THE ECOLOGY OF SCHOOL CHANGE: AN AUSTRALIAN PRIMARY SCHOOL’S ENDEAVOR TO INTEGRATE CONCEPT-BASED, EXPERIENTIAL ENVIRONMENTAL LEARNING THROUGHOUT CORE CURRICULUM

By

Jamie A. Carson

Copyright © Jamie A. Carson 2007

A Dissertation Submitted to the Faculty of the DEPARTMENT OF TEACHING AND TEACHER EDUCATION In Partial Fulfillment of the Requirements For the Degree of DOCTOR OF PHILOSOHPY In the Graduate College THE UNIVERSITY OF ARIZONA

2007
As members of the Dissertation Committee, we certify that we have read the dissertation prepared by Jamie A. Carson entitled The Ecology of Educational Change: An Australian primary school’s endeavor to integrate concept-based, experiential environmental learning throughout core curriculum and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy.

Date: April 4, 2007

Dr. Bruce Johnson

Date: April 4, 2007

Dr. Ana C. Iddings

Date: April 4, 2007

Dr. Alberto Arenas

Final approval and acceptance of this dissertation is contingent upon the candidate’s submission of the final copies of the dissertation to the Graduate College.

I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement.

Date: April 4, 2007

Dissertation Director: Dr. Bruce Johnson
STATEMENT BY AUTHOR

This dissertation has been submitted in partial fulfillment of requirements for an advanced degree at the University of Arizona and is deposited in the University Library to be made available to borrowers under rules of the Library.

Brief quotations from this dissertation are allowable without special permission, provided that accurate acknowledgment of source is made. Requests for permission for extended quotation from or reproduction of this manuscript in whole or in part may be granted by the copyright holder.

SIGNED: Jamie A. Carson
ACKNOWLEDGEMENTS

I would like to thank the members of “Woodridge Primary School” for welcoming me into their community. Further appreciation goes to David and Rosalind Todd for sharing their beautiful home with me. Thanks also to Ricoh, Australia for funding the final stage of this research. Dr. Bruce Johnson has been a dedicated mentor whose knowledge and experiences have greatly inspired me. Finally, I would like to recognize my parents Ann and James Carson and my sister Angela Feeney for their unfailing support of all of my endeavors.
DEDICATION

This work is dedicated to the memory of all the ancestors who have paved the way for my successes through their love, learning, and laughter. The foremost in my memory being my grandmothers Mrs. Ora Lee Stansel, 1927 graduate of West Texas State Teachers’ College and Mrs. Lena Carson. I would also like to dedicate this work to my nieces and nephews Brandy, Zach, Adam, and Kelby in the hope that their children will inherit a healthier planet.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES</td>
<td>10</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>11</td>
</tr>
<tr>
<td>CHAPTER I- INTRODUCTION</td>
<td>13</td>
</tr>
<tr>
<td>The Problem</td>
<td>13</td>
</tr>
<tr>
<td>Background</td>
<td>17</td>
</tr>
<tr>
<td>Creating and Maintaining a Culture of Change</td>
<td>19</td>
</tr>
<tr>
<td>Connections and Disconnections</td>
<td>21</td>
</tr>
<tr>
<td>The Ecology of School Change</td>
<td>22</td>
</tr>
<tr>
<td>Research Questions</td>
<td>23</td>
</tr>
<tr>
<td>CHAPTER II- REVIEW OF THE LITERATURE</td>
<td>25</td>
</tr>
<tr>
<td>Environmental Education</td>
<td>25</td>
</tr>
<tr>
<td>Alternatives to Environmental Education</td>
<td>29</td>
</tr>
<tr>
<td>Mandated Environmental Education</td>
<td>31</td>
</tr>
<tr>
<td>School Change Processes</td>
<td>33</td>
</tr>
<tr>
<td>Barriers to Change</td>
<td>35</td>
</tr>
<tr>
<td>Ecological Thinking</td>
<td>39</td>
</tr>
<tr>
<td>CHAPTER III- METHODOLOGY</td>
<td>43</td>
</tr>
<tr>
<td>Overview and Rationale</td>
<td>43</td>
</tr>
<tr>
<td>Research Questions</td>
<td>44</td>
</tr>
<tr>
<td>Context of the Study</td>
<td>45</td>
</tr>
<tr>
<td>Case Methodology</td>
<td>46</td>
</tr>
</tbody>
</table>
**TABLE OF CONTENTS - continued**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangulation</td>
<td>46</td>
</tr>
<tr>
<td>Timeframe</td>
<td>47</td>
</tr>
<tr>
<td>Initiation</td>
<td>48</td>
</tr>
<tr>
<td>Implementation</td>
<td>51</td>
</tr>
<tr>
<td>Institutionalization</td>
<td>52</td>
</tr>
<tr>
<td>Participants and Recruitment</td>
<td>53</td>
</tr>
<tr>
<td>Interviews</td>
<td>56</td>
</tr>
<tr>
<td>Observations</td>
<td>57</td>
</tr>
<tr>
<td>Document Analysis</td>
<td>58</td>
</tr>
<tr>
<td>Theoretical Framework for Analysis</td>
<td>58</td>
</tr>
<tr>
<td>Analysis of Interviews and Observations</td>
<td>62</td>
</tr>
</tbody>
</table>

**CHAPTER IV - SCHOOL CULTURE** .............................................. 64

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atmosphere</td>
<td>66</td>
</tr>
<tr>
<td>The Woodridge Family</td>
<td>68</td>
</tr>
<tr>
<td>Working Parents</td>
<td>71</td>
</tr>
<tr>
<td>Camaraderie and Innovation</td>
<td>72</td>
</tr>
<tr>
<td>Communication</td>
<td>79</td>
</tr>
<tr>
<td>Meeting of the Minds</td>
<td>84</td>
</tr>
<tr>
<td>Us and Them</td>
<td>88</td>
</tr>
<tr>
<td>Collegiality and Compliance</td>
<td>92</td>
</tr>
<tr>
<td>Tradition</td>
<td>97</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS- continued

CHAPTER V- EARTHKEEPERS……………………………………………………… 102

Head, Hands, Heart……………………………………………………………… 103

Earthkeepers Leadership………………………………………………………… 104

Communication Breakdown…………………………………………………….. 109

Curricular Integration……………………………………………………………. 113

Earthkeepers in the Classroom 2005………………………………………….. 114

Earthkeepers in the Classroom 2006………………………………………….. 118

Receptivity………………………………………………………………………. 120

Financial Resources……………………………………………………………. 124

Full Circle……………………………………………………………………….. 132

CHAPTER VI- CONSIDERING ECOLOGY………………………………………. 136

Ecological Framework………………………………………………………….. 138

The Woodridge System………………………………………………………….. 146

Entropy…………………………………………………………………………... 152

Earthkeepers Unkept…………………………………………………………….. 156

Ecological Lessons……………………………………………………………… 159

Ecology, Research, and Practice………………………………………………… 163

Strengths and Weaknesses of This Study……………………………………….. 169

APPENDIX A- U.S. HUMAN SUBJECTS APPROVAL………………………… 173

APPENDIX B- AUSTRALIAN HUMAN SUBJECTS APPROVAL…………….. 175

APPENDIX C- PARENTAL RECRUITMENT LETTER…………………………..177
TABLE OF CONTENTS- continued

APPENDIX D- SUBJECT’S CONSENT FORM............................................. 178

APPENDIX E- INTERVIEW QUESTIONS................................................. 181

APPENDIX F-INTERVIEW SUMMARY SHEET......................................... 187

REFERENCES....................................................................................... 191
LIST OF TABLES

TABLE 1, Ecological Concepts as Interpreted in Natural and School Systems ........61

TABLE 2, Descriptors of School Atmosphere Used by Parents.........................69
ABSTRACT

This longitudinal study has examined an Australian primary school’s change processes as it has striven to transcend government-mandated environmental education in New South Wales. Woodridge Primary School initiated “Environment Woodridge”, a comprehensive reform effort, in March of 2003. Since then the staff have worked to integrate programmatic, concept-based, experiential environmental learning throughout core curriculum.

Eight years of change processes have been examined through three visits to the school over the span of three years. Woodridge Primary School is a friendly place where collaborative decision-making has paved the way for many successful initiatives bringing the school much recognition. The school’s dedicated teachers, who have proven themselves skilled change agents, together with an enthusiastic and driven principal, have a definite vision for their school. Beyond manifesting a caring atmosphere where technology and the environment are major foci, the Woodridge staff has worked to maintain their identity as a unique and progressive school.

Several researchers feel that the application of ecological understandings to school change processes will bring more fruitful reform efforts (Cooper, 1993, Fullan, 1997, Sarason, 1971, Selby, 2000). This research offers a new ecological framework for examining school culture and change processes. The interaction of energy flow, the cycling of mater, interrelationships, and change allow a natural system to flourish. Thus, these concepts were applied to the study of this school.
Earthkeepers, the first program to be implemented in the Environment Woodridge reform effort, received tremendous support and created quite a buzz among the community when it was initiated in 2003. However, in 2006, energy surrounding the program had dissipated, the principal was the only member of the staff driving the program, and curricular integration and application of Earthkeepers concepts was falling away. The ripple effects caused by a government-mandated reform had thwarted Earthkeepers curricular integration. Further, Woodridge teachers felt that the increasing pressure of mandated reforms had made it difficult for them to maintain their own vision of the school. This research offers an in-depth examination of how a successful school has dealt with the impacts of mandated monoculture.
CHAPTER I
INTRODUCTION

The Problem

Since the advent of the industrial revolution the human race has experienced an astronomical increase in the potency and rate of change that has occurred in science and technology. Innovations of the 20\textsuperscript{th} century got the gears, turbines, and wheels of change turning at a rate that has grown exponentially from one decade to the next. While this cleverness has increased both the comfort and lifespan of humans, it has also resulted in degradation of our planet’s health. Thus, Evans’ assertion that, “Indeed, the solution to yesterday’s problem often becomes today’s problem” rings true, for those who are listening (1996 p. 2).

Unfortunately, a deaf ear has been turned toward our planet. Global Warming, largely due to anthropogenic climate forcing (alteration of natural climate patterns due to human activity), combined with pollution and loss of habitat are taking a devastating toll on biodiversity and thus the health of our planet. The United Nations’ Food and Agriculture Organization recently estimated that 30 hectares (74 acres) of forest cover in the tropics is being lost every minute (FAO, 2003). In 2001 it was estimated that, in the United States, approximately 133 million people still lived in counties with air pollution levels above the National Ambient Air Quality Standard (EPA, 2002). An American citizenry that continues to consume nonrenewable resources at breakneck speed illustrates a disconnection between our actions and understandings of how they impact our planet. This disconnection may be explained by a general lack of knowledge of the
intricate systems that support our lives. On the other hand, as Orr (2002) points out, denial may be playing a major role. Regardless, it appears that efforts to raise consciousness and educate for the preservation of our planet have had little to no impact.

It was not until the 1970s that environmental education became an issue of concern on national and international levels. The United Nations Conference on the Human Environment held in Stockholm in 1972 proclaimed that the rapid acceleration of science and technology have afforded humans the power to dramatically transform the environment. Many recommendations were made to prevent further degradation of the life systems on which humans depend. Of these, it was recommended that an international environmental education program be established. Little noteworthy progress has been made toward this goal.

In this paper, the term environmental education will be used to represent mainstream practices implemented in public schools relating to environmental aspects and issues. Since the initiation of environmental education, it has neglected to integrate turnkey understandings of learning theory gained through scientific research in education. Environmental education has failed to create concept-based, sequential, programmatic learning experiences. Project WILD (1985), a cornerstone of wildlife education in the U.S. for the past 20 years, is an example of a nationally distributed program created by agencies outside of public education. It has been marketed toward teachers as “a supplement to existing courses and programs” with instructional activities “designed for easy integration into school subject and skill areas” (Project WILD, 1985, p. X). The activities are not sequenced for the building of concepts, and teachers are advised that
they may use one or all of the activities set forth. In many schools, curriculum packages like Project WILD represent the only environmental education materials available to teachers. "As such, they represent the environmental education community's definition of environmental education put into practice" (Simmons, 1989, p.16). Thus, environmental education has been relegated to a position outside of core curriculum as, if it is addressed at all, it is most often sprinkled sporadically across existing courses. Occasionally, American elementary students may be seen at a water festival or be allowed outside to play a game of predator/prey chase in their schoolyard. Is this the best we can hope for in public schools where curriculum appears to be bursting at the seams and time is the scarcest of resources?

A more serious approach must be sought if we hope to establish global eco-literacy. Ecological literacy is the ultimate goal of environmental learning. In this research, environmental learning will be used as a blanket term that includes environmental education, as defined above, but offers a more expansive perspective. Environmental learning transcends the limited role of environmental education as it incorporates educational practices, grounded in learning theory, that have evolved outside the mainstream of public education. Earth education, one type of environmental learning, provides an alternative to environmental education. Since the 1970s, earth education has offered quality programs that have been designed by professional educators (Van Matre, 1990). Even though environmental learning programs like those provided by The Institute for Earth Education offer alternatives that could greatly increase the potency of learning experiences, these programs have commonly retain a lowly place in the
curricular food chain. Though they offer a more earnest approach to learning about the environment, most public educators are either unaware of earth education or have not taken these programs seriously.

The apparent ineffectiveness of previous American environmental learning efforts has inspired this three-year case study of an Australian primary school’s endeavor to initiate environmental learning reform. This reform effort has incorporated a range of goals that have impacted school culture, built and natural environments within the grounds, and curriculum. Woodridge primary school has provided a bold example and a worthwhile case to study as it has striven to integrate concept-based, sequential, programmatic environmental learning throughout core curriculum. Early findings have pointed toward elements of school culture and leadership dynamics that have enabled program initiation and implementation. These factors have combined to create a reform effort that, in initial stages, has exceeded state-mandated environmental education requirements of New South Wales.

Initially, the purpose of this three-year project was to examine barriers particular to environmental learning reform efforts. After analysis of the first data collection, emerging themes illustrated that school culture, rather than the type of reform, was the larger determiner of success. Thus, the research echoed Sarason’s (1971) assertion that school culture should be considered when studying or attempting educational change. With this in mind, the final data collection continued to examine how the school’s culture had impacted the sustainability of new environmental programming, but a new ecological framework was used as a method for analyzing the intersection between school culture
and change processes. While it is hoped that this framework will provide a more comprehensive understanding of the success or failure of this particular environmental reform effort, it may also provide new ways of examining school systems and change processes in general. Thus, this case study provides an in-depth exploration of a school that has attempted a serious approach to environmental learning and also offers a new lens through which school systems and change processes may be examined.

