

a particular response. Each theme is introduced by an overview of how the researcher addressed the relevant issues in order to further contextualise the results for the reader. Although strictly methodology, these details are considered more appropriate in this chapter.

Except for recreational opportunities, the notion of 'cycles' - water and nutrient - was incorporated into the other themes, providing either the base framework, or a supplementary component. During the course of a hike at the Camdeboo Environmental Education Centre, a *very basic* nutrient cycle was developed by the class through a discussion on why the public is not permitted to remove dead wood from a nature reserve. Similarly, during a geography lesson on 'Rivers in Africa', the researcher explored with the children the route that water follows once it flows out of a tap. Table 3.1 refers. The following diagrams explain the levels at which these concepts were explored:



FIGURES 5.1a and 5.1b: BASIC NUTRIENT AND WATER CYCLES USED IN THE ENVIRONMENTAL PROJECTS.

5.1 THE CHILDREN'S RESPONSES TO FOOD GARDENING

Food gardening was the component of the study which comprised the greatest period of interaction between the researcher and the children. It included three school lessons and five and a half hours of afterschool time and contained both practical and theoretical elements.

The concept of food gardening was introduced to the class by way of a discussion based on the recollection of a nutrient cycle 'discovered' by the children during their visit to Camdeboo which, it is noted from Table 3.1, took place near the beginning of the Environmental Education programme. A model was developed on the chalkboard depicting the cyclical nature of life's basic 'building blocks' - ie. that nutrients are used over and again. The researcher suggested that they might begin to look to nature for good ideas and introduced the concept of trench gardening. The *Food Gardens Foundation* method of trench gardening is outlined in Appendix 7.

Having been briefed by the researcher on the techniques to be followed, the children then had the difficult task of digging four trench gardens in the schoolyard's hard and rocky ground - not an easy job for children with an average weight and height of 36kg and 131cm respectively. Wielding picks, digging with spades and shovelling rocks onto



FIGURE 5.2: PREPARING THE TRENCH GARDEN



FIGURE 5.3: DEPOSITING COMPOST INTO THE TRENCH GARDEN

wheelbarrows, the children worked tirelessly for three hours one *Friday* afternoon! The enthusiasm and energy displayed by the children was quite exceptional, indicating to the researcher that they were thrilled to participate in this project. This view was endorsed by my supervisor who viewed the activity. See Figure 5.2. The researcher was unable to ascertain whether this response was motivated by the idea of producing vegetables or by the excitement and enthusiasm of working on a collaborative project. It is also interesting that whilst working, the children sang the Xhosa songs learned during their visit to the Camdeboo Environmental Education Centre .

In order to speed up the project and to protect the garden, the researcher hired two labourers to complete the remaining two trenches and to fence off the area. The latter action was implemented in order to prevent the beds from being trampled by other children playing during school breaks, and to deter potential vegetable thieves. Secondhand fencing material was provided by the researcher.

The children again displayed tremendous commitment to the project by collecting, after only a single request by the researcher, more than an overabundance of organic waste and old paper for the trenches. See Figure 5.3. Once the topsoil had been replaced and neatened off, the first bed was ready for planting. The excitement amongst the children



FIGURE 5.4: CAREFUL PLANTING OF THE SEEDS

was almost tangible! After having workshopped the advantages of the planting strategy - paying particular attention to the need for mixed beds and not monocultures - planting began. The researcher found herself somewhat overawed by the amount of jostling between the children for a chance to plant some seeds, and by the volume of running commentary and advice coming from those waiting their turn to participate. The care displayed by the planters indicated to the researcher that the children were very serious about and proud of their endeavour. See Figure 5.4. Two children volunteered to take responsibility for watering the garden, and the remainder agreed to be of assistance whenever necessary. A similar situation applied to the planting of the other three beds, separated by approximately one-month intervals. A core group of five boys, however, took increasing responsibility for the preparation of the beds. Interestingly, these same five boys were amongst those children who attempted vegetable gardens at home subsequent to the start of the project (Table 6.1 refers).

In an attempt to assess whether the children had comprehended the reason for the mixed bed planting strategy employed in the food gardening project, the researcher included a related question (No.6) into the questionnaire given to the group at the end of the programme. Table 5.1 refers.

TABLE 5.1. SUMMARY OF RESPONSES TO QUESTION 6, IN WHICH EACH CHILD WAS REQUIRED TO ADVISE BENNIE ON THE BEST CHOICE OF VEGETABLE BED IE. MIXED OR SEPARATE.

	RESPONSE CLASS	NONSENSICAL	SEPARATE BEDS	MIXED BEDS		
				NO REASON	INVALID REASON	VALID REASON
EXP. GROUP	STD 4B n=20	0	3	4	2	11
CONTROL GROUP	STD 4A/C n=26	1	23	0	2	0

Seventeen of the 'experimental class' elected mixed beds as the best option, but two of the children provided invalid reasons based on space availability and decoration respectively. The majority of the class had grasped the concept of pest control as indicated by the following quotes:

Child 11: "Dit moet gemeng wees. Want daar is 'n mot as daar een soort bedding gesaai word sal hy alles opeet. Maar as daar gemengde beddens is sal hy deurmekaar word."

Child 14: "Al die groente het verskillende reuke wat die goggas deurmekaar maak."

Child 8: "Dit moet gemeng word. Daar is insekte wat net wortels eet dan word hulle deurmekaar raak dan gan hy als net so los."



FIGURE 5.5: NETTING WAS PLACED OVER THE SEEDBEDS TO KEEP THE BIRDS AWAY.

(Amongst the class, the generic term "goggas" was used to describe garden pests such as insects and snails.)

The 'control class' had, by contrast, almost in its entirety opted for separate beds, most of them pointing out that mixed beds would be untidy to view and maintain.

The development of a food garden using the trench-gardening technique was really an exploratory venture by both the researcher and the class. At the commencement of the planting of the second bed, the researcher initiated an informal workshop on the state of the first bed - distinctly 'empty' in appearance. The children concluded that the birds and "goggas" had eaten the plants and suggested that netting be placed over the beds to keep away the birds. Two boys volunteered to request vegetable/orange pockets from a local vegetable store, and two girls agreed to sew the bags together. See Figure 5.5.

The children did not, however, propose a suitable means for curbing the pest attacks. Again stressing that people get their best ideas from nature, the researcher initiated a discussion that reminded pupils that it was the 'confused' smell of the mixed beds that keeps some of the pests at bay. Continuing with smell as the central issue, the researcher suggested that a smell that is repulsive for pests, but acceptable to humans, be applied to the plants. As the

children volunteered no suggestions other than poison, which the researcher explained was problematic, the latter provided details for a garlic spray recipe - see Appendix 8. This was recorded by one of the girls in the class, Linda (not one of the final sample), who volunteered to prepare the concoction at home. Thereafter the mixture became known amongst the class as "Linda se resep".

The questionnaire completed by the children at the end of the programme also made reference to pest problems. Table 5.2 refers.

TABLE 5.2 SUMMARY OF RESPONSES TO QUESTION 15, IN WHICH EACH CHILD WAS REQUIRED TO ADVISE BENNIE ON MORE SUITABLE METHODS OF PEST CONTROL

CLASS	RESPONSE	NONSENSICAL	HELPS BENNIE	ENVIRON. UNACCEPTABLE	ENVIRO-FRIENDLY BUT INEFFECTIVE	VALID RESPONSE		
						MIXED BEDS	GARLIC SPRAY	ASH
EXP. GROUP	STD 4B n=20	0	0	1	10	1	7	1
CONTROL GROUP	STD 4A/C n=26	2	4	15	5	0	0	0

Although all but one of the 'experimental group' provided enviro-friendly alternatives to Bennie's "gogga" problem, half (n=10) suggested the use of netting, an ineffective method for pest control. During the subsequent interviews, five of these children recognised the inappropriate methods they had suggested and the value of the garlic spray.

Interestingly, when asked about "Linda se reseps", all but one child could recall that garlic was the active ingredient. The enviro-friendly advice for pest attacks is reflected in the following quotes:

Child 9: "Moet nie die goggas doodtrap nie. Jy kan 'n spuitbottel vat en knoffel met sunlight seep meng en al die plante spuit."

Child 12: "Moet nie die goggas doodmaak nie. Jy kan knoffel en parafien en seepwater vat maar nie Omo nie. Ek het nou vir jou 'n beter plan gegee om hulle te verwyder."

Reflecting on the above results, the researcher suggests that the children's apparent confusion with Question 15 of the questionnaire may be attributable to the fact that the bird and pest problems were workshopped simultaneously and that the 'solutions' were not immediately evident, hampering the consolidation of ideas in the minds of the children. The emphasis on netting was possibly due to the fact that a number of children had been involved with the preparation and setting up of the nets, while only Linda had prepared and administered the garlic spray. Furthermore, by the end of the project, all the children had seen the nets in use, whereas the garlic spray was not visible. This same reason may account for the fact that five 'control group' children proposed netting for "gogga" control.

After planting the second seed bed, the researcher's suspicion that the food gardening project had captured the

interest of the children was confirmed when a number of class members requested the leftover seed for planting at home. This was in no way initiated by the researcher. The seed was divided amongst the children - unfortunately no record was kept of the numbers or names of takers. During the interviews with the children at the end of the programme however, the researcher established that ten of the children had attempted vegetable gardens at home, and that two more had been denied permission to prepare beds by their 'parents'. The fact that so many children had been motivated to attempt gardens indicated to the researcher that food gardening could well have provided a possible occasion for the children to influence their 'parents'.

When reflecting on this project, the researcher is acutely aware of the fact that the children pursued this project with more diligence than she had ever anticipated. With no teacher supervising them and irregular visits by the researcher (due to employment commitments), the children were entirely responsible for preparing and watering the beds. These gardens, admittedly not tended to professional standards, were very adequately maintained by the pupils, impressing the researcher notably. She and the Std 4B class enjoyed an end-of-year picnic at the Karoo Nature Reserve where some of the products from the food garden were included into the menu!

5.2 THE CHILDREN'S RESPONSES TO RECYCLING

As with the food gardening, a discussion on natural cycles was used to initiate the recycling theme. Once it had been established that in nature nothing is wasted, the researcher drew the children's attention to the human world and pursued a discussion on rubbish dumps, particularly on what is found on them. Once it was established that many of these items do not decay, the idea was introduced that humankind can learn from nature about preventing wastage, and that instead of discarding items like paper, glass and cans, they can be recycled. As an additional incentive, the researcher mentioned that some factories will even pay one for the used materials, but pointed out that one may have to put in a large amount of effort before earning a small amount of money.

A discussion then followed on how recycling action by people benefits the natural environment in terms of resource conservation. At this point, the discussion from the children was noticeably less and more reserved than earlier, suggesting to the researcher that unfamiliar concepts were being unveiled.

In small groups, the class was then required to identify local recycling potentials, problems and possible solutions. The children identified a host of avenues to exploit, including the larger food stores, hotels and bottlestores,

and suggested requesting local businesses to support the endeavour by transporting the recyclable material to the factories in Port Elizabeth.

During a subsequent Afrikaans lesson, the children were required to write formal letters as an exercise in problem-solving using a recycling theme. The task was to write to a local businessman, requesting him to provide free transport of the recyclable material to Port Elizabeth whenever travelling that direction with an empty vehicle to purchase merchandise. Review of these letters provided insight into the children's perceptions and understandings of recycling, clearly revealing that it was the idea of generating income that had captured every child's attention. The following quotes are typical of their letters:

Child 20: "Al die papier bottels en plastiese sakke gaan by die fabriek verkoop word."

Child 4: "Ons is besig met 'n herwinningsprogram om fondse in te samel."

Child 9: "Die rede waarom ek hierdie plastiese-bottels ens. by die fabriek kry is omdat ons die skool wil help met fondsinsameling."

Despite the fact that the class had been primed by the researcher to fully explain the advantages of recycling to the businessman, only one child made reference to an environmental advantage other than fundraising, but even she did not proceed beyond litter:

Child 15: "Ons is besig met 'n fondsinsameling. Ons wil graag die natuur beskerm teen papiere, bottels en dose."

