CHAPTER 1

INTRODUCTION AND OVERVIEW

1.1   INTRODUCTION AND RATIONALE

1.1.1   Sustainability

The purpose of this research project is to analyse current environmental education practices so as to implement more action and change, thereby improving educational practice and environmental sustainability in an International School in Vietnam. Sustainability requires living within the regenerative capacity of the biosphere. Wackernagel, Schultz, Deumling, Callejas, Jenkins, Kapos, Monfreda, Loh, Myers, Norgaard and Randers (2002) have produced an accounts study that indicates that human demand and the use of resources may well have exceeded the biosphere's regenerative capacity since the 1980s. According to this preliminary and exploratory assessment, humanity's load corresponded to 70% of the capacity of the global biosphere in 1961, and grew to 120% in 1999. This means that the developed world is currently using more resources than can be supplied and is living above the carrying capacity of the planet. These practices are contributing to the current global environmental crisis.

Education for sustainable living is proposed as one response to the current environmental crisis facing the world. Education for sustainable living is defined by the IUCN Commission on Education and Communication (1993:6) as a process which

...develops human capacity and creativity to participate in determining the future, encouraging technical progress as well as fostering the cultural conditions favouring social and economic change to improve the quality of life and more equitable economic growth while living within the carrying capacity of supporting ecosystems to maintain life indefinitely...

This definition broadens the concept of environmental education, within formal education primarily, by connecting education in political, social, economic and biophysical fields to create change. Sustainable lifestyles are emphasised in the latter part of the definition.

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Education aims to result in altered knowledge, attitudes, values, skills and behaviours. Therefore, one way to educate people to achieve sustainability is to develop activities within schools that allow for the examination of our own knowledge, behaviour and attitudes regarding sustainability. This allows for establishing, through lessons and/or as action projects, how improvements can be made.

1.1.2 Current practices at the International School in Vietnam

Education systems throughout the world have recognised the importance of educating for sustainability. This International School, International School Ho Chi Minh City, offers the International Baccalaureate Program (IBO) from Kindergarten to Grade 12. The IBO curricula aim for the integration of the concepts of sustainability within subject areas. Therefore, it is hoped that the education process in the International School may contribute to forming citizens who understand and are able to participate in creating a sustainable society.

While staff members and students have a certain understanding of sustainability, the school community appears to use paper unsustainably. It is estimated, based on the number of reams of paper purchased, that 5000 sheets of paper are allocated to each of the 800 children at the school per year. Rather than reduce, reuse and recycle effectively, there is an endless amount of photocopying and printing done for lessons and for communication purposes between staff members, students and their parents. Research and action are required to deal with this situation where there is a contradiction between theory and practice within the school.

The research undertaken by the teacher and student researchers is associated with a newly developed and proposed draft Environmental Policy for this school (see appendix D). This draft policy aims to assist in creating sustainable lifestyles by focusing on issues relating to environmental sustainability. It commits the school to implementing an environmental policy that raises awareness, encourages responsibility, and facilitates action and evaluation of local and global issues. Certain aims are to allow students to

- become aware of their interdependence with the environment so that they accept their responsibility for maintaining an environment fit for future generations;
- become aware of sustainable and unsustainable lifestyle choices so that they are able to take responsibility for the impact that their lifestyles have on the natural resources in our environment;
- replace unsustainable practices with sustainable practices;
- replace unsustainable resources with sustainable resources;

- reflect on their responsibilities and actions that will ensure sustainable lifestyles; and
- have the opportunity to develop problem-solving, practical skills so as to be able to take positive action at school and in the future, with regards to local and global environmental issues.

The research undertaken for this dissertation explores how implementation of the policy dealing initially and specifically with paper, can occur. Key educational values that are desired in this school are awareness, understanding and knowledge of the environment, with positive and balanced attitudes and skills to act responsibly. The administration and staff members need to assist in the development of critical thought and reflection, and encourage action. So this research also explores changes in awareness, attitudes and behaviours of the school community. The process may assist in forming citizens who are able to participate in creating a sustainable society.

1.2   PROBLEM STATEMENT

From the abovementioned it can be gathered that the following research question motivated the research:

How can the community of an international school in Vietnam use paper on a more sustainable basis?

1.3   AIMS OF THE RESEARCH

The main aim of this research is to determine how the community of an international school in Vietnam can use paper on a more sustainable basis.

One specific aim is to measure the quantitative and qualitative changes in the school community, in terms of accepting responsibility and demonstrating changed attitudes and behaviours, when requested to reuse paper. This includes introducing methods of sorting paper, so that it could be reused or recycled, and encouraging the reuse of paper. The process involving the disposal of waste, including that of recycling, needs to be documented.

Another aim is to identify areas of misuse by analysing current practices in the school related to newsletter production and other uses of paper used to transmit information within the community. Action can then be implemented. Photocopying policies need to be analysed so that changes can be made. Computer printing policies, including that of writing reports, need to be analysed so that changes can be implemented.

1.4   DEFINITIONS

1.4.1   Environmental Education and Education for Sustainability

Janse van Rensburg and Taylor (1993:6) define environmental education (EE) as, "Planned processes which enable participants to explore the environment, to investigate recognised concerns and to take action to make the world a better place for all living things." This definition extends the views that EE is restricted to knowing about or exploring the natural environment, and emphasises the need for personal action. EE has on occasion been rearticulated as education for sustainable development (ESD). For example, EE within the Southern African Development Community (SADC) is increasingly seen, at national levels, "as a process of enabling sustainable development, and is often articulated as ESD, in line with international trends" (Obol, Allen & Springall Bach 2003:32).

While most environmental educators agree with this generalised rearticulating, other viewpoints and nuances also add value to the debate. When considerations of social, cultural and political factors broaden the traditionally understood area of EE, the term ESD may be applied.

Education for sustainable development should not be equated with environmental education. The latter is a well established discipline, which focuses on humankind's relationship with the natural environment and on ways to conserve and preserve it and properly steward its resources. Sustainable development, therefore, encompasses environmental education, setting it in the broader context of socio-cultural factors and the socio-political issues of equity, poverty, democracy and quality of life (UNESCO 2005:18).

To appreciate the distinction between EE and ESD, Rosenburg (2004:12) makes an important contribution to the debate within the Southern African context. While acknowledging the essential need for broadening the definition of EE to acknowledge social, economic and political dimensions, she warns that the chief emphasis on ecological dimensions within EE must not be submerged by these other dimensions, as it leads to EE all over the place in theory, but, in reality, happening nowhere.

This research project considers that a narrow view of environmental education is insufficient to achieve sustainability at this school, as the school is a complex system whereby social, cultural, economic and political factors all impact how we view our relationship with the natural environment. As pointed out in Section 1.1.2, the school community may know the

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theory but fail to apply this knowledge in practice. Therefore, the issue of education for sustainability for this school should focus on developing knowledge and skills that lead to demonstrating sustainable attitudes and behaviours within *our* environment that can be extended to national, regional and global areas.

One area to be addressed is sustainable consumption. Influences from the outside and within the education system create a false impression that unsustainable consumption can continue. Hence it is hoped that in this school, education for sustainable consumption will, in one way, assist in achieving sustainability. The word 'sustainable' is frequently used in many contexts but in order to gain a better understanding of this dissertation, close attention must be given to the terms. Education for human rights and the likes, are ways of achieving sustainability. Education for sustainable tourism (Ferreira personal comment), deals with being aware of how we should behave as tourists and how tourism should be developed. This is another way of achieving sustainability. To elaborate further, education for sustainability or sustainable development in an educational institution, such as this school, needs to concentrate on sustainable consumption and will differ from that in the tourism or manufacturing industry, or governmental department, according to local contexts and issues. Drawing on different means allows educators to get closer to creating sustainability. Only if today's students appreciate the negative and positive effects of their own human impact, in terms of tourism, on the environment can future generations be assured of access to adequate resources for sustainability (Ferreira 2005:9). This applies in equal measure to behaviours at school.

1.4.2   Action Research and Participatory Action Research (PAR)

A conventional definition of action research by Cohen and Manion (1998:186) is that it is a "small-scale intervention in the functioning of the real world and a close examination of the effects of such intervention." The proposed research is to investigate the success of the proposed intervention in reusing, reducing and recycling paper, and to measure the impact of such action on students and staff members, in terms of changes in behaviour and attitudes. It also aims to investigate other ways of the sustainable use of paper.

This study also meets three other features of action research described by Cohen and Manion (1998:186). It is situational, as it deals with identifying environmental educational problems in the community of the International School and attempts to solve them. It is collaborative and participatory, as a small group of teachers will be researchers and practitioners. The affected group articulate, discuss and eventually act on a particular problem. The participation of students, the administration and cleaners will also be encouraged.

1.4.3   Action competence

Two definitions of action competence emphasise the ability to develop skills in taking action and critical thinking. Schnack (1994:190) defines 'action competence' as "a capability – based on critical thinking and incomplete knowledge – to involve yourself as a person with other persons in responsible actions and counter actions for a more humane world." Jensen (in Laing & McNaughton 2000:176) describes action competence as being when learners have knowledge of and insight in an issue, have commitment and vision about an issue and can take action on an issue.

1.5   THE RESEARCH DESIGN

The method involved two teacher facilitators and I, a Student Environmental Action Committee (SEAC) and three consecutive groups of students implementing participatory action research. Two cycles of action research were undertaken to investigate organisational changes in the school and personal changes in the research participants and school community. The school community includes the administration team, staff members, students, cleaners, business manager and maintenance manager.

Different areas within the school, involving unsustainable use of paper, were identified and research was undertaken. Planning to take action was followed by the implementation and evaluation of the action. Data collected allowed for the methodology to evolve and improve so as to allow for a second cycle of action, change and research. Data was collected through observations, questionnaires, memoranda and interviews to see if any changes in behaviour, awareness and attitudes had occurred.

Continual changes in the methodology occurred as the collected data informed and drove new actions. At the end of the second cycle, the analysis of the questionnaires was accompanied by careful evaluation and interpretation of the other data. This allowed for tentative conclusions, specific to this study, to be drawn.

Progress of the project was fed back to staff members and students throughout the research process. Finally, criticisms of the methodology and results were conducted to consider errors, mistakes, limitations and some inconclusive evidence. Recommendations to improve practice at the school were made.

1.6   DIVISION OF CHAPTERS

The research report is divided into five chapters as follows:

Chapter 1: Introduction to the study, rationale, context of the study describing current practices, aims, definitions, research design and division of chapters.

Chapter 2: Literature review of action research projects and other studies related to sustainable policies.

Chapter 3: Research design, involving qualitative observation, interviews, and quantitative surveys.

Chapter 4: Results and a discussion of the results.

Chapter 5: Conclusions, recommendations and limitations.

1.7   SUMMARY

This chapter has introduced the context of the participatory action research within the school as well as the roleplayers involved. The aims of the research have been identified. In order to critically evaluate and understand current unsustainable practices at the school, a literature review is presented in the next chapter to supply evidence of research, which includes the implementation of policies, which may lead to more sustainable practices. The review also discusses how sustainable development and education for sustainable development are to be or should be best implemented.

CHAPTER 2

SUSTAINABILITY AND IMPLEMENTING SUSTAINABLE POLICIES AND ACTIVITIES IN SCHOOLS

2.1 INTRODUCTION

In the previous chapter, a main research question was defined and set within the local environment of the International School in Vietnam. Definitions of sustainability and action research are expanded on in Chapter 2, through a review of the aims, implementation strategies, and results of research of ESD in schools, so as to highlight recommended research methodologies. Certain current environmental and developmental issues in Vietnam, namely waste disposal and environmental education (EE), are presented to help set the research at the International School in context.

2.2 THE IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT

As public concern and awareness of the environmental crisis has emerged, the United Nation Organisation has made progress towards achieving sustainable development and education for sustainability throughout the world through various conferences, resolutions and actions. These are influenced by complementary efforts of governments, NGOs and civil society. Important events include the formulation of the widely acceptable definition of sustainable development by The World Commission on Environment and Development in 1987 as, "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Education and Development 1987:8).

The 1992 UN Conference on Environment and Development (UNCED), otherwise known as the Earth Summit, held in Rio de Janeiro, Brazil, adopted a global plan of action, known as Agenda 21, to meet the challenges of implementing sustainable development policies and

programmes. It also suggested that economic, social, and environmental considerations, such as poverty, equity, quality of life, and global environmental protection, are intertwined within sustainable development (Pigozzi 2003:3).

The World Summit for Sustainable Development (WSSD), held in 2002, reviewed accomplishments and outcomes of the Earth Summit, and adopted more concrete measures and identified quantifiable targets for better implementation of Agenda 21 and the more recent Millennium Declaration Goals (*ibid*: 3). In the political declaration of the report (United Nations Organisation 2002:7), the participants agreed, "to assume a collective responsibility to advance and strengthen the mutually reinforcing pillars of sustainable development – economic development, social development, and environ-mental protection – at local, national, regional and global levels." The report provides a plan for the implementation of sustainable development and is not to be confused with or seen as a plan for education for sustainable development (ESD). However, many governments, institutions, authors and researchers see the plan for sustainable development as objectives from which direction for and debate about ESD are derived.

The view generally agreed upon in the summit is that sustainable development is described as "a dynamic and relative concept with many dimensions and many interpretations. Some argue that there is no need for one agreed definition of sustainable development; instead, sustainable development should be seen as a process of change that is heavily reliant upon local context, needs, and priorities" (Pigozzi 2003:3). As a result of the WSSD, the United Nations General Assembly adopted a resolution establishing a UN Decade of Education for Sustainable Development from 2005 to 2015, aiming to promote and integrate ESD into all education systems, and to strengthen international cooperation in developing policies, programmes and practices of ESD (*ibid*:1).

The Director General of UNESCO, while addressing the Permanent Delegations of UNESCO Member States following the WSSD, said that the "WSSD Plan of Implementation recognizes two key aspects of education in relation to sustainable development. First, education is the foundation for sustainable development. Second, education, as a key instrument for bringing about changes in values and attitudes, skills, behaviours and lifestyles consistent with sustainable development, is a tool for addressing such questions as gender equality, environmental protection, rural development, human rights, health care, HIV/AIDS and consumption patterns as these intersect with the sustainable development agenda" (Pigozzi 2003:3).

Identifying the manner in which development occurs in a society is essential for analysing the nature of the ESD required. Bearing in mind that sustainable development involves a process of change, the reasons for developing a local school policy for sustainability needs to be considered. The school, itself, and the families attending the school are characterised by high levels of consumption in comparison to the majority of people living in Vietnam and the rest of the developing world. One means of determining if communities are sustainable is by calculating an Ecological Footprint. Wackernagel and Rees (1996:158) define an Ecological Footprint as "the land and water area that would be required to support a defined human population indefinitely" at a given material standard of living. The Ecological Footprint values used below are calculated by measuring human natural resource consumption and waste output within the context of nature's renewable capacity (Redefining Progress 2004:9). While Vietnam's current Ecological Footprint is 0.76, it can be assumed that the school community's Ecological Footprint closely resembles those of Australia (7.09), Canada (8.56) and the United Kingdom (4.72), as almost all students and teachers live and work in luxurious air-conditioned environments, frequently travel overseas, use private transport to travel within the city, and are earning and consuming more than most middle income families throughout the world.

Relevant to this literature review are suggested strategies, within the plan of action of the WSSD, to change unsustainable patterns of consumption and production in order to allow sustainable development in all countries (United Nations Organisation 2002: 13-19). Corporate environmental and social responsibility, as well as accountability, is encouraged. Relevant authorities at all levels of government are encouraged to include sustainable development considerations at all levels of decision-making. These include the promotion of sustainable consumption and production patterns within countries. Actions to prevent and minimize waste, and to maximise reuse, recycling and use of environmentally friendly alternative materials, are required. Such actions are not only relevant for corporations and governments but for private systems such as International Schools. The following section explores what type of education is needed to allow for sustainability.

2.3   THE IMPLEMENTATION OF EDUCATION FOR SUSTAINABLE DEVELOPMENT

Education is recognised as being essential for sustainability as it addresses a variety of areas, including knowledge. Chapter 36 of Agenda 21 (UNCED 1992) states:

Education is critical… for promoting sustainable development and improving the capacity of the people to address environmental and developmental issues… for achieving environmental

and ethical awareness, values and attitudes, skills and behaviours consistent with sustainable development and for effective public participation in decision making.

While it is recognised that ESD requires the development not only of knowledge, but also of all of the above concepts to achieve sustainability, there is still widespread debate due to the complexity and the lack of progress on the implementation of education for sustainability. The debate occurs, in part, because development for sustainability and ESD are broad concepts that should be based on localised needs and priorities (UNESCO 2002:10; Pigozzi 2003:3) and, as such, no single avenue exists to achieve ESD.

The Earth Summit and subsequent events have stimulated policy changes involving the broadening of definitions, strategies and approaches used in EE to incorporate greater community development planning, so as to include contributions from persons involved in industry and business, decision makers and politicians, and others at national and regional level. As discussed in section 1.4.3, there is overlap between EE and ESD and the school, as an educating body, should strive for sustainability wherein education for the environment, especially in terms of consumption, is a central concern.

Prior to the WSSD, UNESCO published a report citing lessons learnt since the Rio Summit. Reflection reported in the report resulted in calls for education that includes action and responsibility:

Education for sustainable development is an emerging but dynamic concept that encompasses a new vision of education that seeks to empower people of all ages to assume responsibility for creating a sustainable future (UNESCO 2002:7).

Recognising educators as agents of change, the report sees that "education is not only central to sustainable development", but also as "humanity's best hope and most effective means" of achieving it (*ibid* 2002:8).

The report summarises the lessons learnt which provide useful guidelines for ESD (*ibid* 2002:7-11). ESD is required to be a process of learning how to make decisions that consider the complex interactions of the economic, ecological, and social wellbeing of all communities. The report requires encouraging students to reflect critically on their own areas of the world. The decision-making and reflection process requires that issues are taught, presented and discussed in a holistic and integrated manner within formal and non-formal education systems. This will require the reorientation of education systems, policies, and practices to allow for individual and collective opportunities to make decisions and act in culturally

appropriate and locally relevant ways to redress the problems that threaten our common future.

In addition, the report highlights the ethical issues fundamental to any education process warning that achieving sustainable development "depends more on moral sensitivity than the growth of scientific understanding" (*ibid*:8). In a similar fashion, legislation, technology and research will be ineffective without changes in ethical values that lead to changes in behaviour, especially in developed countries. Fundamental social changes occur either because "people sense an ethical imperative to change or because leaders have the political will to lead in that direction and sense that people will follow them" (*ibid*:12).

Therefore it can be concluded from this UNESCO report that ESD is required to:

- be seen as a dynamic and emerging concept;
- be holistic and integrated into school curricula;
- be constructive in approach, thereby allowing for decision making;
- allow for critical reflection;
- direct the reorientation of education systems, polices and practices;
- allow for opportunities to make decisions and allow for opportunities to take action in culturally appropriate and locally relevant ways; and
- allow for individuals and communities to clarify their own values.

2.3.1   Education for sustainable consumption

Within the discipline of ESD education for sustainable consumption needs to be highlighted because of its localised relevance for the school. In the developed world major changes are needed to address high levels of unsustainable consumption. Research on sustainable consumption patterns by young people in 24 countries has shown that young consumers are more aware of the environmental and social impacts of using and disposing of products than of the environmental effect of consuming products (UNESCO 2003:13). On average, 37% of those surveyed stated that it was the first time that they had to reflect on the impact of their consumption (*ibid*:19).

The current emphasis at the International School is to achieve sustainable consumption within its context and culture. The UNESCO report, which identifies lessons learnt from the decade after Rio, suggests that "major changes are needed to reduce the impacts of consumption" and recommends that education programmes "need to integrate sustainable consumption issues so that young people can determine an appropriate balance between

their rights as consumers and their responsibilities as citizens" (UNESCO 2002:27). Citing that information campaigns which provide facts, request change or try to dictate behaviour have proved to be ineffective, it is suggested that the emphasis should be on action competence, defined in chapter 1 and expanded on in section 2.3.2, as it allows for the practice of developing skills in problem solving and decision-making. This development can be done by asking why particular changes are necessary and by exploring alternatives (UNESCO 2002:27).