**Background**

This dissertation represents the final installation in a three part, longitudinal study of a single reform effort. School change processes are commonly viewed as having three broad phases: initiation, implementation, and institutionalization (Berman & McLaughlin, 1977; Fullan, 2001; Huberman & Miles, 1984). Initiation involves the process that leads up to making the decision to adopt a change and move forward with it. Implementation involves the first experiences of attempting to put the idea or reform into action and usually occurs over the first two or three years of use. Institutionalization is achieved when the change becomes a regular, ongoing part of the system (Fullan, 2001). It is generally recognized that at least three years must pass before ascertaining whether a reform has moved successfully through initiation and implementation toward institutionalization (Berman & McLaughlin, 1977; Fullan, 2001; Huberman & Miles, 1984). Thus, data was collected during three separate visits to the school.

Woodridge Primary School (pseudonym) is a small K-6 facility in the Blue Mountains just west of Sydney, New South Wales. The school property is composed of 13.5 acres of which five acres are used for buildings and playground areas and the rest is
bush (i.e., forest). The first visit occurred in March of 2003 as the reform effort, “Environment Woodridge”, was just being initiated. Overall, the project was striving to bring local and national government agencies and a corporate sponsor into collaboration with community groups and the school to help promote understanding of the natural systems of the planet, build positive feelings toward the natural world, restore the wilderness area within the school property to a pristine state, and to encourage the sustainable use of resources within the school and community. These goals have been addressed through both curricular and extra-curricular activities. Curricular reform has been centering on the integration of environmental learning into core-curriculum. Earthkeepers was the first curricular program and was initiated in March of 2003. 

Earthkeepers (Van Matre & Johnson, 1987) is an earth education program for children between the ages of 10-12 years old that strives to help students understand four key ecological concepts: the flow of energy, the cycling of matter, the interrelating of life, and the changing of forms. Going beyond this, the program incorporates a “feeling component” that helps students to build an emotional connection to nature. The Earthkeepers program emphasizes the building of conceptual understandings that allow students to transfer environmental learning into their everyday lives, thus leading to more environmentally sound behavior. After a three-day, out-door immersion experience, teachers integrate concepts from Earthkeepers throughout the regular curriculum. The initiation, implementation, and potential institutionalization of this program have been a central focus in this research as it was the first curricular reform to be implemented.
A second data collection in July of 2004 examined change processes a year and a half into implementation of Earthkeepers. The final visit in March of 2006 occurred after the program had been running for three full school years. Beyond this, the previous principal, and teachers currently in the school who had worked with him, were interviewed in order to gain a retrospective understanding of previous change processes. In total, this research examines 8 years of school change.

Creating and maintaining a culture of change

Upon the initiation of this study, it became evident that the school’s culture was special (Carson, 2003a, 2003b). Teachers appeared to be very relaxed and enthusiastic about adopting changes in their pedagogy. Collaboration appeared to be very high among staff, and a core group of parents could be seen regularly engaging in the day-to-day flow of the school. The initiation of Earthkeepers and the Environment Woodridge project received no resistance, but rather was met with great enthusiasm from learning community members. There was much more at work in this change process than the strategies of one change agent. Thus, it became apparent that a study of this school’s environmental learning change process would need to begin with building understandings of the culture in which change was so easily initiated. In order to understand the changes of today the researcher would strive to understand the changes of yesterday.

Under the guidance of the previous principal, Paul Gray (pseudonym), the school had undergone five years of continual change. The changes that took place during this period both transformed the physical appearance of the school as well as the teaching and
learning that was happening within it. Buildings were renovated, additions were made, and Principal Gray pushed to modernize the pedagogy being used in the classroom.

Upon his arrival, Paul Gray had found a highly critical community and a teaching staff with low morale due to constant criticism. Technology within the school was antiquated, and out-dated pedagogy was being used by some of the faculty. Along with this, the school was due to begin a 2.5 million dollar building upgrade that would leave them continually scrambling for space during the academic year.

Through drawing parents and teachers into collaboration and building staff morale, Paul Gray defused conflict and created the will to change. By encouraging teachers to act as leaders and grow as professionals, the staff became revitalized and proceeded to bring innovative pedagogy and technology into their classrooms. By carefully laying the foundation for innovation, this change agent was not only able to create change but manifested a school culture that continues to embrace change. Upon Gray’s resignation the hiring committee chose a like-minded change agent who, at the time of the initial data collection, appeared to be ensuring a continuation of this culture.

Under the current principal, James Sterling (pseudonym), it was obvious that teachers were continually willing to mobilize and move forward with changes they felt would benefit learners. A collaborative process of discussion and problem solving between teachers and administration created the foundation for the adoption or refusal of new initiatives. A core parent group appeared to be highly involved with school governance and decision-making. Thus, the initial data collection relayed the story of
two change agents who worked to shape a collaborative school culture that openly
embraced change.

**Connections and Disconnections**

The second data collection (Carson, 2004a, 2004b) found that Earthkeepers was
continuing to be implemented; however, elements were beginning to fall away. In its
first year there was much talk and excitement about Earthkeepers throughout the parental
body. The buzz died out in the second year as very little communication about the
program was generated from the school. In the first year an Earthkeepers parents’ day
offered an opportunity to learn about the program and participate in sample activities.
This opportunity was discontinued in the second year. Some parents were not aware of
the program until their child presented a permission slip a day before the program was to
begin. One member of the learning community, who had volunteered with the program
the previous year and was hoping to be involved again, was disappointed to find that she
had missed the first day before she had learned it was running again. It appeared that
new programming was siphoning the principal’s energy and resources away from
Earthkeepers.

Further examination of leadership roles in the school pointed toward shallow
collaboration between parents and the school, as members of a core parent group
divulged that their role in decision-making was to “rubber stamp” initiatives put before
them. Most teachers and parents interviewed felt that the successful continuation of new
environmental learning programs would be contingent upon the continued leadership of
the principal. Thus, the possibility of James Sterling leaving the school implied a threat
against institutionalization. While staff and parents supported Earthkeepers, it seemed
one person alone was the driving force behind the program. Thus, it appeared that
Earthkeepers had not become fully integrated in the school culture. These findings
implicated the flow of energy, through leadership and communication, as potential
determinants of both the quality of collaboration within the school culture and the
sustainability of new programming.

*The Ecology of School Change*

The third data collection investigated the institutionalization of the Earthkeepers
program. Beyond ascertaining whether the program had become a regular and ongoing
part of the school system, the researcher examined the sustainability of the program by
studying the continued nature of Earthkeepers implementation. In other words, was
Earthkeepers being implemented at the same level it was initiated or are parts of the
program beginning to fall away? Prior to this final data collection, the body of school
change literature described by Gitlin (1995) as the “second-wave” acted as the theoretical
foundation for this research. Major themes represented by second-wave researchers such
as Fullan, Hargreaves, and Sarason have highlighted the importance of school culture in
determining the success or failure of reform efforts. More specifically, the nature of
leadership, collaboration, resistance, scarcity of time and funding, and decision-making
have been common topics. While the initial findings of this study (briefly outlined
above) have echoed major findings of second-wave educational change researchers, they
have contributed few new understandings of school change processes. However,
emerging themes from the second data set implicated energy flow to and away from
programming as a potential factor impacting institutionalization. Thus, it became apparent that the application of ecological concepts, such as the flow of energy, to change processes might yield deeper understandings of the sustainability of educational reform efforts.

Several researchers in the field of educational change have drawn on ecological concepts as metaphors or tools for analysis of school change (Fullan, 1997, Sarason, 1971, and Selby, 2000). But few have attempted to mold such concepts into a more precise yet comprehensive theoretical framework through which we might gain deeper understandings of schools and change processes. While the findings of second-wave school change researchers continued to provide a theoretical foundation for this final stage of the study, the researcher attempted to create a new framework for analysis of school change processes. In this study, four ecological concepts that represent key factors in the sustainability of natural ecosystem are applied to change processes at Woodridge Primary School. The concepts that this framework was built upon (energy flow, change, interrelationships, and the cycling of matter) are taught in the Earthkeepers program.

**Research Questions**

Three questions guided the final data collection:

1. How is Earthkeepers being integrated throughout curriculum, and has it become an ongoing and regular part of the school culture?

2. What elements have impacted or might impact sustained implementation and integration of Earthkeepers?
3. Does the application of an ecological framework contribute to understandings of schools and educational change processes?

Data was collected through interviews, observations, and document analysis. Interview questions focused on participants’ understandings and experiences of past and present change efforts as well as their perceptions of the school’s culture. Questions about the Earthkeepers program centered on perceptions of the strategies for implementation and communication surrounding the program. Beyond this, respondents were also asked to share their projections for continued implementation of the program. Observations examined interactions among members of the learning community at the start and end of school days, staff meetings, and classroom learning sessions. Emerging themes were then analyzed through the previously mentioned new ecological framework. Document analysis focused on school newsletters as a method for communicating information about Earthkeepers. Further description of data collection and analysis procedures may be found in chapter 3.
CHAPTER II
REVIEW OF THE LITERATURE

This section will provide an overview of the historical foundations of environmental learning and a discussion of alternative philosophies and methodologies pertinent to this study. The contributions of educational change research represented herein offer a system for navigating environmental learning change processes. Finally, previous writings on the application of ecological thinking to school change will provide a foundation for the creation of a new ecological framework.

Environmental Education

Building an ecologically literate world population is of paramount importance in the preservation of the earth’s life systems. However, environmental education has done little to meet this need. It was not until the 1970s that environmental education became an issue of concern on national and international levels. The United Nations Conference on the Human Environment held in Stockholm in 1972 proclaimed that the rapid acceleration of science and technology have afforded humans the power to dramatically transform the environment. Many recommendations were made to prevent further degradation of the life systems on which humans depend. Of these, it was recommended that an international environmental education program be established. It was suggested that the program would be interdisciplinary and focus on educating the average citizen on how “he might take, within his means, to manage and control his environment” (UNCHE, 1972, recommendation 96). No distinct plan was laid out to explain how this objective might be reached at local levels, and a definition of what it means to “manage and
control” one’s environment in positive ways was not clearly expressed. Throughout the 1970s and 1980s, several more conferences were held to discuss this issue. The strategies generated were vague and left educators with little leadership or training on how to best teach about the environment. Currently, the exclusion of environmental education from most state and national standards points to the ineffectiveness of almost three decades of deliberation.

During the early stages of environmental education’s evolution, curriculum writers recognized two major implementation options. The first option involved creating entire courses focused on the environment. This resembled a programmatic approach where specific environmental learning objectives were identified and comprehensive, sequential learning activities were used to reach the goals of the course. The second strategy worked toward creating environmental education strands that could be infused into and across the existing curriculum (McClaren, 1987). The latter option took hold, and infusion rose as a multi-disciplinary strategy for bringing environmental learning to the whole school curriculum. Rather than bogging teachers down with yet another subject to teach, environmental issues and concerns would be used as a method through which to teach skills and concepts within the regular curriculum. Thus, by infusing environmental education throughout the core curriculum, a great deal of time and money could be saved (Simmons, 1989; Robottom, 1987a; Mc Claren, 1987). Initially, the philosophy behind infusion was rooted in a commitment to interdisciplinary dissemination of environmental education throughout the school curriculum (Tanner, 1974; Hungerford, 1975; Jinks, 1975; Hart, 1981; Disinger, 1987). Unfortunately, as
Simmons (1989) found, data has suggested that environmental education has not been infused throughout the entire curriculum and has tended to be treated mostly as enrichment for science programs.

Globally, environmental education has been a low priority for educators and curriculum developers (Mc Claren, 1987; Robottom, 1987; Van Matre, 1990). Infusion reinforced this lowly position by allowing teachers to pick and choose various unrelated activities, usually created by an outside agency, and disperse them sporadically throughout the curriculum. This quick and easy answer made it possible for educators to incorporate environmental education into their routines without investing significant time in planning and with little consideration of how activities might be sequenced for the building of conceptual understandings (Schedler, 2002: Van Matre, 1990).

Several environmental educators understand that teaching methods based in concept learning are imperative to effective environmental education (Ballantyne & Packer, 1996; Dass, 1999; Lieberman & Hoody, 1998; Schedler, 2002; Stevenson, 1993). Conceptual understanding is widely recognized as attending to larger, central ideas within a subject rather than a string of smaller, disconnected facts. Along with this, conceptual understanding involves discerning relationships among ideas within a discipline and reasoning about related phenomena (Kennedy, 1998).

According to learning theorists Bransford, Brown, and Cocking (2000, p.16), “To develop competence in an area of inquiry, students must: (a) have a deep foundation of factual knowledge, (b) understand facts and ideas in the context of a conceptual framework, and (c) organize knowledge in ways that facilitate retrieval and application.”
While the importance of factual knowledge remains, the building of conceptual understandings is also crucial to students’ ability to retrieve and transfer that knowledge to other situations. Research on expert knowledge illustrates the importance of providing students with learning experiences that build conceptual understandings. It has been found that experts’ knowledge is “not simply a list of facts and formulas that are relevant to their domain; instead, their knowledge is organized around core concepts or ‘big ideas’ that guide their thinking about their domains” (Bransford et al., 2000, p.36). These findings highlight the importance of concept learning in all school curricula.

While environmental education has retained little leverage in issues of curriculum, it has been generally recognized that the goal of environmental educators is to provide opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment (UNESCO, 1977). The vague and broad-based nature of this goal facilitated the creation of two distinct approaches to environmental education content. The knowledge-based approach emphasized the learning of ecological facts while the values-education approach strove to raise awareness of social issues (Ballantyne & Packer, 1996).

Almost thirty years of failing to “protect and improve the environment” have led this researcher to conclude that neither one of these approaches has met environmental education’s broadly defined objective. However, concept-based learning offers an alternative that may bridge the gap between these strategies.

Rather, environmental educators need to consider the adoption
of a more holistic approach to teaching/learning that recognizes the interrelatedness of environmental knowledge, attitudes/values, and behaviors and seeks to promote informed, environmentally sensitive behavior through the development of appropriate environmental conceptions (Ballantyne & Packer, 1996, p. 27)

Beyond their defense of developing conceptual understandings, Ballantyne and Packer highlight the importance of moving away from dichotomous thinking in environmental education. Rather than approaching the subject from either a fact or issues-based perspective, they support an approach that demonstrates greater respect for the complexities of human behavior.