The questionnaire given to the class at the end of the programme revealed that almost half of the 'experimental class' had identified the recycling potential of the Coke can that had been discarded into the veld. This degree of response to what the researcher considers a relatively 'non-leading' question suggested that the concept of recycling had made a fair impression on the class members despite the fact that it had been dealt with at an abstract level only. Table 5.3 refers.

TABLE 5.3 SUMMARY OF RESPONSES TO QUESTION 2, IN WHICH EACH CHILD WAS REQUIRED TO RESPOND TO BENNIE'S DISCARDING OF A COOLDRINK CAN INTO THE VELD.

	RESPONSE CLASS	NONSENSICAL	IN SUPPORT OF BENNIE	AGAINST BENNIE		AGAINST BENNIE LITTERING & RECYCLE
				LITTERING ONLY	RECYCLE ONLY	
EXP. GROUP	STD 4B n=20	0	0	11	5	4
CONTROL GROUP	STD 4A/C n=26	2	2	22	0	0

Further to the above table, and corresponding to examples given in the formal letters, reference was again made to the income generating potential of recycling by five of the nine Std 4B children, for example:

Child 8: "Bennie, moet dit nie neergooi nie want dit maak geld."

Examination of the 'control group's' responses shows that not a single child identified the recycling potential of the Coke can, suggesting to the researcher that the concept of recycling had been introduced to the Std 4B class through the Environmental Education programme that she had undertaken with the children and not through the media or the teachers.

The post-programme questionnaire further revealed that the children had limited or no understanding of the broad environmental advantages of recycling. Ten Std 4B pupils made reference to the litter aspect only and as many as seven stated that they did not understand the question, had no idea of an answer, or that the earth does not benefit at all. Table 5.4 refers.

TABLE 5.4 SUMMARY OF RESPONSES TO QUESTION 14, WHERE EACH CHILD WAS REQUIRED TO EXPLAIN HOW THE EARTH BENEFITS FROM RECYCLING.

	RESPONSE CLASS	NONSENSICAL	NO IDEA/DO NOT UNDERSTAND	EARTH DOES NOT BENEFIT	RELIEVES LITTER
EXP. GROUP	STD 4B n=20	3	2	5	10
CONTROL GROUP	STD 4A/C n=26	5	0	6	15

Examples of 'experimental group' responses include the following:

Child 12: "Dit help nie die aarde nie want dit kan nie verrot nie."

Child 17: "Dit help om die aarde skoon te hou."

The interviews with the Std 4B children further revealed that an additional seven identified the recycling potential of the Coke can when asked the more leading question (translated) "Is there something more useful Bennie can do with his can other than throw it away?". The children's responses, however, further clarified for the researcher their limited understanding of the environmental advantages of recycling with not a single child expressing anything more than the idea of a 'cleaner earth'. Interestingly, however, three of the children were able to answer that glass was made from 'special' sand and five children stated that paper comes from trees. The researcher found it odd that some of the children knew this much but could not express a single example of resource conservation through recycling. She attributed their response to three possible reasons:

- (i.) The children's experience, and hence their conceptualisation of mining and paper production is very vague.

(ii.) The children's excitement about the income generating potential of recycling may have occupied their thoughts to the extent that this eclipsed the remainder of the recycling lesson.

(iii.) There was the possibility that the researcher did not teach this aspect of recycling in a way fully comprehensible to the children; it was, after all, dealt with only on an abstract level. This may have been exacerbated by interruptions in the flow of teaching of recycling principles due to the researcher's employment commitments, which possibly led to the poor consolidation of ideas on the part of the children as reported in Section 3.2.3.

Interestingly, there is a fair amount of congruence between Std 4B and the 'control group's' responses to the environmental advantages of recycling, despite the latter's lack in recycling education. Realising that the similarities revolve mainly around littering, it was suspected that there must have been an anti-littering campaign at school. This was confirmed by the Headmaster. There was also possibly an element of common sense in the answer, given the nature of the question.



FIGURE 5.6: COLLECTING GLASS BOTTLES FOR THE RECYCLING PROJECT.

Despite their limited understanding of the need to recycle, the researcher sensed a substantial interest on the part of the children to pursue such a project. In fact, two girls proudly informed her that they had begun to collect glass bottles and coldrink cans respectively. See Figure 5.6. As noted earlier, the class' interest in recycling appeared to be fuelled predominantly by the prospect of generating money. The researcher attributes this to the following possibilities :

(i.) The children live in a financially deprived environment. In addition to the researcher's observations, the environmental opinion survey results summarised as Table 4.1 show that the children had made specific reference to economic problems such as low salaries, expensive shops and no pocket money. With these issues foremost in their minds, it is quite feasible to suggest that the children would fully entertain any opportunity to supplement their income.

(ii.) When explaining the income generating potential of recycling, the researcher made brief mention that the class could work towards saving for another visit to the Camdeboo Environmental Education Centre, or, alternately, even a trip to Port Elizabeth. In retrospect, the idea of going

on an excursion may have made a marked impression on the pupils, accounting for their excitement and sustained concern with fund-raising as depicted in their formal letters. This view is supported by the pre-study environmental opinion survey in so far as the children make reference to the lack of recreational opportunities for Kroonvale residents, as well as by the visits to the 'parents' where references were made to another "holiday" at Camdeboo - see Section 6.1.1.

Whatever the real motivation and despite the abstract nature of the lesson on recycling, this component of the Environmental Education programme made, in the researcher's opinion, a notable impression on the children. Their enthusiasm, coupled to the fact that a number of adults in the pre-study environmental opinion survey had also identified unemployment and low salaries as serious problems in the community, led the researcher to speculate that the issue of recycling may have provided an opportunity for children to influence their 'parents'.

The researcher's own employment programme prevented her from pursuing both a recycling and food gardening project within the school. Captured by the children's enthusiasm, she introduced the concept of recycling to the Headmaster and class teacher, hoping that they would take the initiative to

support the children. Unfortunately, nothing materialised. During a subsequent visit to the school, the researcher urged the children to continue with their enthusiasm and collection of recyclable material, and committed herself to helping them start a project early in 1992.

5.3 THE CHILDREN'S RESPONSES TO THE VALUE OF TREES

During a single English lesson, the class was divided into smaller groups and given the task of workshopping the value of trees. The children came up with the following ideas:

- Trees provide shade
- Trees provide furniture and pencils
- Trees produce oxygen
- Trees provide paper
- Trees provide shelter for birds and animals
- Trees provide food for birds and animals
- Trees provide firewood

The researcher then initiated a discussion with the class on the role that trees play in water purification, erosion control and the 'attraction' of rain (Nokuphila's Letter No. 26 - Appendix 9). The children participated well but were not noticeably excited about this endeavour to establish the value of trees.

When, however the researcher moved away from the abstract by introducing the idea of growing trees from seed using 2-

litre plastic cooldrink bottles - Appendix 2 refers - the mood in the classroom immediately became more excitable. This confirmed the researcher's growing realisation that the children appeared to enjoy any form of active, rather than passive, involvement in a project. After having demonstrated the preparation of the bottle and the planting of the seeds, the researcher, using discussion, briefly recapped the water cycle which the class had developed in an earlier geography lesson. The children were asked to compare that cycle with the one operating when the plastic 'dome' was placed over the tree seeds. Once it had been established that water is 'trapped' inside the dome and forms droplets that fall back onto the soil, it was explained to the children that the seeds would not require watering as frequently as 'exposed' plants. The children explained this concept by saying "die bottel sweet". Nineteen of the twenty children in the sample then eagerly prepared their seed bottles and planted their seeds.

An attempt was made to ascertain just how important trees were considered to be by including a relevant question in the post-programme questionnaire given to the children. The results were, in the researcher's opinion, disappointing with respect to Std 4B. In fact, the 'experimental' and 'control' groups showed not too dissimilar patterns. Table 5.5 refers.

TABLE 5.5 SUMMARY OF RESPONSES TO QUESTION 8, WHERE EACH CHILD WAS REQUIRED TO EXPLAIN THE IMPORTANCE OF TREES.

		RESPONSE	1 - 2 IDEAS (Shade & O2)	3 - 4 IDEAS	5 - 6 IDEAS
		CLASS			
EXP. GROUP	STD 4B n=20		14	5	1
CONTROL GROUP	STD 4A/C n=26		24	2	0

Out of the ten uses of trees identified during a lesson with Std 4B, only one or two were repeated by the majority of children in the 'experimental group'. As with the 'control group', these uses comprised, in almost every case, oxygen production and shade. Interestingly, not a single Std 4B child and only one Std 4A/C child made reference to firewood, even though Kroonvale residents make regular use of wood for warmth and cooking, a personal observation by the researcher. She often saw people chopping wood in their yards and residents are known to collect firewood illegally from the Karoo Nature Reserve.

Speculating on what she considered the disappointing results on the importance of trees, the researcher arrived at three possible reasons:

(i.) The lesson on trees took place during a single lesson and was consequently particularly rushed; a situation not conducive to the consolidation of new ideas.

(ii.) Quite by chance and subsequent to the post-programme questionnaire, the researcher discovered that the Std 4 Science teacher had recently been exposed to the trees-from-seed project during a Science Education Project Workshop. Noticing a single bottle placed outside the science classroom, the researcher initiated a discussion with the teacher on the value of trees. It soon became evident that he considered oxygen production and shade to be the most important reasons for planting trees, suggesting to the researcher that these points had been explained to the children to be the most important reasons for valuing trees.

(iii.) Except in designated places, the collection of firewood in the Karoo Nature Reserve is illegal. All the children were aware of the fact that the researcher works in the field of nature conservation as she regularly visited the school in her official uniform. Perhaps the children considered that any mention of firewood

may have led the researcher to suspect them for the poaching of wood from the Reserve.

Point (iii.) is supported by some of the responses to Question 9 of the post-programme questionnaire:

"Bennie en ek stap lekker in die Natuurresewaat tussen Spandauskop en die Vallei. Oppad huistoe tel Bennie stukke dooie hout op vir vuurmaak by die huis. Ek sê vir Bennie:".

Although intended as an assessment of the children's understanding of nutrient cycling, the responses indicated that the question allowed for a much broader interpretation. In fact, four of the children (both the 'control' and 'experimental' group) made reference to the illegal aspect of collecting wood, some expressing the fear of being caught and/or charged. For example:

"Jy kan aangeklag word. Dit is die natuur-bewaarders se plek jy mag nie hout vat nie."

"Jy mag dit miskien optel maar ek gaan jou nie help nie want as hulle vra waarvan kom dit ek weet nie."

With respect to the subsequent interviews with the Std 4B children, only two reported that their 2-litre bottle seeds were growing. The visits to the 'parents' revealed that not one child had succeeded in growing a tree from seed - an issue pursued in Section 6.1. Most of the children who had reported no success in the interviews explained that their bottles had either been stolen at school or destroyed by

siblings at home. A couple of children simply stated that the seeds had failed to germinate; this, too, had been the researcher's own experience. When questioned as to why children had stolen their bottles at school, most of the children could offer no reason. The researcher, however, suspects an element of jealousy as a number of pupils, and even two teachers, had approached her to ask why one class was receiving all the attention.

The second part of Question 8 of the post-programme questionnaire asked whether the children had participated in the planting of a tree at home. Although some children had done so, the subsequent interviews confirmed that planting had taken place prior to the programme and therefore reduced the impact of the lesson further.

5.4 THE CHILDREN'S RESPONSES TO RECREATIONAL OPPORTUNITIES OFFERED AT THE KAROO NATURE RESERVE

One two-day camp and two day-trips were undertaken with the Std 4B class to the Karoo Nature Reserve. The camp was held at the Camdeboo Environmental Education Centre, and, although 'fun' activities were incorporated into the programme, it was essentially syllabus-related. Table 3.1 refers.

The children were visibly excited about the excursion and appeared to relish the opportunity of staying over at the Centre. Interestingly, despite numerous field activities on the first day of the visit, a group of children approached the researcher on the second day and requested that the class go on a hike specifically to view the animals. Again the researcher learnt a valuable lesson about programme content when visiting a nature reserve with a group. Until the children's main area of interest is satisfied, a teacher is not likely to get the class to concentrate fully on other concepts or skills!