In reviewing the literature of ESD it has become apparent that the development of local action competence and critical thinking are suitable ways to increase the sustainability of paper usage. This would hopefully serve as a start for increasing sustainability in other areas of the school. A discussion of each concept is followed by a review of participatory research methodologies.

2.3.2   Local action competence

Action competence includes the ability to envision alternatives, clarify values and interests, and make choices. This process also involves planning, action, and evaluation. Action competence brings knowledge of the problems, symptoms, and root causes, as well as of how different interests are served by different solutions (UNESCO 2002:26). To address and develop action competence within the school curricula, learners should study local issues and reflect critically, as well as explore tensions among conflicting aims by considering local contexts, priorities, and approaches. The importance of action competence is recognised and encouraged within the IBO curriculum (International Baccalaureate Organisation 2002:1). In conjunction with this, the school's mission statement is "to foster individual ability in an international environment" emphasising the development of the "whole child." However, being fundamentally complex, it is difficult to define simple or singular strategies to achieve in the school.

Action competence within the school curricula can be assisted through cooperation with programmes outside the formal education system. A UNESCO (2002:25-27) report discusses that such projects have shown that most acts develop the more broadly defined criteria of education for sustainability. Projects that successfully create concern and action for a sustainable future are those that avoid the linear premise that awareness, knowledge, and concern will result in action. As with projects cited in the report, many of which involve action through the monitoring of water resources and subsequently generate knowledge, concern and action, it is envisaged that a similar approach involving paper at the school will allow for

the "development of action competence through community-based learning" (UNESCO 2002:26). This development also requires that of critical thinking.

2.3.3 Critical thinking

The unlimited consumption of nature, inspired by western philosophies and lifestyles, continues even as it destroys the base of the existence of life. Mortari (2003:111) suggests that this occurs in part due to thoughtlessness – the absence of thought. She describes four types of thinking that ESD needs to develop. These are critical, constructive, aesthetic and political thinking (*ibid*:113-120). Critical thinking deconstructs our existing knowledge. Constructive thinking allows for the formation of a new framework of ideas and ethics. Thinking in an aesthetic manner involves exploring and encouraging the identification of the aesthetic characteristics of the environment. Being aware of the wonder of nature in an aesthetic manner will allow students to "see not only the timber in the trees but also the sound of the leaves in the wind" (Mortari 2003:117). Summarising Mortari's views (ibid 2003:119) of developing political thinking produces the following suggestions. There is a need to develop political thinking to combat the lack of political commitment within a consumer-orientated society. Acting politically means taking action, as well as creating and being involved in discourse. Discourse involves speakers co-operating to reach a shared point of view. The essential feature of political discourse is the ability to express judgement – taking up a definite position. Judgement requires critical and reflective thinking to be expressed in discourse and should prevent any form of indoctrination.

Discourse in classrooms, based on thinking, should not have to provide answers nor should the teacher hurry to provide answers. The task of the teacher is to keep dialogue open. Education for sustainability can be interpreted as educating to think for oneself.

Developing critical thinking about society's relationship with the environment is termed social critical thinking. Despite calls for and evidence of social critical approaches to EE (Fien 1993:13; Fien & Rawlings 1996:2; Huckle 1995:16; Jackson 2003:101; Janse van Rensburg 1996:74), and formal education, traditional teaching strategies and influences from society may prevent such processes. Within Asia, Stimpson (1997: 63), in comparing the differences between the development of EE programs in schools in Hong Kong and the adjacent Guangzhou Province notes that it occurs "within constraining social contexts and this has ramifications for the curricula being created...the social, political and economic tensions that prevail in the educational system largely determine the character of the curriculum and the focus of environmental education." Additionally, Bowers comments (in Mortari 2003:113) that there is, among educators, often a reluctance to question prevailing assumptions and values.

However, while constraints apply, change involving participation and critical reflection is possible. The inclusion of a local community based EE project, formulated by the Uttarakhand

Environmental Education Centre (UEEC), an NGO, into the curriculum of government state schools (Jackson, 2003:98; Pande 2001:47) is an example of ESD creating critical thinking. The curriculum is based on collaborative and interactive learning between teachers, students and community members, which is a radical departure from a classroom-bound, textbook pedagogy.

All stakeholders take part in a transformative learning process, especially teachers, who are the driving force. The articulation and questioning of assumptions needed to occur within curricular design and in classroom practice to achieve this collaborative learning (Jackson 2003:101). The developers of the UEEC course recommend consideration of the validity of all assumptions within the field of ESD. These include those currently in practice in the global culture, as well as those proposed within ESD courses. "Learning demands a willingness to question one's existing points of view – and to change it if necessary" (Jackson 2003:101). Jickling (2003:21) shares this concern of how to get students to transcend the boundaries of conventional wisdom or of best thinking practices. Sterling (in Jackson 2003:101) argues that transformative learning and transformative change in society must proceed hand in hand. Based on all of these criteria, the UEEC EE course, for example, includes activities for 12 to 14 year-old children, designed to foster a critical, questioning attitude to current problems, keeping in mind intellectual and emotional maturity. Teachers are needed to help students develop critical thinking.

In addition, processes put in place in Southern Africa to create sustainable lifestyles through EE have proved successful. This is because these processes encourage teachers and students to be reflective learners and to participate in change. In reviewing the current practices and noting challenges for the future, Lotz-Sisitka (2003:10) states:

The significance of reflexive learning processes, and participatory approaches to change have become evident in the region. The reflexive learning processes, in which learning processes remain open-ended and responsive to changes in context, where learners are at the core of co-constructing learning experiences in context, are likely to continue.

While encouraging critical thought, Huckle (1995:15) warns against teachers imposing a new form of thinking that is as dominating as the original form of thinking. The study reported by Laing and McNaughton (2000:176-178) notes the way that action research exposed a diversity of clashing views that threatened traditional priorities for teachers to maintain control. Also highlighted was the debate generated, when doing action research, of whether the teachers should and could offer their own opinions and values, in view of the power that they as teachers hold.

2.4   TRANSFORMATIVE PARTICPATORY RESEARCH

Having discussed the fact that ESD aims to develop action competence and critical thinking, consideration of a suitable methodology is required. A review of literature shows that participatory action research (involving researchers, teachers and students in different ways), case studies, community participation research, and critical ethnography are all current methodologies being used to improve sustainability. The majority of examples advocate participatory action research (PAR). Certain significant related studies use other methodologies, including case studies, critical ethnography and community participation research and will also be discussed. As noted in Chapter 1, PAR allows for intervention in local situations and an examination of the effects that the changes created. It is also situational, collaborative and participatory. The following sections expand on the characteristics of PAR.

2.4.1   PAR as ideology critique

Modern consumer societies stress the rights of the individual (Mortari 2003:119). Sustainability is not likely to occur in societies where the individual, rather than the group, assume prime importance. In the school, individuals feel they have the right to use as much paper and other resources as they need. How can such trends be dealt with?

Reviews of PAR studies show its ability and potential to expose relationships and challenge ideologies. Many educators have suggested that the integration of EE into curricula in schools would assist in achieving ESD. Yet the continual evaluation of the development process of the UEEC course (Jackson 2003:107) has led to the realisation that the premise of "greening" a curriculum is inadequate and that ideology critique needs to be integrated into the curriculum too. Jackson describes a concept flow chart of policy formulation through which practice is derived. Failures in practice rebound on policy, which leads to questioning the structure and legitimacy of the model (contemporary global culture) and of the conceptual framework (principles within the worldview). This leads to another cycle of the process until effective practice is achieved.

Similarly, Janse van Rensburg (1996:68) notes the need for transformative research that challenges conventional thinking so as to create social change. In her review of research methodologies, she states that failure of research to bring about change is because on occasion, the methodology chosen forms "part of a web of utilitarian and uncritical assumptions about research, knowledge, education and society". Other reasons for the

failure of certain research methodologies to bring about change are that, as opposed to PAR, the research is done by outsiders; is inadequately communicated; is not grounded in action; or is irrelevant for some reason or another (Janse van Rensburg (1996:69). Another reason is the means by which the top-down research approach to create action excludes consultation and participation (O'Donoghue & McNaught 1989:18). All of the above limit critical and constructive thinking.

PAR aims to understand the role of knowledge as an instrument of power and control (Strydom 2002:423). Huckle (1995:8) records that PAR, involving critical reflection and action, is "a common methodology, underpinning the development of classroom teaching, curricula, teachers as professionals, and sustainable communities" because application involves "bringing the politics of existing knowledge and theory-practice relationships into the open, and develops more socially useful alternatives which point to new kinds of society and citizenship." Hence, PAR cannot be done without exposing and reflecting on individual relationships within the society. Both Boersema and Maconachie, and Schurink (in Strydom 2002:420) see PAR as a means of developing critical consciousness. Babbie (in Strydom 2002:420) notes that once members of the community see themselves as researchers, they regain power over knowledge. This, the researcher feels, enables the participants to subsequently act because of a new awareness of the ideology or knowledge and a willingness to critique.

2.4.2   PAR facilitates communication

PAR does not only encourage ideology critique in theory. Action is to be generated through a process of communication which, aiming at better understanding, may too unearth discourse. O'Donoghue and McNaught (1989:22) recommend PAR approaches for the integration of EE in curriculum development processes because of their problem solving approaches. Their study describes the unsuccessful implementation of a curriculum developed on a rational and centre-to-periphery orientation (a conventional research, development, dissemination and adoption model). This led to an action research investigation that explored conceptual, evaluation and adoption tensions, and led to the root problem of the project being addressed. Curriculum development was then facilitated by "grassroots" reconstructive action. This more successful collaborative problem solving process, involving critical and reflective practices, therefore replaced top-down curriculum development.

To create collective action and discourse, an appropriate research design needs an ideological critique, the construction and production of counter hegemonic discourses, and empowered collective activism (Malone 1999:173). The methodology, therefore, initially

needs critical analysis and a report on current practices followed by alternative perspectives to allow for the identification of discourse. Malone's research study mirrors other studies that "focused on the intersection of a number of discourses and practices in the field of environmental education" (*ibid:*168). It included attempts to describe and understand the interactions as well as the contradictions, incoherencies, and inconsistencies between theory and practice. It attempted to determine how the school and community interactions resulted in their constructed views of social critical EE.

Due to the need for ideology critique and subsequent discourse, PAR does have a political agenda. With the emphasis on activism, Malone's concern about the credibility of personal experience and power, when the researcher has a political agenda, is valid. However, she provides evidence from other research studies that show that "researchers as activists consider personal experience as a valuable asset to the research process", as it offers "an explanation of the researcher's standpoint. In change-orientated research the advantage of such an approach is the link between the research questions, the study and the research context" (*ibid*:170).

The case study of recycling in the waste industry, eThekwini Unicity, Durban (Freeman & Mgingqizana 2002:17-27) shows the interplay between economic, environmental and social considerations in achieving sustainable development. Social considerations involve an acknowledgement and involvement of all the stakeholders, and the empowerment and capacity building of the informal collectors who make a living from recycling: "The ultimate goal of this process has been to attempt to reduce the power differentials between the recycling industry and the informal collectors in order to promote social, economic and environmental equity" (*ibid* 2002:26-27). Sustainability requires discourse, in spite of power, language and cultural barriers, with all stakeholders at the school, including the cleaners. Sustainability also requires research in order to gain an understanding of how the recycling process and waste disposal system happen formally and informally.

Jenkin (in Robottom 2003:162-163) reports on social, political and economic tensions raised when participatory action research is done. These include:

- the danger of being seen as reactionary, anti-development, and insensitive to the poor;
- ethical dilemmas linked to political, controversial, emotional, hidden, and "private" educational issues;
- participants being uncomfortable discussing issues in which they or their families are involved; and

- certain colleagues not directly involved in the research complaining that the researchers were trying to show them up and look good to the school management. Such issues of micropolitics made implementation more difficult.

It is also reported that despite these tensions and lack of time, vital skills and awareness were also developed to create effective changes.

2.4.3 PAR facilitates professional development of the researchers due to reflective practice

PAR, due to creating new perspectives in discourse, also allows for professional growth of the participants who undertake it (Posch 2003:71-79; Robottom 2003:162; Nagel & Affolter 2003:83). This could also be referred to as action competence, but strictly speaking in this context, the researcher would like to emphasise the professional growth that PAR teachers would undergo, while gaining a greater understanding of the mechanism and relationships within a school system.

Janse van Rensburg (1996:70) warns that practitioners need to be aware of a number of weaknesses within their own studies, including making assumptions due to inadequate reflective practice. Researchers need to address the invalid assumption of researchers as outsiders and others as "subjects", rather than as collaborators. When doing PAR, as with most practice, there could be a tendency to blame the system for the lack of change without acknowledgement of the fact that the participants are themselves part of the system. Janse van Rensburg (1996:71) reports that certain teachers involved in the research of curriculum development in Southern Africa found it hard to see themselves as agents of change; both teachers and researchers blamed the education system as an obstacle to doing EE in schools. "In Southern Africa there is a marked absence of perception among members of formal education systems that they collectively and personally actually constitute these structures" (*ibid* 1996:71). In addition, she warns of the tendency to overlook the significance of unintended outcomes and to consider such as constituting failure. On the other hand, the PAR design allows for a continuous revision that provides a good basis to reveal and address such assumptions. She warns that "the method itself is not transformatory (for the researcher), it simply provides an opportunity for researchers who have the inclination to develop a new perspective to do so" (Janse van Rensburg 1996:70).

Fien and Rawlings (1966:11-21) also advocate the need for reflective practice, involving the principles of participatory research and critical reflection for teachers experiencing professional development: "Reflective practice involves using ethical and contextual

considerations in professional decision-making rather than making such decisions on the basis of habit, intuition, impulse and tradition". The authors carried out research, using the case study method, to increase understanding of the reflective practice experiences within their course. One finding was that reflection does not come easily and education courses should provide more structured and guided experiences for reflection in practice. Courses should also allow for personal exploration and sharing of feelings.

2.4.4   Critical ethnography, case studies and community participation research

The following examples of participatory research all show similarities to PAR. They have all been used to create action and participation, and yet differences to PAR are evident. The methods used are those used in PAR unless stated otherwise. In a research study involving a community in Australia, critical ethnography was applied as opposed to PAR. The two approaches show many similarities (see section 2.4.2). The methodology of critical ethnography (Malone 1999:168) aimed to allow for socially critically EE and empowerment, so as to achieve collaborative action. This methodology was chosen over PAR because the aim was raising political consciousness, as well as changing the practices of the participants. In Malone's justification of choosing the former, she defines PAR as research that "is conducted collaboratively with the educator (participant)-as- researcher with the view of transforming or overcoming those constraints which frustrate rational change" (*ibid:*168), rather than research that raises political consciousness within a community.

The case study (Fien & Rawlings 1996:15; Janse van Rensburg 1996:70; Ramsey, Hungerford & Volk 1992:38) is a form of qualitative research in which data is collected using a range of techniques. It allows for an understanding of what is occurring in practice through continual or subsequent analysis. Data analysis requires negotiation and discussion with the participants, thereby allowing for greater understanding by all participants. This analysis allows for more data collection, but, unlike action research, does not necessarily result in or require action to be taken.

The environmental education case study format, as described by Ramsey *et al* (1992:38), is a teacher-directed analysis of a particular environmental issue that allows students to investigate the issue. This format may prove to be a way of collecting data, producing knowledge and taking action by the students regarding sustainability, as it allows for an investigative approach involving students. The students participate in the research process as participants rather than as subjects only. However, in certain instances regarding school practices and policies, it is inappropriate or extremely difficult for students to develop surveys,

questionnaires or negotiate changes in school policies without control or interference by teachers.

While the teacher has substantial control and flexibility in such a case study, conflict will arise as to the extent that the teacher as a researcher controls/biases/influences the study. An alternative is to allow students to carry out student-led investigations which have no predetermined learning outcomes, and which may not add value to the research question, but which allow students to develop greater action competence. If one wanted to do research that primarily empowers students, this method would be useful, but the main focus is creating change in a variety of policies involving reusing paper, photocopying (by staff members) and the distribution of newsletters (by staff members and Parent Teacher Organisation).

Research, involving collaboration between university researchers and practising teachers, can assist with the implementation of ESD, as reported in a case study by Laing and McNaughton (2000:168-179). The research methodology, involving a combination of a case study and participatory action research, shows the potential of such practice for creating change in a school. The emphasis was on attitudes and values. Therefore the research provided for the opportunity for a "systematic study of a specific instance" (Nisbet & Watt in Laing & McNaughton 2000:170). Data was collected through interviews, reviewing prior planning documentation, observations and field notes by both researchers and teachers to allow for validation, and to give a fuller account of the processes. This allowed the researchers to see the real situation, albeit in one school. While this does not allow generalisation to other schools, the two-year duration of the study allowed for the collection of a large amount of data and various changes in policy.

The above-mentioned research (Laing & McNaughton 2000:171-175) was comprised of four phases. Phase 1 identified a lack of continual spiralling within the curriculum that then led to the decision to develop a whole school policy. Phase 2 involved workshops for the professional development of teachers to help identify opportunities to improve the curriculum. Phase 3 allowed for the introduction of integrated and subject specific approaches whereby students and teachers took action. Individual teachers carried out action research. This process, focusing on curriculum development, resulted in learning for sustainability occurring within integrated or subject-focused contexts. Phase 4 resulted in the compilation of a school policy booklet.

Concerned individuals often instigate ESD (Palmer in Laing & McNaughton 2000:170) but "the loneliness of the single enthusiast in the school is still a phenomenon to be reckoned with (*ibid*:169)." In the above study, did the need for change originate from concerned

individual staff members members, the administration or government policy? Researchers were invited by the Head teacher and the Management Team to work with the staff members to examine existing policy and practice, so as to allow for the development of more effective curriculum development, based on government policy.

Despite the lack of a formal policy implementation approach, curriculum integration can result in participation through the Action Research and Community Problem Solving Model (ARCPS) as reported by Wals, Beringer and Stapp (1990:13-19). It is based on action research and involves articulating and acting on a local issue. ARCPS involves recognising a problem; collecting, organising and analysing information; defining the problem from a variety of perspectives; identifying, considering, and selecting alternative actions to take; developing and carrying out a plan of action; and evaluating the outcome and the entire process. Students are responsible for planning the activity. The ARCPS project is implemented in lessons and involves 30 to 50 hours overall. This is not viable within the current school curriculum but certain aspects here that aim to develop action competence are important to take note of. Individuals identify problems and then the class classifies and negotiates which are viable problems to evaluate. The activities are recorded in class log books providing guidelines for further tasks. Individual journals allow for reflection and opportunities to share opinions. Once the research has been done, actions and strategies are devised.

Participatory types of research aim to result in transformation, as described in the preceding paragraphs. To achieve sustainability at the International School, PAR is chosen based on its ability to develop action competence, ideology critique, better communication, reflective practice, and it allows for the involvement of students and staff members. Criteria include involvement, rather than observation, and action based on awareness. Another aspect to consider is the relationship between research and policy development and implementation, so as to explore how permanent changes in sustainability can be instituted.

2.5   POLICY DEVELOPMENT FOR SUSTAINABILITY

International initiatives and summits provide guidance for the development and implementation of policies for governments. Pigozzi (2003:6) requests better integration of ESD within relevant education and development policies at international, national and regional levels to help guide implementation at local levels. However, this does not ensure systematic implementation. Participation is essential in creating sustainable changes at the International School and may be achieved through the implementation of an environmental policy. This is because a policy is a formal document that outlines what is desired. Once approved in theory, it is then ready to be implemented in practice, in the short or longer term.

This would be more effective than individual initiatives or projects undertaken by staff members or students. This section reviews research in policy development and implementation.