*Alternatives to Environmental Education*

The ineffectiveness of the environmental education movement initiated in the 1970s has led many educators to develop alternative philosophies and practices. In this research, the term *environmental learning* will be used to describe a more expansive perspective of environmental education that incorporates practices that have often evolved outside the mainstream of public education. Earth education provides one example of an environmental learning approach. Vehement rejection of the infusion model led Steve Van Matre (1990), the founder of The Institute for Earth Education, to develop earth education, an alternative form of environmental learning that incorporates the teaching of conceptual understandings through a programmatic approach.

This organization is made up of an international network of individuals and member organizations, and has become the world’s largest group of educators
devoted to helping people live environmentally conscious lives (Van Matre, 1990). The primary goal of their work is the development and dissemination of earth education programs that strive to help people understand the processes of life on earth and how their lifestyles impact those processes. These experiential programs incorporate conceptual understandings, immersion in outdoor settings, and the magic inherent in the wonder of nature to foster deeper feelings of connection with our environment.

Earth education’s programmatic approach sits in direct opposition to infusion as it requires each learning situation to be a “carefully crafted, fully integrated series of learning experiences that are focused, sequential, and cumulative, and are designed with specific outcomes in mind” (IEE, 1989). These programs are created in such a painstaking manner that the development of one program might take from 5-15 years to be developed, tested, and ready for use (Mayer, 2002).

While environmental learning approaches like earth education are more in line with the scientific basis for teaching, they very rarely find their way into public school curriculum. The infusion model remains the dominant approach to environmental learning in the United States (Simmons, 1989, p.16). It is time for a change. However, as much research has documented, real change in education is difficult to achieve as a myriad of factors impact a learning community’s ability to rise up and move forward in the process of change. How might the schools of today effectively engage the processes
of educational change for reform of environmental education and the betterment of our planet? How can we overcome the barriers reinforced by entrenchment in the status quo?

*Mandated Environmental Education*

In 1988 the New South Wales (NSW) Department of Education and Training released a curriculum statement that made environmental education mandatory in public schools (NSW, 1988). Overall, this curricular reform focused on building understandings of local and global environments as well as environmental concepts, developing skills in investigating environmental issues and resolutions, and developing sensitivity and positive attitudes toward the environment. The term “environmental concepts” did not refer to building understanding of ecological concepts that explain how natural systems on earth support life, but rather striving to build understanding of “the term *environment* as a concept” and “related terms and concepts” (NSW, 1988, p. 7).

The curriculum guide suggested that environmental education be integrated across the existing curriculum. A 30-page section titled “Implementing Environmental Education” attempted to teach the art of integration. This document may have been a valid tool if coupled with actual instruction; however, none of the teachers interviewed during the first data collection had received training specific to the goals set forth in the mandate (Carson, 2003). Many learning theorists understand that developing expertise in any domain of learning requires major investments of time as well as effective teaching strategies (Bransford et. al., 2001). This reform neglected to integrate sufficient training for teachers and supported an infusion-based approach to environmental education. Infusion, as discussed earlier in this paper, is a cut and paste methodology that does not
afford a sufficient amount of time for environmental learning and, by design, fails to meet the requirements for effective learning put forth by many learning theorists (Bransford et. al, 2001; Wohlers & Johnson, 2003).

While New South Wales’ first attempt at mandated environmental education may have included serious flaws, it should be recognized as a pioneering effort to get environmental education on the curricular radar. Unfortunately, data shows that while environmental education is mandatory in NSW, it has been inconsistently and inadequately implemented (Walker, 1999). Walker’s work has illustrated that teachers’ beliefs about the importance of environmental education and constraint structures (i.e. crowded curriculum, knowledge, professional development, school organization, etc.) are primary barriers to successful integration.

The most recent NSW environmental education mandate, *Environmental Education Policy for Schools*, released by the New South Wales Department of Education and Training (2001), has emphasized teaching for sustainability. Overall, the policy document has done little to support what learning theorists have told us about effective educational strategies for environmental learning. Along with this, it is often vague, not teacher friendly, and asks much of an already crowded curriculum. There is little evidence that environmental education is being implemented any more effectively after the adoption of this second mandate. All teachers interviewed during the initial stages of this study understood that environmental education is mandatory in NSW; however, only
one spoke about actually looking at this mandate (Carson, 2003). Thus, environmental education policy in NSW illustrates that merely generating mandates often has little impact on actual practice (Carson, 2003; Walker, 1999).

Walker (1999) has asserted that the problems of environmental education require research for their solution. This is hard to argue against. However, it would behoove both researchers and implementers of environmental learning reform to study the body of school change literature before taking action. For as both Walker (1999) and this researcher have found, the problems of environmental learning are not distinctive. Whether or not the reform effort has been mandated from above, it is up to the members of individual learning communities to bring reform successfully into their school. Further, new environmental programming that is solidly grounded in learning theory stands little chance of being successfully implemented if the complexities of school change processes are not taken into consideration.

*School Change Processes*

Lasting and meaningful change in education is difficult to achieve as a myriad of factors affect a learning community’s ability to rise up and move forward in the process of change. Research on educational change over the past decades has identified a set of conditions that strongly increase the success of change efforts (Cochran-Smith & Lyle, 19993; Fullan, 1997; Fullan & Hargreaves, 1996; Hargreaves, 1992; Lieberman, 1995; Mc Laughlin, 1991):

- Collaborative cultures that foster professional learning communities
• Instructional practices that are relevant to and fully understood by teachers and students alike

• Instruction that is linked to the needs of individual students as well as the standards of the external community

The establishment of these conditions and thus the success of school change rest largely on the shoulders of facilitators who accept the role of change agent. Rust and Freidus (2001) define a change agent as an individual who upholds the following critical roles during the process of change: negotiator, nurturer, teacher and learner, and curriculum developer. However, as much education reform research indicates, in order for change to be effective, an individual who assumes these critical roles must first have a deep understanding of school change itself and of how profoundly interpersonal processes affect change. Thus, Fullan (1993, p.12) defines a change agent as a leader who is “self-conscious about the nature of change and the change process.”

The change process is commonly viewed as having three broad phases: initiation, implementation, and institutionalization (Berman & McLaughlin, 1977; Huberman & Miles, 1984; Fullan, 2001). Initiation involves the process that leads up to making the decision to adopt a change and move forward with it. Implementation involves the first experiences with attempting to put the idea or reform in to action and usually occurs over the first two or three years of use. Institutionalization occurs when the change has become a regular, ongoing part of the system (Fullan, 2001). During each phase of the process, change agents are faced with a multitude of complex issues.
A change agent who is navigating the initiation and implementation stages must anticipate pressures that will be exerted by internal and external forces. Internally, one of the main dilemmas an initiator of change must consider is whether to seek majority agreement within the staff before moving toward implementation versus being assertive in the beginning. Research has proven that in many situations both top-down and bottom-up initiatives have been known to fail. (Fullan, 2001; Stringfields, 2000; Hatch, 2000). Change agents who wish to move successfully from initiation to implementation must carefully consider the local dynamics within the institution when deciding how to go about initiating change. There are no hard and fast guidelines to this practice as unique characteristics of each institution will present critical factors (Fullan, 2001). What works for one school may not work for another. However, Fullan does offer this advice when attempting change at the local level. Change agents must develop an understanding of the psychological dynamics and interactions between individuals in the learning community as they are a part of the change process before deciding which strategies for change would be most effective (1985).

**Barriers to Change**

Psychologically, the concept of change presents a paradox within humans. While we intellectually understand that change is ever present and celebrate progress and technological advances, there is something deep within us that is inherently resistant to change. Nisbet refers to this as the “conservative bent of human behavior, the manifest desire to preserve, hold, fix, and keep stable” (1969, p. 270). It is widely understood that change causes feelings of anxiety and loss in those who are participating in the process
(Evans, 1996; Fullan, 2001; Marris, 1986). Thus, it is imperative for a change agent to assume the role of nurturer in order to build sufficient trust within the institution before moving forward with change.

Special attention must be paid to educators. Teachers must feel that they will be supported by those in leadership roles in order to ease anxiety that is both caused by change and the ever increasing demands of their job (O’Connell, Ely, Kransnow, & Miller, 2001). Within an institution, teachers’ receptiveness to new practices and beliefs about change are key factors. Hargreaves and Fullan (1998) argue that all serious reform efforts are bound to fail if the quality and morale of teachers is not taken into serious consideration. Going further, Evans (1996) proposes that any serious change effort must be coupled with strategies to revitalize staff members.

While teacher morale has long been discussed as a factor in educational change processes, some researchers feel that teachers’ voices have been largely excluded from reform efforts. Gitlin and Margonis (1995) argued that teacher resistance had been brushed off rather than contemplated and allowed to inform change processes. Through their research, they found that teacher resistance typically centered around two themes: the loss of autonomy and authority over their own teaching and change processes and inadequate amounts of time to implement the changes and continue with their previous work load.

Drawing on twenty years of school change research combined with the findings of her own study, Bailey (2000) made the case that some teacher resistance to change is valid and that mandated, top-down reform efforts work to marginalize teachers and set
them up for failure. In Bailey’s (2000) study of teacher resistance, teachers spoke of resistance rising from mandated changes that required them to abandon their own beliefs and strategies in caring for the needs of their students. Teachers were not allowed to evaluate new methods before adopting them thus they were “denied the right to professional expertise” (p. 118). Resistance also came through distrust of the motivations behind reform efforts. Teachers felt that ladder climbing administrators often use change to “earn brownie points” with their superiors. Reform efforts were also characterized as “smokescreens” designed to direct the public’s attentions away from larger more complicated issues. Teachers also questioned the quality and bias of the research on which mandated reforms had been based. Finally, educators recognized that reform efforts are often inadequately supported through a lack of time, training, and financial resources. Thus, programs often start off strong and become “orphaned” one to two years after initiation.

By not honoring teachers’ voices in dissent, administrators and researchers have elevated themselves above teachers. Gitlin and Margonis (1995) as well as Bailey (2000) implicate the persistence of bureaucracy and educational hierarchies in disallowing real change in education. These authors feel that until fundamental injustices reinforced by the hierarchy of school systems are addressed, meaningful change efforts will not happen. Thus, it is apparent that leaders of educational change must reconsider the infrastructure of school systems and act to ease the pressure felt by teachers as they are perilously positioned as the fulcrum between internal and external forces within education.
Hargreaves and Fullan (1998) identify five external forces that may affect school change: parents and community, government policy, technology, business, and the changing teacher profession. There can be no doubt that parents have a vested interest in school change. Above all, parents are concerned with having the needs of their children met. Going beyond this, it is imperative that parents are able to relate the necessity for change to their everyday lives and their children’s futures. This may be difficult for many parents as the world we live in now is much different from when they were themselves in school. “Parents must acknowledge that the schooling, which will be best for their children in the 21st century, must be very different from the schooling they experienced themselves” (Hargreaves & Fullan, 1998, p.15).

The current push for greater accountability in education has propelled us into an era where government is having more and more control over schooling. Annually, many schools face new policies and mandates that require space in an already bulging curriculum and precious time from teachers. Media attacks due to low performance on standardized tests often leave teachers feeling vulnerable and unappreciated. Teachers might counter this by “becoming more proficient in dealing with the instructional and political complexities of student achievement information and more effective in contesting misuses of data and advocating for students’ interests” (Hargreaves & Fullan, 1998 p. 72).

There is also great pressure in education to maximize the efficiency with which schools operate. The bottom line has caused many programs to be cut, class sizes to grow, and teacher’s salaries to remain marginal at best. There is constant pressure to do
more with less. It often seems that business and education clash in a way that compromises the quality of students’ learning. Schools also face the challenge of staying current with technology and implementing it in ways that are most effective for transfer into the future work lives of students. All of these issues combined create a constantly changing backdrop for the profession of teaching. Educating pre-service teachers with all the skills necessary to be successful in the classroom is impossible. “Teachers today need to do much more learning on the job, or in parallel with it- where they can constantly test out, refine and get feedback on the improvements they make” (Hargreaves & Fullan, 1998 p.76).

Given all of these external forces, Hargreaves and Fullan (1998) suggest moving toward “danger” by drawing outside forces into a collaborative alliance with the school and the changes to be made. Thus, the need for cooperation and alliances exists both inside and outside of the school. However, collaboration doesn’t just happen. Time and much facilitation are essential to the process. In summation, when attempting the delicate balancing act of change, facilitators must pay great attention to interpersonal processes both within and outside the school before effective collaboration occurs and progress is made.

*Ecological Thinking*

Several researchers feel that the application of ecological understandings to school change processes will bring more fruitful reform efforts (Cooper, 1993, Fullan, 1997, Sarason, 1971, Selby, 2000). Sarason (1971) encouraged researchers to adopt an ecological approach connecting school culture to the study of reform efforts. Going
further, he highlighted the importance of examining multiple layers of interconnectedness within the web of school culture. However, Selby (2000) cautioned that previous readings of concepts such as interdependence and interconnectedness have reinforced the reductionism common in education. Rather than reflecting an understanding of holism, these terms have often reflected relationships between still separate parts. Enfoldedness, embeddedness, and interpenetration are offered as more appropriate descriptors in the application of ecological thinking to “relationships between phenomena that are processes rather than static components” (p. 89). Fullan (1997) highlighted the importance of multi-directional communication flows across the school community and a broadened leadership net. Finally, Cooper (1993) asserted that effective environmental education reform is contingent upon transforming schools into systems that emulate the principles and values inherent in natural ecosystems.

Like many researchers (Cochran-Smith & Lyle, 1993; Fullan, 1997; Fullan & Hargreaves, 1996; Hargreaves, 1992; Lieberman, 1995; Mc Laughlin, 1991), Cooper has made a connection between collaboration and effective educational change. What makes Cooper’s perspective novel is that he has called for a kind of ecological collaboration that accounts for the ebbs and flows of school culture and the vitality of diversity. The idea that each school is a unique ecosystem stands in direct opposition to the monoculture mentality behind large-scale reform efforts. Early findings of this longitudinal study (Carson, 2004) illustrated a collaborative school culture that had enabled several successful reforms. The most recent reform being the transformation of environmental learning curriculum. While environmental education has been mandated
by the state of NSW, Environment Woodridge has far transcended the requirements set forth by the policy (Carson, 2003). The successful initiation of the project was more of a result of school culture than policy.