Amongst the variety of activities undertaken during the Camdeboo visit, the children were introduced to the Eerstefontein Day Walk. As an attempt to begin to alleviate the lack of recreational opportunities for Kroonvale residents, the researcher invited the children to make use of this self-guided trail, which starts from the town of Graaff-Reinet. She explained to them the self-help permit system at the gate, and encouraged them to involve friends and family in such an outing. In order to build confidence in the children, the group walked a section of the Eerstefontein Trail, taking note of the route markers and two possible picnic spots at watering points. Prior to this activity, none of the children were aware of the Trail.



FIGURE 5.7: ENJOYING A VISIT TO THE VALLEY OF DESOLATION
AT THE KAROO NATURE RESERVE.

The day-visits to the Karoo Nature Reserve included a game drive, scenic stops and walks at the Valley of Desolation and 'Toposcope Hill', and a picnic at the Van Ryneveldspas Dam. Despite very cold weather, the children were noticeably thrilled at these opportunities. The researcher made a point of explaining that these places were open for the public to enjoy. See Figure 5.7.

Question No.7 of the post-programme questionnaire proved to be a problem question with all the children expressing an interest to visit the Reserve again, but very few indicating what activities had specifically captured their attention. The second part of Question No.7 reads:

"Bennie vra: "Wat is jy van plan om volgende keer op die Reservaat te gaan doen?"".

Sixteen of the 'experimental' group referred to visiting the Centre again. This point was verified in the subsequent interviews where the majority of the class isolated the camp at Camdeboo as the place that they would like to visit again. The following quotes refer:

Child 18: "Ek wil weer gaan kamp.....om meer te leer by die reservaat, want dis heerlik om iets te leer."

Child 19: "Ek wil graag weer gaan want ons wil gaan kamp."

Child 17: "As die natuurmense toelaat kan 'n mens daar gaan kamp en ook die vars lug wat daar is kan inasem. Dit help jou."

These findings are further substantiated in Section 6.1 where the 'parents' were asked to explain what recreational opportunities are available at the Karoo Nature Reserve.

The preceding sections reveal that the children were open to a wide variety of activities. Furthermore, where practical involvement in a project was high, they showed tremendous enthusiasm and an apparently better understanding of the issues at hand. In particular, the food gardening project had captured the pupils' interest to the point that a fair number of them attempted gardens at home. The class also appeared fascinated by the recycling project, especially because of its income generating potential. Although the trees-from-seed project had met with relatively less enthusiasm, and very little success, the researcher considered that the presence of the cut 2-litre bottles at home may nevertheless have initiated discussion on the topic. The thrill of the excursions to the Karoo Nature Reserve was another potential point of much discussion.

Using these themes as a base framework, the researcher then attempted to assess the influence of the Std 4B pupils on their 'parents'. The relevant procedures and results are reported in the following chapter.

CHAPTER 6

THE CHILDREN'S INFLUENCE ON THEIR 'PARENTS'

This chapter reports on the results of the researcher's visits with the children's 'parents'. As suggested by Acock (1984), the researcher has attempted to not only estimate the children's influence on their parents, but also to put forward possible explanations for these results. It needs to be borne in mind that this attempt to assess *influence* occurred immediately after the Environmental Education programme; a situation that *may* not have allowed the children adequate time and circumstances to interact with their 'parents' around the relevant environmental themes. Accordingly, the results should be viewed as tentative. The researcher is also well aware of the subjectivity of the methods of analysis employed, a concern discussed further in Chapter 7.

6.1 PARENTAL RESPONSES

In an attempt to facilitate the analysis, the researcher used the four themes outlined in Chapter 5 as bases for assessing the children's influence on their 'parents', viz.

- *Food gardening
- *Recycling
- *The value of trees
- *Recreational opportunities at the Karoo Nature Reserve

The potential for visible evidence of related *ACTIVITY* in the home environment was the main reason for employing these themes for the assessment of the children's influence on their 'parents'.

In keeping with recommendations stated in the literature review (Bengtson and Troll 1978), Tables 6.1 to 6.4 have been developed to also elucidate influences within individual dyads ie. the child and his/her 'parent'. Although discussion of the tables often highlights aggregated trends, support is sought by referring to relevant dyads.

Perusal of the tables indicates that not a single 'parent' had adopted (or even adapted) any of the techniques learnt by the children at school for their own purposes, despite the fact that five of the them grew vegetables (Homes 2, 3, 13, 14, 18) and could easily have responded to the food gardening project, and that one 'parent' was clearly interested in potplants (Home 9) which could easily be cultivated in 2-litre cooldrink bottles. The overt influences which the researcher had hoped for were not evident, and she therefore altered the emphasis of her assessment in favour of less obvious indications of influence based on what information, and how much, the children were conveying to their 'parents' and, in turn, the apparent level of support offered. These results need to be

TABLE 6.1: THE CHILDREN'S INFLUENCE ON THEIR 'PARENTS': FOOD GARDENING

	Child's Knowledge	Child's Action	Existing vege-garden at home	'Parent'	'Parent's Knowledge	'Parent's Action	'Parental Support	Comments
HOME 1:	M-H	None		Mother	M-L	Collected peels	M	Father has agreed to buy seed for a garden
HOME 2:	M	Prepared garden	Yes	Mother	L	None	H	Mother proud of her son's efforts
HOME 3:	M-L	None	Yes	Mother	L	None	None	
HOME 4:	M-L	None		Mother	None	None	None	
HOME 5:	M-H	Prepared garden		Mother	L	Collected peels	H	
HOME 6:	M-H	Prepared garden		Gran	M	Collected peels	M-H	Gran suggested solution for fowl problem
HOME 7:	M-H	Prepared garden		Mother	M-H	Collected peels and watered bed	H	All the adults at home support endeavour
HOME 8:	M-H	Prepared garden		Gran	None	None	None	Grandfather apparently gives advice and brother helped with preparation of garden
HOME 9:	M-H	Prepared garden		Aunt	M	Collected peels and provided seed	M	Aunt blames herself for failure of bed due to lack of watering while child away
HOME 10:	M-H	Denied permission		Mother	M-L	Collected peels	L	Child apparently refused permission to prepare bed by father - no reason
HOME 11:	H	Prepared garden		Mother	M	Collected peels	M-L	Brother very involved with preparation of garden
HOME 12:	M-H	Prepared garden		Mother	L	None	L	Brother helped to prepare garden. Mother eager to support child's next attempt
HOME 13:	M-L	None	Yes	Mother	None	None	None	Most affluent home in sample
HOME 14:	M-H	Prepared garden	Yes	Mother	M	Collected peels	M	Mother offered beds in front garden for next attempt at a garden
HOME 15:	M-H	None		Mother	L	Collected vegetable pockets	L	
HOME 16:	M	None		Mother	None	None	None	
HOME 17:	H	None		Mother	L	Collected peels	L	Mother had no idea as to why child was collecting orange and vegetable pockets
HOME 18:	M-H	Denied permission	Yes	Mother	L	Collected peels	L	Parents refused child permission to prepare vegetable garden - regret this
HOME 19:	H	Prepared garden		Gran	M-L	Collected peels	L	Father apparently provided seed and brother helped to prepare bed
HOME 20:	M-H	None		Aunt	None	None	None	Aunt appeared to be under the influence of alcohol

KEY TO TABLE 6.1:

CHILD'S KNOWLEDGE

Medium-Low - Understand composting but not 'mixed' beds

Medium - Understand trench gardening but no concept of enviro-friendly pest/bird control

Medium-High - Understand trench gardening but slightly confused about enviro-friendly pest/bird control

High - A good overall knowledge

'PARENT'S' KNOWLEDGE

Low - Aware of school garden but have no details

Medium-Low - Understand that vegetable peels were collected for garden compost, but no further details

Medium - Aware of trench gardening technique

Medium-High - Aware of trench gardening technique and have some idea about enviro-friendly pest and/or insect control

'PARENTAL' SUPPORT

A purely subjective assessment by the researcher based on the interviews with the 'parents'. No real criteria used for this purpose. The 'scores' should be viewed relative to each other.

TABLE 6.2: THE CHILDREN'S INFLUENCE ON THEIR 'PARENTS': RECYCLING

	Child's Knowledge	Child's Action	'Parent'	'Parent's Knowledge	'Parent's Action	'Parental Support	Comments
HOME 1:	M	None	Mother	None	None	None	
HOME 2:	M-L	None	Mother	None	None	None	
HOME 3:	M-L	None	Mother	None	None	None	
HOME 4:	M	None	Mother	None	None	None	
HOME 5:	M	None	Mother	Poor	None	None	
HOME 6:	M	None	Gran	None	None	None	
HOME 7:	M	None	Mother	None	None	None	
HOME 8:	M	None	Gran	None	None	None	
HOME 9:	M	None	Aunt	None	None	None	
HOME 10:	M	None	Mother	None	None	None	
HOME 11:	M	None	Mother	None	None	None	The questionnaire and interview had revealed that Child 11 was strongly interested in recycling - yet 'parent' had no idea
HOME 12:	M	Collected cans	Mother	Poor	Negative	None	Mother discarded cans (apparently unintentionally) that child had collected
HOME 13:	M-L	None	Mother	None	None	None	
HOME 14:	M	None	Mother	None	None	None	
HOME 15:	M	Collected bottles	Mother	None	None	None	Mother aware of bottles that child was collecting in the backyard
HOME 16:	M-L	None	Mother	None	None	None	
HOME 17:	M	None	Mother	None	None	None	
HOME 18:	M	None	Mother	None	None	None	
HOME 19:	M	None	Gran	None	None	None	
HOME 20:	M	Collected cans	Aunt	None	None	None	Aunt not aware of cans that child was collecting

KEY TO TABLE 6.2:

CHILD'S KNOWLEDGE

Medium-Low - Income generating potential of recycling

Medium - Income potential plus a cleaner earth

Medium-High - Income potential; a cleaner earth and resource conservation

TABLE 6.3: THE CHILDREN'S INFLUENCE ON THEIR 'PARENTS': THE VALUE OF TREES

	Child's Knowledge	Child's Action	'Parent'	'Parent's' Knowledge	'Parent's' Action	'Parental' Support	Comments
HOME 1:	M	Planted seed - took home	Mother	M-L	None	None	According to mother child was "hartseer" when the bottle was stolen
HOME 2:	M	Planted seed - took home	Mother	M-L	None	None	
HOME 3:	M	Planted seed - stolen at school	Mother	None	None	None	
HOME 4:	M	Never planted	Mother	None	None	None	
HOME 5:	M	Planted seed - took home	Mother	None	None	None	Destroyed by younger brother
HOME 6:	M	Planted seed - took home	Gran	Poor	Inappropriate	Low	
HOME 7:	M	Planted seed - stolen at school	Mother	None	None	None	
HOME 8:	M	Planted seed - stolen at school	Gran	None	None	None	
HOME 9:	M	Planted seed - took home	Aunt	M-L	Inappropriate	Low	Aunt put it amongst her other potplants but watered it too often. Plant died - discarded
HOME 10:	M	Planted seed - took home	Mother	M	None	None	Blew off roof. Mother aware of water conservation through use of plastic dome
HOME 11:	M	Planted seed - stolen at school	Mother	None	None	None	
HOME 12:	M	Planted seed - stolen at school	Mother	None	None	None	
HOME 13:	M	Planted seed - stolen at school	Mother	None	None	None	
HOME 14:	M	Planted seed - stolen at school	Mother	None	None	None	
HOME 15:	M	Planted seed - stolen at school	Mother	None	None	None	
HOME 16:	M-H	Planted seed - took home	Mother	None	Negative	None	Mother discarded bottle - thought it was a 'plaything' cluttering the lounge
HOME 17:	M	Planted seed - took home	Mother	M-L	Inappropriate	Low	Blew off roof - mother placed it in a dark corner of the house for safekeeping
HOME 18:	M	Planted seed - took home	Mother	M-L	None	Low	Destroyed by sister. Mother tells that the child cried at the loss of her tree
HOME 19:	M	Planted seed - took home	Gran	M-L	None	None	
HOME 20:	M	Planted seed - took home	Aunt	None	None	None	Aunt did not ever recall seeing the bottle

KEY TO TABLE 6.3:

CHILD'S KNOWLEDGE

Medium - Understand the basic preparation of a 2-litre bottle for the planting of tree seed.