Obol *et al* (2003: 24-25) in their audit of EE policy processes in the SADC region found that some participants regarded policy as a statement of official position, while others recognised it as a set of actions in pursuit of that position. The latter approach provides more specific guidelines for education for sustainability. Taking the fluidity of the actions into account, their audit process identified four stages in the policy cycle:

- policy initiation or development;
- institutionalisation (adoption by an institution);
- implementation; and
- review or evaluation.

Successes and challenges, especially in terms of implementation, review, and evaluation, were identified when using the above policy model. This model can also be applied to other processes of policy development at any level, including these at the International School.

2.5.1   National policy developments

While the trend in policy development for sustainability is to be consultative, a number of challenges arise. Strengthening institutional capacity building and professional development processes for improved planning and implementation of ESD need to occur (Pigozzi 2003:6). Policy development regarding EE is well documented, and the researcher has included a review of the implementation of EE in Botswana, as this study highlights certain challenges that arise when theoretical policy is put into practice. Ketlhoilwe (2003: 75-83) carried out research to establish the education officers' and school heads' views of the implementation of the mandated integration of EE in secondary schools, on the basis that the success of implementation depends on strong support from the school authorities. He found that very little EE activity is actually taking place in schools, despite curricular requirements. Difficulties involving implementation included confusion over the concept of EE and the resulting marginalisation of EE. Despite international and national recommendations regarding integration, most persons taking part in the survey felt the need for a separate subject. In addition, there was a lack of clarity surrounding the meanings, possibilities and approaches required for integrating EE. Reasons given were a lack of understanding of pedagogy, theoretical curricula were unsuitable for the infusion of EE practices, and the fact that EE is not an examinable area.

Certain resulting recommendations by Ketlhoilwe (2003:79) include the need for in-service training of teachers, heads and education officers to improve implementation. Clear guidelines are needed for the education officers and school heads' roles in supporting EE. Further studies should be conducted on EE pedagogies, conceptions of environmental issues and attitudes among staff members and learners. This study also shows the overlapping roles of those who are responsible for implementation. The teacher is required to interpret and implement the curriculum; however, the administration should also have clear guidelines to support the implementation of EE. The study shows the many demands on all educators, in terms of logistics, personal and professional commitment, in-service training, development and provision of resources and materials, and professional support in placing EE at the core of a teacher's responsibilities. Jackson (2003:98) warns that ineffective infusion may occur if the existing treatment of environmental problems in the curriculum is too diffuse to be effective – thereby being unable to focus on local problems in a holistic manner. Such findings have implications for the implementation of sustainability at the International School, as similar conflicts and problems need to be addressed.

2.5.2   Local policy developments

While international and national institutions contribute to policy development (see section 2.5.1), there are still difficulties to consider when implementing the policies at local levels. To address sustainability, there has been a trend to develop individual environmental policies within schools in the United Kingdom, Southern Africa, Australia and New Zealand. Policies aim to provide a framework of desired guidelines. In addition, they aim to allow for local participatory action, and to create the opportunity to develop sustainability within schools. This will not result in societies creating sustainability, but it does provide a starting point. The purpose of the following section is to review implementation processes at the local level, i.e. in schools, including the role of governmental and non-governmental organisations (NGOs).

2.5.3   Local policy developments in Australia

Australia is a country where environmental policies have been promoted in schools and it has been done successfully due to a variety of approaches. Bottomley (2002:1), in reviewing the success of EE in schools in two Australian states, notes the success of EE as a result of collaboration with the School Waste Wise NGO in Victoria. This occurred despite the absence of top-down support from the state government in outlining a policy, strategy or clear commitment of resources for implementing a school's environmental policy. In spite of the

shortfalls regarding implementation, the Ministry of Education recommended that a school's EE policy (as reported by Bottomley *ibid*:1) should:

- clearly specify learning outcomes in EE;
- identify environmentally responsible school activities such as waste minimisation and recycling;
- provide for learning experiences that improve the school quality and surroundings; and
- provide a consistent and supportive climate for EE in the school.

While the ministry outlines policy, as outlined above, Bottomley suggests that the areas that the State Government needed to address were new or redirected resources for environmental educators and providers, new training or professional development opportunities, clear targets and performance indicators, curriculum developments, and a timetable of action.

As opposed to the situation in Victoria, schools in New South Wales are guided by specific education policies requiring the development of a policy that involves:

A whole school approach, including curriculum, resource use and grounds development planned out through stages...All schools must develop their own school environmental management plan (the SEMP)...; link school administration and management with the curriculum plans; become organised under the three focus areas of curriculum, management of resources, and management of school grounds (Bottomley 2002:2).

This provides very structured advice that requires management teams to act and direct, as opposed to approaches in Victoria, Australia and South Africa that rely more on grassroots initiation guided and assisted by NGOs.

As mentioned above, NGOs have been successful in Victoria. In spite of the policy difficulties experienced by the schools to achieve sustainability, it is worth appreciating the means by which the Sustainable Schools Programme in Victoria (involving schools, governmental departments and corporations) is aiming to fulfil the strategy. The school becomes a research laboratory for its own food, energy, materials, water and waste flow, and thereby allows for action to be taken. This is done through the introduction of modules that relate to sustainability: waste and litter, energy use, water use, and biodiversity in the school. The modules are linked to action and leadership. The success of such a project can be attributed to the actions taken by schools as well as to the support offered by the Sustainable Schools Programme which includes assistance with audits, targets and action plans (such as reducing

waste to landfill by 50%), cost-saving ideas, follow-up and assistance with monitoring, as well as reference materials and follow-up ideas (Armstrong & Bottomley 2002:1-2). While highlighting the usefulness of support by NGOs, Bottomley (2002:2) records some of the dilemmas and conflicts involved in schools having successful environmental policies, such as continually altering government support, and guidelines, and changes in the provision of governmental funding within schools and for NGOs.

2.5.4   Local policy developments at tertiary institutions

Cortese (1999:7) reports on a number of activities and practices found at tertiary institutions in the USA that promote sustainability, including one using their local environment as a research laboratory to attain sustainability. Using their campus as a means of recognising and reducing their environmental impact, Tufts University, for example, has established EE and environmental protection as institutional priorities, and uses a holistic curriculum and education programmes to create action (Creighton & Cortese 1992:19).

2.5.5   Local policy developments in South Africa

The audit of the environmental policy processes of the SADC region (Obol *et al* 2003:33) recognises the success of policy implementation at the local level through local initiatives, such as the Eco-Schools programmes. This programme involves participating schools incorporating EE into their school curriculum whereby improving the school. The Eco-Schools materials assist in curriculum development by identifying areas of concerns and then developing materials that allow locally focused and relevant activities, such as audits, to be done that can be integrated into the curriculum. Activities are recorded in a portfolio. Reflection is also encouraged: "Audits, lesson plans and management goals lead to improved school environments and more sustainable futures at least at a local school level" (Ward 2003:21).

As the underlying aim of the Eco-School Programme is to allow for the implementation of policy, the e-mail dialogue, between Ward and Schnack (2003:143-146) on the educational/environmental/ instructional/ institutional focus of the Eco-Schools Project in the SADC region raises important perspectives. Ward points out that the aim is to produce learners, not labourers. Recognising that the ESD depends on local contexts, she outlines the differences in the programmes offered in Europe and Africa, due to different situations and priorities. Curriculum development by teachers is one such issue concentrated on in Africa. A number of other contributors' viewpoints are reported. Ashwell feels that curriculum development (i.e. the educational aspect) inhibits taking environmental action, including

action involving non-staff members, and the consumer choices schools make. Springall Bach queries if activism is really what is required, and proposes that environmental literacy development is more appropriate. An environmentally literate person is someone who can understand, decide, and take action where appropriate. To achieve this, she suggests the consideration and calculation of a "local footprint" which can result in the emergence of appropriate choices and actions. In addition, regarding action in EE, O'Donoghue suggests seeing action as learning processes of cultural reorientation, and not as outcomes.

The Eco-School Programme allows for greater stakeholder participation within the school and the development of curricula by teachers within the school. Through a policy process cycle, there is whole school improvement through curriculum and local school and community policy development, as well as a chance to implement national policy within the SADC region (Obol *et al* 2003:33).

2.5.6 Local policy developments related to the curriculum in the International School in Vietnam

Much of the research and action reviewed in section 2.5 describes the implementation of EE into the written curriculum, an activity that is not the focus of this study. The development of a school environmental policy provides the opportunity for activities that form part of good practice and yet, are not found written in the curricula, such as saving water or using paper on a more sustainable basis. While it is recognised that learning is more effective if issues are included in the written curriculum, much of what happens in schools can either be attributed to practice and/or to policy and is referred to as the "hidden curriculum", hence justification for research on implementing a policy that does not only address the written curriculum.

The pedagogical question of whether implementation of EE occurs as a separate subject by experts or is implemented in all subjects, is not a barrier to sustainability at the International School, as environmental issues are required to be integrated (International Baccalaureate Organisation 2002:1). In practice, this happens sporadically. In addition, confusion and debate are generated when trying to implement more effective EE, such as setting up an EE formal policy, as many at the school claim that the school is already doing EE. Others consider that the current EE is ineffective, basing their opinions on the lack of sustainable actions demonstrated.

The fundamental reason within any school to implement an environmental policy is to allow or evoke a change towards sustainability. There are other factors involved too, such as the better use of assets or the introduction of critical thinking. However, within the International

School (that represents a very affluent society) challenging the concept that resources are finite is difficult. This is made even more difficult by interacting with a society that is currently experiencing excessive industrial development after years of having a stagnant economy where great poverty and a lack of resources previously existed. Due to historical circumstances in the last 70 years, the Vietnamese society has not been significantly influenced by worldwide environmental movements, and rarely shows an understanding or appreciation of environmental issues currently threatening Vietnamese lives. Therefore this creates a complex problem of philosophical and cultural dimensions influencing the school.

2.6   SUSTAINABLE WASTE DISPOSAL IN VIETNAM

2.6.1   Economic development affecting the disposal of solid waste in Vietnam

Ho Chi Minh City is a growing city in Vietnam. Achieving sustainability in the International School requires an understanding of environmental, political and social conditions in Vietnam. Substantial economic growth has occurred in Vietnam since 1986 due to economic liberalisation and structural reformation to modernise the economy. The policy is called "doi moi" (renovation). The average annual percentage growth rate from 1990-2001 has been 7.6%. The world average for this period is 2.7%, with only two countries worldwide, China (10%) and Singapore (7.8%), experiencing greater growth than Vietnam (World Bank 2003). Although still classified as a lower income country by the World Bank, the Vietnamese government is committed to economic liberalization, and has enacted structural reforms needed to modernize the economy and produce more competitive, export-driven industries (Central Intelligence Agency 2004). These rapid changes have profound implications for sustainability within the country.

As reported in the "State of the Environment in Vietnam 2002" (United Nations Environment Program 2002), urbanisation has resulted in the formation of 623 large and small urban centres, as opposed to 500 in 1990. Sixteen industrial zones existed in 1996 and, as a result of joint-venture investment in Vietnam, this number increased to 62 in 1999. Industrialisation, modernisation, urbanisation and rapid population growth have exerted great pressure on the environment and natural resources. One example is that urban centres and industrial areas are increasingly becoming polluted by wastewater, emissions, and solid waste.

Certain problems regarding the disposal of solid waste highlighted in the report are:

- waste is not segregated at the source;

- most solid waste is disposed of at open landfill sites. These sites lack liners at the bottom and walls, lack gas collection facilities and have no covers or fences around them. The operation and management of these sites are inadequate; and
- the informal waste recycle sector is active at source and site. The rate of recovery for recycle and reuse is around 13 to 20% on site. Health and safety conditions are poor.

The Vietnamese government has developed an Environmental Protection Strategy, outlined in the above report, and recognises, in line with international recommendations, the need for government involvement and the participation of all people and communities. This includes a national environmental action plan for 2001 to 2005, of which the effects are still unclear. Certain priorities identified by the report are:

- establishing strategies and plans for managing landfills of solid and hazardous waste;
- installing effective system of waste treatment in all densely populated areas; and
- introducing EE into all general education levels and university systems.

2.6.2   Education regarding waste disposal in Vietnam

The cleaners at the local International School, and their involvement with solid waste management processes (including formal and informal sectors) in Ho Chi Minh City, play a vital role in achieving sustainability at the school. Gray-Donald (2001) suggests that strategies of solid waste management in Hanoi, the second largest city in Vietnam after Ho Chi Minh City, should focus not only on technological solutions, but also on integrating and understanding the social aspects of waste management. These include household behaviour, informal waste collection and health concerns. He proposes education campaigns at all levels of society as cost effective methods connected with reducing waste collection, transportation, and disposal.

One aspect recommended is education regarding the separation of waste at source. Gray-Donald's summary (2001) of the current practices of waste disposal in Hanoi, due to rapid and new consumption of Western products, reflects the situation in Ho Chi Minh City. He describes:

The behaviour required for the proper disposal of these products, such as beverage containers, pre-packaged foods, cosmetic and medical waste is very different than organic products. People do not have the knowledge or skills to adapt to the changing nature, and rapid increase in the amount of waste, needed to avoid solid waste problems. It is

hypothesized that educational programs focused on the properties of the different kinds of waste, waste composition and proper disposal are needed to reduce the plastic litter problem and increase the sale of plastics to itinerant buyers, the separation of waste, or merely disposal into waste receptacles instead of anywhere.

Actually at this school, because income is generated, the cleaners together with the buyers, are very aware of the need to separate waste. However, staff members and students continue to combine it all together. Introducing a scheme to improve sustainability has raised the question of what will happen to our waste if staff members and students separate it at the source as opposed to the cleaners separating it. Practice by students and staff members impacts on the cleaners and *vice versa*. DiGregorio (in Gray-Donald 2001) found that there exists confusion about and resistance to the separation of waste at the source. His findings are that there is resistance to sorting at the source because city residents know that, even if sorted, the waste would end up being dumped in the same cart, then trucked and then dumped. Similarly, programmes in the school canteen to introduce different bins proved futile because, at the end of the process, the cleaners combined the waste into bags for collection by the garbage-collecting trucks.

Sustainability may be hampered by external factors within the city. The research of Gray-Donald (2001) recommends that waste separation media, aimed at raising awareness, should pay particular attention to less people educated, such as the training of formal waste workers. A new infrastructure is needed. This requires redesigning bins at the source and arranging for suitable collection at the source, as well as establishing markets for the waste. Within Ho Chi Minh City, hawkers come to the school to buy waste, and the rest is taken to dumps.

In addition, Gray-Donald (2001) comments on the need for PAR rather than repeated governmental and non-governmental reports recommending policy changes. He states: "Research involving implementation should be along the lines of participatory action research, as there are already many reports which only make recommendations about Hanoi's solid waste management problems."

He recommends utilising EE within schools to permit suitable education required for solid waste management. He lists governmental and non-governmental activities aiming to implement EE in Vietnam. From 2000 integrated EE is compulsory for all primary and secondary students in Vietnam. However, while many governmental reports and documents published recommend implementation in line with current international trends within EE, it will be very difficult to implement learner-centred problem-solving methodologies within this society where textbook based lecturing is the traditional and predominant methodology.

Training teachers in the methodologies has only been occurring on a small scale. Mass education campaigns, such as an annual environmental awareness raising campaign for all the school students nationwide, exist (*ibid* 2001; United Nations Development program 2005). Such EE programmes do not impact on the International School, as the Ministry of Education does not manage the school nor does the school follow the national school curriculum. In spite of this, the following study in Ho Chi Minh City does have implications for the International School.

An Environmental Development Action (ENDA) is involved in several solid-waste related projects (ENDA in Gray-Donald 2001). One EE project with secondary students in Vietnamese government schools involved source separation. Because the response was not as strong as expected, the target was shifted to primary school students. More successful results are thought to have resulted because secondary school students are more established in their habits, more constricted by social norms, have less time due to the need to study to pass examinations, are much more concerned about friendships and relationships, and have parents who are less interested in the content of their schooling than in how much they study and how well they do. On the other hand, primary school students are highly impressionable, less bound by social norms, have plenty of time, are less concerned about relationships, and have parents who are curious about what they learn in school, with the result that the students will encourage their parents to put source separation into practice.

2.7   SUMMARY

Education for sustainability requires the development of local action, participation and critical thinking. The literature review in this chapter shows that this may be achieved through a local school policy development that can be integrated in some ways in the curriculum. PAR is recommended to achieve this so as to involve the administration, staff members, students and cleaners at the International School. The next chapter describes the methodology used to achieve this objective.

CHAPTER 3

RESEARCH DESIGN

3.1   INTRODUCTION

The literature review in the previous chapter discussed education that can be used to achieve sustainability through the transformation of individuals, institutions and society. Opportunities worth developing incorporate knowledge, skills, attitudes, values and behaviours that allow for action, and which will assist in creating sustainability. This chapter describes the specific methodology of the PAR and the subsequent use thereof in this study. The action research teachers facilitated individual and collective action at the International School in Vietnam.
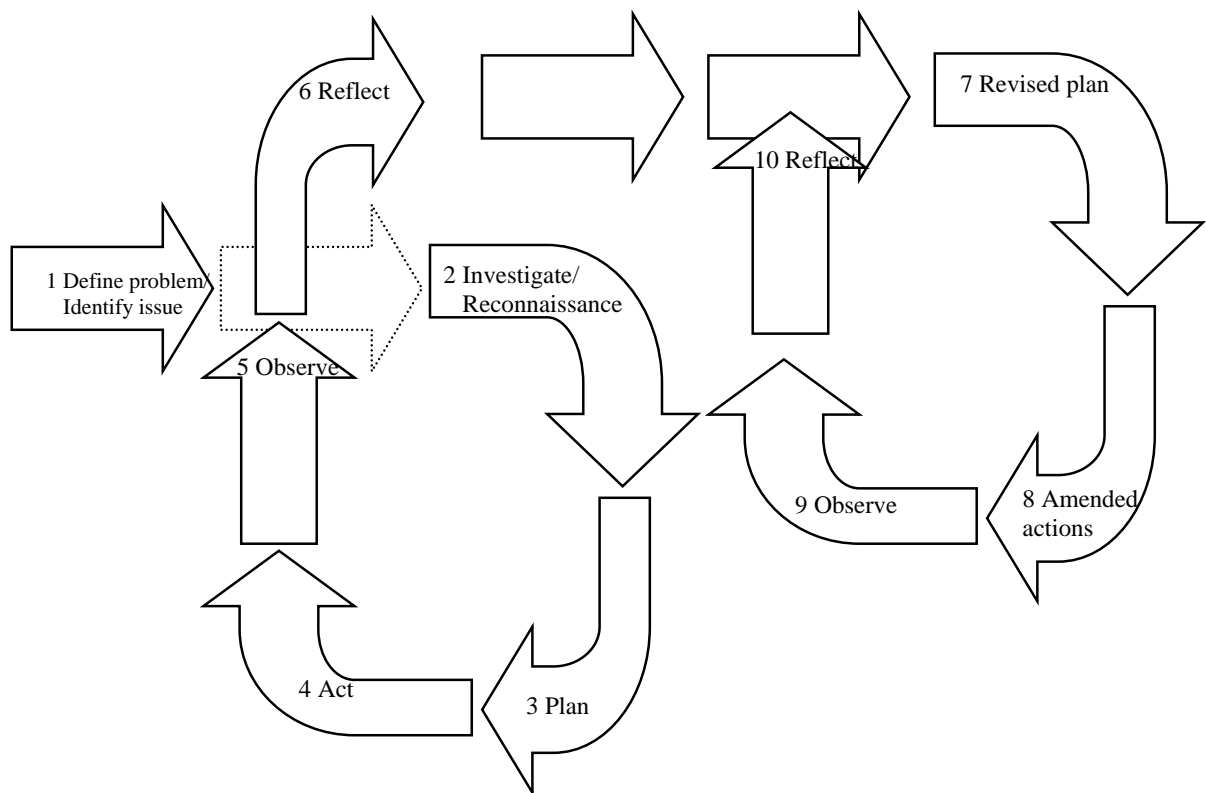
3.2   ACTION RESEARCH METHODOLOGY

3.2.1   Basic criteria of the methodology

The PAR that was carried out allowed for a systematic approach in order to increase the sustainable use of paper. Based on information by Kemmis and McTaggart (1982:10) the group of teachers and students undertook to:

- develop a plan of critically informed action to improve what is already happening;
- acting to implement the plan;
- observe the effects of the critically informed action in the context in which it occurs; and
- reflect on these effects as a basis for further planning of subsequent critically informed action through another cycle.