More recent findings have shown that while parental collaboration in decision-making is little more than “rubberstamping”, the school culture remains highly collaborative (Carson, 2004). Woodridge Primary School provides an example of a collaborative learning community that has initiated many successful change efforts and is working toward increasing ecological literacy. In these ways, it resembles Cooper’s vision and appears to be an existing school that may be functioning like an ecosystem. Thus, Woodridge Primary appears to be an appropriate context in which to consider the application of ecological thought to educational change processes. If it is appropriate to treat a school as an ecosystem, then the principles that allow the ebb and flow of life in the natural world may also apply to schools. While this continuing research has been designed to contribute understandings of how a public school might sustain the integration of concept-based, programmatic environmental learning, it will also test the limits of ecological thinking in school change processes by implementing a new ecological framework. This framework has been built from the ecological concepts taught through the Earthkeepers program (Van Matre & Johnson, 1987). These concepts describe the aspects of life systems that allow any ecosystem to flourish; the flow of energy, cycling of matter, interrelationships, and the continuous changing of forms.

In conclusion, research indicates that over 30 years of environmental learning policy and practice have been inadequate and ineffective. Very little research exists that
examines environmental learning reform. Researchers who have studied such reform efforts have often failed to fully integrate understandings gained through the body of educational change literature. The problems of environmental learning are not distinctive. Thus, we need not recreate the wheel. Rather, it is time to build bridges and collaborative networks between educational change theory and environmental education research and practice. While some researchers have discussed the importance of ecological thinking in school change, very few have actually tested its effectiveness in helping to contribute toward building understandings of schools. Those who have explored this may have adopted only one ecological concept such as interrelationship (Sarason, 1971). However, if it is truly appropriate to consider schools as ecosystems then the application of ecological thought should resemble a holistic approach that accounts more completely for the forces of nature.
CHAPTER III
METHODOLOGY

This chapter will provide an illustration of both previously and recently implemented qualitative research methodologies. The chapter begins with a brief overview of findings from earlier stages of this longitudinal study. Following a description of the research site, an explanation of methodological choices that have guided the entire study is given. Descriptions and rationales for procedures implemented (recruitment, data collection, and analysis) are also provided.

Overview and Rationale

This longitudinal case study has examined Woodridge Primary School’s change processes as it has striven to integrate concept-based, sequential, programmatic environmental learning throughout core curricula. Woodridge provides a novel example as the school has elected to implement environmental programming that transcends the status quo in both Australia and the United States. Thus, this Australian research site was selected, as it was the only known public school (worldwide) to be integrating environmental learning in this manner. This research includes data that was collected over a three-year span following the initiation of Earthkeepers. Beyond this, findings of this study also present a retrospective of change processes including six years prior to the initiation of Environment Woodridge. Examining past change efforts has provided thick description of cultural elements that have influenced current reform efforts.

Initial findings implicated a highly collaborative school culture as a dominant factor contributing to the success of current reform efforts (Carson, 2004). Upon further
examination of the nature of collaboration, there appeared to be limitations to parental involvement in decision-making (Carson, 2005). While the administration and faculty did bring major decisions to parents, many felt they were expected to merely “rubber stamp” initiatives. A year and a half after initiation, the majority of teachers and parents interviewed felt that the sustained implementation of Earthkeepers would be dependent upon the continued presence of the current principal. Thus, most of the energy driving this program appeared to be flowing from one source rather than a collaborative network. It was also evident that new programming was siphoning energy away from Earthkeepers. Disconnections in the web of school culture had become apparent, but the impact they might have on the institutionalization of Earthkeepers was unknown.

The final data collection studied the sustainability of the Earthkeepers program in its third year. More specifically, the research examined how the program was being integrated and whether it had become an ongoing and regular part of the school culture. The researcher explored the implications of disconnections found during the second data collection as they may relate to current and future sustainability. A new ecological theoretical framework was used to analyze change processes at Woodridge. It was hoped that the application of this framework would contribute to understandings of the successes and limitations of this particular reform effort. Implications of this research may be applicable to school systems in general. To this end, the study explored the appropriateness of applying ecological thinking to school systems.

Research Questions

Three questions guided the final data collection.
1. How is Earthkeepers being integrated throughout curriculum, and has it become an ongoing and regular part of the school culture?

2. What elements have impacted or might impact sustained implementation and integration of Earthkeepers?

3. Does the application of an ecological framework contribute understandings of schools and educational change processes?

**Context of the Study**

Woodridge Primary School is a public school in the Blue Mountains located just west of Sydney in New South Wales, Australia (NSW). The school consists of 171 kindergarten through sixth grade students from 132 families and 13 staff members including 1 principal, 7 teachers, 1 librarian/teacher, and 4 support staff. At the time of the initial data collection, all but one teacher had been in education for over ten years. The school grounds include 13.5 acres of forest that back onto Blue Mountains National Park. Woodridge is a small village bordered on either side by two more small, mountain villages. The citizens of Woodridge are predominately white, and as the population is growing the area is experiencing a socio-economic shift from a small, blue-collar village to a desirable alternative to life in the city for many professionals. In March of 2003 the school initiated Environment Woodridge. Earthkeepers was the first conceptually based, programmatic environmental learning program to be integrated into the core curriculum. Thus, this research most closely follows the implementation of this program.
Case Methodology

Shulman (1992) pointed to the fact that the most powerful case studies are more than narratives of event; they are cases of “of something” (p.17). In other words, they represent a larger set of ideas that are worthy of reflection and deliberation. Miller and Kantrov (1998) honed this idea further by proposing that good cases “of something” create a vivid photograph that fully captures the essence of a situation/subject, encourage continued discussion, and evoke comparisons to other experiences. Further, these researchers pointed to the deficit of rich case studies that focus on issues of school reform. The researcher has chosen case methodology as it yields the greatest potential for building understandings of complex school change processes. While this study contributes to an underdeveloped body of research, it has also striven to break new ground as few (if any) thickly descriptive case studies of environmental learning reform currently exist. It is hoped that this case of educational reform will encourage discussion among educators who are involved in environmental learning or any school change effort.

Triangulation

This case study has incorporated data from multiple sources: document analysis, interviews, and observations. Cohen and Manion (1994) emphasized the importance of triangulation as it can help to more fully explain the complexities of human behavior and reduce bias. The ability to gain more complete understandings of complex phenomena is of particular importance when conducting case studies. Adelman et al. (1980) identified the illustration of multiple perspectives in a social situation as a major goal of case study
research. Thus, triangulation is vital in case methodology as it enhances the ability to fairly and accurately represent differing and sometimes conflicting viewpoints.

This research will include data collected through the use of 3 of the 6 types of triangulation identified by Denzin (1970): time triangulation, combined levels of triangulation, and methodological triangulation. Time triangulation has been implemented by using a cross-sectional and longitudinal design. Cohen and Manion (1994) interpret Denzin’s work by defining the cross-sectional approach as studies that “collect data concerned with time-related processes from different groups at one point in time” (p. 236). The principals of time triangulation are at the heart of this research as the design has implemented a 3-year time frame corresponding with the change processes of initiation, implementation, and institutionalization. Further, varying groups (students, teachers, parents, community members, and administration) have been represented at each point of time represented in this longitudinal study. Combined levels of triangulation were implemented, as analysis has occurred at the individual, group, and cultural level. Denzin’s (1970) definition of methodological triangulation was reflected in the use of different methods (interviews, observations, and document analysis) applied to the same object of study.

**Timeframe**

While the previously mentioned phases of educational change (see chapter 2) do not follow a precise timeline, Fullan (2001) stated that moderately complex changes may take from 3 to 5 years to make the transition from initiation to implementation. Thus, a three-year timeframe for data collection was chosen as it correlated with stages of change
processes. While this time frame represents the short end of the 3 to 5 years Fullan suggests, it does allow for the full 2-3 year period commonly viewed as an appropriate period for the implementation stage (Berman & McLaughlin, 1977; Huberman & Miles, 1984; Fullan, 2001).

The first visit occurred as the reform effort was just being initiated. A second data collection examined change processes a year and a half into implementation. The final visit occurred after the program had been running for three full school years. Analysis of the first two data sets was completed prior to the initiation of the dissertation proposal. Findings from the first two sets of data were discussed as they related to conclusions derived from the final collection. Brief descriptions of methodology employed for the first two segments of this longitudinal study have been included below. It is hoped that this additional information will contribute greater understandings of the study as a whole as well as illustrating the evolution of thought that has led to the methodology choices for the final collection.

Initiation

The initial data collection, conducted by the principal investigator over the span of one month spent living and working in the school community, consisted of interviews and field observations. Research questions examined the nature of changes to environmental learning curriculum, strategies being used by change agents, barriers to initiation, and receptivity exhibited by members of the learning community. All interviews were tape recorded and transcribed. Eight student interviews were conducted individually, and 12 students were interviewed in groups of three. Eight parents and six
staff interviews were conducted individually. The administrator and two teachers who participated in the new Earthkeepers environmental learning program were interviewed once before the implementation and once following. All other participants were interviewed once. Finally, the administrator who had preceded Woodridge’s current principal was interviewed to gain greater insight into the current school culture.

When conducting the interviews the researcher utilized Piaget’s semi-structured interview format (Kahn, 1999). Broad questions were designed to examine subjects’ understandings of and feelings toward the environmental education reform effort. Peter Kahn said this of the semi-structured interview, “As I see it, one of the key components of successful interviewing is to seek sincerely to understand the participant’s understandings about the issues under investigation” (p. 83). In Kahn’s further analysis of the semi-structured interview he stated the importance of using probing questions to get a closer look at the subjects’ understandings. Along with this, he warned against leading subjects, particularly children, too much and clouding the validity of their responses. This combination of broad-based and probing questions was utilized in all interviews.

Field observations were implemented to add depth to the study and decrease bias.

Case study observations are less reactive than other types of data-gathering methods. For example, in laboratory-based experiments and in surveys that depend upon verbal responses to structured questions, bias can be introduced in the very data that researchers are attempting to study (Bailey, 1978, p. 25).
Thus, observations were included to create a clear, non-biased glimpse into learning community member’s attitudes, beliefs, and understandings of this change process. Recorded observations included staff meetings, a staff development program, and the initial implementation of Earthkeepers. During these observations, the activities and interactions of students, staff, and parents were recorded in field notes.

The data was then coded within group profiles. The subjects were divided into four groups: administration, teachers, parents, and students. Interviews were coded through microanalysis (Strauss & Corbin, 1998). This involved a detailed, line-by-line analysis of responses that allowed the emergence of themes from individual interviews which were then compared within the group profile to identify patterns of shared insight and experience. Observations from within a single group were coded in a phenomenological mode (Bogdan & Biklen, 1992) that allowed patterns to arise from the data itself. After patterns within a group profile were identified, phenomena were examined across all group profiles to develop grounded theories that applied to all learning community members. These theories provided an account of the limitations and successes that occurred during the initiation and implementation of environmental education reform at Woodridge Public School.

Along with this, the researcher analyzed the strategies being used during this period of reform through the lens of school change research and literature. An analysis of three documents was also conducted to gain insight into the political background of environmental education in New South Wales as well as examining the program being adopted by the school. The document analysis contributed to theory that strove to reveal
the inner workings of the schools change process, while the comparisons to school
change literature acted as an aid in evaluating alignment with effective change strategies
as outlined by the body of educational change literature.

Implementation

During the second visit, data was collected over an 8 day period spent living and
working in the learning community. Eight parents, six teachers, and two administrators
(past and present) were interviewed. Five of the parents, five of the teachers, and both
administrators had also been interviewed during the initial data collection. Following up
on previously established themes, interview questions focused on the success of
Earthkeepers, new environmental learning projects to be initiated, perceptions of
leadership roles in the school, the school’s ability to change, and communication
throughout the learning community. Interviews were tape recorded and transcribed.

Observations focused on interactions between learning community members,
environmental activities, and physical changes to the school environment. Specific
observations that were recorded in field notes included 8 teachers, one support staff, and
the principal during a staff meeting, various learning community members (parents,
support staff, teachers, administration, local community members) participating in the
flow of 7 regular school days, and the 5th and 6th grade classes, two teachers, the
principal, and 5 representatives from a corporate sponsor during a tree planting activity.
Along with this, physical changes to the school’s buildings, landscape, and forest
property since initiation of the change were observed and recorded through photographs.
Incorporating elements of Sarason’s (1971) ecological approach to school change, interrelationship was chosen as a core theme informing analysis of the second set of data. Interviews and observations were coded through the identification of emergent themes relating to individual’s interactions within the school environment as manifested through leadership and collaboration. Categories generated from this included: communication flow, shared workload, participation in decision making, and participation in and perceptions of leadership responsibilities. Comparisons were than made across the categories to discern connections and disconnections in what had previously appeared to be a highly collaborative school culture. This form of analysis was implemented to gain further insight into the nature of Warrimoo’s school culture, and to test the validity of theories generated through the first data collection. While the school’s culture did continue to appear highly collaborative, it was evident that parents experienced limited leadership responsibilities. It also appeared that disconnections in the web of school culture were diverting energy and attention away from Earthkeepers.

*Institutionalization*

During the final data collection the researcher spent 13 school days examining attributes of the school culture that have impact the continued implementation of the Earthkeepers program. Beyond this, the researcher explored the use of ecological concepts taught in Earthkeepers as a theoretical framework through which school change processes might be examined. Data was collected through interviews, observations, and document analysis. The researcher chose to spend 13 days at the school (two full weeks to collect data and three days to tie up loose ends) as this allowed adequate time to
perform all necessary interviews and observations without further distracting from school activities. While the researcher was conscientious about the scheduling of interviews and observations so as to not intrude upon busy schedules and the natural flow of school days, this is a small school and the presence of a foreign researcher was easily noticed. Thus, time spent at the school was limited to 13 days.

Participants and Recruitment

The current principal agreed through email correspondence to allow this research to be conducted and to participate in interviews and observations. A representative from a corporation that has contributed funding to environmental learning programs at Woodridge also agreed, via email, to participate. All Woodridge teachers were recruited to participate in this research. Parental and teacher recruitment began with an announcement made by the principal to alert the faculty and staff of the days the researcher would be at the school. The following statement was read to faculty and staff at a meeting and included in the school newsletter that went out to all parents.

Jamie Carson will be returning on March 6th-22nd to conduct the final leg of a longitudinal study that has been examining environmental learning reform here at Warrimoo Primary school. She would like to invite you to participate in this research by sitting for a brief interview and/or allowing her to record observations as you go about your normal business at the school. You may schedule an interview and volunteer for observation on a sign-up sheet in the administrative office. Participation in this research is voluntary.
A recruitment letter, distributed by the school, (see Appendix C) was sent to parents of students that participated in the most recent implementation of Earthkeepers. The researcher provided the administrative office a schedule on which parents and teachers could sign up for interview times. Only one parent volunteered through these means. Thus, the administrative office provided a list of parents whose children had either participated in Earthkeepers during previous years or who were currently involved in the program. The researcher then called parents on the list to recruit participants. Parents who had participated in the study during previous years were either phoned or approached in person to solicit continued participation. Teacher participation was also solicited in person by the principal investigator. When soliciting participation, the researcher explained that participation in this research was voluntary and that no payment would be given.