Medium-High - As above, plus some idea of water conservation through use of plastic dome

High - A full understanding of the preparation and use of a 2-litre bottle for seed germination ie. planting technique, water conservation and greenhouse-effect of dome

'PARENT'S' KNOWLEDGE

Low - Saw bottle but no idea about growing seeds in it

Medium-Low - Understood that a seed was planted in the bottle, but no idea about reasons for this technique

Medium - Understood that seed was planted in the bottle, and that the technique used required less watering than open pot-plants

TABLE 6.4: THE CHILDREN'S INFLUENCE ON THEIR 'PARENTS': RECREATIONAL OPPORTUNITIES AT THE KAROO NATURE RESERVE

	Child's Knowledge	Subsequent visits	'Parent'	'Parent's' Knowledge	'Parent's' Action	'Parental' Support	Comments
HOME 1:	M	No	Mother	L	None	M-L	
HOME 2:	M	No	Mother	L	None	M	
HOME 3:	L	No	Mother	M	None	M	Mother remarked that her son and his friends would like to visit Camdeboo for an entire holiday
HOME 4:	M	No	Mother	L	None	M	Mother gave son money towards next visit to Camdeboo
HOME 5:	M	No	Mother	L	None	L	
HOME 6:	L	No	Gran	None	None	M-L	
HOME 7:	M	No	Mother	M	None	H	Mother mentioned the man with the bird on arm at Camdeboo
HOME 8:	M	No	Gran	None	None	None	
HOME 9:	M	No	Aunt	M	None	H	Aunt expressed desire to visit Camdeboo
HOME 10:	M	No	Mother	M	None	L	Mother focussed on nice buildings at Camdeboo and the man with the bird on his arm
HOME 11:	M	No	Mother	H	None	M	Mother has visited Reserve previously with her employer
HOME 12:	M	No	Mother	M	None	H	Mother commented on how enjoyable her child found the visits to the Reserve. Also spoke of the man with the bird on his arm
HOME 13:	L	No	Mother	L	None	L	
HOME 14:	M	No	Mother	M	None	M	
HOME 15:	M	No	Mother	L	None	M	Mother wants to visit Camdeboo. Focussed on nice buildings
HOME 16:	M	No	Mother	L	None	L	
HOME 17:	H	No	Mother	M	None	L	Mother focussed on buildings and the man with the bird on his arm
HOME 18:	M	No	Mother	M	None	H	Mother expressed regret that her other children did not also go along
HOME 19:	H	No	Gran	M	None	M	Grandmother focussed on the buildings and the food served at Camdeboo
HOME 20:	M	No	Aunt	L	None	None	

KEY TO TABLE 6.4:

CHILD'S AND 'PARENT'S' KNOWLEDGE

Low - Reserve provides learning opportunities

Medium - Reserve provides learning and camping opportunities

High - Reserve provides learning, camping, braaiing and picnicking opportunities

'PARENTAL' SUPPORT

A purely subjective assessment by the researcher based on the interviews with the 'parents'. No real criteria used for this purpose. The 'scores' should be viewed relative to each other.

viewed with some reservation, however, as the researcher discovered some discrepancies between what the children claim to have told their 'parents' and what their 'parents' claim to have been told. For example:

Child 17: "Ek het vir my ouers gesê dat ons na Agterstefontein gaan kyk het en dat ons die veldkosse geleer het wat die voortrekkers neergeskryf het, en dat jy ook vir ons 'n storie vertel het van die veld en blomme."

'Parent' 17: "Sy't niks vir my gesê van wat hulle leer nie. Sy het net gesê hoe mooi is die plek. En daar was 'n man met 'n voël op sy arm."

A more radical example is that of Child 13 where the mother claimed that her daughter never said anything as she's always out playing, while the child claimed to have informed her mother about the vegetable garden at school as well as the trip to the Camdeboo Environmental Education Centre.

6.1.1 A Thematic Framework

The vegetable gardening project was the most well understood by the children most probably due to its extended period compared to the rest. Table 6.1 refers. A similar pattern applies to the 'parents'' *knowledge*, although the researcher suspects, on the basis of the 'parental' interviews, that the children's requests for peels and vegetable/orange pockets, together with their arrival home late from school, rather than pure interest, may have initiated many of the



FIGURE 6.1: A FOOD GARDEN
THRIVES BETWEEN THE FENCE
AND A BACKYARD SHACK.



FIGURE 6.2: PROUDLY DISPLAYING
A HEALTHY CROP OF SPINACH.

discussions. Naturally, where the children actually prepared beds, it is reasonable to assume that more detailed discussion may have taken place. Figures 6.1 and 6.2 refer. The researcher found it interesting that the level of support from 'parents' did not necessarily correspond to 'parents'' knowledge. In fact, examination of 'Parents' 2, 5 and 6 reveals that, in the opinion of the researcher, the level of 'parental' support outweighed their knowledge on the matter. The researcher was however not able to establish any correlation between 'parental' knowledge and those children who had actually prepared beds at home.

It was interesting to note that the children of Homes 8, 11, 12 and 19 had, as expressed by their 'parents', involved brothers in the preparation of their vegetable beds. Although outside the scope of this study, it would be interesting to examine the influence of the Std 4B pupils on their siblings.

Comparison of the four tables shows that **recycling** had the least influence on 'parents', Table 6.2 indicating that only two 'parents' (Homes 12 and 15) were aware of the collection of cans and bottles respectively, but that neither had any idea as to why this was being done. No 'parents' supported the children in this endeavour. Despite the fact that recycling had been dealt with in an abstract manner in the classroom, the researcher was surprised by the low level of

information transfer in this regard, as the children had appeared extremely excited about the income generating potential of such a project - Section 5.2 refers. The reader will also recall from Table 4.1 that a number of children had made reference to their poor economic status.

In speculating on the reasons for these results, the researcher considered that the children were perhaps loathe to share with others the details of *their* income-generating project for fear of jeopardising their excursion plans for 1992 through, so to speak, having to 'split the financial pie'. Also, despite their apparent enthusiasm, the fact that the project was not dealt with on a practical level, may have contributed to the children's relative silence on the issue. Thirdly, the researcher committed herself to implementing a recycling project early in 1992. This may have prompted the children to shelve the idea for the present.

Regarding the **growing of trees in 2-litre bottles**, Table 6.3 shows that only a single 'parent' (Home 10) had an idea that the technique used required less watering than 'open' potplants, and twelve 'parents' knew nothing about this endeavour. However, eight children reported that their bottles had been stolen at school, which no doubt contributed to the lack in 'parental' knowledge. Not a single one of these eight children, however, had made any

attempt to replace their stolen bottles, suggesting to the researcher that the tree theme had not made enough of an impression on the class to stimulate related conversation between themselves and their 'parents'. This is illustrated by the inappropriate support offered by the 'parents' of Child 9 and Child 17, and the fact that Child 16's mother discarded her bottle from the lounge, assuming that it was a 'play-thing' ("speelding") cluttering the room. These results may in part be attributed to the rushed nature of the lesson as referred to in Section 5.2, which may have resulted in a limited understanding of the technique by the children.

Interestingly, however, two of the 'parents' - from Homes 1 and 18 - made reference to their child's remorse at having abandoned the endeavour due to, in the one case, theft of the bottle from the backyard, and in the other, destruction by a sibling. Their responses indicate to the researcher some level of interest on the part of the 'parents':

'Parent' 1: "Ooo...hy was baie hartseer toe die bottel weg is."

'Parent' 18: "Daar was baie gehuil in die huis."

Regarding recreational opportunities at the Karoo Nature Reserve, Table 6.4 refers, only 'Parent' 11 made reference

to aspects other than observing plants and animals, or visiting the Centre. She had however accompanied her employer to the Reserve on a number of occasions, thus explaining why her knowledge in this regard rated higher than that of her own daughter. Not one 'parent' had been influenced to the extent that they had visited viewing sites, picnic areas or had done the Eerstefontein Day Walk. The researcher did not find this surprising as, in her opinion, even if the children had informed their 'parents' about the recreational opportunities on the Reserve, she doubts that the latter would appreciate these suggestions for relaxation: Firstly, many 'parents' walk long distances to work. Hiking for pleasure is probably not the type of restful experience they would enjoy on weekends. Secondly, most 'parents' do not readily have access to cars and would thus not easily be able to visit the picnic-sites and viewpoints.

The fact that five 'parents' made reference to the 'nice' facilities at the Camdeboo Centre - used often in association with the word "holiday" - suggests that this aspect of the children's Reserve visits made the greatest impression on them. One 'parent' (Home 19) even made reference to the food supplied at the Camdeboo Centre. These statements support the researcher's suspicion that the place - particularly the infrastructure - rather than the educational experience had captured the children's interest.

Interestingly, Mahape and Irwin (1988) reported similar finds during investigations on the Environmental Education programme at Pilanesburg National Park in Bophuthatswana. This view is further strengthened by the fact that the mothers from Homes 3 and 4 made reference to their children's plans for a future visit to the Camdeboo Centre, and that 'Parents' 9 and 15 expressedly stated that they would like to visit the Centre. The following quote illustrates the point:

'Parent' 15: "Sy het nou nie vir my nou eintlik verduidelik nie wat eintlik hulle doen en so aan. Sy het meeste my van die geboue vertel.....
Ek sê vir haar ek wil ook graag 'n bietjie 'like' om die Camdeboo te gaan sien."

These results led the researcher to suspect that the children's sustained reference to fundraising in their formal letters was motivated by a desire to visit the Centre again, rather than 'save' the earth. See Section 5.2.

Four 'parents' reported that they had been told about a man who coaxed wild birds to sit on his arm. During one lunch period at the Centre, the Centre's labourer had been entertaining the children by placing bread crumbs on his arm, thus attracting some birds. The fact that this, rather than her lessons, filtered through to the 'parents' confirms the researcher's experience that *hands-on* activities are more easily assimilated by children.

6.1.2 A Dyad Focus

No noticeable patterns were identified by the researcher when reviewing both individual themes and the cross-section of themes using a dyad focus. Comparing, in the researcher's opinion, the two most participative and confident pupils in the class, Child 7 and Child 17, it appears that the former had a greater influence on his mother - and other adult family members for that matter - than did the latter. As Child 17, however, clearly had a better comprehension of the represented themes, it could be suggested that having a high degree of knowledge does not necessarily correspond with 'stronger' influence on 'parents'.

Although it could be argued that Child 17 did not awaken 'parental' interest as she did not prepare a vegetable garden, review of child 19's situation (she also 'scored' high for gardening knowledge), for example, indicates a fairly low level of 'parental' support despite her gardening efforts. This suggests that other undetermined elements are possibly at work informing patterns of interaction within the family - see Table 2.1. for some examples. The researcher considered that detailed investigation of these issues was both outside of her experience, and certainly, outside of the scope of a half-thesis. In reviewing Child 7's situation, she does, however, suspect that *degree of*

communication is a significant factor in child-parent influence. Jonathan's grandfather apparently regularly gave him advice and suggested that he use thornbushes around the edge of the garden to keep out the fowls. His grandmother organised the orange pockets to prevent the birds from eating the seedlings, and his mother watered the garden when he had forgotten or was away. Jonathan's mother expressed great pride at his gardening attempt and stated "hy hou nooit op met praat!". Apparently his conversation is greatest in the evenings when the family goes to bed (the mother and four children all share one room). In fact, his mother volunteered that she sometimes falls asleep when he goes on for too long.

Although a number of other 'parents' collected peels for their children and one (Home 15) orange bags, none actually involved themselves with their children's endeavours on an on-going basis.