The research was done as a means of taking the first tentative steps towards implementing the school's draft environmental policy. As defined in Chapter 1, PAR allows for intervention and a close examination of the effects of this intervention. The PAR was situational, collaborative and participatory. This research, shown in the following figure 3.1, involved two cycles of a PAR project over a period of ten months. The second cycle was informed by the findings of the first cycle.

Fig 3.1 Diagram to illustrate the two cycles of the PAR

1 Define problem/ Identify issue • Improve sustainability through the production and implementation of a school Environmental Policy.	**5 Observe** • Research and record qualitative observations on attitudes and behaviours of the school community.
2 Investigate/reconnaissance • Identify areas of concern for policy. • Identify barriers to implementation of policy.	**6 Reflect on actions and observations** • Collectively analyse the weaknesses and strengths of the actions.
3 Plan what is to be done • Submit draft Environmental Policy to administration and staff members. • Form PAR committee of teachers to implement action in order to increase the sustainable use of paper. • Consult and inform staff members and cleaners. • Form student teams.	**7 & 8 Revise plan, amend action** • Maintenance of boxes required. • Reinforcement required by administration and students. • Action taken to reduce the amount of paper used in newsletters, reports and in photocopying.
	9 Observe • Research and record qualitative and quantitative data on attitudes and behaviours of the school community.
4 Act/Doing it • Implement the practice of reuse and recycle boxes in each room. • Form Student Environmental Action Committee.	**10 Reflect on actions and observations** • Analyse results of questionnaires. • Evaluate PAR. • Suggest additional solutions to achieve sustainability.

3.2.2 Validity and reliability

By means of the PAR method, data was collected to provide for a greater understanding of the interacting factors involved in the implementation of the school environmental policy. When considering the validity and reliability of the data, it should be noted that the analysis and interpretation of the qualitative data collected cannot be generalised, but it does provide for an extension of findings (Schumacher & McMillan 1993:394), which will enable other researchers to understand similar situations.

Validity is concerned with determining whether or not the findings are really about what they appear to be about (Robson 1993:66). Edwards and Talbot (1994:70) define validity as the extent to which methods pick up what they are expected to pick up. This refers to whether the researchers' findings are in agreement and if not, why not. According to McMillan and Schumacher (1997:404) validity in qualitative research refers to the degree to which the explanations of phenomena match the realities of the world.

To gain valid and reliable data, a number of strategies (Schumacher & McMillan 1993:391-392) have been used. Qualitative data, documenting actions and resulting effects, were collected from a variety of sources to result in a triangulation of methods:

- Observations, through journal writing, by the PAR teachers, the Student environmental action committee (SEAC) and the Middle School student teams;
- Memoranda between the administration and the PAR teachers;
- Questionnaires given to staff members and Middle School students;
- Questionnaires and interviews with the school cleaners.

There has been a continual aim to report data that is negative (which contradicts emerging patterns) or discrepant (which presents a variant to the emerging pattern). Opportunities arose over the months that allowed for continual analysis of data and critical reflection on the methodology as it evolved. All journal narratives were analysed by classifying the data in order to obtain important ideas and evidence of relationships.

The International School in Vietnam uses English as the medium of instruction and has students who represent more than 40 nationalities. The boxes used were labelled in English, Vietnamese and Korean. Clarification of language used was continually checked to ensure understanding. The researchers needed to clarify and modify the language already in use or to be introduced e.g. "reuse" versus "recycle." Verbatim accounts were obtained by requesting written responses wherever possible. Similarly, memos recorded progress.

Extensive direct quotations from the gathered data have been included in Chapter 4 to illustrate the participants' points of view. Memoranda and questionnaires for the cleaners were translated into Vietnamese. The administration of the written questionnaires to four cleaners was done in an interview setting, so that a Vietnamese/English translator and the researcher were present to clarify the questions posed and their subsequent answers. These cleaners then met with their teams to establish if other cleaners had different answers, and they then completed the written questionnaires.

McNiff, Lomax and Whitehead (1996:24) note that in traditional research, validity refers to being able to access information that is objective and accurate. This, they feel, may conflict with the emphasis on the importance of the action researchers' interpretation and negotiation of events within PAR. Therefore they encourage self-validation through critical, self-reflective journal writing and, discussion and reflection in order to establish validity. Burton (1997:26) claims that since people do share common experiences, one person's experiences can be taken as "truth" and can be viewed as meaningful to others. She terms this "external validity". Malone (1999:170) claims that personal experiences are valid as they provide evidence of the researcher's personal viewpoints. Reid and Smith (in Fouché 2002:105) characterise qualitative methodology as being based on the assumption that valid understanding can be gained through accumulated knowledge acquired first-hand by a single researcher. The journal writing, which allowed for continual, critical evaluation of the methodology and of emerging patterns, provided an opportunity to examine subjectivity.

The PAR teachers and students had their own insights and interpretation of events as to the success of the PAR. In addition, opinions, attitudes and reasons for behaviour were also collected through open-ended interviews and questionnaires from the administration, staff members and students. This study involved a number of co-researchers collectively contributing to discussions on the evolving methodology, subsequent observations, and findings (Nantel in Strydom 2002:421) so as to allow for different perspectives and less subjectivity (McNicoll in Strydom 2002:421). The views of the different researchers assisted in removing the inevitable subjectivity of a single researcher. However, this does not eliminate all possible subjectivity and bias of the team of PAR teachers, who are simultaneously researchers and subjects. Therefore, throughout the PAR, the administration, staff members, students and cleaners were consulted on proposed actions. Finally, questionnaires allowed a sample of the community to record their own behaviours and attitudes.

The consultation and democratic capacity-building aimed for by using this method encouraged validity because the evolving design was based on consecutive and communicated findings to all stakeholders, whereby allowing for discourse and the sharing of

comments on the interpretation of results or actions. Once the final version of each chapter was completed, the two other PAR teachers were requested to comment on the interpretation of the findings.

Reliability refers to whether, when repeating a study using the same instruments for measuring, the same results would be found again (Bostwick & Kyte in Delport 2002:168). Due to the specificity of the localised problems and personal characteristics of this study, the research methodology cannot be replicated exactly. This criticism does not detract from the chosen methodology, as the methodology aims to evolve due to continual praxis (Fouché & Delport 2002:81). To improve reliability, detailed low-inference descriptors of the methodology and results are given.

Edwards and Talbot (1994:71) point out that action research teachers attempt to achieve change and are positioned directly in the situation. They are, therefore, unlikely to continually observe or record the same results. The authors suggest that reliability in findings should concentrate on gaining as much information as possible, using a variety of ways, in order to increase the reliability of the specific findings. In this triangulation of methods a range of ways are used, including observations, memos, interviews, and questionnaires. The school community continually develops new ideas and attitudes regarding sustainability, and these are recorded in this study. However, it must be noted that the data collected indicates specific findings of this community at this specific time.

3.3 THE ROLE OF THE DRAFT ENVIRONMENTAL POLICY AND OF VARIOUS PARTICIPANTS IN THE RESEARCH DESIGN

3.3.1 Draft environment policy

An environment policy for the International School in Vietnam (see Appendix D) was drafted at the start of this research in order to drive action in line with international recommendations, but not specifically required by the school. The policy set out the philosophy, the rationale, and identified eight areas of environmental concern. Resources, the canteen, the celebration of special days, curricula, field trips, action projects and the use of hazardous chemicals and practices, as well as future building projects, were identified as areas where action needed to be taken to improve sustainability. Areas of concern were identified through discussions with the administrative team and staff members. The discussions allowed for involvement, and assisted in achieving participation and collaboration (Le Roux 2001:84; Strydom 2002:419). Group involvement was aimed for to assist in providing commitment to common goals, shared responsibilities and a willingness to interact, as suggested by Strydom (2002:422). Through

working together, collective knowledge could be gained, actions could be jointly planned, implemented and achieved (*ibid*:423). In the following sections the various participants will be introduced, and their involvement in the methodology described.

3.3.2   The administration staff members as participants

The administration staff members consists of the Headmaster, Deputy Headmaster, and the Section Heads of the Elementary, Middle and High School. School policy requires that all communication amongst staff members is formally written in memo format and is answered in a similar way. Such memos provide evidence of action and subsequent reactions to changes. The administration staff members meets weekly to discuss, amongst other matters, the implementation of various policies at the school. Therefore, issues may be on the agenda for an extended period of time before feedback occurs through meetings and informal discussions.

The draft environmental policy was submitted to the administration staff members for consideration and discussion at the beginning of the first research cycle. The action research teachers also identified and submitted a memo that listed perceived barriers to the implementation of the policy. This initial process was based on the premise that a theoretical draft policy would need the administration's support in principle before action could be taken to adopt it into practice. The identification of barriers, such as the lack of co-operation and collaboration during previously uncoordinated campaigns, suggested that administrative approval would be required. Another strategy to be used was that it should be the students who would benefit most from the implementation of the policy in order to achieve sustainability.

3.3.3   The staff members sought as participants

Teachers were introduced to the draft policy and PAR at a voluntary workshop on a professional development day. Researchers had the opportunity to receive feedback on the draft policy. Teachers were asked to define EE, to explain whom they perceived to be responsible for the delivery of EE, and to rank the areas of concern in the draft policy in terms of importance and possibility of success. Teachers were also asked to suggest ways of implementing the policy and were asked to volunteer to be involved with the PAR. Therefore, through participation and communication, the administration staff members and teachers were made aware of the draft policy and the accompanying desire to implement action. Identification and negotiation by the participants and voluntary participation were key

characteristics of the research design. As a result of the workshop, two other staff members formally offered to be directly involved with the PAR as facilitators.

3.3.4 The action research teachers as participants

The methodology involved two action research teachers acting as facilitators. Posch (2003:70) describes a facilitator as a 'critical friend'. Such a person is to share a relationship of trust and sympathy while also being willing to be critical and to share their own perceptions with the researchers. Facilitators, usually university researchers, provide support by assisting in the development of the research design, in collecting data, and in analysing the collected data. In this research design the two other teachers and the researcher met regularly to plan, implement, and reflect on actions. They acted as facilitators by providing critical verbal feedback and insight, which enhanced the validity and reliability of the research. The insights on and views of the progress of the research were documented by means of personal journal writings.

Action research requires collaboration and participation. Democratic collaboration among all stakeholders (administration team, PAR team, other teachers, pupils and maintenance staff members) was an essential part of the research design, and was achieved by observations as well as oral and written communication. While the action researchers pushed for the implementation of actions, it was realised that all planned actions needed to be discussed, and, hopefully, approved and supported by the administrative team, as they are the ones who dictate policy. Such methodology helped ensure validity and objectivity, regardless of the delays involved and discourse generated, while enlarging the number of stakeholders who needed to be consulted, due to the increased feedback and communication within the community. Memos and journal entries provided feedback on the dialogue between the researchers and administration staff members.

3.3.5 The Middle School teams as participants

ESD suggests that critical participation can be effective in generating change in individuals and, consequently, in the community (see section 2.4.1). Therefore, the methodology required action to be student-driven, as opposed to being initiated and implemented by a top-down approach taken by teachers only. Participation could help validate the data collected, due to greater stakeholder involvement. In addition, activities undertaken by student researchers would allow them to gain skills and knowledge about creating change.

Three successive teams of Middle School students assisted in devising, implementing and evaluating the necessary action. These students all volunteered by selecting this activity as an enrichment option within their timetables. It was not feasible, due to timetable constraints and many after-school activities, to retain the same student participants, thus successive teams were involved in the PAR. The first team of 10 students worked with the action research teachers to carry out the first cycle of research. A second team of 9 students continued with and evaluated this action, and subsequently planned the second cycle. Finally, a third team of eight students concluded the action and evaluated its outcome. All students involved were requested to do limited journal writing in which they had to reflect critically on their involvement and on their perceptions of change. Their own perceptions and views of what was happening in the school improved the reliability of the data collected.

3.3.6   The Student Environmental Action Committee (SEAC) as participants

At the end of the first cycle, the action research teachers realised that their existing methodology did not allow sufficient sustainable action or participation by students, due in part to working with successive teams. Therefore the research design had to evolve. A separate Student Environmental Action committee (SEAC) of Middle School students was formed to allow for greater responsibility and autonomous action on the part of the students. All Middle School students were challenged in a school assembly to take responsibility by joining the committee to work with the action research teachers. Four students chose to do so. The method was continually to attempt, through actions and reflection, to evolve into a process whereby this small group of students became increasingly empowered to take action. These students met weekly and worked with the teachers to analyse the first cycle of research, as well as to plan, implement and reflect on action in the second cycle. Also they, rather than the teachers, were responsible for providing feedback to the school's students. They kept journals wherein evidence of increased awareness, participation and critical thought was kept. To summarise, PAR teachers and the SEAC, assisted by three consecutive teams of Middle School students (a total of 31 students), worked with the administration to improve the school's sustainable use of paper.

3.4   RESEARCH DESIGN TO INCREASE THE AMOUNT OF PAPER BEING REUSED IN CLASSROOMS

The research design (see fig 3.1) provides an outline of the PAR. The following sections provide greater details of the process: The first team of students and the researcher sought clarification of identified practices at the start of the first cycle. Large amounts of paper were being disposed of in dustbins in classrooms, instead of being reused. The school cleaners

would remove and sort these papers and then sell them to a woman who makes her living recycling paper. It was decided to set up boxes in classrooms so that all staff members and students could sort the paper, rather than simply discard it, to allow for the greater reuse of paper.

The PAR teachers envisaged student teams taking action and responsibility by making and monitoring the boxes. Clear communication to explain and justify the use of the boxes staff members was essential to ensure success. The PAR teachers held briefings during staff members meetings. Justification included the need for a co-ordinated approach throughout the school, which included the approval of administration and the co-operation of staff members, students and cleaners. All would be taking action as a result of student-related initiatives.

The students designed, made and distributed the boxes by recycling lids taken from boxes in which the paper is originally supplied to the school. Two different, clearly labelled boxes were decided upon. One, bearing a blue label, would be for paper that could be reused on one side, and the other, bearing a green label, was for paper printed on both sides that was ready to be recycled.

Careful planning was required to eliminate or overcome hurdles before the introduction of these boxes into the classrooms. Prior consultation with both the administration and a sample of Elementary School teachers was required. While policies may be desirable in theory, they will not be carried out in practice unless the administration dictates or suggests that the practice be carried out. Permission was sought and gained from the administration to introduce the boxes to each class.

Teachers were then briefed during staff members meetings as to how the boxes were to be used. The briefing emphasised that students were initiating the process so that all students and staff members at the school could take action in order to achieve sustainability. An essential issue of the briefing was to anticipate questions and criticism from staff members. Verbal feedback was requested from staff members and recorded to provide clarification for all.

At the same time the first team of students planned how to encourage their fellow students to use the boxes. They decided that a short drama presentation would be effective, and used this medium during Junior School, Elementary School, Middle School and High School assemblies. In this way the team used and developed a variety of skills to raise awareness of the project among students.

Implementing the use of these boxes also required prior consultation with the maintenance staff members. Research was needed to establish how waste was separated and disposed of, so the school cleaners were questioned informally. However, language differences made this process difficult. The Head of Maintenance was agreeable to the scheme of introducing boxes to the classrooms. To ensure that the cleaners were seen as legitimate stakeholders, a meeting was held with the cleaners along with a translator to describe the new process. A letter in Vietnamese that described the process and requested that neither box was to be emptied by cleaners followed this meeting. Initially, students wanted to establish how much paper was reused and disposed of each week. Therefore, students would collect the paper in the green recycle boxes on a weekly basis and give it to the cleaners.

The administration and action research teachers were aware that the new practice had implications for the existing practices the cleaners had. For the past eight years they had sold off the waste paper, cardboard and plastic containers to small-scale entrepreneurs, for their own profit. While the administration was willing to allow this business to continue, it was unclear to the action researchers if the new practice would be perceived as a threat. Paper used on one side fetched a higher price than paper used on both sides. Feedback was requested from the sixteen cleaners at the meeting, yet no concerns were directly expressed, as this would have been culturally inappropriate. The action research teachers monitored the involvement of the school cleaners using observations and limited discussions, so as to gain greater understanding of their views and practices. After a few weeks it became evident that aspects of the methodology needed to be altered, so, instead of students doing so, the cleaners were requested to empty the paper from the green boxes.

After the first cycle of research had ended, the second team of students and the action research teachers together with the SEAC made observations to establish the extent to which the boxes were being used. At this point, rather than collecting quantitative data about how many teachers used the boxes or how many classrooms still had boxes, qualitative data was pooled. The weaknesses and successes of the process were identified by students and teachers visiting the classrooms to observe, given their consideration of what was happening in their daily lessons, thereby allowing critical reflection to occur. The student action research committee and the teacher researchers met to evaluate the situation collectively, and to plan solutions for each of the identified problems. Therefore additional action, including regular monitoring, was introduced in the second cycle.

A questionnaire (see Appendix A), designed by the action research teachers, was given to all staff members at the end of the second cycle to ascertain what behaviour and attitudes staff

members exhibited in a number of situations, including those described in the following sections. It is recognised that reliability is difficult to establish, due to the fact that attitudes and behaviours vary because of environmental and personal factors. However, this questionnaire provided unique information applicable to the specific school at this point in time.

The questionnaires were put in the internal post boxes of all staff members, rather than given to a sample of teachers, to provide a more accurate picture. Staff members voluntarily filled in the questionnaire and put them in a box in the staff members' room. The 65 members of staff members who received the questionnaire teach in various areas of the school, all of which function differently in terms of classroom management. The Junior School and Elementary School teachers all have individual classrooms. The students and staff members in the Middle and High Schools tend to move among classrooms, while a number of dedicated rooms exist, such as the art rooms, drama room, science and computer laboratories.

The students surveyed the school cleaners at the end of the first cycle of research. A simple questionnaire was designed for each group of cleaners of the four floors, and was administered by the students. The answers given were based on what they perceived we wanted to hear. At the end of the second cycle another questionnaire (see Appendix B) was designed for the cleaners by the action researchers. This needed to be approved and translated before it could be given to the cleaners. The political and cultural issues raised during this procedure will be discussed in section 4.5.

The SEAC worked on designing a questionnaire to determine students' behaviours and attitudes. A conflict arose as to the amount of control that should be kept by the teachers and the amount of help that needed to be given. In this situation we felt that, regardless the standard of the final product, it is the process that was most important here. However, the process took a great deal of time, and, due to this length of time and a lack of experience, the questionnaire was never administered. Instead, the action research teachers administered a questionnaire (see Appendix C) to the 31 students involved in the SEAC as well as to the students in the three teams, to record their attitudes and behaviours at the end of the second cycle.

3.5 DESIGN TO INCREASE THE AMOUNT OF PAPER BEING REUSED IN COMPUTER LABORATORIES

Boxes were placed in the five computer laboratories by the first team of students at the start of the first cycle to be used in a similar manner as described in section 3.4. In addition, the

first student team designed posters with simple instructions on how to reuse paper in the printer, thereby allowing them to design environmental messages.

After the first cycle of research, reflection, as described in the previous section, resulted in further actions. Specifically the administration asked the staff members to demonstrate and encourage suitable practices when printing draft items. It had been noted that a variety of unsuitably sized papers were being put into the reuse boxes. Hence, requests were made to place only clean, unstapled whole sheets of A4 paper in the reuse boxes so as to be compatible with the printers. During staff members meetings it became evident that awareness was resulting in independent action by more members of staff members and their students in the computer rooms. At the end of the second cycle, members of staff members and Middle School students completed the questionnaires (see Appendix A and C).