Interviews and observations were conducted with 8 teachers, 12 parents, the administrator, and 1 representative from a corporate sponsor. This population size seemed appropriate, as it included all teachers and administration. A larger number of parents were recruited in an attempt to more adequately represent the largest group within the school community. All teachers were involved in observations of staff meetings. However, when interviewing, first priority was given to teachers who had participated in Earthkeepers. Secondly, teachers who were participating in new environmental learning programs were interviewed. Next, teachers that had participated in previous data collections were interviewed. The remaining teachers were then interviewed. Fortunately, all teachers were willing, and time allowed the researcher to interview all
faculty members. When initiating the final data collection, one staff member was added to the population as this individual had been at the school for approximately 10 years and had assisted both the previous and current principals with the administration of change processes. This individual declined to be interviewed. A representative from a corporate sponsor was added to the population because he could contribute valuable insights regarding the funding of this environmental learning reform effort.

In past experiences at the school, it had been very difficult to get parents to participate in interviews. During each of the previous data collections the researcher was only able to illicit participation from eight parents. Thus, including 12 parents in the final collection increased the variety of perspectives informing this case study. The principal had forgotten to send recruitment letters to parents prior to the researcher’s arrival on both of the previous occasions. This problem was corrected during the final data collection. However, this had little effect on recruitment procedures as the researcher had to solicit participation in person anyway.

When conducting parent interviews, first priority was given to parents of students who had participated in the Earthkeepers program during the last implementation. Next, parents who were interviewed during the previous years and who still had children at the school were asked to participate. Parents who play leadership roles in the school were then included. Finally, any other parents of children, past or present, at Warrimoo were asked to participate, but they were the lowest priority when recruiting. Parents that consented to being observed allowed their activities and interactions at the school to be recorded in field notes.
**Interviews**

Individual interviews were conducted using Piaget’s semi-structured format (Kahn, 1999). Broad questions examined subjects’ perceptions of Earthkeepers, school culture, and change processes at Warrimoo. The use of broad questions allowed the researcher to examine whether the ecological concepts of energy flow, interrelationship, the cycling of matter, and continuous change were evident when respondents spoke about change processes. Probing questions were also used to further clarify responses and to directly examine the appropriateness of this ecological framework when studying school change processes. In other words, probing questions relating to the previously mentioned ecological concepts were used to examine respondent’s understandings of school change processes at Warrimoo.

Interview questions regarding the Earthkeepers program examined how Earthkeepers has been implemented. It was hoped that studying participants’ knowledge of the program would illustrate the degree to which the program had become an ongoing and regular part of the school culture. Earthkeepers questions also examined elements that had impacted or might impact sustained implementation and integration of the program (see Appendix C for Earthkeepers questions). Interview questions regarding leadership and communication were used to further examine the school’s culture. Further, respondents were asked to describe the school’s culture in their own words and to characterize the way in which the Woodridge Primary handles change (see appendix C).
All individuals were interviewed once with the exception of the principal who was interviewed at the beginning and conclusion of the 13-day visit. Interviews were audio recorded and transcribed. Parent, teacher, and corporate representative interviews took approximately 30 minutes each. The initial interview (conducted on day 1) with the administrator was 45 minutes with a 30-minute follow-up interview (conducted on day 12). Again, interviewees included eight teachers, 12 parents, the administrator, and one representative from a corporate sponsor. The administrator, five teachers and four parents participated in interviews during each of the three data collections (initiation, implementation, institutionalization). Two teachers, two parents, and the corporate representative participated in the last two stages. The rest of the participants were new to the study during this final stage.

Observations

Observations were used as they yield a less reactive form of data that may decrease bias (Bailey, 1978). The flow of 13 school days, two staff meetings, classroom activities, and interactions among parents were recorded in field notes. These field notes provided “detailed, nonjudgmental, concrete descriptions of what has been observed” (Marshall & Rossman, 1999, p.107). In the initial stages of this study, the researcher entered the setting without predetermined categories. However, observations during the third data collection will be more pointed. Focused observations are usually used in the later stage of a study to check analytic themes (Marshall & Rossman, 1999).

Observations considered the school’s culture through the lens of the ecological framework discussed herein. In other words, the researcher looked for evidence of
energy flow, the cycling of matter, change, and interrelationship in interactions among individuals and groups in various settings and as evidenced in the physical environment of the school. For example, observing what was being discussed during staff meetings offered insight into the interrelating of time and energy when managing day-to-day activities. Energy flow was also apparent in the enthusiasm and anger expressed by teachers when discussing programming. Observing the nature of informal interactions between parents on the school grounds offered valuable insight into the school’s culture. Beyond this, more specific observations of the school grounds and classrooms offered further insight into how Earthkeepers was being implemented and the degree to which it had become an ongoing and regular part of the school culture.

**Document Analysis**

School newsletters were analyzed to examine communication from the school to parents regarding Earthkeepers. Analysis was conducted by scanning the documents for references to Earthkeepers or new programming and keeping a tally of the number of times they are mentioned. This was done to increase triangulation (Denzin, 1970) surrounding the issue of communication between the school and parents.

**Theoretical Framework for Analysis**

As previously mentioned in chapter two, several researchers feel that the application of ecological understandings to school change processes may bring more fruitful reform efforts (Cooper, 1993, Fullan, 1997, Sarason, 1971, Selby, 2000). Sarason (1971) encouraged researchers to adopt an ecological approach connecting school culture to the study of reform efforts. He advocated for the study of interactions among groups
of individuals and their physical school settings. The goal of this work was to shift focus away from the sociology of the individual and build understandings of more complex interrelationships. Selby’s (2000) ecological approach to schools has encouraged an even more holistic perspective that uses terms like enfoldedness, embeddedness, and interpenetration. He suggested that these terms are more appropriate descriptors of “relationships between phenomena that are processes rather than static components” (p. 89). Fullan (1997) highlighted the importance of multi-directional communication flows across the school community and a broadened leadership net. Finally, Cooper (1993) asserted that one of the best ways to increase the effectiveness of environmental learning would be to transform schools into “vibrant living systems that emulate the principles and values inherent in natural ecosystems” (p. 20).

While there has been much discussion of the importance of applying ecological thought in education reform, few have attempted to create a comprehensive framework that might be used to analyze school change processes. This research has striven to blend and expand upon understandings gained from the researchers mentioned above. Cooper’s vision of schools as ecosystems was used as the starting point for building this framework. In this research, Woodridge Primary School has been treated as an ecosystem.

If the goal of a natural ecosystem is to keep life going, it would seem logical that the goal of a school ecosystem would be the perpetuation of learning. The health of any natural ecosystem is determined by the interplay of four aspects: energy flow, the cycling of matter, interrelationships, and change (Van Matre, 1990). These concepts are taught
through the Earthkeepers program and served as categories for analysis in this research.

In the figure below, the left column illustrates how each concept has been interpreted as a principal in natural ecosystems. The column on the right outlines how the concepts were interpreted and applied to the school system for this analysis.
Table 1. Ecological Concepts as Interpreted in Natural and School Systems

<table>
<thead>
<tr>
<th>Concept</th>
<th>Natural System</th>
<th>School System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy flow</td>
<td>Energy creates the ability to do. It provides organisms fuel for growth, action, survival, and thriving. Energy comes from the sun. It takes energy to get energy. Energy flow is not a closed system. Energy flows constantly and is not recycled.</td>
<td>Energy creates the ability to do. Schools need fuel for growth, action, survival, and thriving. Energy comes from money, enthusiasm, commitment, will, and drive. It takes energy to get energy. A School is not a closed system. A Continuous supply of energy is needed.</td>
</tr>
<tr>
<td>Cycling of matter</td>
<td>Matter constitutes the basic building materials of life. Organisms need water, nutrients from soil, and oxygen to live. There is a limited amount of these materials on earth. They must be used over and over. Energy powers the cycling of building materials. (Movement of air and water governed by sun’s energy.)</td>
<td>Matter constitutes the basic materials of school life. Schools need physical structures, books, desks, writing utensils, etc. There is a limited amount of these materials in a school. They must be used over and over. Energy powers the renewal of physical structures, books, desks, etc.</td>
</tr>
<tr>
<td>Change</td>
<td>Everything is constantly changing. Some change happens quickly, some slowly. Living things change so they can get and use energy in more successful ways (adaptation). Living things come and go. Change can’t be stopped. Not all change is for the betterment of the system.</td>
<td>Everything is constantly changing. Some things change quickly and some slowly. Schools change so they can get and use energy in ways that increase student learning. Students, teachers, administrators, and staff come and go. Change can’t be stopped. Not all change is for the betterment of the school system.</td>
</tr>
<tr>
<td>Inter-relationships</td>
<td>All living things are connected. Living things interact in a variety of ways: dependence, independence, cooperation, competition, communication, etc. You can’t do just one thing to a system. The impact of one action may travel from an individual organism, through its community, ecosystem, and the entire planet.</td>
<td>All living things are connected. Living things interact in a variety of ways: dependence, interdependence cooperation, competition, communication, etc. You can’t do just one thing in a school. The impact of one action or decision may travel from an individual, through their school system, district, nation, and on to schools and communities around the world.</td>
</tr>
</tbody>
</table>
Analysis of Interviews and Observations

This research has adopted an interpretive approach as social action and human activity were treated as text (Berg, 2004). Interviews and observations were transcribed into typewritten text for analysis. Coding has been defined as translating respondent information into specific categories (Cohen & Manion, 1994). In this analysis, coding was interpreted in a slightly different manner, as predetermined categories were implemented. Again, the categories used when coding interviews and observations were the four ecological concepts listed in table 1. The researcher read through all interview and observation text looking specifically for evidence of these four concepts. However, emergent themes that were not accounted for in the ecological framework also informed the analysis. During previous analysis of the initial data set for this longitudinal study, interviews were coded through microanalysis (Strauss & Corbin, 1998). This involved a detailed, line-by-line analysis of responses that allowed the emergence of themes from individual interviews. It should be noted that the ecological framework for analysis that was used for the final leg of this study was tested against categories from the initial analysis. Most of the categories rising from responses to questions concerning how the school has dealt with change and initiation of new programming fell within the four categories of the ecological framework.

After interviews and observations from the final data collection were coded through the application of the ecological concepts, axial coding was then used. According to Strauss & Corbin, (1998) during axial coding, categories are related to their subcategories to form more precise and complete explanations. This form of coding also
looks at how categories and subcategories may relate to one another. In this research, subcategories aligned with the interpretations of the ecological concepts as they related to school systems in table 1. For example, if a segment of text relayed information about the category “energy flow”, axial coding was then used to determine what aspects of energy flow were represented in the text (i.e. the ability to do, money, enthusiasm, etc.). The subcategories mentioned above were not interpreted as fixed or all-inclusive. Rather, they offered a starting point for analysis. Beyond allowing for more complete understandings of categories, axial coding, enhanced understandings of how energy flow, the cycling of matter, interrelationship, and the changing of forms interacted within the school ecosystem.

After axial coding of interviews and observations was completed, comparisons were made within group profiles (teachers and parents) to identify patterns of shared insight and experience. After patterns within a group profile were identified, phenomena were examined across all group profiles. This ecological framework for analysis provided insights into the health of this school ecosystem and illuminated elements that have impacted the implementation of Earthkeepers. It is hoped that this ecological framework may offer a new lens through which further insights about schools and change processes may be gained.
CHAPTER IV
SCHOOL CULTURE

From my passenger’s seat on the wrong side of the car traveling down the wrong side of the road, I passed by well cared for cottages and mid-sized homes nestled among dense flora. By the time we had turned down the secluded, shady lane that is home to Woodridge Primary, I had overcome, for the most part, a panic reflex inherent in making a right turn into the left lane. A large, hand painted sign on the side of the single-lane road instructed, “DON’T KILL SNAKES”. The sign went on to explain the importance of snakes in the local ecosystem and included a phone number for the regional wildlife rescue squad should a problem situation with a snake arise.

Stepping out of the car at the school’s front door, the mid-morning smell of eucalyptus washed over me. Breathing deeply, I took a long look around at this place that had become quite familiar. The grouping of buildings that make up the school appeared quiet and still as the eucalyptus trees surrounding them rustled in the breeze casting moving shadows throughout the playground in the center of the complex. Stepping into the teddy bear clad entry of the school offices, the administrative assistant greeted me with a warm, “There she is”. - Post observation reflection 3/7/06

As previously mentioned in chapter two, major themes represented in the body of school change literature described by Gitlin (1995) as the “second wave” highlight the
importance of considering school culture when studying school change processes. Over the past three years, I have come to understand that the culture of Woodridge Primary School is quite unique. During my first two data collections, I was welcomed into the school as if I were a member of the staff. I witnessed dramatic forms of collaboration and a school culture that appeared to be defined by continual change and innovation. In order to allow the reader a complete picture of the context within which the Earthkeepers program is now operating and how school culture intersects with the program and vice versa, this chapter will provide a portrait of current school culture.

By the third data collection, it was apparent that I had developed a place within the culture of this school. Although I tried over the past three years to avoid being intrusive and limit my impact on events at the school, the culture seemed, on some level, to disallow detachment. In early stages of this research the staff invited me to participate in their traditions and social gatherings were organized to welcome me and bid me farewell. Parents invited me to participate in their social gatherings as well. Participating in these activities allowed me to glimpse further into the culture of this learning community. However, as a by-product of this, I began to make friends and become a part of this culture. Further, during my final data collection, it became evident that, without intending it, school events may have been scheduled around my research agenda. (This will be discussed further in Ch. 5). Thus, it is evident that the role of researcher as detached observer does not fit this case. Beyond this, when studying a group of individuals over an extended period it seems likely that a researcher may develop
connections with her or his subjects. This in many ways allows for a deeper examination of culture.

In an attempt to acknowledge my place within this culture, the findings presented herein include my personal observations as well as interview and observation data. Observation data was derived from field notes and post-observation reflections recorded in a journal. This portrait of current school culture begins with an in-depth description of the school’s atmosphere as it has been shaped by emergent themes relating to community, parental involvement, camaraderie, and innovation. From here, the chapter moves on to describe communication. This section explores discourse among staff members during two meetings and perspectives on interpersonal dynamics shared by members of the learning community. Leadership and decision-making are examined as they have been revealed through collegiality and compliance. The chapter concludes with an explanation of traditions that have made the school unique.