Valient (1983) conjectures that youths from higher socio-economic backgrounds interact more with their parents as they perceive them as competent by virtue of their socio-economic standing. Although the researcher initially suspected that children from more privileged families would have a greater influence on their parents, this view was not supported by the study. Child 13's interaction with, let alone her influence on her 'parents' appears minimal despite

the fact that they were, relatively speaking, the most affluent family in the sample. To be fair, however, this family might just qualify as 'lower middle-class' in terms of Graaff-Reinet 'white' living standards. Child 13's mother was, furthermore, the only educated 'parent' (a nurse) interviewed by the researcher and held a seemingly enlightened view on childrearing by stating, for example, that "kinders moet spontaan wees". In contrast, interviews with uneducated 'parents', from much poorer homes and with apparently less 'tolerance' for their children's proximity around them, sometimes yielded evidence of far greater knowledge of and/or support for their child's endeavours. 'Parent' 2, for example, showed tremendous support for her son's attempt at a garden despite the following restrictions on conversation:

Child 2: "My ma wil nie eintlik hê dat ons met groot mense praat nie. As ons iets vir haar wil sê wat baie belangrik is dan verstaan sy ons."

'Parent' 2: "Ons gesels nie baie met die kinders nie.....ek wil hulle nie in die huis hê nie."

During the course of the researcher's visits to their homes, a number of 'parents' appeared to suddenly take more seriously their children's endeavours, particularly vegetable gardening. In fact, some 'parents' came close to expressing regret at their previous lack of support. Child 6's grandmother suggested solutions for his problems with fowls that ate his seedlings, while Child 12's mother said

that she would like to support her daughter in future vegetable gardening attempts. 'Parent' 14 invited her daughter to attempt her next garden in the front yard where the soil is more loose, and Child 18's mother expressed regret at having turned down her daughter's request for a piece of ground. Claiming that she and her husband had not realised that their child was being serious, and volunteering that they did not take real notice of what their children say, she promised to involve her daughter and use her ideas when next preparing their vegetable gardens at home. Child 19's grandmother stated that she would organise an older brother to help her granddaughter to restart her garden. Child 9's aunt blamed herself entirely for the failure of her nephew's garden, stating that while he was visiting his mother during the school holidays she had neglected to water the bed.

All of the above statements were in no way directly influenced by any of the researcher's questions. It appeared as if the researcher's presence had given the children's efforts credibility in the eyes of the 'parents' - a point pursued in the following section and in Chapter 7.

6.2 DISCUSSION OF RESULTS

Examination of the above results indicates that, in the period under review, apparently no children influenced their 'parents' to the extent that the adults adopted for themselves the ideas learnt during the Environmental Education programme undertaken with the children. At best some of the children were able to illicit support - either practical or verbal - from their 'parents' for their own endeavours. The results do, however, reveal that there was to some degree a transfer of knowledge from parent to child, particularly as regards those elements of the programme that incorporated practical components. After consideration of the literature, the researcher has, largely, made use of Acock's work (1984) as it provides a useful frame of reference when attempting to account for the magnitude (or lack thereof) of child-'parent' influence.

The issue of family dynamics is considered first. A fundamental question in this context is the amount of time which the family spends together. There appears to be two main lines of thought regarding *associational solidarity* (Acock 1984) and intergenerational influence. Some authors (Small and Eastman 1983 and Aldous and Hill 1965) hold the view that there is a corresponding trend between influence and the amount of time a family spends together, but others such as Tedin (1974) would dispute this notion, claiming that family members may spend abundant time together without

ever discussing a specific issue under investigation. Tedin considers that the *salience of the issue* rather than the frequency of the interaction is the more important aspect.

The study reveals considerable evidence pointing to the lack in time spent between the sample 'parents' and their children. This is due to both work commitments and, in some cases, what appears to be limited 'tolerance' of their children's proximity to them as illustrated by the following quotes:

'Parent' 4: "As die kinders baie daar by ons is en ons sit en gesels met ander grootmense by...dan sê ek: 'Gaan weg en speel, ons sit nou nie met kinders nie!'"

'Parent' 15: "My tydjie is maar kort wat ek saam met hulle is...so ek kommunikeer nie baie met hulle nie."

'Parent' 17: "Ons praat nie baie nie. As ek by die huis kom is die kinders besig om TV te kyk, of hulle doen hulle skoolwerk, of hulle slaap al."

Child 2's case, quoted towards the end of Section 6.1.2, is also applicable. In the above cases, the 'parents' *knowledge* of the four environmental projects appeared poor, suggesting that low *associational solidarity* results in lower levels of influence with respect to knowledge transfer.

In support of Tedin (1974), however, Child 14's mother states that she has very little time with her children and

is yet able to give a good description of her daughter's preparation of the vegetable bed, suggesting to the researcher that the child may have made a point of conveying this information to her mother. The following quotes refer.

'Parent' 14: "Hulle gaan maar aan want my tydjie is so beperk" and
 "Sy't nou nie gesê hoe diep grawwe hulle, maar sy't als gesê van die gat, die groente laag vir kompos en die grond bo-op."

Another factor that Acock (1984) isolates is *affective solidarity*, where it is suggested that affect and support leads to correspondence of ideas amongst family members. Homes 7 and 11 appear to support this notion. Even though both mothers work a full day, and consequently do not enjoy abundant time with their children, the time they do spend together seems to be 'quality time', suggesting a relatively high level of *affective solidarity*. This is supported by the following quotes:

Child 7: "My ma is bly as ek huistoe kom. Ek vertel haar alles van die dag, as ons gaan lê."

'Parent' 7: "Hy hou nooit op met praat nie...veral as ons gaan slaap."

'Parent' 11: "Ek stel baie aandag aan haar, luister wat sy sê. As ek nie belangstel aan haar gaan sy agteruitgaan met haar skoolwerk en gaan sy sien haar ma vat nie notisie van haar."

However, comparison of the results of the four themes using a dyad focus reveals that these 'parents' were not equally

informed about all the projects. This could again suggest that it was *specific issue salience* - the vegetable gardening - that had inspired the conversations between the two children and their respective 'parents', rather than pure *affective solidarity*. Furthermore, it needs to be stated that the research project did not allow for the study of specific family bonds and that the researcher is, therefore, not really in a position to use this as a criteria for assessing children's influence on their 'parents'. Based on her visits with the 'parents', it is, however, her considered opinion that low influence in other dyads, for example home 13, did not necessarily correspond to weak bonds between the children and their 'parents'.

Jennings and Niemi (1975) argue that *parental interest* (Acock 1984) in a subject does not enhance transmission. This view would also be supported by Tedin (1974) who, here too, considers *specific issue salience* as the integral component of intergenerational influence. This is best illustrated in the case of Child 18 where, in the researcher's opinion, the child strongly desired to plant a vegetable garden. Although her 'parents' are active vegetable gardeners, indicative of interest in the subject on their part, they refused her permission to prepare a bed without ever pursuing what she was really on about. During the visit to the home, the child's mother admitted that she and her husband do not take enough notice of the children,

and never realised that their daughter was being serious about her request.

With regard to *subject area and clarity*, Acock (1984 : 163) predicts that those aspects of transmission that are "concrete, salient and easily modeled" will have a relatively high level of transmission. Those issues that lack these characteristics will be less easily transmitted. In so far as the study results indicate that the Environmental Education projects that were dealt with on a practical, rather than abstract, level corresponded with relatively greater knowledge on the part of the 'parents', the research supports this notion. This is especially evident in the comparison of the results of the recycling (abstract) and vegetable gardening (practical) themes.

Perhaps the most serious shortcoming in the Environmental Education programme was the researcher's hesitance to fully exploit the issues perceived to be salient by the community (Chapter 4 refers), thereby limiting the potential conversations between the children and their 'parents'. Also, given the relatively short period in which the programme took place, the researcher considers that her decision to incorporate a variety of projects may have 'diluted', from the children's perspective, the salience (and clarity for that matter) of any one project and consequently dampened their enthusiasm. Section 3.2.3

refers. It is quite possible that these views would be supported by Tedin (1974) who stresses the importance of *issue salience*.

In expounding the *developmental stage* concept, Acock (1984) states that each age cohort has different needs and that a generation gap may be a normal part of development.

Although this is a broad subject area, which can only be adequately explored using longitudinal studies, the researcher wonders if many of the 'parents', who from the interviews appeared to have limited formal education, are perhaps threatened by their children's education. She considers it feasible to suspect that 'parents' may turn a 'deaf ear' to their children for fear of appearing stupid.

In support of these ideas, the following quotes apply.

Researcher: "Is dit belangrik dat kinders en ouers gesels?"

'Parent' 20: "Ja...want dan weet 'n kind wat is verkeerd en wat is reg."

Researcher: "U sê die kind moet leer by die volwasse mens?"

'Parent' 20: "Dit is mos!"

Researcher: "Dink U 'n volwasse mens kan ooit by 'n kind leer?"

'Parent 20': "Hy kannie!!!" (Indignant)

Researcher: "Kan 'n ouer by sy kind leer?"

'Parent' 10: ".....ja...." (dubious)

Researcher: "Het U iets by jou kinders geleer?"

'Parent' 10: "Nog nie."

Researcher: "Dink U dit is belangrik dat ouers en hul kinders saampraat?"

'Parent' 6: "Beslis...as hulle nie praat sal die kind nooit verstand nie omtrent 'n saak."

The researcher was also aware of the possibilities of subcultural structures and values influencing the results, a view supported by Jennings and Niemi(1975), Bengtson and Troll (1978) and Hess (1981), amongst others. In fact, when interviewing the 'parents' and subsequently analysing the results, she became progressively more convinced of the importance of such factors. Although the nature of the research did not specifically concentrate on socio-cultural issues, and despite the researcher's relatively limited sociological background, an attempt has been made to explore these matters further:

The researcher noted that the children showed the necessary willingness and enthusiasm to experiment with new environmental behaviours, but that socio-cultural norms, which place children in a subordinate position in the community, rendered them somewhat disempowered to actualise their aspirations. This is illustrated by the relatively poor supportive involvement from parents in their children's endeavours. Glass et al. (1986) would attribute this to what they call 'inherited social status', which, in this case, would result in a minimal change in 'parental' behaviour due to a limited degree of openness in the family (Bengtson and Troll 1978). The researcher supports this notion, recalling particularly the somewhat harsh and apparently intolerant manner in which children were spoken

to or disciplined during the course of her visits to the homes.

From an outsider's, admittedly cursory, perspective, the parent-child relationships appeared to reveal unambiguous and explicit exemplars of inequality. Amongst the Kroonvale community, it would appear that the bases of power over children are strongly vested in 'parents' with, it is suspected by the researcher, both culture (its laws and norms) and the people's interpretation of religion (its precepts and commandments) sanctifying parental authority (Hess 1981 and Cowan and Avants 1988). These community norms, no doubt, help set expectations that regulate the reciprocal relationships between children and their 'parents' (Hess 1981).

With modern-day child-rearing thinking, it is generally accepted that parental behaviour toward the child which is characterised as supportive and nurturant and which relies on inductive control (ie. control based on reasoning and discussion with the child), seems to be the most conducive to the child's identification with the parent (Whitbeck and Gecas 1988). The researcher would assume that this type of family environment, which was not evident in her sample, would be more open to child-'parent' influence.

Another observation that interested the researcher was that during her visits to the homes, the adults appeared to suddenly take more seriously the endeavours of their children, even to the extent of volunteering a greater degree of involvement from themselves - Section 6.1.2 refers. This suggested to the researcher that family-orientated projects may provide the most rapid changes towards positive environmental behaviours, with the children providing influential enthusiasm, and the Environmental Educationist giving projects the necessary 'credibility' in the eyes of the adults. This idea is pursued further in Chapter 7.

Finally, the reading of Chapter 6 reveals clearly that no hard and fast conclusions can be drawn with respect to identifying and explaining the influence of the Std 4B children on their 'parents'. Although the influence of the children was apparently minimal, there did appear to be a greater knowledge transfer with respect to themes that had a strongly practical emphasis, and that took place over extended periods. No noticeable influence patterns were recognised when examining the results from a dyad perspective. Although the discussion of the results provides evidence for opposing viewpoints on some matters, it does appear that *issue salience* is an aspect that requires more serious attention in future projects. This recommendation is expounded upon in the evaluation of the study - Section 7.2

CHAPTER 7
CONCLUSIONS

This final chapter aims to consolidate the research findings, and to explore their implications for Environmental Education in so far as the Kroonvale community of Graaff-Reinet is concerned. The research project as a whole is also summatively evaluated with a view to both highlighting its potential weaknesses, many of which have only become evident with hindsight, and towards improving or developing related projects in the future.