While the first cycle focused on the implementation of boxes in all rooms, a number of other related issues were researched during the second cycle. The Business Manager of the school, coincidently and independently of the PAR, requested a purchasing change in the quality of paper, in order to save money. The Information Technology teachers opposed this change, because of previous findings that the printers became jammed with such paper. The action research teachers tested 100 sheets of this paper in a printer and verified the Information Technology department's concerns. Hence, the use of the new paper in the school printers was discontinued. It was also suggested by the researchers to the administration and the Head of the Technology department that the staff members should insist on using draft paper in most printing situations.

3.6   DESIGN TO CHANGE BEHAVIOURS AND ATTITUDES REGARDING PHOTOCOPYING

At the start of the second cycle the action research teachers considered how to reduce school-related photocopying. The Business Manager was interviewed to establish how much paper was purchased annually for printing and photocopying. Attempts were made to estimate the quantity of paper used by the school. The viability of introducing electronic photocopying cards to monitor the amount of paper used by each staff member was discussed. Coincidently, the Business Manager investigated the possibility of replacing the 80 g paper purchased with 70 g paper.

The PAR initially aimed to record the amount of photocopying done by individuals. But it was not viable to ascertain individual responsibility, as different staff members have different requirements dependent on their subject responsibilities. In addition, photocopying would

increase at certain times, such as during examination periods. Similarly, it was decided not to count the number of reams used weekly because such data would not provide accurate information regarding reduction. The beginning of the year, exam periods and reporting periods are peak times of printing, hence data collection would need to be repeated on an annual basis to collect valid data. In addition, while the school is able to estimate the annual amount spent on paper, the school's photocopy technician is too busy photocopying to record how many reams are being used weekly for this study. Still, while this data may be interesting, it is not essential to drive action. Knowing such values would only confirm that we use a lot of paper.

The PAR, therefore, focused on implementing and defining policies that would attempt to reduce the amount of photocopying. We redesigned the order form for photocopying, giving teachers the option to request photocopying on reusable paper. We identified weaknesses in the system for printing and distributing newsletters and notices to parents by making observations and conducting interviews with the administration, the school secretary, the photocopying technician, and homeroom teachers. A subsequent memo to the administration noted inefficiencies in the systems. These issues were subsequently tabled for discussion during administration meetings.

3.7   RESEARCHING AND CHANGING BEHAVIOURS AND ATTITUDE PRACTICES REGARDING REPORT WRITING

The report writing of students' academic progress generates large amounts of paper. Each student receives a twice-yearly academic school report of ten pages. Each of the 800 reports are then photocopied and filed. In addition, due to errors in spelling and grammar, drafts are repeatedly printed. The action research teachers proposed, through memos to the administration, that a policy be established whereby all drafts should be written in Word Perfect rather than FileMaker Pro, and then pasted into the FileMaker Pro report formats. Repeated requests were made for a shredder so that staff members could shred such confidential papers but this did not materialise. At the end of the second cycle the replies to the questionnaires and the actions suggested by the administration provided some evidence of the changes the staff members had undertaken.

3.8   CRITICAL REFLECTION THROUGH JOURNAL WRITING

The methodology of PAR aims to allow for action and reflection, which then initiates change within the practice of action research teachers themselves and within the school community. A more accurate, critical reflection of social reality needs to be strived for using PAR, so as to

realise potential and, subsequently, mobilise action (Strydom 2002:423). One important practice recommended in the process is the keeping of diaries to allow for critical reflection on and documentation of the research process. These diary entries were discussed at regular intervals by the action research teachers, and it led to the further reflection and corrected action described in Chapter 3.

While the research methodology is separated into sections within this chapter to allow for greater understanding by the reader, the journals of the PAR teachers and students record all these aspects of the methodology in a chronological order. The three teams of students reflected weekly during the eight weeks that they were directly involved in the PAR.

To reduce the waste produced by newsletters and student report writing sessions, the PAR involved writing memos to the administration. These memos were discussed in administration meetings, and then answers and issues that arose were discussed by the PAR teachers. While the minutes of the administration meetings are confidential, subsequent informal discussions with the Deputy Headmaster or Section Heads of the school and memos provided evidence of action or lack thereof, which was subsequently recorded in the researcher's journal.

3.9   SUMMARY

This chapter described the method used attempting to improve the sustainability of paper usage at the school. It involved consultation with and the involvement of the school community. Reflection, planning and actions resulted in the methodology continually being altered to try to improve the success of the study. Therefore, by means of the method used there are a number of results already reported, which led to diversified methodology. The following chapter continues to provide the results of the PAR by reporting on the community's awareness, attitudes and behaviour.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 INTRODUCTION

The aim of this study was to implement and measure the effects of the changes involving the sustainable use of paper. This chapter records and discusses the results of the PAR methodology. Summarised results and perceptions from the PAR teachers' journals provide an overview of occurrences in the following areas: implementation of reuse and recycle boxes in classrooms; reusing paper in the computer laboratories; photocopying practices; newsletter printing and distribution procedures; and report writing. This then allows for greater understanding of the context of the subsequent written responses of the students, staff members and cleaners. These results all provide evidence of changes in attitudes and behaviours of the school community. The implementation and acceptance of policy documents conclude this chapter.

4.2 IMPROVED USE OF PAPER

4.2.1 The use of reuse and recycle boxes in all classrooms

4.2.1.1 Planning, actions and results observed in the first cycle

The introduction of the study began once consultation had occurred and permission was gained from the administration. The staff members were introduced to PAR and the draft policy (see appendix D) at a workshop. While being supportive and enthusiastic about improving sustainability and offering to assist indirectly, only six staff members were willing to commit to starting PAR projects investigating either resources or the canteen. Acknowledging the policy as working document, the PAR teachers realised that not all of the areas could be addressed simultaneously. Therefore, to concentrate effort, and after consultation at the workshop, the three action researchers (including myself) chose to focus effort and attention initially on the sustainable use of paper by carrying out a study involving two cycles of PAR.

The PAR teachers and the first student team soon saw the need for continual consultation as discourse arose. The box design (A4 size) had been planned by considering the requirements

of the Middle and High School sections. However, prior consultation with Elementary staff members made the researchers realise that they would want bigger baskets. So to compromise, subsequent changes resulted in all classes having a similar, but not identical, system. While the rest of the school would receive the boxes, described in section 3.4, certain Elementary staff members preferred to use larger bins with green and blue labels. These teachers' critical feedback was needed to allow for co-ordination. This discourse and subsequent changes to the system contributed to validity, as certain staff members, while co-operating with the general idea, chose to alter the procedure slightly.

At the initial staff member meeting to introduce the action, support ranged from favourable to indifferent with no large-scale objections. When introduced to the idea, certain staff members argued that the cleaners recycled the paper by sorting it from the bins and sold it, making student-led action both unnecessary and a possible threat to the livelihood of the cleaners. The PAR teachers replied that reusing and recycling should be the responsibility of all in the community and that by introducing this co-ordinated scheme, not only would staff members and students participate in action, but more paper could be reused and recycled, as it was not mixed with food containers, tissues and bottles, etc. This discourse helped inform staff members of the concept of personal responsibility to achieve sustainability.

Boxes were then put into most classrooms. Better planning should have occurred, as staff members had not realised that over 75 box lids would need to be recycled. It was gratifying to soon see certain behaviour changes in practice. Many staff members and students no longer threw paper in the rubbish bins, but placed it in the boxes. One colleague, previously opposed to reusing paper, was willing to be interviewed. He stated:

At first I thought it was unnecessary as we have plenty of unused paper that looks more professional but I agreed to support the scheme as Admin had sanctioned it. Because the cleaners were no longer removing this paper daily, I soon realised how many papers I was collecting. I've started reusing this paper to do Mathematics calculations instead of taking clean unused sheets each time. I now give this paper to my students for the same purpose. I have also become more aware of wastage in other areas and didn't use envelopes for hand-delivered letters to parents. I don't get so frustrated anymore when you give me copies of letters, lists etc. on reused paper.

Certain other staff members were becoming more aware of consumption and recycling. For example, one colleague described how these boxes had become more meaningful only after visiting Australia on holiday, where sorting all types of refuse was required. This activity in

Australia raised awareness, and subsequently changed her attitude and behaviour back at school in Vietnam.

Students kept making and distributing boxes, but problems in the process also became evident. Insufficient sorting occurred. Cleaners did not empty the recycle boxes regularly. Boxes became misplaced or diverted for other uses. It was also noted that they would place the recycled paper back in the bins so it could be resorted later, causing staff members to query the point of recycling paper within the classroom.

While the success seen and support given by the school community were promising, continual reflection by the PAR teachers made the staff members realise that the student teams were carrying out teacher-driven actions, which were unlikely to create the action competence reviewed in section 2.3.2. The SEAC was subsequently created to allow independent sustainable action as described in section 3.3.6. One of the other PAR teachers, reflecting on the need to develop action competence, wanted to "facilitate student leadership opportunities" by focusing on "small-scale improvements and achievable goals" which allowed the "student committee to be thinkers as well as doers."

4.2.1.2 Reflection and actions at the end of the first cycle

At the end of the first cycle the researchers felt that limited success had been obtained. Certain staff members and their students consistently used the boxes, while others did not. PAR enables the development of critical consciousness amongst the researchers. This, as suggested by Malone (1999:173) and reported in section 2.4.1, required the students and PAR teachers to critically analyse the first cycle. The following memo, summarising the weaknesses and suggested actions required, was produced for the administration. Staff members and students were also informed, allowing for improved collective action. The memo stated:

We have noted problems and are suggesting actions to be taken by staff members, students and Section Heads.

Problems	Actions required
Lack of boxes	Students have put boxes in each class.
Boxes are looking temporary and worn	Students have repaired them.
Boxes are not easily accessible	Section Heads to request staff members to place them in convenient positions.

Problems	Actions required
Lack of use by staff members when disposing of paper	Section Heads to encourage staff members to model behaviour.
Confusion what goes into each box	Section Heads to suggest that only A4 paper printed on one side goes into the reuse boxes and that it goes into the box clean side up.
Lack of use by staff members when reusing opportunities exist	Section Heads to encourage staff members to remind students by having the paper accessible.
Students find it challenging to form a partnership with teachers which involves monitoring the use of boxes	Section Heads to inform staff members that Middle School students will come into classes weekly to talk briefly to them about the boxes. Allow students to relax and be heard.
Cleaners do not remove paper in green boxes. They have been reminded and improvements are being monitored.	Section Heads to remind staff members that they can request cleaners to empty green boxes.
New staff members and students are unaware of the system.	Periodic reminders from Section Heads and regular reinforcement by staff members.

The second and third teams of students took on additional responsibility, which increased the momentum of the scheme. They had to maintain the boxes on a weekly basis by visiting the classrooms, recording results and discussing issues raised by the teacher and students in each classroom. Staff members became more aware of the boxes as a result of the students' weekly inspections. Co-operation and communication were improved, and helped overcome discourse seen when attempting to introduce change (see section 2.4.2). Teachers could directly explain what problems and successes they were encountering to these responsible students. It was educational, yet the students found their new responsibilities challenging, as they had to deal with staff members they did not know. They gained greater confidence and ability over the weeks.

Other desired actions involved the administration and staff members, thus prompting the above memo. It was established that sustained action required reinforcement. For example, the PAR teachers requested that the administration brief staff members at meetings. Feedback from these meetings provided data on the progress of the research. The SEAC also briefed the students during assemblies, thereby taking on responsibility normally carried by teachers. It is noticed that the methodology used evolved to expect more responsibility and action taken by students and by the administration.

4.2.1.3 Actions and results in the second cycle

Addressing the problems as described above resulted in the increased use of the boxes. This intervention, resulting from the PAR methodology that requires systematic observations and reflections, certainly increased the impetus of the scheme and continued to involve the entire community.

Greater involvement was seen at staff members meetings, with one staff member saying he was encouraged by *"*much better use as students are using paper from boxes of their own volition.*"* Another staff member showed personal behavioural changes by suggesting, "We implement action whereby students only print with permission and reuse paper for printing drafts." While this suggestion was not formally adopted, it does show how more staff members were becoming aware.

The sustainability of the action was also raised at this point by one of the other PAR teachers, who, like the researcher, was leaving at the end of the second cycle, corresponding with the end of the academic year. He voiced concern about the sustainability by acknowledging that, while an "excellent and worthwhile activity for student leadership and responsibility," he was "concerned that students still need direct support from staff members to take on the work next year." The lack of response to this comment reflected some of the discourse and ideology critique (see section 2.4.1) that this scheme has generated because, while almost all staff members were supportive, none were willing to take on the total responsibility for it, mainly because of the extra effort and time required. One student in the SEAC was willing to take on the responsibility for the scheme and would have the support of the Middle School Section Head in the next academic year.

At the end of the second cycle the PAR teachers felt that the boxes had been used more successfully. The community appeared to have changed their attitudes and subsequently reuse paper more frequently. The rest of the community had joined the cleaners in recycling paper. The entire school was aware that all were expected to reuse and recycle paper. It was not possible to calculate what income the cleaners received from the paper. In the past the reusable paper had sold for a higher price than the double-sided paper. Large amounts of paper were still being sold to the collectors outside the gates. However, the reusable paper is first reused at the school and then sold as recycled paper. To create a triangulation of methods to get results, the staff, all Middle school students that have volunteered to be involved in the PAR and the cleaners filled out questionnaires (see Appendices A, B and C) and the results of these are discussed in sections 4.3 and 4.4.

4.2.2 Reusing paper for printing

Paper was readily available to be reused in the computer laboratories as a result of the boxes. As the study progressed, more staff members requested students to reuse paper in the printers. However, as described in section 4.2.1.2, only entire sheets of reusable A4 needed to be placed in the boxes, clean side up, to enable the process to work effectively.

Despite requests, the administration and the Information Technology staff members were reluctant to enforce the using of reused paper as the default printing paper in the computer laboratories. However, a number of staff members and students regularly demonstrated good practice by reusing paper in the printer. This required spending a little extra time sorting and placing paper in the trays, and did not damage the printers. This practice is not widespread because all the computers are networked to the printers, so many people print simultaneously. While the secretaries reuse paper in their printers and fax machines, most of the community remains unconvinced that reused paper should be used in the networked printers. They also find it inconvenient when reused paper has been put in the printer tray because reprinting may then need to occur. So large amounts of paper printed, on one side, are still produced and enter the reuse boxes. There is acknowledgement for the justified concerns that stapled pages and confidential documents will be put into the printers by mistake, hence the need for sorting.

4.2.3 Photocopying and newsletter production

Attempts to provide an accurate estimate of the number of reams purchased were unsuccessful, mainly due to the complex financial purchasing and accounting systems of the school. The Business Manager was unable to introduce electronic photocopying cards and associated machines, because of the current lack of a reliable backup service for such technology in this country. However, the school had switched to using 70g paper in the photocopying room. Certain staff members were vocally opposed to this, citing it as an example of saving money, but also of lowering standards. Most people failed to notice the change. This is an example of environmental issues being addressed indirectly as less paper (per given mass) would be used.

Insufficient changes in the staff members' photocopying behaviours have occurred, but there is a greater awareness of paper wastage in the school. Staff members began to comment to the PAR teachers about the number of letters having to be handed to their homerooms, many of which were not being read or taken home. The number of newsletters and notices sent home continues to remain high and reflects the need to try to communicate effectively with

the community. The administration is unwilling to introduce an intranet system to send information and notices to staff members and parents. Greater discussion needs to continue on this issue.

Research on the production of letters home showed that the administration has reduced the number of issues of school newsletters printed. These go out to the eldest and only in each family because the Headmaster's secretary requests exact numbers of required copies. Older students are less likely to pass letters onto their parents. Efforts to change the distribution to the youngest and only students in each family remain unresolved.

Attempts to control the number of letters sent by individual staff members or the Parent Teacher Organisation proved problematic. Memos were sent to the administration describing the inefficiencies, weak links and loopholes, and requesting that changes be made. Due to the large number of matters on the agendas for administration meetings, most of the questions posed and actions sought regarding the PAR remained unanswered for up to three months. The Heads of Section do authorise each letter that goes home, but the researchers feel greater effort can be made to control letter output. At the end of the second cycle the Deputy Headmaster and the Headmaster's secretary considered ways of ensuring that all notices got photocopied and distributed by the Headmaster's secretary, rather than by individual teachers, to reduce wastage. This issue remains unresolved.

4.2.4   Report writing

The administration received memos suggesting ways to reduce the number of pages printed at report writing time. It took a long time to get a response. However, it was gratifying to finally see that the administration later independently acted on our proposals for report writing, and improved them. They proposed that all staff members write draft reports in Word documents rather than File Maker Pro, thereby fitting up to seven paragraphs on one page rather than only one on the drafts. They also suggested printing on reused paper and getting a friend to proofread their reports. This activity provided strong evidence for the PAR teachers that our actions had raised awareness and altered attitudes and behaviours of the administration, albeit gradually. This action, regarding the administration's support for sustainability, can also be compared to a comment made initially by the Deputy Headmaster saying, "I suspect support is dormant rather than non-existent."

4.3   CHANGES IN STUDENTS' ATTITUDES AND BEHAVIOURS

4.3.1   Analysis of student reflection during the cycle

The Middle School students (Middle School teams and the SEAC) wrote in their journals on a weekly basis. Initial discussions of their reflections showed that they were describing their physical activities, rather than their attitudes, views and challenges. Therefore, questions were given as a guide to encourage the development of critical thinking, as discussed in the literature review (see section 2.3.3).

After reading the journal entries twice, meaningful segments were underlined. Thereafter, a numbered list of broad categories was drawn up, based on these underlined segments. Items included: student attitudes and behaviour; students' perceptions of the community; and difficulties experienced. The journals were reread and the segments were coded by means of the numbered categories. All comments relating to the first category were then reread and the segments were recoded. Thus, a number of themes were identified. For example, within the first category, three subcategories were created, namely: attitudes at the start of the research; evidence of changed attitudes and awareness; and evidence of changing behaviours. For the second category, two subcategories were created: students' perceptions of the difficulties experienced in the community and students' perceptions of the subsequent changes in the community.

The results are as follows:

- Attitudes of students at the start of the research

    At the start of the research, most students were keen to say that they thought the proposed actions would make a difference. One student wrote: "The function of this group is to take action to help make the environment better. If I research I can take action, but if I don't research and don't know anything about the environment it will be of no help to take action." However, two 12-year-old students' journals reflected a few students' initial apprehension about whether the action would work. Such powerlessness (Laing & McNaughton 2000:176) is what ESD aims to address (see section 2.3). The two students wrote:

    No, I don't think my action will make a difference because I really don't volunteer much and really don't want to, either and

It might make a difference and might not! Because when someone helps me a lot, it will work but if no one does it's going to be hard.

The latter student's journal also demonstrated growing critical awareness because she wrote: "I thought each person used 750 papers at school each year, but actually the teacher says 5000. I also asked my mum who said the school is using a lot of paper so we should recycle or use a little amount."

- Evidence of changed attitudes and awareness of the students

Students began appreciating the value of the boxes and were subsequently using the boxes. One student wrote of the awareness she experienced, saying, "I used boxes today. It's nice because if you need papers you can get it from boxes." Other students' journals show their awareness, linked to their abilities to reflect and a desire to make improvements. Examples included:

I learnt that every little bit helps and
It has been very successful but we still need to do more, like litter less and
There are lots of things we need to do but we can't do all of them at the same time… but we can do as much as we can by just doing little bits.

As reported by Laing and McNaughton (2000:176), most children became excited about the challenges and acted positively. One of the students, who was unsure about the need to carry out this action, became more aware about sustainability. She wrote that people could not carry on using paper like we do at school "because we have to keep cutting down trees to make paper" causing a tree shortage, and an increased problem of "where to put the rubbish".

- Evidence of changing behaviour of the students

During the PAR there was some evidence of a change of behaviour. One student wrote: "This week, I've used reused paper for explaining something to my friend." Another commented, "I have changed a lot. Like some teachers I used to waste lots, but now I reuse and recycle."