Atmosphere

My field notes illustrate that the school’s current atmosphere is warm, friendly, and student-centered. The 15 minutes leading up to the bell ringing and the start of the school day have an almost party-like feel to them. On mornings observed, approximately 30–40 parents (mostly women), their children, the principal, and on some occasions a few teachers gathered in the common area between the buildings that make up the school. This area consists of a two-tiered, asphalt covered play area that is almost completely shaded by large eucalyptus trees. Small gardens containing native plants bordered the outer edges of the play area. Usually, some children could be seen playing handball while
younger students often stayed closer to mom. Occasionally, a game of chase broke out and the principal cautioned the students not to run on the blacktop. Typically the early-morning air was filled with the boisterous sounds of play, shrieks, and laughter. The majority of parents gathered in groups of three to six sharing convivial conversation. A handful of parents could often be seen alone on the fringes of the crowd. On most mornings, I observed the principal drifting from parent group to parent group chatting and laughing with great enthusiasm.

Following the first morning bell, the students routinely sat as one large group in orderly lines on the asphalt and parents quickly disbanded. The principal and or assistant principal usually called the students to attention for the dissemination of announcements and/or instructions for the day. On a few occasions, the speakers competed with the voices of children who were still wound up from playing only moments earlier. When this was the case, the assistant principal quickly redirected the children with a booming, assertive prompt. On other occasions, speakers competed with the loud calls of a flock of cockatoos, but there was nothing to be done about that. While the announcements were being made, teachers who were not already present filtered out of their classrooms into the playground area to lead their students to class.

Due to a mandate handed down by the New South Wales Department of Education and Training, class sizes in the lower grades were recently reduced. However, the school was not awarded additional funding to increase staff size. Thus, the change led to teaching composite classes with the upper primary groups being considerably
larger than in the past (further information regarding this reform will be provided later). Some of the impacts created by larger classes were evident in classroom observations.

Five classrooms were observed during school hours. These included the following composite classes: Ann’s K/1, Sarah’s 1/2, Jane’s 5/6, Veronica’s 3/4, and David’s 4/5. In each of these classrooms the desks were set up in pods allowing for ease of student collaboration. The walls were decorated with student artwork and assignments, and a poster depicting Gardner’s multiple intelligences was displayed in each room. Teachers consistently encouraged students to share ideas and insights. Further, the level of student engagement and on-task behavior was high in all classes but one as students participated in discussions, drama, research, and inquiry-based projects. Jane’s large class of 5th and 6th graders required constant redirection while they were working on a water paint project. Roughly half of the class was on task, while the other portion socialized and avoided the assignment. As Jane repeatedly spoke over the students and tried to get them back on task, the noise and her frustration rose. The atmosphere in this room was stressful and chaotic. Otherwise, the classroom environments observed were pleasant and task-oriented.

*The Woodridge Family*

When parents were asked to describe Woodridge’s atmosphere, all but four parents had only positive things to say. The following table summarizes descriptors used by parents and the frequency that they occurred in interview data.
**Table 2. Descriptors of School Atmosphere Used by Parents**

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Frequency of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong, close-knit community</td>
<td>5</td>
</tr>
<tr>
<td>Family-like</td>
<td>4</td>
</tr>
<tr>
<td>Friendly</td>
<td>4</td>
</tr>
<tr>
<td>Social</td>
<td>4</td>
</tr>
<tr>
<td>Welcoming</td>
<td>4</td>
</tr>
<tr>
<td>Safe</td>
<td>2</td>
</tr>
<tr>
<td>Supportive</td>
<td>2</td>
</tr>
<tr>
<td>Less open than in past</td>
<td>2</td>
</tr>
<tr>
<td>United</td>
<td>1</td>
</tr>
<tr>
<td>Angry adults</td>
<td>1</td>
</tr>
<tr>
<td>Teacher hierarchy</td>
<td>1</td>
</tr>
<tr>
<td>Caring school</td>
<td>1</td>
</tr>
<tr>
<td>Happy</td>
<td>1</td>
</tr>
</tbody>
</table>

As this table illustrates, different forms of relationship heavily impact the atmosphere of Woodridge school. In the words of one of the parents:

> It’s very community minded. Almost family, you know. There’s so many people within the school who I’m close friends with. We go to trivia together on Wednesday night. We go on holidays together. I think that it’s very much like that. It’s a family, community culture. - Brandy (P- 8)
Nancy (P-16) shared that many people who have recently moved to Woodridge are raising children without the support of extended family. Thus, the school community has become a support for these parents much like a second family. When asked to describe what makes Woodridge such a “friendly place”, she explained:

Heeps of things, I think. I think the location to start with. It’s tucked away, and we’ve got our own little community…The teachers are all extremely motivated, very positive…But all of the teachers that I have known are full of energy and have a passion for what they want to do with the children. Obviously, that’s the same as James (A-1). He’s open. He’s out there playing handball with the children. He knows everybody as the rest of the teachers do know everybody by name. The parents know everybody else’s kids. There’s a nice safety element…It’s just a really nice balance that the parents are happy to entrust their children in the care of the teachers for the whole day. And just from that trust you just have mutual respect for each other, and I think it’s quite nice. It’s a combination of all those things.

Three parents felt the small size of the school allowed for a stronger community. They believed that all of the students and teachers knowing each other’s name increased student empowerment, cooperation, safety, and trust. Two of these parents went further and attributed the school’s overall success to its small size. The third parent (Laura) wasn’t quite as sold on the school’s achievements. While Laura (P-18) felt that the
community was very close knit, she believed that many parents were “angry” and “disappointed” by the fact that the school wasn’t focusing enough on basic skills.

As Table 2 illustrates, two parents felt that relationships between teachers and parents aren’t as open as they used to be. Virginia (P-15) would like to see more of an open-door policy with the teachers and had this to say about the school’s atmosphere:

“Um, I think it’s staff led. You know, I still don’t think that parents’ views are taken that much on board. Um, they might be listened to, but they won’t be acted upon.” Sally (P-1) acknowledged that there is a strong community at the school but believed that teacher hierarchy negatively impacted the atmosphere. In her opinion, teachers were not including parents fully and were withholding information.

*Working Parents*

Three years ago, Nicole (P-7) and Cindy (P-9) started an after school program to meet a need in the community. They had witnessed that both parents were working in more and more families and many children did not have grandparents or extended family in the area to attend to them after school. Nicole felt that the school’s atmosphere had shifted over the past three or four years because more parents were working and community members were simply busier.

Nicole: There’s so many parents going back to work so you don’t have that whole-
there’s still a few moms that are around quite a lot, but there’s not as many… I mean when I brought my son to kindergarten there was a lot of parents and they were in the classrooms all the time, and the teachers embraced that, you know, and they really worked with that. And that was
different teachers back then too, and they were a little more open to what went on in the classroom…

Interviewer: So, even in the last four years you’ve seen that.

Nicole: Well, I mean, just looking at the numbers of after school kids. You know, we started with 5. Our first afternoon care we had 5 children plus Cindy’s children.

Interviewer: That was three years or two years ago?

Nicole: This is our third year. This is the start of our third year. Now, we can have anywhere up to 40 children in an afternoon.

During the third data collection, I observed fewer parents at the school during the day then in previous years. On the days that the canteen was open, as it was in the past, two parents were on-site to make, package, and sell sandwiches and meat pies. However, fewer parents worked in the administrative offices. In March of 2006, I saw one parent doing volunteer work in the office on a couple of days whereas before there were a 2-3 parents on multiple days. According to the principal, Woodridge has become a desirable alternative to living in Sydney. Thus, over the past four years, property values have been climbing forcing parents to work harder to pay their mortgages. In his estimation, this has led to fewer parents having time to volunteer.

Camaraderie and Innovation

Veronica (T-8) has worked at Woodridge for over 17 years. She has seen several principals come and go and witnessed a dramatic shift in the school’s culture due to change processes initiated by the previous principal (Paul Gray). As described in Chapter
1, when Gray arrived at the school he found a highly critical community and a staff suffering from low morale. Principal Gray oversaw dramatic renovations of the physical school structures and initiated new pedagogical strategies in the classroom, the use of cutting edge educational technology, and the adoption of a new leadership paradigm that empowered parents and teachers to collaborate in decision-making processes. Veronica felt that these changes shifted the school’s atmosphere to one that was relaxed and cooperative. In her opinion, this has not changed over the past four years.

Where there once was dissention, parents and teachers now socialize at teas and game nights at the school. Many parents take family holidays together and socialize outside of school. Brandy (P-8), a former member of the Parents and Citizens Committee (P&C) invited me to attend trivia night with her. Every Wednesday night a group of Woodridge parents travel down the mountain to a local sports club for an evening of cutthroat trivia competition. Surrounded by familiar faces from my previous trips as well as newcomers to the Woodridge community, I was the recipient of some good-natured teasing (being a Yank). Our team generated a great deal of noise and excitement as we laughed, ate meat pies and chips, and competed against 11 other groups. After winning first place, we collected our prizes and carpooled back up the hill. I was invited to attend again the following week, but my schedule didn’t allow it.

The parents aren’t the only cohesive group at Woodridge. When asked to describe the school’s atmosphere, the teachers had only positive things to say. While there was less repetition in the teachers’ responses, they shared many similar impressions. Their responses paint a portrait of warmth, friendship, strong community, support,
teacher autonomy, fun, and relaxation. Alice (T-11), a teacher in her first year at the school, worked in “three or four” different schools before taking her current position at Woodridge Primary School. Compared to other school’s she had worked in, she felt that this school’s culture was much more about pushing forward, innovating, and holding students to a higher level of achievement. She, like the other teachers interviewed, felt that the school was largely successful. When asked to explain why she thought the school was more successful than other schools she had worked in, she pointed to several atmospheric elements.

What’s different is the collaboration. The decision-making processes are collaborative. The staff are very cohesive and very encouraging of each other. That makes a huge difference. Very supportive. Each member of staff is very supportive of each other. We work as one instead of individuals. You’re not in your own little pigeonhole. You work together. So, overall, I think it’s basically camaraderie that makes Woodridge work. Because if the teachers are happy and the principal is happy and the system is happy. I think that the education and the processes is, again, happy because everything seems to be working well.

Sarah (T-4) a veteran teacher who has been at this school for six years commented on the cohesion between staff members as well.

This school’s a happy school. The children all love coming to school, and we try to make it as interesting and as much fun as possible. So, it’s not a place where people say, “Oh, no, I don’t want to go to school” on a staff level and child level as well…But, as in all schools, we then have a small percentage of parents who
are particularly difficult to get on with. And then the teaching staff, as well, there are days where we might not have left happy for various reasons, but on the whole the staff work as a professional unit to do the best they can for the children.

My observations of the teaching staff included several instances of teachers joking with one another. For instance, all members of the staff but one attended a drama workshop for primary teachers at the Sydney Opera House. While the teachers were interested in learning strategies for integrating drama in their classrooms, they were very excited to have an excuse for a social outing together. We carpooled in two groups and met on Sydney Harbor for a light dinner before the workshop. During the drama session, the teachers sat together at one table and shared insights and inside jokes. The humor turned to self-deprecation and a little teasing as they left the safety of the table to participate in physical drama activities. The general response to the workshop was, “Well, we’ve already been doing this for years.” The workshop highlighted the use of integrative teaching methodologies. I have witnessed that Woodridge has been teaching this way since I initiated this study. Further, when I interviewed Paul Grey in 2003, he spoke about the school learning to use thematic integration when he was principal of Woodridge. Observing the workshop, the comments made by primary teachers from other schools led me to believe that thematic integration was not being used at their schools. Thus, of the nine schools represented, Woodridge seemed to represent a more progressive perspective of curriculum. Following the workshop, the group returned to the harbor for drinks and dessert.
Woodridge Primary School once had a reputation for being a bit odd. In the words of the previous principal, Paul Gray, people outside the community used to refer to the school as “loony ridge”. Along with this, schools in the Blue Mountains have a reputation for being very traditional and behind the times. As Sarah (T-4) put it, “The Blue Mountains are where teachers go to die”. However, since the dramatic changes initiated by Paul Gray, Woodridge has been receiving more and more positive attention. The school was recognized as a model school for the use of technology in the classroom and has maintained their status as an Apple School of Distinction for five years. They have hosted teachers from several schools who traveled to Woodridge to observe their progressive teaching strategies. However, it has been a couple of years since they’ve hosted an Apple visit. More recently, the school was recognized by the Blue Mountains City Council as being a leader for environmental education. This recognition included a plaque and small donation. Further, the New South Wales Department of Education and Training selected Woodridge as a pilot school for their sustainable schools program. Finally, the school’s vision of integrating environmental education throughout curriculum and reducing their use of energy and materials earned them a nod from the Ricoh Corporation. Ricoh Australia has donated significant funding to the school’s environmental education programs (this will be discussed further in Chapter 5). Thus, it appears that Woodridge has altered their reputation. A school that has received considerable outside attention for their innovative practices has replaced “Loony Ridge”.

My observations and most of the interview data describe the teachers as being a very cohesive “professional unit” and the school as being very innovative. However,
David (T-4) felt that cliques had recently begun to form within the teaching staff and that progress had slowed.

We’ve had a massive staff turn over. We’ve got nine teachers including the principal, and there are only, as far as I know, three of them that remain from that period before (before James was principal). So, that’s meant that as far as our culture goes, it’s still a happy staff. It’s still a friendly staff, but of course, there are different cliques that have formed within that staff group and some of the people who are a driving force besides Paul (previous principal) aren’t here anymore. And I think also that because we’re continually having new people in the school who, for in lets say technology, aren’t used to using Apple computers. They’ve seen computers as something they use as a staff member, but they haven’t had a culture of integrating it into the classroom practice. We’ve been sort of forever catching them up, and I think the school, at the moment, isn’t moving ahead like it was. But maybe I wouldn’t expect it to anyway because we had really great change over a short period of time, and you would expect that maybe to flatten out over the longer period. But we haven’t gone backwards or anything. It’s just that we’ve had to look really hard at where we go next and even though we have goals and things, we’re not moving as quickly toward them. We’ve also branched out into the environmental aspects and those sorts of things that we didn’t have before so that takes more of your time then too.

In this excerpt, David raises a very valid question. Can a school be expected to continue generating dynamic changes over a sustained period of time? Staff turnover and new
curricular innovations (i.e. environmental education) seem to be slowing the tempo of innovation in the use of technology in the classroom.

On the other hand, the current principal (James Sterling) felt that the school had remained quite innovative and dedicated to change. In his opinion, the school’s atmosphere is a “climate of change where teachers accept change and focus on the basics and beyond”. Principal Sterling shared that this school is very successful and when asked to describe the elements that allow it to succeed, he pointed toward atmospheric elements.