A primary aim of this study was to contribute in a small way towards the creation of a body of baseline data and insights regarding intergenerational influence (child to parent) and Environmental Education. The researcher considers that this aim has been reached in that a small but insightful body of data has been produced and many problems in the gathering of the data have been brought to light. Tentative results have emerged, providing material for future comparative analyses, validation or rejection.

7.1 RESEARCH CONCLUSIONS

The study results show that the children, despite improvements in their own levels of environmental consciousness, did not influence their 'parents' significantly; certainly not to the point of influencing them to actively adopt some of the environmental activities learnt in the Environmental Education programme in which they participated. At best, some of the children communicated aspects of knowledge to their 'parents', and even fewer illicit active support from their 'parents'. Interestingly, where some degree of influence was evident, it was usually related to Environmental Education projects that had been addressed *practically* in the formal school environment.

Using a dyad focus, the researcher was not able to establish any significant patterns about child-'parent' influence either. In fact, some of the dyad results offered support for alternative, and often conflicting, hypotheses.

Given the exploratory nature of this study, however, the researcher is hesitant to suggest that this study shows that the *multiplier effect* of formal education with respect to environmental responsibility is very limited. From her visits, however, and supported by the literature, the researcher continues to suspect that the socio-cultural norms of the Kroonvale community, where children are

obviously subordinate to adults in status (in both the school and family), are the biggest factors inhibiting the influence of these children on their 'parents'. On this basis, coupled with the fact that many 'parents' seemed to suddenly take more seriously the endeavours of their children once the researcher had visited the homes, it would seem that a **community approach** to Environmental Education might be the most suitable in Kroonvale. In no way need this mean that children should no longer be regarded as catalysts for environmental change. It should rather be viewed as an attempt by Environmental Educationists to provide the most appropriate 'medium' for catalytic reactions by drawing in 'parents' as active role-players. Additionally, such programmes might well begin to promote the involvement of children as socially more acceptable.

It will, however, be evident from the evaluation of the project below - Section 7.2 - that, before any hard and fast conclusions can be drawn, a number of pertinent questions need to be resolved, and that many 'results' remain conditional to factors which are subject to further question or modification.

A number of questions that have emerged from this study deserve the scrutiny of further research. These would, in the considered opinion of the researcher, include the

question as to what degree the following factors pertain to child-parent influence:

- The age of the child
- The personality of the child - eg. level of confidence, disposition, attitude to life, enthusiasm etc.
- The degree of active involvement in a project
- The child's status in the home
- The status of children in the community

Additionally, more needs to be known about:

- The role of personality factors in general
- Intra- and inter-family dynamics in the sub-culture/community under study, including the role of issues such as associational and affective solidarity
- Community environmental values, as well as hopes and aspirations and areas of pessimism
- Basic data relating to income, educational levels, etc., and the implications thereof
- Environmental 'knowledge' within the community and its source(s)
- Choice of projects including subject area, clarity and level of interest; and, very importantly, the role of issue salience.
- The implications of project duration

7.2 EVALUATION OF THE RESEARCH PROJECT

Despite its very limited generalisability, the researcher considers that the *case-study* offered an appropriate basis for investigating the influence of children on their parents. Furthermore, she considers the use of the *embedded case-study* even more enlightening, as it offered first-hand knowledge on the children's environmental knowledge and enthusiasm, as well as related actions. This, in turn, provided both insights and *definite criteria* for assessing child-'parent' influence. As the social studies research milieu, in the researcher's opinion, already relies very heavily on inferences about different states of affairs, she welcomed and considered most valuable these 'practical' criteria which had emerged from the embedded case-study.

This case-study has also provided useful data for the future design of more innovative qualitative investigations, as well as some sources of insights into family functioning in Kroonvale and the construction of questions necessary for future research. It furthermore reminded the researcher of the narrowness of the constraints that must be accepted when highly qualitative methods are utilised.

Undoubtedly, this case-study has better equipped the researcher in her employment capacity with the Chief Directorate of Nature and Environmental Conservation,

particularly with regard to the community approach to Environmental Education.

Researchers nevertheless need to accept that **studies on families** offer only glimpses of reality (Hess 1981). This study confirmed for the researcher that the family is an open system, embedded in a larger social network and influenced by forces in the community. Because they are difficult to identify and measure, these external forces aggravate any attempts to analyse influence flow within the family. Furthermore, families interact at different levels simultaneously. Members are connected not only by the overt, observable acts that can be recorded by the outsider, but by past and continuing relationships among them, as can be deduced from Table 2.1.

A given exchange may also have different meanings for the participants than it has for the observer. These difficulties impede efforts to accumulate reliable knowledge about family interaction. In the researcher's opinion, this study placed too much emphasis on *inferences* about the observed results, somewhat neglecting investigations of the perceptions, affective states and belief systems that organise and give meanings to the observed behaviours. On the other hand, the researcher fully appreciates the complexities that this would add to a study, and sincerely doubts that any single individual could do it justice within

a small scale project of this nature. She therefore proposes that ideally a **team of researchers**, operating in an *interdisciplinary* capacity, should begin to develop and analyse such complicated and, of necessity, multi-disciplinary methodologies.

Because the research paradigm emphasised **qualitative** rather than quantitative data collection and analysis, much of the latter process was based on reflective consideration of data. This necessitated a relatively large amount of speculation on the part of the researcher who was constantly confronted with the issue of subjectivity. She at times found it difficult to decide just how much **subjectivity** was acceptable. In particular, the researcher was aware that the results of child-influence were interpreted through her own perceptions, and not those of the participants. Henderson (1981) draws particular attention to the manner in which the researcher's own socialisation and schooling experience influence what experiential values are regarded as worthy of attention. Furthermore, studies have shown that race, social class and age can, in certain contexts, be potent sources of bias.

According to Spanier *et al.* (1978), the use of multiple techniques can, however, provide insights into the kinds of bias that are likely to occur and the magnitude of errors that are likely to be made with reliance on a single

measurement device. Although a variety of techniques was implemented, as expounded in Chapter 3, the researcher considers that the final analysis of the children's influence on their parents lacked in this regard. Here too the researcher feels strongly that the data gathered could only be satisfactorily interpreted by a team of researchers from different disciplinary backgrounds. As understanding of the processes involved in intergenerational influence is still relatively primitive as indicated in the literature survey, the researcher considers that it is only through *interdisciplinary research* that a more accurate picture, with its myriads of intricacies, can be developed.

With regard to the **sample**, the researcher considers that the size of the study group was appropriate for a half-thesis, especially where one accepts that case-studies have limited generalisability. What the researcher considered extremely valuable in this study, was the direct involvement in the study of **two members from each family**. Unfortunately, the visits with the parents were relatively cursory, no doubt robbing the study of important inferences pertaining to family relations. Furthermore, Acock (1984) reports that there is evidence of dramatic differences in interaction patterns between children and different gender parents. This study, unintentionally, concentrated on female 'parents'. Also, for reasons given in Chapter 3, the researcher did not necessarily interview the adult with whom

the children stated they got on the best. This may have revealed some interesting and different results.

Given the numerous references to the significance of cohort and differential time of life in the literature (Chapter 2 refers), the researcher realises that the results of this study pertain, at best, only to senior primary school children in Kroonvale. Although not explored in this study, the researcher assumes that this is further complicated by the children's variations in age (11 to 17 years old).

It is beyond the scope of this thesis to fully evaluate the **Environmental Education programme** in which the children partook. The researcher plans to elaborate on, what she considers, her more important findings in separate papers on Environmental Education in formal education, and Environmental Education and primary school children. It is nevertheless appropriate to highlight certain aspects of the programme that may better inform future related studies.

7

The researcher regrets the fact that she modified her intentions to pursue a strictly **action research approach** in the development of the Environmental Education programme. Sections 3.2.1 to 3.2.3 refer. It is her considered opinion that really significant changes in environmental behaviours emerge only from projects where people participate fully in the planning, implementing, evaluating and adapting of

programmes. She nevertheless has reservations about the practicality of using this type of approach, which is essentially 'evolutionary', for studies of short duration. Perhaps the most serious implication of her decision was that the programme did not adequately close the gap between educational processes, however 'enlightened', and real life as suggested in Chapter 1. It was, for example, developed by the researcher around issues which she perceived to be practical, rather than those perceived to be salient by the community. By not addressing the most relevant issues, from a community perspective, the researcher may well have reduced the number of occasions of potential child-'parent' influence. This may be an additional reason to view the study results as tentative. Rather than abandon the action research approach, however, the researcher would recommend that future related studies take place over a longer time span.

The researcher considers that a lot of her effort was diluted by initially attempting to work within the constraints of the formal school system. Although this was a valuable exercise in so far as it confirmed the frustrations of trying cross-curricular teaching in the present school system, essential for 'true' Environmental Education, it did not significantly contribute to the assessment of the children's influences on their 'parents'. Nevertheless, it is recommended that future researchers

persevere within existing school systems as a sustained action research approach to classroom teaching is perhaps the only way that society will begin to evolve towards a 'better education' system (See Naidoo *et al.* 1990).

Besides the fact that the **number of projects** packed into the Environmental Education programme may have overloaded the proceedings, the researcher considers that it may also have raised too many expectations in the children. As many of these were not realised due to time constraints, it is possible that it may have had a deleterious effect on the high level of enthusiasm originally expressed by the children, reducing their potential influence on their 'parents'.

Furthermore, during the course of the Environmental Education programme, the researcher failed to illicit active involvement from any of the **teachers**. Where formal education research is being conducted in a part-time capacity, she considers teacher involvement on an on-going basis as integral if **programme continuity** is to be assured. Not only would this have provided more project support, quite possibly resulting in **greater levels of practice** for the different projects, but may also have contributed to the consolidation of new ideas in the minds of the children.

Caution is appropriate in the absence of normative information about the general applicability of results from single, small studies such as this one. Furthermore, family behaviour is known to vary across socio-cultural groups and among families within a given demographic category (Hess 1981). There is a need to accumulate reliable data about variability across social categories in order to guide research decisions and enable researchers to interpret discrepant results from a more informed perspective. As no single study can ever explore all the corners of child-parent influence, the researcher can only hope that pieces of the puzzle will be filled in slowly with the aid, perhaps, of large scale, co-ordinated programmes of interdisciplinary research, but where the specific *context* of family behaviours remains central to the research.

Future studies may do well to examine not only the generalisability of the findings presented here, but also to investigate new and more innovative methodologies. In the meanwhile, this thesis is considered as a contribution to the ongoing dialogue on child-parent influence, and where best to direct Environmental Education energies.

Having offered through this study what she considers concrete indications of just how and where studies of child and family reciprocities can enrich specific research programmes, the researcher hopes that Developmental

Psychologists and Sociologists will be sufficiently enthused to explore intergenerational influence further afield than the usual political, religious and gender ideologies.

Environmental Education offers great practical rewards for their research efforts, and, as expressed in this chapter, the expertise they can share would be greatly appreciated!

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APPENDIX 1

1
Wat is jou geliefkoesde kossoort?

2
Wat doen jy graag vir ontspanning?

3
Waarvoor is jy baie bang?

4
Watter 3 dinge sal jy eerste red as jou huis afbrand?

5
Watter een ding sal die wêreld in beter plek maak?

6
Watter een ding sal Graaff-Reinet (veral Kroonvale) in beter plek maak?

APPENDIX 2

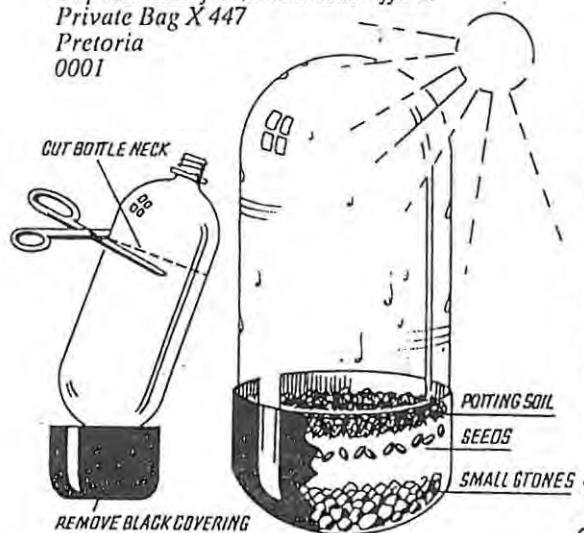
But how do I grow a tree from seed?