- Students' perceptions of the difficulties experienced in the school community

Through monitoring, students got involved in discourse, which is often a feature of PAR (see section 2.4.2) and they began to understand the difficulties experienced by the community. They realized action was required to help solve the problem. One wrote:

Most classes on the first floor had boxes but weren't organized. Papers were in wrong containers and in bad locations. At first we were scared of the teachers but the more times we asked the teachers, the lesser we got afraid. It was easier to talk to the teachers than what I thought. We still need to get the cleaners to clean the recycle box regularly.

- Students' perceptions of the subsequent changes in the community

Most students felt that attitudes and practices at the school had changed. One student wrote: "managed to change the way people think and we also taught them that their little part can make a difference." Other comments included: "Made a big impact on the whole school" and, "We changed some teachers from paper wasters into paper recyclers."

Another student, commenting on growing awareness and changing practices wrote:

Today in English class I noticed students using reused paper and in technology class Mr E asked us to reuse paper. I think people are starting to use the paper. I hope all the students will use it more often so we can save more paper. Before starting this enrichment I didn't realize how much paper we were using but now I do.

- Difficulties experienced by students when monitoring the boxes

At the end of the first cycle more monitoring was required to achieve sustainability. The students, who are between 11 and 13 years old, found it challenging to visit, interrupt and ask different staff members to be more proactive. We subsequently discussed that PAR, as discussed in the literature review (see section 2.3), involved the development of ideology critique, which would result in discourse, and as such, we needed to anticipate reactions and practice dealing with such issues. The staff may have felt that their practices were being inspected, and appeared threatened.

Therefore students needed to practice explaining what their intentions were. This new activity created personal growth by improving the students' confidence and ability to speak up. As the students' communication skills improved, more co-operation from the teachers and cleaners was observed. This extract from one journal shows the difficulties, improvements and increased confidence of the students. The student wrote:

6/5/05 Some teachers are quite mean or strict and when we go at the end of the school day it's very crowded so it's hard to check. 13/5/05 Some complain about the papers, that nobody cleans the paper! We had to say sorry, but it wasn't really fair because we were only students that tried to help out. I felt very bad! But most are using the boxes properly. 20/5/05 I sometimes get nervous because sometimes teachers are quite busy. Most are used to us now and understand and let us tidy and check the boxes. It's much easier for me to talk to them now.

Another student's journal shows the responsible action of some students. He wrote: "Mr D's computer lab had the most paper. He didn't know how to use the boxes properly and Jakob told him how to use it…cleaned up the boxes how they were supposed to be and its better than last time … teachers are listening to us."

4.3.2 Results of the questionnaire at the end of the second cycle

The questionnaire (see Appendix C) required that the 31 participants tick answers. These participants were chosen because they either volunteered for the SEAC or Middle school teams. All involved answered the questionnaire. The selected answers were counted and recorded. Similar answers were joined together. Due to the small size of each sample the numbers were not converted to percentages. Students provided a wide range of their own answers to questions 3 and 5. These reasons were recorded as a list. Similar reasons were grouped into categories. Not all the students provided reasons.

When calculating the results it was not worth separating the reasons according to the frequency chosen. For example, it was seen in question 2 that some students stated they separated 75% of the time, chose the reason " I am not used to sorting paper." Others who separated 50% or 25% also chose the same reason. That reason would be valid for all of these frequencies. Therefore, it must be noted that reasons do not fit with only one frequency in this questionnaire.

The findings are as follows:

- Reuse and recycle boxes

Table 4.1 How often students separated paper into boxes

Action occurring	Number of students
100 % of the time	1
75 % of the time	11
50 % of the time	10
25 % of the time	8
Never	1

Table 4.2 Reasons influencing putting paper into boxes

Reason	Number of students
Convenience (e.g. boxes are easy to find)	13
Alternative clean paper (e.g. readily available, looks better)	5
Inconvenient habit (e.g. boxes difficult to find, not a habit, not a rule)	9
Environment (e.g. students ask me to do so)	4

The majority of students (22 out of 31) do separate and put paper in the boxes at least half of the time, and gave a wide variety of reasons for doing so. These findings corresponded with observations made by the PAR teachers and students. The first reason offered was most commonly chosen, perhaps because it was at the top of the list, but more likely because it was observed that the community would place paper in the boxes if they were near the door or near the bin. The second most frequently chosen reason for not putting paper into boxes was because the students were not in the habit of re-sorting paper. This is a reminder that the scheme is voluntary and that students have individual behaviours and attitudes.

Table 4.3 Changes, over time, in putting paper in boxes

Changes	Number of students
Put more paper in boxes	25
Put less paper in boxes	6

Table 4.4 Reasons why, over time, students have put more paper in boxes

Reason	Number of students
Convenience (e.g. boxes are easy to find, a place to put excess paper)	9
Good for environment (e.g. paper can be reused)	6
Habit	2
Teachers remind students	2
Awareness caused by involvement in environmental action group	2
No reason given	4

The results show that the vast majority of students (25 out of 31) put more paper into the boxes, over time. The researchers had made similar observations. Students provided a range of their own reasons, and the majority noted that placing the boxes in a more convenient position had increased accessibility, and therefore, usage. Less cited that they did so because of environmental reasons. Two students stated that they kept the paper so as to reuse it at home, thereby using the boxes less.

Table 4.5 How often students use paper from boxes

Action occurring	Number of students
100 % of the time	2
75 % of the time	12
50 % of the time	9
25 % of the time	7
Never	1

Table 4.6 Reasons influencing reusing paper from boxes

Reason	Number of students
Convenience (e.g. boxes are easy to find)	11
Alternative clean paper (e.g. readily available, looks better)	6
Inconvenient (e.g. boxes difficult to find, not a rule)	4
Environment (e.g. students ask me to do so, become a habit)	11

The majority of students (23 out of 31) stated that they reuse paper at least half of the time, rather than using clean paper. A wide range of reasons were chosen for their behaviour, and these cannot be seen to be definitive for every student in every situation. However, the results indicate that convenience was a reason chosen frequently. An equal number of students indicated their behaviour was related to environmental reasons. The reasons were that the

SEAC had requested them to do so because of environmental concerns, and because the students were becoming used to this new habit.

Table 4.7 Changes, over time, in reusing paper from boxes

Changes	Number of students
Put more paper in boxes	29
Put less paper in boxes	2

Table 4.8 Reasons why, over time, students have used more paper from boxes

Reason	Number of students
Convenience (e.g. boxes are easy to find, a place to find excess paper)	9
Good for environment (e.g. paper can be reused, good idea, stops waste)	7
Habit	3
Teachers remind students	2
Awareness caused by involvement in environmental action group	1
No reason given	7

More students (29 out of 31) stated that they were using the boxes more frequently. This corresponds with our observations. The unsolicited reasons given show that placing the boxes in convenient positions is important, as are environmental reasons. The reason so many students chose not to give a reason for their answer is probably because this would have required formulating a reason rather than ticking an answer given, and because they recognized the similarity of this question to question 3.

- Printing practices of students

Table 4.9 How often students reuse paper for printing

Action occurring	Number of students
100 % of the time	0
75 % of the time	7
50 % of the time	14
25 % of the time	6
Never	3

Table 4.10 Reasons influencing reusing paper for printing

Reason	Number of students
Alternative clean paper (e.g. readily available, looks better, reuse paper is not sorted)	23
Inconvenient (e.g. I don't need to do it)	5
Environment (e.g. students ask me to do so, becomes a habit)	3

As opposed to the previous results, students do not reuse paper for printing frequently. Of the 31 students, 23 out of the 31 did not reuse paper for printing at least half of the time. While many students will reuse paper in classrooms, there is more reluctance to do so in computer printers. The presence of clean paper in the printers is the main reason for this. To improve frequency, staff members should model behaviour and insist on the use of reused paper, when appropriate.

4.4 CHANGES IN ATTITUDES AND BEHAVIOURS OF THE STAFF MEMBERS

4.4.1 Results of the closed-ended questionnaire at the end of the second cycle

The questionnaires (see appendix A) given to the staff members required that the participants tick answers. The number of times each answer was selected was converted to a percentage. Similar reasons were grouped into categories. Staff members provided a wide range of their own answers to questions 2 and 4. These reasons were carefully read, grouped into categories and then indicated as percentages.

When calculating the results, it has not been worth correlating or matching the reasons directly to the frequency that they chose them. Therefore it must be noted, as with the student questionnaire, that reasons do not fit only one frequency. However, both the frequency and reasons are valid, valuable sources of information on their own.

All staff members were given the questionnaire. The number of staff members who completed the questionnaire was:

Junior/Elementary School   18 out of 22 staff members

Middle/High School   29 out of 43 staff members

Total   47 out of 65 staff members

- Reusing and recycling paper in boxes in classrooms

Table 4.11 Staff members that put paper into boxes and staff members that requested students to reuse paper

Action occurring	Put paper into boxes (%)	Request student reuse of paper from boxes (%)
100 % of the time	54	40
75 % of the time	36	27
50 % of the time	5	23
25 % of the time	0	8
Never	5	2

Table 4.12 Reasons influencing staff members separating paper and requesting students to reuse paper

Reason	Put paper into boxes (%)	Request student reuse of paper from boxes (%)
Convenience (e.g. boxes are easy to find)	43	22
Alternative clean paper (e.g. readily available, looks better)	7	17
Inconvenient habit (e.g. boxes difficult to find, not a habit)	12	9
Environment (e.g. model EE, conserving resources, habit, saves money)	24	26
Setting example for students	12	11
Not applicable in the Junior School	2	15

Most staff members (90%) indicated that they used the boxes at least 75% of the time. These frequencies were higher than expected, given the PAR teachers' observations, yet the staff members who completed the questionnaire are more likely to be supporters of the action. Favourable reasons for using the boxes had to do with convenience (43%), the environment (24%) and setting examples (12%), indicating, as with the results that follow, that favourable attitudes may not result in action unless the practice is convenient. The other reasons indicate why the boxes are not frequently used. Staff members were less proactive at encouraging others to use the boxes than using the boxes themselves. While convenience was an important reason to request students to reuse the boxes, more staff members chose environmental reasons.

Table 4.13 Changes, over time, of staff members who separated paper and requested students to reuse paper

Changes	Put paper into boxes (%)	Request student reuse of paper from boxes (%)
More	58	83
Less	2	0
No change	30	17
Question was not answered	10	17

Table 4.14 Reasons why, over time, staff members have put more paper into boxes and why staff members have requested students to reuse paper

Reason	Put paper into boxes (%)	Request student reuse of paper from boxes (%)
Convenience (e.g. boxes are easy to find, a place to put excess paper)	9	12
Good to do so	9	3
Habit	34	3
Awareness (e.g. reinforcement, student involvement, environment)	18	21
No reason given	30	62

(n = 34)

The staff members adapted questions 3 and 5 of the questionnaire (see Appendix A). Staff members that wrote no change (30%) indicated that their behaviour remained the same because, even before the start of the project, they had a box of reused paper in their classroom. The thirteen staff members who failed to write down open-ended response answers did so because of the length and timing of the questionnaire at the end of the academic year.

Results in Table 4.13 show that, as the scheme progressed, 58% of the staff members used and encouraged more usage. Most staff members stated that they have got into the habit of using the boxes. While attitudes are assumed to be able to predict behaviours, it is also recognised that appropriate attitudes may not translate into desirable behaviours. Therefore, this answer indicates that while staff members have recognised that the boxes are a good idea from the beginning, it has taken them a while to get into the habit as indicated by 34%) of using them. Over time many staff members changed their behaviour.

Awareness was given as the main reason by 21% why students were requested to use the boxes more, but many staff members failed to give a reason; therefore no clear pattern can be seen. When summarising the answers, it became evident that classroom practices vary in the sections of the school, and that these answers do not allow for an accurate overview of practices. For example, some teachers in the Junior School will regularly supply paper for their classes to draw or write on, while other teachers do not. Maths classes may not use much paper, because students use calculators or are expected to show their work in their notebooks. Physical Education staff members do require written reflection on occasion in their lessons. Such differences mean that it is difficult to establish a common pattern amongst staff members.

- Printing practices

Table 4.15 Staff members who reuse paper in printers and staff members that request students to reuse paper in printers

Action occurring	Reused paper in printers (%)	Request students to reuse paper in printers (%)
100 % of the time	16	18
75 % of the time	11	5
50 % of the time	23	6
25 % of the time	16	10
Never	23	28
Not applicable/ not answered	11	33

Table 4.16 Reasons influencing practices of staff members reusing paper in printers and requesting students to reuse paper in printers

Reason	Reused paper in printers (%)	Request students to reuse paper in printers (%)
Convenience (e.g. boxes are easy to find)	3	4
Alternative clean paper (e.g. readily available, looks better)	19	23
Inconvenient (e.g. putting reused paper in printer, unnecessary, paper not sorted, not a habit)	44	23
Environment (e.g. setting an example)	11	34
Printer jams	8	8
Not knowing which way reused paper goes in tray	5	4
Students too young to print	0	4

The frequency of staff members using reused paper for printing is lower than for other practices since 62% indicated that they do not reuse paper in printers at least half of the time. In addition, staff members do not frequently request students to reuse paper in printers either. 28% never request this. The main reason given for not reusing paper is that it is inconvenient, as indicated by 44%; 19% also indicated the unlimited amount of clean paper available. These results suggest that staff members are likely to demonstrate suitable attitudes and behaviours if it is convenient for them rather than because they deem that it is essential practice, as less than 15% of staff members indicated that they reuse paper because of convenience and the environment.

Of the staff members, 34% indicated "setting an example" as the reason for requesting students to reuse paper in the printer. However, the presence of clean paper and the inconvenience of switching to reuse paper are two reasons why students are *not* requested to reuse paper in the printers. While not a common practice, the reason that so many staff members selected the environment in Table 4.16 is because of their environmental awareness and attitudes. Staff members can place reused paper in the printer if they are teaching a class in the computer room. This practice only works successfully if the entire class of computer users is aware that the reused paper is the default paper. This does happen frequently. The administration should therefore encourage this practice more, as should PAR teachers and students, to combat the unsustainable use of paper. Surprisingly few staff members wrote that paper jams the printers, or is unprofessional to use, although it must be noted that staff members were only asked for their main reason. The PAR teachers were frequently told during this PAR that this was a reason not to reuse the paper.

It must be noted that 32% of staff members who answered the question which referred to student practices do not use the computer rooms, e.g. Junior School, Mathematics, Music and Physical Education staff members. Therefore the percentages shown were adjusted for the classes that do use the rooms.

- Photocopying

Table 4.17 Staff members requesting double-sided photocopying and photocopying on reused paper

Action occurring	Double-sided photocopying (%)	Photocopying on reused paper (%)
100 % of the time	72	8
75 % of the time	23	5
50 % of the time	5	5
25 % of the time	0	8
Never	0	74

Most staff members (95% at least 75% of the time) indicated that they demonstrate suitable behaviours and request double-sided photocopying, which is what the PAR teachers had observed. Very few staff members indicated that they request photocopying on reused paper (only 18 % at least half of the time). The PAR teachers hypothesise that staff members are not aware that they can request this action. Many are also reluctant to have photocopying done on paper that already has got printing on one side, as it looks unprofessional. Greater encouragement needs to happen, as there exists room for improvement.

Table 4.18 Opinions on how daily bulletins, notices, minutes, etc. should be photocopied

Statement	Statement most agreed with (%)
Daily Bulletins etc. to be printed on unused paper	*5*
Daily Bulletins etc. to be printed on unused A5 when appropriate.	*19*
Daily Bulletins etc. to be printed on reused paper that does not contain confidential information	37
Daily Bulletins etc. to be printed on reused paper	30
Additional statement added: Change to e-mail	*5*
Additional statement added: Too much repetition on daily bulletins	*2*
Additional statement added: Minutes of meetings should go up on notice board and not as copies for each person	*2*

Since the majority of staff members (37% and 30%) wishes to see reused paper being used for printing of daily bulletins, notices, minutes etc. it is strongly recommended that the administration gets this done. A number of other unsolicited reasons given here show that staff members are aware and critical of the practice and are willing to offer suggestions to improve the practice. Often notices are repeated for several days which means that the length

of the bulletin increases. It is likely that e-mailing and using the intranet will become standard practice as every family at the school has a computer at home.

Table 4.19 Opinions of staff members on whether this school has become more sustainable in terms of paper use

Extent of success	Staff members (%)
Very successfully	0
Successfully	17
Certain changes	63
Slight changes	17
Not at all	3

The majority of staff members acknowledge that certain changes have occurred. These results correspond with the views of the PAR teachers that the school community is more aware. Certain changes in behaviour and attitudes correspond with the fact that 63% of staff members consider that certain changes towards greater sustainability have occurred. In addition, 17% believe that the school has become more sustainable in its use of paper.

4.4.2 Results of the open-ended questionnaire at the end of the second cycle

Only 29 staff members answered this section of the questionnaire, because of the time it took to do so.

- The influence of a draft environmental policy, and associated initiatives on raising awareness of changes that are still required

Almost all of the staff members indicated that awareness had increased. Certain staff members wrote that the boxes were more successful in raising awareness than changes made in report-writing procedures. One staff member wrote:

Classrooms: most successful especially the Friday follow-up when students visit. This keeps people reminded. Computer rooms: better, changes can be made, but not as easy to do here. Report writing: this is a still a huge problem.

Two staff members, commenting that the suggested report-writing changes be mandated by the administration, provided evidence that this PAR had increased critical awareness and

professional growth by highlighting environmental responsibilities (see section 2.4.1 and 2.4.3).

Another staff member suggested, "People are more aware – probably feeling guilt." The PAR teachers noticed that this study did generate certain uncomfortable feelings among the staff members. Yet there is also an unusually high level of co-operation, cohesion and support among staff members at the school. We were also conscious of the fact that individual personalities help create success, and similar results might not be obtained from a less co-operative community. For example, it may be that some colleagues complied because of friendships with and respect for the PAR teachers rather than because of their interest in more sustainable paper practices.

PAR, as described in the literature review, provides for critical consciousness (see section 2.4.1). One staff member's comments described evidence of professional growth, because she expanded the ideology critique that does occur at our school by making suggestions. She wrote:

Classrooms: better to have students initiate their own class box, thereby having greater ownership. We need to be critical of the newsletters sent home asking: why do we do it? How should they be sent? Can they be e-mailed to families? How often? What should the content be? Computer rooms: better use seen in second semester. Report writing: I try to remember – can be difficult to put reused paper in printer when many people are printing simultaneously – could we set up a recycle paper printer as an alternative option in staff members workroom?

- The influence of a draft environmental policy, and associated initiatives, on changing behaviour and attitudes

The majority described how the boxes, rather than other practices, had changed their behaviours and attitudes. Examples included:
> *Made me 'walk the walk' as much as 'talk the talk'* and
> *Positive impact in all areas – still room for more but so much better than before* and,
> *Made me more aware of the waste…caused me to raise these issues (with staff members and administration) more often.*

A smaller number of staff members provided unexpected, favourable feedback about changes in their report writing practices based on the administration's suggestions. Almost all answers given to questions 12, 13 and 14 did not refer to the draft policy but to the boxes. The probable reason that staff members chose to interpret the relevant questions as relating

to the latter and not the former is because they have not heard enough about the draft policy. In hindsight, the PAR teachers acknowledge that discussions regarding the draft policy occurred mainly with the administration, and, as such, the questionnaire should have been amended for staff members.

- The influence of the PAR in changing awareness regarding paper

One staff member observed increased awareness and related action, writing: "Awareness is there, in almost every classroom – real stuff, not just the tokenism of 'environment days off timetable'. "Another commented that the school community demonstrates "more questioning now" with regards to the amount of photocopying of administrative pages distributed.

A number of staff members remarked that, although awareness had been raised, future action needed to be consolidated by involving the administration, saying, "Improved awareness but administration still not driving initiatives – unless they do start to drive environmental action, it will rely on concerned individuals and ultimately will end in failure" and, "Need to put pressure on administration to change procedures and practices. I think staff members were always aware."

The Deputy Headmaster stressed the need for recruiting new individuals, in view of the fact that certain PAR teachers were leaving, saying, "Seeds have been sown but it is easy to slip back into old habits; therefore, it is essential to pass on the environmental baton." The PAR teachers agree with this, noting that, on average, one quarter of staff changes annually.