Um, I think that people here genuinely care. And, you know, on the back of this card here (referring to business card on desk) we’ve got this thing (pointed to C.A.R.E. acronym); Commitment, Achievement, Responsibility, and Encouragement. And I believe that every teacher in this school believes in that statement, and that’s our core belief... I believe that parents really see that happening genuinely. I have had some enrollments from other schools, and the parent commented that she was talking to a friend and she said the difference is they really do care. And it comes back to, and I’m not sure who said this, somebody said it was Archemedis, but I’ve heard not Fullan but one of the Canadian guys say, “Nobody cares about what you know until they know that you care”.

He also noted that the small size of the school made consensus building easier, thus aiding their success. Dedicated parents and teachers were also contributing factors. Above all, he felt that teachers and students at Woodridge feel that they are valued.
According to these findings a family-like feel, camaraderie, and innovation are core elements that have shaped the atmosphere of Woodridge Primary School. While three parents were unhappy with choices made by the staff and administration, it is clear that all participants felt that the warm, family-like feel of the school is a good thing. Some participants even attributed the school’s success to this atmosphere. This atmosphere has been greatly impacted by Woodridge’s small size as it allows for greater interaction among students, parents, teachers, and administration. This in turn, allows for greater levels of collaboration increasing cohesion and camaraderie. While the small size of this school contributes to its success, it could also negatively impact the school.

According to The New South Wales Department of Education and Training, the school has an appropriate teacher/student ration. Thus, they do not qualify for additional staffing to alleviate the pressure caused by larger class sizes in the upper grades. The chaotic atmosphere in Jane’s larger 5/6 class could be a negative impact on a school that understands small is beautiful.

Communication

It is clear that the atmosphere of this school has been shaped by tremendous interaction among members of the school community. Where there is interaction there is usually communication. Several researchers understand that communication is central to every aspect of human life, including classrooms (Arends, 2007, Cazden, 1986, Klopfer, 1989). Thus, it seems appropriate to consider the nature of communication when attempting to understand school culture. This section will describe instances of observed discourse among parents, teachers, and the principal as well as beliefs about the
effectiveness of communication within the community. When describing Woodridge as an “embracing community” the principal went further to say that he has often witnessed that communication among members of the school community quickly turns relaxed and social rather than business-like. I also observed a great deal of socializing among members of the learning community at the start and finish of each school day. This casual tone resonates with the warm, community atmosphere, but what about the business of running a school? What is communication like among those who are directly responsible for keeping this “successful” school functioning?

I observed discourse among members of the school community in the staff lunchroom and the central playground. Observations on the central playground occurred before and after school. Parents and the administrator were the main participants in morning conversation with a few teachers joining in the morning but mostly in the afternoon. The discussions appeared very light-hearted and casual. Occasionally, a teacher and parent would be paired off talking to one another, but most conversations occurred in groups of three or more.

The staff lunchroom is a multi-purpose room with two sides that can be divided by a sliding partition. Through a long row of windows along one wall, teachers could view the playground, the valley behind the school, and the mountain in the distance. The first half of the room was equipped with all the necessary equipment for the quick creation of a cup of tea or coffee. A wall-mounted unit with a spigot kept water hot throughout the school day. There was also a full sink, dishwasher, microwave, and refrigerator. Several square tables had been pushed together to create one table large
enough for all the staff and a few visitors to sit around. The second half of the room contained a few computers and bookshelves with teacher resources. When staff members did not inhabit this space, it was used by the special education teacher for one-on-one instruction.

In this room, I observed discourse occurred primarily among teachers, the principal, and the administrative assistant. Most of the staff came together in this room twice a day for morning tea and lunch. The space was also used for the two-hour staff meeting held every Monday after school. I observed no interactions between parents and school staff in this room. Morning tea occurred at 11a.m. every morning when the students were released from classroom to have recess and a snack. At this time, the majority of the teachers, the principal, and administrative assistant could be found interacting with one another in the staffroom.

I made my way back to the staffroom and took a seat at a large table. Eventually, the bell for recess rang and teachers began filtering in for morning tea. Each teacher greeted me warmly as they sat down to have a snack and a chat. Four teachers were sitting around the table having casual conversations that ranged from discussing recent events including the wedding of one of the teacher’s children and various successes of their offspring. One teacher was looking at wedding pictures on a laptop. Occasionally, a school related topic came up, would be discussed briefly, and then the flow of conversation would return to lively, casual talk. Gradually a couple more teachers filtered in.
Fifteen minutes into morning tea, I noticed that Jane, who had worked closely with Earthkeepers in the first two years of implementation, was missing. A few minutes later she walked into the room rubbing her face with her hands and let go a big exhalation. She asked the principal a question and snapped a terse response to his reply. Eventually, she made her way over to a teacher sitting next to me and began discussing something school-related with her. She sat a pile of mail down next to me and excused herself to me for interrupting. I responded, “No worries” to which she responded, “Oh, I didn’t realize it was you” and smiled warmly and continued her conversation with the teacher next to me. Eventually, Jane sat down next to me and after a deep exhalation, began to eat a snack. –Post observation reflection 3/7/06

During all morning teas observed, the conversation was mainly relaxed and not school related. Occasionally, the principal would breeze in with a business-oriented question for a teacher and breeze out. Often, he would sit and snack with the teachers as well. As illustrated above, when school related issues came up in teacher talk, it was usually only for a few minutes and then the teachers returned to casual and uplifting conversation.

Lunchtime discourse was similar in nature to morning tea. However, visitors to the school joined the conversation on four of the days observed. The principal and a teacher from a local rural school had traveled with a group of students to participate in the Earthkeepers program at Woodridge (this will be discussed in chapter 5). Thus, for three days these visitors took their lunch with the rest of the adults in the school. They easily joined in the flow of conversation, but also had quite a few questions for me. They
were curious to know what my connection to the Earthkeeper program was, and why I had traveled so far for my dissertation research. A few of the Woodridge teachers joined in the conversation about Earthkeepers asking the visitors what their plans were for the program.

Ricoh, Australia (corporate sponsor of Environment Woodridge) funded my airfare for this trip. In return, they created and circulated a press release regarding my research visit and their funding of the school’s programs. Thus, on the third day of Earthkeepers two reporters and two Ricoh representatives visited the lunchroom. Again, Earthkeepers and my research as well as Ricoh’s future plans for bringing Earthkeepers to Sydney North Shore schools dominated the discussion. After Earthkeepers ended, conversation returned to normal. In addition to discussing their lives outside of school, in the last two days of my visit the teachers began to briefly discuss their plans for socializing before and after a theatre workshop they would soon attend in Sydney. On several occasions the phone rang, propelling the administrative assistant from her seat. The principal joined in casual conversation while eating a snack, but often a phone call required him to leave the lunchroom. Occasionally, a student wandered timidly into the room only to be quickly ushered out off the room by the administrative assistant as she attended to whatever her/his need was.

The lunchroom was also used for staff meetings that were held on Monday afternoons and began shortly after the students riding the bus had left. All eight teachers, the administrative assistant, and principal attended the two meetings that I observed. A typed agenda was handed out at each meeting. The principal directed the meetings by
reading agenda topics and asking for feedback on each point. All teachers were expected to share their insights and opinions allowing for collaborative decision-making.

Meeting of the Minds

During the first meeting observed, the discussion began with student welfare issues. Topics brought up by the teachers included concerns regarding attitudes of the year 6 girls, students bringing valuables to school, jewelry that is dangerous on the playground, rubbish in the school yard, problems with a few students hitting others, a younger student having a hard time disconnecting from his mother in the morning, and some male students harassing female students. Each of these issues was briefly discussed until a plan of action or solution was generated. The next agenda item following student welfare was an issue pertaining to salary. The principal shared that the federal government was threatening to end a payroll deduction program relating to the teachers’ union. He shared further details and encouraged the teachers to be aware and write letters to government representatives is they disagree with the change.

Next, the discussion turned to curriculum. Two teachers introduced programs that they had recently learned about. One was a multicultural performance program and the other was a road safety program. The group discussed logistics and costs of bringing each of these programs. From here the conversation turned to playground issues such as the introduction of soccer during lunch and dividing up playground space. The school was in the processes of bringing in a new web services program that would allow all of the teaching staff and students to have an individual email account. (Before this, the principal and administrative the assistant were the only people in the school to have their
own accounts). The set up of the program, assigning of passwords, and issues of access were discussed during the meeting. An African music program was brought up by one of the teachers for consideration by the staff before they moved on to discuss the theme for this year’s staff picture. There is a tradition at Woodridge that every year the staff choose a wacky theme, dress accordingly, and have their picture taken on school picture day (this tradition will be discussed in more detail later). Through their discussion they decided on a “silly Christmas” theme. One more potential curriculum program was introduced, a science project ending in a large multi-school event, before the conversation turned to an issue of staff equity.

Up to this point, the conversation had a professional yet lively tone and never veered from the agenda topics. The principal stated that it was time for the group to review “equality issues” surrounding RFF (release from face to face). Every teacher is supposed to get two hours of RFF per week (similar to planning periods in the U.S.). Some teachers have been getting a full day every two weeks, thus some teachers are receiving more RFF time. Shortly after the topic was introduced, tension began to build among the teachers. Voices became louder, two teachers (Veronica and Ruth) were speaking over one another, and the rest of the teachers wore concern and frustration on their faces. At one point the principal had to step in, “Let Veronica Finish”. David (assistant principal) asserted, “As a staff, we should come to a consensus.” The principal calmly interjected, “Everybody stop for a moment” and reminded the staff that this was not a “personal issue”. After a brief pause, the conversation resumed. Veronica shared that other people were getting extra time, but she wasn’t and that it was partially her fault
for not speaking up sooner. Ruth included that, “It never was equitable”. It felt like the meeting had ground to a halt. Teachers began glancing uneasily at their watches and the clock on the wall. With only 20 minutes left before 5:00 p.m., the principal was asking for a decision. Should they stick with this RFF model or go back to the old one? At this point the staff began to calmly discuss how the current plan was working and comparing it to what had previously been done in the past. New ideas were generated for tweaking each model. Barriers inherent in each plan were discussed. Finally, after 40 minutes of discussion, an agreeable plan of action was endorsed by all of the teachers. The next agenda item, “assessment”, had to be tabled because they were running out of time. Veronica briefly introduced a drama workshop in Sydney for teachers and asked if anyone was interested. All but one staff member committed to going. The principal briefly addressed the topics that would be carried over to the next Monday, and the meeting was adjourned. The teachers gathered their belongings and began chatting. A couple of teachers discussed the upcoming drama workshop and made plans to go for drinks and/or dinner before or afterward. I was invited to go along. The rest of the teachers quickly disbanded. The last teacher out of the room asked if I needed a ride home.

The agenda for the second meeting observed followed a similar format. Again all teachers were asked to share their thoughts on proposed topics, and the principal directed the meeting. The flow of discourse was brisk and business-like. Major topics included issues of student welfare, changes to curriculum, potential programs to be adopted, a New South Wales Department of Education mandate that will reform grade-reporting
procedures, and changes to be made to content standards for Mathematics. The latter two topics received the most attention. Frustration and disbelief colored the teachers’ discussion of both of these issues. Some teachers appeared angry at the news of these reforms. The general consensus was that these changes would hamper the school’s process. The principal tried to console the teachers by saying things like, “We’re not going to touch the thing (new reporting program) until the death mark” and “I just wanted you to be aware”. The meeting ended exactly at 5:00pm, and casual conversation resumed as the teachers dispersed. During both meetings, teachers shared ideas, insights, and arguments freely during both meetings. When discussions became heated, the principal was quick to remind the teachers that these were not “personal” issues. Further, he pushed teachers to generate solutions and create consensus. Principal Sterling felt that consensus building was a core element that Woodridge a great school.

So, there are some problems and difficulties to wrestle with, but I think that’s what makes our school really good. And I think coming to the consensus within our staff meetings, and you’ve seen our staff meetings and they can get quite unruly at times, when people can really feel that they can have their say and sort of spew out an issue instead of keeping it back. Um, and when we come to a consensus, that’s where we really move forward, I think, you know. Like, and it’s genuine. It’s not just lip service to keep Mary or Jimmy happy sort of thing.

James (A-1)

Most of the time, the Woodridge teachers are able to work toward a suitable agreement. However, James is prepared to step in if need be.
Ya, well, that’s my role. Um, and I guess that’s part of leadership in that you’ve got to bite the bullet at the end of the day, and, you know, my decisions come back to what is good for the kids first, what’s good for the staff second. Happy staff and then they’re going to do the teaching. If they’re unhappy, then it’s going to reflect in the classroom.

These sometimes intense yet efficient staff meetings provide a stark juxtaposition to the friendly and casual talk that I witnessed during morning tea, lunch, and on the playground. It should be noted that I witnessed very little formal or casual talk between teachers and parents on the playground or in the school administrative offices. This could be because teachers were too busy to mingle before or after school. Or perhaps parent/teacher conversations were being held privately out of view. Thus, to gather further information on parent/teacher discourse, I asked participants to share their experiences.

*Us and Them*

Some parents interviewed felt that there was not a lot of communication between teachers and parents. While they may “chat” with a teacher from time to time, school issues are usually not discussed unless there is a problem with a student. Seven of the 12 parents interviewed felt that communication between teachers and parents could be improved. In the words of one parent:

“Ok, school to parent I think it’s only as necessary. I think it could be better, um, and that boils down, um, if we talk from a teacher standpoint, I think the teachers I think they do what’s necessary. I think there probably could be more
communication. I think more could come from them other than just waiting for a moment when they think that the child is struggling before they contact the parent. Um, whether that’s a time issues I don’t know. I don’t think so, but I think that could be a lot better. I still feel that there’s a little bit of an us and them.” Cindy, P-9

While teacher initiated communication is rare, parents have the option of calling the school and setting up a formal interview with a teacher at anytime.

The “us and them” Cindy mentions reinforces the idea of teacher hierarchy previously described by Sally (P-1). Sally, a PhD student in education, has given formal presentations on the teaching of gifted and talented students in the Blue Mountains area. During my three visits to Woodridge she and I engaged in discussions about learning and theory and equality in education. Throughout this discourse, her frankness and enthusiasm for education was evident. Sally felt that many parents at Woodridge were capable of understanding educational theory and formal rationales for choices that teachers had made. However, in her opinion, teachers were withholding information or on occasions where parents had come to workshops at the school, the information was presented in inappropriate ways. She acknowledged that time constraints may prevent teachers from being able to share greater amounts of information. In the end parents think “ok, we’ll just go along.” But, it would be nice if they understood, you know?”