The easiest way is to plant a seed, care for it and watch it grow. I give you below some easy steps to follow:

1. Remove the outside black covering of a 2 litre (Coke) bottle. Pour some hot water into it in order to dissolve the glue.
2. Cut the neck off the bottle (see sketch).
3. Place a few small stones in the bottom of the black section and fill it with potting soil. If you have no potting soil just mix some manure into ordinary soil – remember the soil must be nutritious in order to feed the plant.
4. The soil must be moist but not wet.
5. Plant the seeds so that they are just covered with soil – if they are too deep they won't grow.
6. Turn the bottle upside down and place the open end over the black base. Remove it once a week and water the soil.
7. Place the bottle in a sunny spot.
8. The seeds should grow within 4-5 weeks.
9. Leave the seedlings in the bottle for about 3 weeks (not longer) and then plant out in a plastic bag.
10. Place the seedlings in a protected place and water once a week.
11. When the seedlings reach a height of 30 cm, they can be plant in the ground.
12. The tree must be watered well for at least the first 2 years. If you place a few broken pieces of brick into the hole and cover the pieces with soil, the water will stay longer in the ground for the roots to feed on.

My friends, you can collect your own seeds from the trees in the veld or write to:

Seed Store
Department of Environment Affairs
Private Bag X 447
Pretoria
0001



APPENDIX 3



EK IS: _____

EK IS _____ JAAR OUD

EK IS _____ LANK EN MY GEWIG IS _____ KG.

MY ADRES IS : _____

MY TELEFOON NOMMER IS: _____

MY VRIEND, BENNIE VRA

1. Bennie vra: "Wat is jou gunsteling kossoort?"

Ek antwoord: " _____ want _____

2. Bennie en ek stap in die veld. Bennie drink sy Coke klaar en gooi dan die blikkie in die veld.

Ek sê vir Bennie: " _____



Na 'n ruk eet ek my appel klaar - ek gooi die appelstronk in die veld. Bennie kyk my skeef aan en ek verduidelik vir hom: " _____

3. Bennie vra: "Wat **moet** jy alles tydens die skool vakansie doen?"

Ek antwoord: " _____

Bennie vra: "Wat wil jy **graag alles doen** gedurende jou vrye tyd in die vakansie"

Ek antwoord: " _____

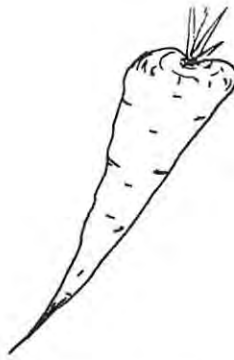


4. Bennie vra: "Waarom is daar Natuurreserve?"

Ek antwoord: " _____

5. Bennie vra: "Die reënwater beland in riviere wat dan see toe uitloop - nou wat gebeur alles met die water daarna?"

Ek antwoord: " _____



6. Bennie, sy sussie en ek hou van tuinmaak. Bennie vra:
"Moet ons die wortels, slaai, beet en ertjies in aparte
beddings saai, of moet ons gemengde beddings uitle?"

Ek antwoord: "_____

Die sussie vra hoekom? Ek verduidelik vir hulle: "_____

7. Bennie vra: "Het jy tevore besoek afgelê by die Karoo
Natuurreservaat?"

Ek verduidelik vir Bennie: "_____

Bennie vra: "Wat is jy van plan om volgende keer op die
Reservaat te gaan doen?"

Ek antwoord: "_____



8. Bennie vra: "Waarom is bome so belangrik?"

Ek antwoord:" _____

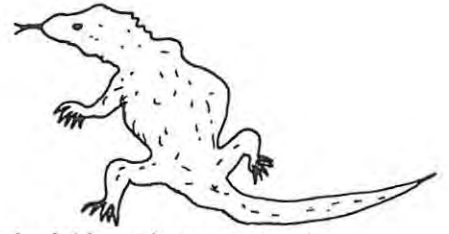
Bennie vra: "Was jy ooit betrokke by boomplant by jou huis?"

Ek antwoord:" _____

Bennie vra: "Wie se ideë was dit?" Ek antwoord:

" _____

9. Bennie en ek stap lekker in die Natuurresewaat tussen Spandauskop en die Vallei. Oppad huistoe tel Bennie stukke dooie hout op vir vuurmaak by die huis. Ek sê vir Bennie: " _____



10. Bennie en ek werk hard in die tuin. Skielik sien ons 'n
likkewaan onder 'n bos. Ons maak dan so....

11. AI! Dit reën weer !!! Bennie se huis, my huis en ons 2
bure se huise word elke keer oorstrom as dit reën.
Bennie vra hoe ons hierdie probleem gaan **aanpak**: _____

12. Bennie vra: "Wat het plante alles nodig om te groei?"
Ek antwoord: " _____

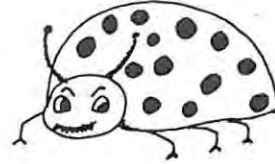


13. Bennie sê: "So dit is die Natuurbewaringsmense wat verantwoordelik is om ons aarde op te pas?"

Ek antwoord: " _____

14. Ons skool is betrokke by 'n herwinningsprogram. Ons verdien geld met die plastiek, blikkies en bottels wat ons versamel. Maar Bennie wil weet hoe baat die aarde daarby.

Ek antwoord: " _____



15. Bennie is moeg vir die "goggas" wat sy plante opvreet en trap hulle almal dood. Ek is mos Bennie se vriend en wil hom uithelp met sy probleem. Ek sê vir hom: "_____

16. Bennie en ek praat ernstig met mekaar oor probleme in die lewe wat ons almal pla. Bennie sug en sê: "Ja, maar wat kan ons doen, ons is net kinders?"

Ek lewer die volgende kommentaar: "_____



17. Bennie vra: "As daar by jou huis gekook word, wat gebeur met die groente skille en oortollige kos?"

Ek verduidelik vir Bennie: "_____

18. Bennie vra: "Met watter volwassene by die huis kom jy die beste oor die weg."

Ek antwoord: "_____

APPENDIX 4

MOTIVATIONS FOR THE QUESTIONS ASKED IN THE 'BENNIE' QUESTIONNAIRE (POST ENVIRONMENTAL EDUCATION PROGRAMME)

Question 1:

Purely an example aimed at relaxing the children and introducing the style of questionnaire.

Question 2:

Part 1 Establish the degree to which Bennie's actions are seen as littering, harmful to nature and the waste of a recyclable resource.

Part 2 Do the children recognise that the apple, unlike the Coke can, is biodegradable and forms part of a nutrient cycle?

Question 3:

An attempt to ascertain whether the children intend following up any of the Environmental projects during their school holidays.

Question 4:

An attempt to ascertain whether the children view the importance of Nature Reserves beyond just the conservation of animals and plants.

Question 5:

Do the children recognise that water forms part of a cycle. An explanation of a basic water cycle required.

Question 6:

The choice of gardening bed required towards establishing whether the children grasped the disadvantages of monocultures.

Question 7:

Establish whether the children recognise the recreational opportunities offered at the Karoo Nature Reserve. Which ones are they interested in?

Question 8:

In what ways do the children view trees as important? Have the children promoted the planting of trees at home?

Question 9:

Do the children recognise that the dead wood forms an integral part of the nutrient cycle in a natural environment, and is therefore protected for good reason?

Question 10:

An attempt to ascertain whether the children will protect a creature traditionally feared by the community ie. to what extent do they recognise the right of every creature to live?

Question 11:

An attempt to ascertain whether the children recognise the advantages of workshopping common problems in groups.

Question 12:

Particularly asked in order to establish whether the children fully appreciate the need for soil for plant growth, other than air, sunlight and water.

Question 13:

An attempt to gain insight into the children's perceptions regarding who is responsible for the caring of the whole earth.

Question 14:

An attempt to establish the children's ideas on the benefits of recycling other than the generation of income.

Question 15:

An attempt to establish the children's understanding of enviro-friendly pest control measures.

Question 16:

An attempt to establish whether the children view themselves as capable of making valuable contributions to society.

Question 17:

An attempt to establish whether the children have established trench gardens at home.

Question 18:

Identify suitable 'parent' for interview.

APPENDIX 5

An example of an interview schedule: Child 7

Algemene vrae:

1. Wat het jy die meeste geniet in die tydjie wat ek saam met die klas gewerk het? Hoekom?
2. Het jy miskien die mense by jou huis hiervan vertel? En hoe reageer hulle?
3. As jy gaan kamp by Camdeboo, by wie vra jy toestemming? Vra hulle jou uit voor ons ry.....en as ons terugkeer, wat sê hulle als vir jou?
4. Watse ontspanningsgeleenthede kan ons geniet as ons die Karoo Natuurreservaat gaan besoek? Behalwe saam met die klas, het jy ooit van hierdie geleenthede gebruik gemaak?
5. Jy sê dat jy goed oor die weg kom met jou ma...gesels julle dikwels saam?

Spesifieke vrae:

6. Ek sien jy skel Bennie uit as hy sy blikkie in die veld gooi. Ek's bly dat jy gee om vir ons aarde. Maar sê vir my, is daar miskien iets beter wat Bennie met sy blik kan doen? Hoekom is dit 'n beter ideë?
7. Jy't geskryf dat jy jou tuin water gaan gee in die vakansie. Vertel my bietjie van hierdie tuin?
8. Kan jy gou weer vir my verduidelik hoekom Bennie 'gemengde' beddens geplant het? Ek sien jy wil ook Bennie help om sy 'goggas' te verwyder...watse raad gaan jy vir hom gee?
9. Ek sien dat jou Oupa al bome by julle huis geplant het. Wanneer het dit gebeur? Was dit sy ideë, of joune? Het jy hom die saadjie in die koeldrink bottel al gewys? Het hy jou uitgevra hoe werk die hele storie..... hoe verduidelik jy vir hom?
10. Ek sien dat jy het eers hier geskryf dat julle gaan die likkewaan doodmaak, en toe het jy dit uitgekrap? Hoekom het jy dit verander?
11. Ek sien dat jy verstaan mooi dat die Natuurbewaringsmense die aarde wil oppas. Maar dink jy dis net hulle verantwoordelikheid?

APPENDIX 6

An example of an interview schedule: 'Parent' 7

Algemene vrae:

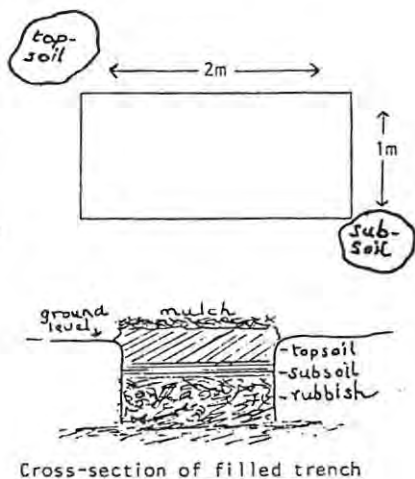
1. Vertel X ooit vir U van die dinge wat hulle by die skool doen of leer? Hoe dikwels praat julle daaroor?
2. X se klas het in die eerste kwartaal gaan kamp by Kamdeboo. Het X miskien verduidelik van al die goed wat ons daar gedoen het?
3. Weet U watse ontspanningsgeleenthede by die Karoo Natuurreservaat aangebied word? Het U ooit sulke plekke besoek?
4. Sê nou daar kom 'n likkewaan in jou tuin. Hoe gaan julle maak? Dink jy X sal dieselfde doen?
5. Wat maak U met al die gebruikte bottels, papiere ens. by U huis? Het X miskien vir U ander ideës gegee?

Spesifieke vrae:

6. X het my vertel van 'n groente tuin wat hy by die huis gemaak het. Het U miskien gesien hoe hy hierdie tuin voorberei het? En was daar enige probleme met die groei van die groente....(wie het die probleem/probleme opgelos?) Hoe voel U omtrent X se poging? Staan jy hom by met sy poging? Mag ek die tuin bietjie later gaan bekyk?
7. By die skool het ons boomsade in bottels geplant, maar X s'n was gesteel. Het hy miskien met U daaroor gesels?