- The influence of the PAR in changing behaviours and attitudes about paper

The answers clearly showed changes in behaviour and attitudes. Examples included: "I'm more aware and more proactive to encourage reusing" and "I'm aware that others also share my concerns, attitudes have changed, hopefully this will be permanent" and, "Myself = 100% improvement!" Two staff members commented in their questionnaires that they had not realised that they could request photocopying on reused paper. Thus the questionnaire not only provided the PAR teachers with information, but also gave an opportunity for the staff to reflect on current practices.

The success of the project has encouraged certain staff members to be more confident about creating change. One of the PAR teachers noted "people are 'coming out' and are willing to say good things, thereby pushing a little more. It modeled success as being achievable."

A staff member commented that while attitudes had changed, established practices made behavioural changes difficult to implement. She wrote: "A lot of staff members are aware of waste but communication in school demands lot of unnecessary paper – agendas for weekly meetings, photocopies of unit plans, minutes to each individual, two line notices on A4 paper, PTO notices."

The majority of the staff members still saw the need for more changes, noting that it takes time. Examples, supporting the results in Table 4.19, included: "Students are more aware, staff members are harder to change, it is slowly sinking in for me" and, "Big improvement among staff members, but students tend to recycle only when instructed by teachers" and, "Ordinary staff members are conserving more paper, administration still using too much."

- The influence of the PAR in changing awareness in other environment related areas

A number of staff members felt that insufficient or no awareness was evident. Examples included: "Canteen food not at all – recycling nightmare, kids should bring reusable containers or pay" and, "Litter continues to concern me – servant mentality of students and staff members seems to mean they believe the cleaners will clean up" and, "Need work on SUVs and car pooling, canteen packaging, lights and air-conditioning."

However, another staff members member commented that the PAR had "raised awareness for everyone." The awareness was leading to new, separate initiatives including "Kindergarten class bringing reusable lunch containers for lunch orders" and "Grade 12 Geography and Science teachers to co-ordinate canteen campaign."

- The influence of the PAR in changing behaviours and attitudes in other environment-related areas

Many staff members continued to be concerned about practices in the privately owned canteen. However, it must be noted that, due to a separate initiative, fried potato chips and pizza are now served in paper bags – an example of a small change. In addition, staff members were concerned about practices in other areas of the school. One staff members member wrote: "I don't think attitudes have changed: waste regarding littering, urinals, lights, air conditioning, shut doors, polystyrene in canteens, cool air escaping are still areas of concern." Another commented: "Attitudes, in general, remain slow to change." A third staff members member suggested: "Not many other connections have been made."

While staff members recognised and identified problems, there is also evidence of changed attitudes and behaviours among staff members. One staff members member commented, "Some people are more vocal about wasted resources. Surely if success in areas of paper, then why not for all other things?" Changes in behaviour included "… some improvement on packaging in canteen, lights issues," and one teacher commented, "I use a big glass now instead of plastic cups."

4.5 CHANGES IN ATTITUDES AND BEHAVIOURS OF THE CLEANERS

A slightly different methodology was required to gain an idea of the cleaners' attitudes and behaviours, taking cultural and political barriers into account. The Head of the Vietnamese teaching staff members commented on the appropriateness of the questions proposed in the draft questionnaire. Open-ended questions were deemed to be unsuitable, as cleaners would find it hard to write their own reasons or voice their own opinions. She suggested an informal interview be arranged to allow a small group to discuss the suggested reasons so as to come up with their own comments on the questions posed. The amended questionnaire could then be administered to all the cleaners. Acting on her suggestions the questionnaire was modified and translated into Vietnamese. The English version appears as Appendix B. The translated questionnaire was given to the Deputy Director General of the school, along with a detailed explanation as to how the results would be used in future, who granted permission for the questionnaire to be administered.

The cleaners were friendly and revealed a co-operative spirit in the informal interview. Lively discussions of each question ensued in Vietnamese and the answers were subsequently translated into English. This researcher had the opportunity to explain certain points that arose and was able to ask the cleaners for clarification. The cleaners answered the questions verbally and ticked the options given. They insisted that the reasons provided on the questionnaire (see Appendix C) needed no alterations or additions. They then administered the questionnaires to their teams. The questionnaires were thereafter returned to the researcher. None of the cleaners made changes or additions to the answers already selected in the informal interview. A summary of the answers (including those unrelated to the sustainable use of paper) are listed below:

- Cleaners' practices and opinions of the reuse and recycle boxes
    - The cleaners empty the boxes every day and place the paper in a separate rubbish bag.
    - The boxes work well; have made their jobs easier and the system does not need to change.
    - Staff members and students should continue to be encouraged to put paper in boxes.
    - The cleaners should empty the green boxes once a week.
    - Only A4 paper should be placed in the blue boxes.
    - Staff members and students waste less paper at school.

- Cleaners' suggestions for staff members and students to improve the environment
    - Only put the plastic drinking cups in the buckets provided and not other litter.
    - Do not place wads of tissues in the toilets.
    - Boys should improve their behaviour and practices in the toilets.
    - Turn off lights and air-conditioners after the afternoon classes are finished.

- Cleaners' suggestions for them to improve the environment
    - Turn off lights and air-conditioners.

The results of the questionnaire for the cleaners indicate that they feel that the scheme is successful, and that they cooperate. However, the PAR teachers feel that, in spite of precautions taken, the cleaners gave answers that they presumed we wanted to hear. Most staff members, including the PAR researchers and the student researchers would disagree that the boxes are emptied daily and that the paper is kept separately from other rubbish. It is culturally correct to provide answers that will please the person asking the question (personal comment Nguyen Thi Quynh Lam, Head of the Vietnamese teaching staff members). The cleaners did not appear threatened by the questions and were relaxed and smiling, although the researcher did think they were humouring her and wanted to get back to their work. The PAR teachers and students were also profusely thanked for their efforts and vice versa.

The answers that were suggested to improve the environment showed that the cleaners wre aware that the air-conditioners and lights are left on unnecessarily. In the past few years the school's generator has been inadequate at certain times and so the community was required to use less electricity. Other suggestions were directly linked to sustainability but made me realise how infrequently the cleaners have a chance, or are willing, to voice their concerns to the staff.

While the cleaners were frequently consulted about the boxes and only told of the need to reused paper, they were not informed about the draft environmental policy, which was a weakness in the PAR. They also, unlike students and staff members, did not learn about sustainability within the school environment, although they might have received information through the state media. The school should provide more knowledge about sustainability and present more opportunities for discourse as cultural, political and language barriers still exist.

In spite of the failure of this questionnaire to provide accurate answers, this researcher can report that while verbal communication is still very difficult, the cleaners do continue to sort and sell paper. They appear to appreciate the changes made in the school. PAR recommends researching a topic and this PAR has also resulted in the staff members and students realising that, while they waste a lot of paper, the cleaners sort through all the rubbish and collect bags of A4 paper, coloured paper, scraps of paper, plastic food containers, plastic drinking bottles, cardboard and bottles which contained solvents, which they then sell to a woman who comes to collect it on her bicycle. This is a very efficient business driven by extreme poverty in the surrounding society. Yet, the living standards continue to rise very rapidly in Vietnam and resources and employment opportunities are more readily available.   It is therefore unlikely that this small-scale recycling process will continue to happen. Instead, greater amounts of rubbish will be generated and need to be disposed of unless effective education occurs to the contrary.

4.6   RESULTS RELATING TO POLICY DOCUMENTS

4.6.1   Initial efforts to draft and implement policy

At the start of the first cycle, the PAR teachers, through critical reflection, identified factors which acted as barriers to sustainability. These included the existence of an affluent micro-society who thought that resources are sustainable, accompanied by unsustainable use, and the unlimited supply of resources in the school such as paper, food and water. Other barriers included the *laissez faire* approach to the integration of EE within the curriculum and the lack of consultation, co-ordination and planning to improve action at the school. Exponential, unsustainable industrial and agricultural development, a lack of national EE programmes, and the subsequent failure to develop an environmental ethic in Vietnam in the past decades, were also identified as barriers.

To overcome barriers, strategies suggested included forming an environmental action committee to draft a policy that would co-ordinate implementation by consulting the

administration and staff members. The committee was seen as a means to overcome the lack of continuity of projects and initiatives created by a transient international teaching population. When considering the success of past environmental projects, it was evident that short-term initiatives, although not sustainable or involving the entire community, were easier than long-term projects that required more detailed planning to ensure co-ordination. However, the lack of sustainability of the former had led certain staff members to feel a sense of powerlessness when attempting to bring about change.

While the main focus of this dissertation was on the sustainable use of paper, and not on adopting the entire policy, it is worth discussing why formal adoption has failed. Recording difficulties in trying to get the policy accepted and implemented at the school illustrate the complex process required. A school environmental policy provides a framework for principles, intentions and action plans, which include audits (Le Roux 2001:82). The administration continued to discuss the complete adoption of the draft policy throughout the year. Their main objection was that while the concept of sustainability needed to be addressed, it was unclear who would take responsible for all eight areas in practice, including the curricula review and overseeing the canteen. They expressed justifiable concern about all the other committees, activities, curriculum development and accreditation processes that are currently being undertaken.

The PAR teachers accept this argument, and recognise that adopting policy documents in theory only would be of little value. The administration was agreeable in allowing certain pilot studies to be carried out, such as improving the sustainable use of paper in the school, a project that had by then begun. It was important to gain such approval from the administration authorities because, despite recommendations of grassroots participation and initiation, if there do not exist support for such schemes from the top in the way of official approval, such actions may fail to be sustainable.

4.6.2   Reflections on putting policy into practice

The administration was reluctant to create another formal committee, within the organisational structure of the school, to implement the entire policy. For example, while this PAR was underway, staff members were focusing on six other areas of improvement/school goals. These included: policy development done by the following committees: a mother tongue language policy; English as an additional Language (EAL); Information Technology integration; Health and Social Education curriculum; Health and Safety; and Assessment (producing a continued assessment policy throughout the school and more suitable ways of reporting). In the same period of time, the Junior and Elementary Schools had their five-year

accreditation and evaluation visits from the International Baccalaureate Organisation. The Middle and High Schools continued to work on developing the Middle Years Programme curriculum. Despite this overload the Environmental Action Committee carried out the PAR described in this dissertation.

Involving students provided opportunities to take responsibility and action. Students acted as agents of change, and developed new skills, behaviours and attitudes. However, more and more action during this research required the administration to introduce and enforce changes. Careful consideration by the PAR teachers brought about the realisation that, while individuals may drive change in a system, individuals do not effectively ensure that changes remain if they stop pushing. In addition, people working within the system are more likely to listen to suggestions and reminders from those in authority as opposed to fellow colleagues. Therefore, increased consultation and co-ordination with the administration were essential. Other actions were delayed as the administration took time to make decisions while juggling other issues and demands.

One example of the interactions between the administration and PAR teachers was seen in the second cycle. The PAR teachers felt that it would be more effective if the administration provided reminders to staff members about changing behaviour, and remind people of the policy to reuse and recycle. The administration, on the other hand, was more willing to let the PAR teachers speak, because they felt they had a better understanding of what was requested. They also argued that, while what the committee was trying to achieve was good in practice, it was not policy yet as this was still being discussed at administration meetings, and formal adoption had not occurred. Exploration of this dilemma allowed the PAR teachers to realise the subtle but important distinction, that this scheme involving PAR was seen by the administration as good practice but not yet necessarily as policy which could be implemented and enforced. In the end the Section Heads agreed to remind staff during meetings, which proved to be very successful as staff members listen to the administration and see them taking responsibility.

Further consideration of the history of other policies versus practices at the school showed that the best route forward was to continue to establish the good practices of reusing and recycling which in time, when successful and commonly practiced, would be accepted formally as policy. The implementation of other policies at this school has taken far longer than the single academic year within which this PAR was implemented. Success has been achieved in merely getting the project off the ground.

A final discussion at the end of the second cycle between the Deputy Headmaster and the PAR teachers led us all to the conclusion that successful action and change require and rely on the participation of individuals. Reflections on this meeting in the journal stated that the process of change is a "process driven by individuals and their beliefs and desires, rather than something created by a system or an institution", implying that unless individuals, rather than organisational structures, continually push for change, failures result. Added to this, even if policies are in place in theory, they require individuals in the system to continually promote them. If this does not happen, initiatives stall or the opposite is accomplished.

4.7   SUMMARY

This chapter provides evidence that certain changes regarding the sustainable use of paper have occurred within the school community. While many actions were implemented, not all resulted in change. This PAR has shown that it is a suitable methodology for implementing sustainability. In the next and final chapter the findings and limitations will be summarised and suggestions will be made to improve the research.

CHAPTER 5

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This study was motivated by the following research question: How can the school community use paper on a more sustainable basis? Hence the study aimed to increase the sustainable use of paper at school. The literature study and the empirical investigation have provided valuable sources of information from which significant conclusions can be drawn. These conclusions assess the success of PAR in creating more sustainable use of paper at school, and provide recommendations for further PAR linked to the implementation of policy in this regard. Attention is also given to the limitations of the methodology used and to the results obtained.

5.2 CONCLUSIONS

5.2.1 Conclusions from the literature study

ESD requires the development of action competence and various modes of thinking. The integration of EE or ESD into curricula is insufficient unless opportunities are sought for action to be taken. It is not only students who require such skills. It is increasingly recognised that staff members should not only offer such opportunities for students but within themselves also develop such criteria. All teachers need to incorporate holistic learning aimed at developing students capable of establishing a sustainable society for the future.

An environmental policy allows for a co-ordinated approach to create sustainability if consideration is paid to formulation, institutionalisation, implementation and evaluation. Similarly, PAR allows different sections of the community to participate together to allow for planning, research, activities and continued reflection. Therefore, PAR can be used to create

a study whereby the PAR researchers work together with the school community to effect change within the system. The following sections offer conclusions that demonstrate that PAR has been a suitable tool to create greater sustainability at the school by changing behaviour regarding the use of paper.

The review of the policy implementation in section 2.5.3 compares approaches that include government-led initiatives and the influence of NGOs. Neither role player presently affects the school. While teachers and students should, continue driving the action, administration needs to set and approve guidelines similar to those for schools in New South Wales (see section 2.5.3). These will direct curriculum development, the management of resources and the management of the school grounds. The school certainly has the resources available within its staff to do so.

Examination of the results of this study shows little reference to the term "sustainability", despite actions being carried out to assist in achieving this. The community considered that the action carried out was EE and not education for sustainable living. Does this make a difference, bearing in mind the fact that the word 'environment' is a concept that they can grasp, whereas 'sustainability' remains a more amorphous concept? While the community may not be able to define education for sustainable living, action involving sustainable consumption has been connected to economic, political and social issues within the community. Therefore, while the researchers have failed to communicate what sustainability directly refers to, if such studies are repeated and continued, greater prominence should be given to the term 'sustainable living'.

5.2.2   Conclusions from the empirical investigation

The school has implemented learning by taking action, and by articulating and questioning assumptions. Introducing boxes in which paper was collected for reuse allowed the school community to examine their own behaviour and attitudes. There now exists greater awareness, changed attitudes and altered behaviours regarding the sustainable use of paper amongst staff and students alike. Students were able to change the attitudes and behaviour of the staff in particular. Certain aims of the draft environmental policy (see section 1.1.2) are currently being achieved. Overall, corporate environment and social responsibility as well as accountability have been improved. The administration was supportive and willing to change certain practices, resulting in a more sustainable use of paper.

There are many examples of research of ESD that have involved integrating theory and practice into the written curriculum. This current study has not attempted to do so for several reasons. The main reason was that it aimed for action to be taken by the entire school, rather than in one or two subjects only. Secondly, curriculum development reviews take time. The current curricula are continually being revised to accommodate better assessment practices at the school. Sustainability and recycling are themes that frequently occur within the written curriculum. At the start of the research it was clear that such topics were often discussed in theory only, and opportunities to create action by the school community, including the staff, were needed. Many ways in which paper is used do not relate to the written curriculum directly. For example, researching a topic on the internet may indirectly result in a student printing four or five pages of irrelevant information. Therefore, this action attempted to address such issues. The success of such actions can now be directly referred to in classroom discussions on sustainability, providing practical examples for students to understand.

5.2.3   Conclusions from the literature study and empirical investigation

The PAR teachers' and students' involvement allowed for more personal development of action competence. They were directly involved in opportunities for ideology critique and, subsequently, developed skills involving communication, planning, implementation, reflection and justification. Solving problems created opportunities for listening, negotiation, lateral thinking and the development of awareness of the reasons for others' attitudes and behaviour. The use of reflective and critical thinking processes are not unknown to the students and staff of this school. The PAR allowed for more critical, constructive and political thinking. More importantly, the PAR allowed the ability for such thinking in theory to be put into practice.

This study has helped clarify the responsibilities of structures and individuals in the school. Although changes in behaviour and attitudes have been observed, much still needs to change. While the results have shown that both the staff and students expect the administration to play a leading role in creating action and change, it must be noted that PAR encourages participation and, in this case, the development of individual responsibility and action competence. It is easy to blame the system but, as accommodated by the methodology, attitudes and behaviours cannot be dictated by the administration or PAR

teachers and students, especially in the areas of computer printing and producing and distributing notices. However, the above parties can supply friendly reminders.

The results show that individuals, especially students, are able to create change within a system, resulting in a move towards better ESD. This study is an example of change being initiated by teachers and students; however, at the same time it has become clear that while the PAR was driving action from the bottom upwards, if the administration does not directly support these changes and institutionalise them, (e.g. by sending clear messages from the top down), certain changes may not be sustainable. Therefore, this methodology also needs to ensure that the administration adopts and implements actions from the top downwards. This two-way exchange was required and was successful because of the consultative approach used by the PAR in implementing change.

This research also allowed for the identification of problems that arose during the implementation of an action study or policy. These included the need for consultation, communication, tenacity, and the realisation that implementation requires constant monitoring and will take a long time to achieve.

Important perspectives on implementing ESD were reported in the dialogue originated by Ward and Schnack (2003:143-146). This PAR has avoided the creation of labourers because of the methodology involved. Taking action has resulted in less attention being given to the curriculum, while including the maintenance staff and administration, and has forced the school to look at the consumer choices being made. The PAR has demonstrated that learning through action has occurred because of the reorientation of behaviour, attitudes and levels of awareness.

Considering the above conclusions, how successfully have the concepts of action competence and critical thinking been addressed? Limited success has been achieved when viewing the entire scope of ESD, and the PAR needs to continue into a new cycle, on grounds of certain successes achieved. These included the following: The methodology of using the boxes involved continual negotiations with the entire school community. Every person was given the opportunity to think, "Why use the boxes? Should I? Will I and am I?" The boxes not only provided opportunities to take action and demonstrate responsibility but also to develop attitudes, awareness and knowledge. Impetus grew as the scheme

progressed and more people took action. The study provided an example of research that formed the basis for future action using PAR to achieve sustainability.

How sustainable is the action created? Will it continue? Yes, it appears likely because the methodology of PAR involves cycles of continual reflection; therefore researchers will be aiming to evaluate and act continually. It would be better if such PAR processes were institutionalised so that, in spite of the transient nature of the school community, the actions have a greater chance of continuing. The SEAC is continuing with certain aspects of the research, in particular the boxes, and it needs to ensure that suitable mechanisms are put in place to ensure sustainability over the next few years. New staff, having just arrived at the start of the new academic year, are expressing great interest in carrying on the work. The formulation of the draft policy and the results of the empirical investigation will produce suitable guidelines.

5.3   RECOMMENDATIONS

PAR has proved to be a successful means of implementing change, but continual consolidation and monitoring of the action already implemented, needs to occur. A conclusion from this study is to request that the administration puts policies in place to control unlimited photocopying and printing. Many people will argue that this will affect the quality of education provided. It is recommended that only clean and entire reuse A4 sheets be placed face-up in the boxes used at this school. In addition, convenience is important. Boxes are not used frequently if they are not conveniently placed. Cleaners also need to empty the green boxes regularly.