HOW TO PREPARE A FOOD GARDEN

1. Mark out a bed about the size of a door - 2m x 1m (a spade is generally 1m long). Before starting to dig be sure that you have enough rubbish to half fill the trench.
2. Dig out the bed to a depth of about 45cms (that is about knee deep) to make a trench. Heap the darker topsoil at one corner and the subsoil (usually reddish) at the opposite corner.
3. Half fill this trench with decomposable kitchen, garden and veld rubbish mentioned on Page 1. Put the coarser rubbish at the bottom; newspapers, cardboard and all rough stuff should be broken into small pieces and well mixed with the other rubbish. Check that the trench is really half-filled with rubbish - do not be stingy with this good soil food.
4. Wet the rubbish because wet rubbish decomposes more quickly than dry rubbish.
5. Immediately cover the rubbish with soil. The rubbish must be covered quickly to avoid bad smells and trouble from flies, rats and dogs. Start with about 15cms of subsoil and follow with about 15cms of topsoil. The soil at the top of the bed should be fine (not lumpy) and levelled with a rake or a piece of wood. The filled trench should be a little higher than the surrounding ground - because the level will drop when the rubbish decomposes. The unused soil may be used for building up the surrounding paths which should be at least 50cms wide; surplus soil could be kept in a corner till it is needed for a compost heap or other purposes.
6. Finally, cover your trenchbed with a 5cm layer of MULCH (See Page 3).



This trenchbed is ready for planting seeds and seedlings immediately - it could serve you for 5 years - no more digging of this bed for 5 years!

The 'rubbish' brings fertility to your soil and changes bad soil (too clayey or too sandy) into good soil.

No need to wait - plant immediately and, while your plants are growing, earthworms and good bacteria are changing the 'rubbish' and mulch into good soil food. Earthworms are a gardener's best friends - never kill them.

Before you start to prepare your bed, it is good to sow some seeds in small containers such as empty cartons (from milk, beer, yoghurt, etc) - make a few holes at the bottom for drainage. Keep the cartons in a warm and sheltered place while the seeds are growing. Remember to water them regularly. You will then have some healthy young plants for your trenchbed in addition to the seeds.

Put a little fence around your bed - sticks, stones or a few strands of thick string or wire - to keep out children, dogs, chickens, etc.

MULCH

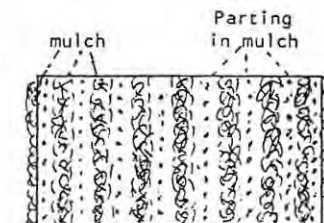
MULCHING IS VERY IMPORTANT

MULCH is a soil covering which consists of dried grass, or dead leaves, or sawdust, or straw, etc. Never burn these valuable materials.

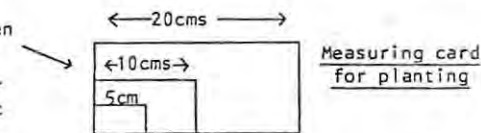
Be sure to spread a 5cms thick covering of mulch over the top of the trenchbed immediately it has been prepared.

PLANTING

- * When the bed is ready, use a stick or your hands to make partings in the mulch, starting right at the edge. Always make the rows across the bed and not lengthwise. In each parting make a shallow furrow in the soil for planting seeds.
- * Sow seeds carefully - not too thickly - and cover them with very little fine, dry soil. Do not cover seed with mulch at this stage. (See ** below). Press the soil down gently but firmly over the seeds.
- * Make a card for measuring spacings between rows.
- * Water carefully - using a watering can or a tin with a few tiny holes, or a plastic bag with holes. (The water from a hose-pipe is generally too strong and washes the seeds out of the ground).



Seeds planted in mulch-covered bed



WATER THE SEEDS DAILY FOR THE FIRST 10 DAYS

- * You will be surprised to see how much you can plant in your doorsize bed - use the Food Gardens Planting Plan as a guide.
- * Instead of filling the bed with only one kind of vegetable, plant two or three rows each of a variety of different vegetables.
- ** When the seeds have grown to about 5cms, arrange a little mulch gently around them. This helps to keep the plants moist and growing well.

NEVER LET THE SOIL UNDER THE MULCH GET REALLY DRY - CHECK DAILY. Too wet is as bad as too dry.

RENEW THE MULCH WHEN NECESSARY.

PREPARE 4 BEDS FOR SUCCESSION PLANTING AND CONTINUOUS FOOD

When the first trenchbed is completed and planted so that no space is wasted (see Planting Plan for MAXIMUM PRODUCTION IN MINIMUM SPACE) - then prepare a second bed in the same way.

Plant your second bed four weeks after the first bed was planted, a third bed four weeks later and so on until you have at least 4 doorsize beds planted in succession - to give you continuous fresh vegetables throughout the year.

NEVER LEAVE EMPTY SPACES IN A BED - replant each empty row with seeds or seedlings as soon as you have harvested a crop.

PRACTICE CROP ROTATION - a root crop (carrot, beetroot, turnip) should follow a leaf crop (spinach, cabbage, lettuce), and a legume (beans, peas) follows the root crop. LEAF ... ROOT ... LEGUME.



food gardens

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880-5956/7

NON POISONOUS INSECT CONTROL

Insects and pests do not like healthy plants - so the best way to keep them away is to be sure your plants are healthy.

Plants grown according to the Food Gardens method are healthy because they are well fed and well protected and develop strong, deep roots.

It is a good plan to examine the plants in your little vegetable bed every day - this does not take long because the beds are so small. If you see aphids on the leaves of your broad beans or little green worms eating up your cabbages, or snails or those big black and yellow beetles, just take them off gently by hand.

Insects lay hundreds, even thousands, of eggs at a time - so every time you kill one insect you are saving your plants from attack by thousands of its offspring.

We must remind you again that small is beautiful. It is not necessary to use poisons to keep insects away from your mini vegetable garden. Poisons are expensive and dangerous, so -

- * Be sure your plants are healthy by using the Food Gardens Foundation method.
- * Remove unwelcome insect visitors by hand every day.
- * Use non-poisonous insect controls.

* * * * *

GARLIC SPRAY RECIPE: This garlic spray is reputed to destroy 98% of all common pests.

Finely chop up one whole garlic. Soak for 24 hours or longer in 2 teaspoons liquid paraffin. Add this mixture to 2½ litres of soapy water (use Sunlight or Blue soap, not detergents such as Omo, Skip, Surf, etc). Mix well, strain and spray onto plants when necessary.

* * * * *

APHIDS:

Make a soapy mixture in 2½ litres of water using bath soap or Sunlight or Blue soap, not strong detergents such as Omo, Surf or dishwashing soaps. To this soapy water add 1 teaspoon of Jeyes Fluid if you have it. With a sponge or cloth gently wipe the aphids off the infested plants. This should be done three times with three days between each treatment, as eggs will be hatching during that time.

Some people say that the planting of onions and parsley among vegetables keeps aphids away.

ANTS:

Ants and aphids generally go together so by controlling ants you could control aphids. Look for the ant holes and then pour a little Jeyes Fluid into the holes and wash it down well with water. Urine also keeps ants away. Pour it into ant holes and also mix either urine or some Jeyes Fluid with water and sprinkle in places where white ants go for mulch.

SNAILS & SLUGS:

Slugs are snails without shells. Snails and slugs are not insects, but we include them here because they eat up young plants. They travel and eat by night. A few ideas for controlling them -

1. A mulch of oak leaves protects young plants.
2. Sprinkle crushed eggshells around plants - the soft underbellies of slugs and snails are hurt by the sharp shells.
3. A sprinkling of salt causes them to shrivel up.
4. They are attracted to stale beer and will drown in beer set out in the shallow lids of jars.
5. During cold, dry periods and during daylight hours, snails and slugs hide under bits of wood and other plant refuse - so by keeping your garden free of refuse you will be taking away their shelter and that helps to get rid of them.

CUTWORMS:

1. Cut the centre tubes of toilet rolls into three pieces - place a piece over the young plant and push it halfway into the soil.
2. Wrap a small piece of newspaper around the stem of the plant before transplanting it.
3. A small stick or matchstick placed upright next to the plant stem will also stop the cutworm from cutting the stem.
4. Finely crushed eggshell spread closely around small seedlings may also help.
5. They work by night so look for them very early in the morning when they are near the surface next to the plants they have damaged.

CABBAGE WORMS OR CABBAGE MOTHS:

1. Make a mixture of flour and salt and shake it onto the leaves of plants being eaten by cabbage worms (shake the mixture through an old sock or stocking).
2. Paint sour milk on the upper and lower surfaces of the leaves.
3. Cut up tomato leaves and place them on cabbage and other plants which could be attacked.
4. Mix 1 teaspoon of salt in 1½ litres of water and spray on to plants.

EELWORM (NEMATODES):

Tiny parasitic worms suck the juice from plants, and the eggs they lay result in root knots. This stunts or kills the plant, and results in the death of the plant. Control measures involve crop rotation and enriching the soil with humus and other organic matter. Marigolds planted between the vegetables exude an underground substance that keeps nematodes away.

BUGS & BEETLES:

Two suggestions for repelling bugs and beetles -

1. Use Garlic Spray Recipe on Page 1.
2. Very weak lime sulphur (1 Tablespoon to 2 litres of water) to be sprayed on to the leaves on top and underneath so that leaves are completely covered - this mixture deals with most pests - even aphids. It is not a poison, just a repellent, and is not harmful - but it has a horrible smell, so cover your nose and mouth when using it ... and remember to use only a very weak solution - not as stated on the bottle.



National
Black Consumers
Union

P.O. BOX 650337
BENMORE 2010

My dear Friends!

Every evening, after our supper, Bethwell and I watch a little bit of TV before we go to bed. It is a peaceful time, with the children fast asleep in the next room, and we try to watch programmes that interest and teach us. A few months ago we were confused and shocked to see a programme dealing with 'environmental issues'. 'Now, what are these things?' I said to Bethwell. But he didn't know. So I decided to find out because, as you know, I cannot live my life happily if I don't understand all the things that affect my life and the lives of my children.

Fortunately a few days later I saw a sign up at my community centre announcing that a 'tree expert', Mr. Sam Nephithidi, would be giving a talk the very next day on the environment, with a particular stress on the part that trees play in keeping our environment healthy. It is a very complicated matter but Mr. Nephithidi explained it so nicely to us that I feel I am in a good position to pass this information on to you.

What is the environment?

The environment is the whole world around us. It is the land, the sea, the rivers, the lakes, the plants, the forests and, of course, the air all around us that we breathe every day of our lives in order to survive. It is also the towns and the cities that we live in – every single part of the world goes to make up the environment. Each of these things, in its own way, plays a part in the overall workings of the world. But, as Mr. Nephithidi told us, it is trees mainly that play an extremely important role in the survival of all forms of life on our planet.

What is so important about trees?

Trees are plants that we take very much for granted. I mean, do we ever stop to think about them? No. We just look at them and say, 'That's a nice tree.' Or we chop them down for firewood and never think that perhaps one day there won't be enough trees to provide for our future fires. Otherwise we just eat the fruit off the trees without ever realising that trees are vital to our existence.

Here are some facts about trees:

- Trees are the 'air cleaners' of the world. 40% of the oxygen we breathe comes from trees. If we did not have this oxygen to breathe, we would die. It's as simple as that. In fact, even with only half the oxygen in the air, we would still die.
- Trees take water from the soil and give it off into the air as vapour which is like mist. When there is a lot of water vapour in the air it forms clouds that bring us the life-giving rain that allows the plants and animals to grow and feed us. I like to think of it as a whole natural cycle of the environment. Without trees the water would settle in the earth and we would not be able to use it.
- Trees absorb a gas called carbon dioxide. If there were no trees this gas would rise and make holes in the ozone layer which is about 20 km up in the sky. And if there are holes in the ozone layer, then very harmful rays from the sun will come through and cause extreme damage to our skin.
- Trees act as natural air-conditioners. One tree, through its 'breathing' process, produces a cooling effect on the earth that is equal to four air-conditioners working full time. That is why it is always cool when you walk through the trees in a forest.