In addition, when attempting to introduce new practices, negotiation, decision-making and approval from the administration need to be accompanied by staff and student-led action advocating change. Changes occurred both because of leadership and ethical imperatives and, as such, future actions should take this into account.

Another recommendation is that the staff and students learn the names of the cleaners. A simple action of this kind is a fundamental step in recognising and improving working relationships. It also creates accountability and removes the faceless identity of the "cleaners". PAR has identified this and now stresses the importance of relationships within the International school society (see section 2.4.2).

PAR should be used to implement the draft environment policy so as to achieve ESD. The implementation process could be done by involving the community in similar processes, as documented in this research report. Formulation and institutionalisation are starting points, but implementation is the greater challenge. Finally, evaluation of the policy will need to be done regularly. This school is currently going through a similar regular five-year accreditation program that also involves participation by the entire community, so this should not prove a difficult task. Our students are active learners but more consideration needs to be given to how they can continue to take action and develop responsibility within their local environment.

While the full environmental policy still needs to be adopted and implemented, putting in a brief policy relating to printing and photocopying in the school handbook would prove a successful start. The administration should consider including information similar to the following statement in the handbook of a newly established international school in Beijing (Janiene O'Reilly personal comment). The textbook states:

In order to promote Beijing Community International School (BCIS) as an environmentally thoughtful school, we use recycled paper. Please use double-sided copying whenever possible and recycle extra copies.

BCIS is committed to promoting responsible recycling efforts wherever and whenever possible. You will find paper recycling baskets in every classroom. In addition, you will find other locations around the school equipped with collection containers for paper, plastic and glass. We encourage teachers to set an example for our students by taking a leading role in all our recycling efforts.

Our school could easily follow the same procedure, as many of these practices are already in place. A statement in the textbooks would help new staff more quickly, continue to be a reminder of good practice for existing staff, and formalise the action component for our community, as well as support our IBO curriculum guidelines.

5.4   LIMITATIONS OF THE STUDY

5.4.1 Problems and uncertainties in the methodology

Students did not participate in all of the areas of the PAR, such as report writing and directly communicating with the administration. While unavoidable and a weakness of the methodology, it is recognised that simply communicating and negotiating with teachers was a "step up" for students as they had not done this before. These lessons ought to be valuable in the future.

Participation and co-operation are desirable in order to achieve ESD, as well as implement PAR. The PAR teachers wanted to recognise and value the input from the Student Action Environment Committee (SEAC) and student teams without dictating ideas and actions. A fine balance was required and it was not always easy to achieve, in terms of the different experiences and the maturity of the various researchers. In certain instances, practices were affected by the researchers' lack of experience, and yet direct interference from teachers would have opposed attempts to empower students through experience and through learning from their mistakes. An example was when the SEAC wanted to appoint classroom representatives. A good idea in theory, it would have been easy for the teachers to do. Yet this would override the requirement that students take action. It proved far more difficult for students to take action. Greater consideration needs to be given to the time allocated to working with and mentoring students within a busy curriculum, so that students may benefit from staff experience without the staff members dictating, subsequently making students "learners not labourers" (Ward & Schnack 2003:143).

The PAR teachers became aware of their power to influence young minds and indoctrinate them with the teachers' personal beliefs and values about sustainability. When discussing these concerns with the Deputy Headmaster it became even more apparent that PAR methodology is suitable for the implementation of ESD as he, not the PAR researchers, pointed out that the PAR allows for the exploration of different views, attitudes and values. In so doing, students are stimulated to form their own opinions.

Reflective practices are not simple. They are time consuming and require discipline. In this study the PAR researchers and SEAC, while constantly communicating, reflecting and planning, did not record enough of their thought processes. The student teams demonstrated

better habits, but this was because a part of their weekly lesson was set aside for such reflection. Even then, their reflection was often not critical, due to the cultural and political habits of the society. Better reflection could have occurred if the PAR teachers monitored it carefully. Yet, reflective journal writing is also often seen to be private, so having a teacher monitoring or enforcing student reflection may be seen as intrusive, and may restrict the thoughts written.

Results regarding the cleaners' attitudes and behaviours proved inconclusive. While this study not really effected changes in power relationships amongst the cleaners and the school, consultative processes attempted to create better understanding of their views and suggested actions. Involving them in the PAR has created better working relationships. They are not completely powerless. Language barriers give both the teachers and the cleaners less power in different ways, and the cleaners have demonstrated, through carrying on in the way they wanted things done, that they do control certain aspects of sustainable practice regardless the schemes that others introduce. As such, even more attention should be given to teaching and communicating with them.

The study was done during one academic year. More time is needed to implement further cycles. Collaboration, consultation and participation were essential reasons for the success of the action, but it took a long time for some decisions to be made by the administration.

5.4.2   Problems and uncertainties in the data

Certain actions implemented need a greater period of time of evaluation to assess the success more accurately. Implementing future cycles will hopefully be able to accommodate time delays and improve the current action taken. Staff also often commented on the overload of work that they have, and this will continue to be a limitation in the future.

Results have been collected by a triangulation of methods, but it must be recognised that behaviour and attitudes are not static. The results only accurately represent the situation as it was at that point in time. It is reliable, as the results show a range of attitudes and behaviours, but if time permitted, the questionnaires should have been applied again. Students in other sections of the school could have been included. It is noted that as students grew , they are required to work more often on computers and less in their notebooks, inferring that older

students will have different behaviours. Similarly, many students in the Elementary School work on sheets of paper that go into their portfolios.

When doing PAR directly among one's own colleagues and students, the researchers felt there was a desire to please by supporting suggested actions, which may have overshadowed the genuine values staff members place on sustainability. Similarly, the school community would unconsciously put a positive slant on their own actions and opinions when being interviewed or when answering questionnaires. Similarly, colleagues were perhaps unwilling to criticise openly so as to avoid offending the researchers, and so certain viewpoints may not have been offered. Therefore, direct participation by researchers can be considered to have influenced the results.

The school community is more aware of how much paper is used in an unsustainable manner. As a result of changes in attitudes and behaviour, paper is reused more frequently, indicating that less paper is being purchased. This study could not verify actual decreases in paper supplied. A related question is, "Does the unlimited supply of paper and other resources drive the demand for paper or does the demand cause the school to keep purchasing paper?" Presently it appears that the unlimited supply drives the demand. The allocated budget is very generous, and there is presently no plan to set a limit on resources purchased.

5.5   SUMMARY

Participatory Action Research (PAR) was carried out to improve educational practices and environmental sustainability in an International School in Vietnam. The researchers, teachers and students undertook two cycles of PAR to determine how the school community could use paper on a more sustainable basis. The methodology included introducing methods of sorting paper, so that it could be reused or recycled, and encouraging the reuse of paper. Practices related to computer printing, report writing and newsletter production were also investigated, followed by actions. Changes in the community, in terms of accepting responsibility and demonstrating changed attitudes and behaviours, were measured. The relationship between policy development and implementation was explored.

A successful start has been made to improve practices relating to sustainability. Certain changes in awareness, attitudes and behaviour in the school community were brought about by changes initiated by the PAR and the administration. The community demonstrated

greater responsibility and action competence. Greater understanding of the roles that different sections of the community have to play to create change has been documented. Critical awareness of unsustainable practices at the school increased. It was established that the individuals involved in the PAR were able to effect change, but that within the school, such actions should be institutionalized, or such changes may not be sustainable. PAR proved to be a useful tool in implementing aspects of the draft policy and, as this school needs to continue to enable the community to develop sustainable lifestyles, it is imperative that such research be continued.

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Staff behaviour and attitudes on sustainable use of paper

Please complete the survey as accurately and honestly as possible. Please return to the Head of section at the end of the meeting or place it in Shelley Milstein's pigeonhole.

1. Please write down your title and section of the school you teach in._____

REUSING PAPER IN CLASSES

2. How often do you currently separate and put paper in the boxes in the classroom (not staffroom)? Circle the most appropriate response.

    100%   75%   50%   25%   0%

  Tick the most important reason for choosing your answer:

    It is convenient/boxes are easily accessible

    Excess clean paper is available so I discard paper already used

    It is a habit not to sort paper

    It is inconvenient/boxes are not easily accessible

    Clean paper looks more professional so I discard used paper

    It is an unnecessary practice

    I was requested to and chose to comply to set an example for students

    I was requested to and chose to comply because ..……………………………………

    Another reason (briefly explain) …………………………………………………...

3. Since the boxes were introduced, have you put more or less paper into the boxes over time?

    More. Less. Please give a reason for your answer.

4. How often do you encourage or instruct students to use paper from the boxes in the classroom?

Circle the most appropriate response.

    100%   75%   50%   25%   0%

Tick the most important reason for choosing your answer:

       Convenient/boxes are easily accessible

       Excess clean paper is available so we use this

       Habit not to reuse paper

       Inconvenient/boxes are not easily accessible

       Clean paper looks more professional and is preferred

       Was requested to reuse and chose to comply to set an example for students

       Was requested to reuse and chose to comply because...

       Another reason (briefly explain)

5.   Since the boxes were introduced, have you encouraged such use more or less over time?

       More. Less. Please give a reason for your answer.

REUSING PAPER IN THE COMPUTER ROOMS

6.   How often do you reuse paper in the computer room for documents such as emails, drafts, pages that will be photocopied or pages from the Internet? Circle the most appropriate response.

      100%   75%   50%   25%   0%

Tick the most important reason for choosing your answer:

       Excess clean paper is available so I use it

       Habit to use paper already in printer therefore it is inconvenient

       Clean paper looks professional so I use it

       Unnecessary practice

       Convenient practice

       Was requested to reuse and chose to comply because...

       Another reason (briefly explain)

7.   How often do you request or instruct your classes to reuse paper in the computer room printer for documents printed such as drafts or pages from the Internet? Circle the most appropriate response.

      100%   75%   50%   25%   0%

Tick the most important reason for choosing your answer:

Excess clean paper is available so they use it

Easy habit to use paper already in printer

Clean paper looks more professional so they use it

Unnecessary practice

Convenient practice

Inconvenient practice

Was requested to print on reuse paper and complied to set an example for students

Was requested to reuse and chose to comply because. …………………………………….

Another reason (briefly explain)

PHOTOCOPYING

8.   Do you request double sided photocopying rather than single sided as appropriate? Circle the most appropriate response.

100%   75%   50%   25%   0%

9.   Do you request photocopying on reused paper if your photocopied sheet is one sided only and is going to be used by students? ? Circle the most appropriate response.

100%   75%   50%   25%   0%

10.   Daily Bulletins, meeting agendas and similar official notices amongst staff are often photocopied on one side only. Tick which of the following statements you agree with the most?

I want the practice to continue.

I want the practice to continue taking into account that A5 is used when appropriate.

I would accept these notices being printed on reused paper if the original printing is not confidential.

I would prefer that these notices be printed on reused paper.

11.   To what extent do you think that this school has become more sustainable in terms of paper?

        Very successfully   Successfully   Certain changes   Slight changes
        Not at all

Optional Additional Questions – BEING aware of time constraints

The following questions are more open-ended and you are welcome to write as much as you like on extra paper. If you prefer to volunteer to an interview instead, please indicate this on the page and I will come and record your answers.

12.   In what ways has the introduction of the draft environmental policy and associated initiatives such as the boxes, newsletters and report writing raised awareness of changes that could or should be made in the following areas?
        Classrooms………………………………………………………………………………
        …………….
        Computer rooms
        ……………………………………………………………………………………
        Report writing …………………………………………………………………

13.   In what ways has the introduction of the draft environmental policy changed your attitudes?
        Classrooms………………………………………………………………………………
        …………….
        Computer rooms
        ……………………………………………………………………………………….
        Report writing
        ………………………………………………………………………………………..

14. In what ways has the introduction of the draft environmental policy changed your behaviour?

Classrooms…………………………………………………………………………………

………………

Computer rooms

…………………………………………………………………………………………….

Report writing

…………………………………………………………………………………………….

15. List ways in which you have perceived that this action research has changed attitudes amongst staff, students or yourself regarding paper.

16. List ways in which you have perceived that this action research has changed attitudes amongst staff, students or yourself regarding other areas of the environment such as resource consumption (energy, water) or the canteen.

17. List ways in which you have perceived that this action research has changed awareness amongst staff, students or yourself regarding paper.

18. List ways in which you have perceived that this action research has changed awareness amongst staff, students or yourself regarding other areas of the environment such as resource consumption (energy, water) or the canteen.

Questionnaire for cleaners

This is not a test but a questionnaire for which you have all the answers. You need to tick the answer you choose.

Please complete the questionnaire and return it to Shelley Milstein.

Do not write down your name. Please give your honest opinion on the ways in which we use paper at school. Do this by indicating your response with a √.

Example:

I am a man

I am a lady √

1.   I empty the green boxes or bins:

       Every day

       Once a week

       When the box is full

       When the teacher asks me to

       Once a month

       Other (indicate)...

2.   When I empty the green boxes I find it easier to:

       Keep paper in a separate rubbish bag.

       Put the paper with plastic, cardboard, food containers in one bag and then sort it all out later.

       Other (indicate)…

3.   The boxes in the classrooms:

work well

do not work well

Explain:_____

_____

_____

4.   The boxes:

made my job easier

made my job more difficult

made no difference to my job

Explain:_____

_____

_____

5.   Of the ways in which we gather paper at school, I agree with all of the following:

Keep the same system and continue to encourage staff and students to put the paper in the boxes.

Remove the green box and only have one blue box for paper to be reused.

Place all the rubbish in one bin and let the cleaners separate the rubbish out later.

Empty the green boxes once a week.

Only put A4 paper in the blue box and not smaller pieces of paper, A3 paper or paper with staples.

Keep the same cleaners on the same floor all the time so that teachers get to know them better

Any other suggestions?

_____

_____

_____

6.   I think the staff:

waste less paper at school

still use as much paper as ever

Explain:

_____

_____

_____

7.   I think the students:

waste less paper at school

still use as much paper as ever

Explain:

_____

_____

8.   Teachers can also do the following at school to improve our environment:

_____

_____

_____

9.   Students can also do the following at school to improve our environment:

_____

_____

_____

10. Cleaners can also do the following at school to improve our environment:

_____

_____

_____

11. I want to add the following:

_____

_____

_____

Thank you for your participation.

Student behaviour and attitudes on sustainable use of paper

This is not a test but a questionnaire for which you have all the answers. You need to tick the answers you choose. Please give your honest opinions.

REUSING PAPER IN CLASSES

1.   How often do you currently separate and put paper in the boxes in the classroom? Circle the most appropriate response.

   100%   75%   50%   25%   0%

Tick the most important reason for choosing your answer:

It is convenient/boxes are easy to find

There is no shortage of clean paper

I am used to not sorting paper

It is inconvenient/boxes are difficult to find

Clean paper looks nicer so I throw paper away

I don't have to do it

Teachers and students ask me to do it

Another reason (briefly explain)

_____

2.   Since the boxes were put in classes, have you put more or less paper into the boxes over time?

More. Less.

Please give a reason for your answer.

_____

3.   How often do you use paper from the boxes in the classroom and not clean sheets if you have the choice? Circle the most appropriate response.

   100%   75%   50%   25%   0%

Tick the most important reason for choosing your answer:

It is convenient/boxes are easy to find

There is no shortage of clean paper

I am used to not sorting paper

It is inconvenient/boxes are difficult to find

Clean paper looks nicer so I throw paper away

I don't have to do it

Teachers and students ask me to do it

Another reason (briefly explain)

_____

4.   Since the boxes were introduced, have you used more or less over time?

More. Less.

Please give a reason for your answer.

_____

REUSING PAPER IN THE COMPUTER ROOMS

5.   How often do you reuse paper in the computer room for documents such as emails,

drafts or pages from the Internet? Circle the most appropriate response.

100%   75%   50%   25%   0%

Tick the most important reason for choosing your answer:

There are large amounts of paper in the room

There is clean paper in the printer already

Clean paper looks professional so I use it

I don't need to do it

The teacher tells me to do it.

Another reason (briefly explain)

_____

The Draft Environmental Policy

Mission statement

Our mission is to develop the whole person. The environmental policy assists to equip each member of the community, especially students, with the knowledge, skills, attitudes and values relating to the local and global environment thereby allowing them to take responsibility and action which results in a sustainable lifestyle.

This policy aims to result in awareness, responsibility, action and reflection of local and global environmental issues.

Rationale

In line with the school's mission statement with its emphasis on personal responsibility, this document focuses on issues relating to environmental sustainability. It commits the school to developing an environmental policy that raises awareness, encourages responsibility and facilitates action and evaluation of local and global issues.

Purposes

There is a need for the members of our school community to:

- become aware of their interdependence with the environment so that they accept their responsibility for maintaining an environment fit for future generations.
- become aware of sustainable and unsustainable lifestyle choices so that they are able to take responsibility for the impact that our lifestyles have on the natural resources in our environment
- become exposed to a view of the environment, that is broader than nature studies, which require balanced understanding of social, economic, political, historical and ethical views, in the context of sustainable development, so as to allow decision making
- have the capacity and self confidence to communicate and act individually and collaboratively
- have the opportunity to develop problem-solving and practical skills so as to be able to take positive action at school, and in the future, with regards to local and global environmental issues
- reflect on their responsibilities and actions that will ensure sustainable lifestyles
- replace unsustainable practices with sustainable practices
- replace unsustainable resources with sustainable resources
- use existing resources more efficiently and effectively so as to gain financial benefits through saving resources
- create improvements in the physical surroundings of our school so as to encourage pride and enhance health and well being

Guidelines (how we are going to make a difference? What might the programme look like?)

Issues that will be addressed:

1   Resource use in the school

        Reduce, reuse and recycle paper
- audit annual use of paper in photocopy room
- photocopy on both sides of paper
- sort paper in all rooms into 2 boxes rather than discard so as to reuse or recycle
- collect paper for recycling factory
- reduce printing paper in the computer labs by reusing paper

        Reduce energy consumption
- audit annual use of electricity
- switch off lights and air conditioners when rooms are not in use
- keep room doors shut at all times if air conditioners are on

        Reduce water wastage
- audit annual water use
- only water the grounds in the afternoons
- check taps regularly for leaks
- encourage water saving in bathrooms and toilets
- set up suitable cleaning practices of materials in science and art rooms

        Removal of plastic cups
- encourage all students to fill up plastic water bottles
- replace non-biodegradable plastic cups with biodegradable paper cups

2   Environmental information in the curriculum
- analyse the curriculum to increase integration of environmental issues, create scaffolding and prevent overlap
- integrate local environmental issues within the curriculum that allows students to take action for the environment
- integrate global environmental issues within the curriculum that allows students to take action for the environment

3   School calendar
- set up a series of special days to be celebrated in homerooms such as Earth day, Arbor day, Water day, Aids Day and other culturally relevant days which include the host country and Asian region

4   School grounds and field work opportunities
- walk on paths and not on the grass
- prevent sweeping of the grass as this damages leaf structure and dries the soil
- replace alien vegetation with indigenous, hardy plants
- establish student vegetable and flower gardens
- plant trees
- establish suitable sites for fieldwork in all grade levels that utilise the outdoors

5   Canteen
- serve food, such as pizza, rolls, rice dishes and salads, in biodegradable paper containers where possible.
- do not place containers in an additional plastic bag.
- separate waste in canteen

6   Action projects, Clubs, adventures and cultural activities
- develop campaigns on littering, wild animal trade in Asia and endangered species trade in Vietnam
- all field trips to pay particular attention to environmental themes including those of aesthetic, economic, cultural, social and political issues

7   Healthy environment
- design a suitable manner of disposal of toxic materials in the Science rooms such as organic solvents
- design a suitable method of disposal of toxic materials in the Art rooms such as oil based paints
- design a policy to educate and allow for reduced and safe spraying of pesticides and herbicides
- design a policy to educate and allow for safe use of chemicals such as solvents used by carpenters, technicians and maintenance staff

8   Community involvement
- encourage car pooling and buses
- encourage cars not to keep engines running to allow for air conditioners
- set up recycling depots for newspapers, old computers and cell phones