All interviewees felt that the principal (James) was an excellent communicator. All participants save one felt he was very approachable and available to parents and students. One teacher felt that his busy schedule made it hard to “track him down.” As
previously mentioned, James was often observed socializing with students and parents before school. A few teachers reported that he occasionally joins in student games as well. One parent described James as being “very good at P.R.” She felt that he is a good principal, but that he can be very political. In her estimation, James often tells people what they want to hear. Instead of providing parents with a wide spectrum of information, he only provides the pros when discussing new initiatives.

The teachers felt that communication between parents and teachers was “fairly open”. Most of the teachers shared that the newsletter was the prime form of communication but that the parents neglected to read it. Veronica (T-8) felt that parents “couldn’t ask for more”.

We’re available at all times. I’ve had myself and other teachers come back to school to see a father who can’t get here in normal times. We send home newsletters. They have parent evenings. We run a parent evening before they camp. We run parent evenings for anything that’s out of the ordinary. We invite them to come to child protection. We invite them to… na, couldn’t ask for more.

– Veronica (T-8)

Taking this a step further, Rebecca (T-9) felt that communication with parents was perhaps “too open” because “sometimes parents feel that they can come in and just demand things” rather than making an appointment or stopping in after school. In her first year at Woodridge, Alice (T-11) has seen formal communication protocol broken. “Parents feel they can bypass the steps. Instead of coming to the classroom teacher, some
parents move directly to the executive member (assistant principal) or James.” However, Alice felt communication was good and most parents were “great to communicate with”.

Ruth (T-5) was the only teacher who felt that she should work on improving her communication with parents. Principal Smith agreed that communication between teachers and parents needed work. He felt that parents were too busy to read the newsletter, and mid-year interviews and the parent information night were not adequate. They have considered email, but he felt uncertain parents would be any more likely to read these messages than “a piece of paper hand delivered by their child”. Rather, he felt the staff should look for more opportunities for balanced, direct communication with parents.

Our community is really lovely community. They’re very embracing. I mean you’ve known this yourself. They just embrace people, but it moves to a social context very quickly. So, where do you draw the professional line and all that sort of thing. So, that’s one of those balancing acts, but I think it needs to improve on what we’ve got. – James (A-1)

Thus, it appears that while the warm, friendly atmosphere of this school contributes largely to its success; the same element may be thwarting effective communication with in the school.

Teachers felt that they were able to speak freely and openly with other members of the staff. Comparing her experiences at Woodridge to other schools she had worked in, Jane (T-1) felt that these teachers were much less “back-bighting and bitchy”. Principal Sterling agreed that communication among the teachers was very open and
positive. Based on observations of discourse among staff members, I have no doubt that this is a highly collegial group of educators. However, I am unsure of the nature of communication between parents and teachers. Conflicting parent and teacher responses reinforce the “us and them” duality some parents have been sensitive toward. The majority of Woodridge teachers felt that communication with parents is adequate; however, some parents and the principal disagreed. Further, two teachers who were new to the school system raised concerns with the appropriateness of parent communication. Perhaps, these teachers were unfamiliar with pre-established norms of this highly involved parental community. As mentioned before, Paul Gray (previous principal) worked to create an atmosphere in which parents played leadership roles and communicated freely with the administration and teachers. Parents of children who attended the school while Principal Gray was at Woodridge described him as an excellent principal who was very open to communication. Apparently, parents continue to feel that the administration at Woodridge is very easy to talk to. Perhaps parents are reacting to the formality that teachers are expecting.

*Collegiality and Compliance*

Field notes taken during the previously described staff meetings illustrate the use of collaborative decision-making among the staff and administrator. This aligns with findings from the first two data collections that have shown the Woodridge staff to be highly collegial. In David’s (T-2) estimation,

…it’s an atmosphere for staff I think that is supportive and you feel like it’s a pleasant place to be and people aren’t watching you. They trust that you’re
getting on with your job, and the supervision is done in cooperation. I think that-
I just read one of the department’s new sort of handouts to do with assessment
and it’s saying, “Do you plan collegially? Do you work together as a school
towards your mission?” and so on. And I think Woodridge school is one of the
few that actually does do all those things. And it helps that we have a small staff,
but I think we do.

The principal’s drive to work toward consensus with the teachers before moving forward
with any initiatives further illustrates shared leadership. However, the “us and them”
dynamic discussed in some interviews leads one to believe parents may not be included
in decision and leadership roles. Thus, I asked all participants to explain who they felt
were leaders in the school and if they believed parents were included in decision-making
processes. Most parent responses included: administration, the administrative assistant,
assistant principals, and parents, and the department of education. Nine of the twelve
interviewed felt that parents played leadership roles. Sally (P-1) believed the school was
staff led and that parents complemented the teachers rather than acting as leaders.
Angela (P-14) described some leadership roles parents play at the school, but pointed out
that senior management is in control of this school:

“I remember you asked me this question last time, and I can’t remember what my
answer was. I think it’s interesting because since you asked it, I kind of have
looked a little bit differently at how the school operates. You know, I’m a parent
that’s in some of the time and then seems to be just dropping the kids and run at
the gate kind of mother. It just sort of really depends on how busy I get. But I
think in terms of who leads the school, it has a very strong parent base. And I think that the P&C has always had a solid involvement in the school, and I know a lot of parents who are on the P&C. And I know that the fundraising committee is parent run, and I’ve had some sort of involvement across them. I think it’s not a parent controlled school, of course, but I think a large number of parents are involved in the school. Obviously, the leadership is coming from the senior management of the school, and things are directed from there.”

Angela admits that she is not highly involved in the school, thus her outside perspective may not entirely accurate. Brandy (P-8) and Cindy (P-9) have both been involved in a core parent group that has played leadership roles during the first two data collections. Brandy has taken leadership roles on the P&C in the past and up until the middle of last year, she attended meetings regularly.

No, I never used to miss the P&C, and then mid-way through last year I dropped off, and then I came to the first one this year, and I thought, uh, I didn’t feel like I was actually a part of a process. I felt like I was sitting there listening to similar stuff that was discussed three/four years ago. Similar answers being given-you know, I’ve got lots to do with two hours of my time, and I just thought I’m not actually doing anything here.

During my interview with Brandy in July of 2004, she mentioned that she felt parents’ role in decision-making was to merely “rubber stamp” initiatives that were brought before them. When asked if she felt that was still the case she responded:
Ya, ya, absolutely. I think, like I said, there again it’s James’ P.R., and it’s also very political in that he will only present facts to you that he wants you to know. There’s no sort of like carte’ blanch of well this is all the information. Let’s all sit down and go through it and then decide whether this is a good decision or a bad decision. It’s like, “Well, this is the decision we’ve taken and it’s because of these reasons”. It’s only “for” there’s never any of the “against” column presented. “Well, if we do this we could have this or this.” It’s always like, “This is the decision we’ve made. These are the reasons for it.” Everyone sits there and goes, “Ya, well, they’re good reasons”. And I sit there and go, “Well, sure, but.” Ya, but maybe I’m a cynic, and I’m not saying it’s the wrong way to go about things. I’m not saying that at all because by in large the school runs well.

Parents are happy.

Cindy (P-9) currently serves as one of the two vice presidents for the P&C. Beyond this, she helps out with fundraising and works with a partner to run the after school care program. Cindy believes that a core parent group is still very much involved in the school. However, she feels there is a misconception that the P&C’s only role is fundraising.

I’m all for giving them the money if we’ve got it, but in principal I’m against it because I think that a lot of the stuff that they ask for, if this is what you’re asking, um, you know, should really come from the government. Should be a matter of course and should be items that we as parents because ultimately that’s
what we are, we’re part of the the P&C, but we’re still parents, you know, need to contribute. You know what I mean. Cindy (P-9).

While the parents may be “spoken to regarding certain things”, Cindy felt that, beyond the budget, parents were not a part of decision-making. However, she too agreed that the school ran very successfully.

The teachers described shared leadership among the teaching staff with each individual electing to lead in areas of strength. According to the staff, parents played leadership roles through the P&C. Students also acted as leaders through the Kid’s Council and school captain positions. The generally feeling about decision-making was that teachers, as professionals, made decisions about curriculum and parents were “let in” on the decisions.

I suppose it goes back to what I spoke about before. When we talk about curriculum, I still think, at the end of the day, we’re making the big decisions there. You know, I know a lot of schools bring the community on board, and we tend to, my belief is, we make certain decisions we believe as professionals need to be made. And then we do certainly share that with our community. So, we bring them on board, but not so much in the decision about what needs to be taught and how. We certainly share it and I guess we haven’t come up with a lot of resistance to that. Ann (T-10)

Principal Sterling shared that eight years ago the government initiated the construction of school councils as a forum for parents to play a greater role in decision-making processes. Woodridge’s school council disbanded last year because the same people who
attended the P&C also attended these meetings to discuss similar issues. In Sterling’s estimation, the school council merely acted to ratify policy much the same as the P&C currently does.

It is clear that teachers play various leadership roles and contribute to decision-making. However, parents’ leadership roles appear blurred. While the majority of participants felt parents played leadership roles, those who have served on the P&C discussed the limiting nature of these roles. Brandy abandoned the P&C because she felt wasn’t contributing to a process, and Cindy wished for an opportunity to be involved in more than fundraising and budgetary decisions. Principal Sterling reinforced Brandy’s “rubberstamping” perspective as he admitted that the P&C ratified policy. Thus, it appears parent involvement may be tokenistic, but is this negatively impacting the school? The government may be calling for greater parental involvement in decision-making, but Woodridge seems to be doing fine without it. Parents who complained about the limited roles they could play as leaders also complemented the school and it’s success. As Ann shared, the staff hasn’t received any major complaints about current leadership and decision-making processes. Thus, it appears that while parents yearn for more information and influence, they are content to comply with what is brought before them.

 Tradition

Frank and Elizabeth are grandparents raising a child that attends Woodridge Primary School. This is the second generation they have seen through the school. Elizabeth, a life member of the P&C, admits that they are not as involved as they once
were. “We come when we’re needed”. For example, they were recently called on to help with a traditional Woodridge event. “We made all the toads in the pond for the year 6 farewell, fifty-two of them”. These Woodridge veterans could not say enough about Veronica (T-8) who was the kindergarten teacher when their daughter started school in 1977 and remains at the school today. According to them, she is a pillar in the school community. Being on campus longer than any of the other staff, Veronica has seen many changes. Unfortunately, she feels that many of the traditions similar to the year 6 farewell are falling by the wayside.

Like David (T-2), Veronica feels that some of the excitement generated by previous change processes has “leveled off a bit”. She felt that new staff members perceived older staff members as being very “gung ho” about odd things. When asked to give an example of something she felt “gung ho” about, she responded, “Um, the traditions that make our school different”.

Veronica: Well, something really simple like a 6 class farewell is very different to any other school, and it takes a lot of work. Um, we always had a really fun school where the staff were heaps of fun, and they used to do, not crazy things themselves but encourage fun days like crazy socks days and stuff like that. So, some things like things that take extra work. I’m not saying the new staff aren’t prepared to do the work, but it isn’t done in some schools. And now the government are giving us so much extra to do. To get these things done we sort of have to go to the Inth degree, and sometimes it’s easier to leave them
(traditions) out. So, I sort of feel like I’m in a bit of a conflict with people because I won’t let them die.

Interviewer: You won’t let the fun stuff die?

Veronica: I won’t let the traditions die, and I know people say, “Oh, why do you do that?” And I say I’m not real sure why, but we’ve always done it, and I think it’s good.

A lost tradition that Veronica laments is the exclusion of younger students from the swimming carnival. She felt this loss chipped away further at the uniqueness of the Woodridge as they had been the only school in the Blue Mountains to include lower grades in such an activity. She also mentioned that fewer picnics and over-night excursions were being held because they take so much time and organization. Veronica felt people thought she was “mad” for going to such lengths, but that it was worth it because it “makes us different”. Beyond the government increasing teachers’ workloads, she attributed the loss of traditions at Woodridge to risk assessment and the threat of lawsuits.

One tradition that continues at Woodridge is the annual zany staff photo taken during school picture day in the fall. When I first visited the school in March of 2003, war in Iraq was imminent. In response, the teachers decided that the theme for their staff picture would be a peace protest. Being at the school on picture day, I was required to participate. I tried to argue that this was “their thing” and that I was “not a member of the staff”. “You are today” was the response. Thus, a photo of a motley group of educators clad in tie-die, leather fringe, psychedelic colors, and ripped jeans lying on a white
parachute adorned with flowers and a big peace sign hangs in the entry to the administrative offices.

When stepping through the threshold of the administrative building, the first thing you notice is that there are teddy bears everywhere. Proceeding down the hallway, the bears give way to a collection of staff photos stretching back to Paul Gray’s first year at the school. Highlights from the collection include a spoof on the movie Being John Malkovich titled “Being Paul Gray”. Paul was in the foreground sitting at a desk and smiling at the camera with a phone to his ear. The staff stood behind him in all black each holding a picture of Paul’s head as a mask in front of their face. Last year a lightening strike destroyed thousands of dollars worth of electronics, leaving the teachers scrambling for computers and playing catch up for much of the year. In response, the teachers staged an electrifying staff photo complete with singed clothes, fried hair, lightening bolts, and various scorched computer parts to complete the effect.

Clearly the teachers greatly enjoy this tradition. Attending the peace protest, I observed the majority of Woodridge students discontinuing their recess play to watch the scene. They appeared to be getting great enjoyment out of watching their teachers act like hippies. A roar of laugh rose as Principal Sterling entered the scene wearing what can only be described as a collection of rejects from Austin Powers’ wardrobe and carrying a large neon orange peace sign. In full character, Sterling waved at the crowd flashing a peace sign with the fingers on his free hand. While Veronica is very stern about protecting the traditions that make this school unique, these professionals refuse to take themselves too seriously. Fun seems to be a common thread in the traditions
Woodridge honors. On a day-to-day basis, teachers laugh and joke with each other in casual conversation. Convivial discourse among parents gives the school grounds a party like feel before and after school. However, a visit to a staff meeting on a Monday afternoon cues the observer that Woodridge is not all fun and games. Rather a balance of professionalism and camaraderie create the foundation for a very successful school. At this point, the limited role that parents play in decision-making doesn’t appear to be a deterrent.
CHAPTER V

EARTHKEEPERS

Entering the forest, situated directly behind the school, I was struck by the brilliant green leaves and grass glowing out of the grayness of the day and contrasting dramatically against blackened tree trunks. This forest had been consumed by flames just one year prior to our excursion and was now bursting with new growth and regeneration.

The students walked briskly to the first outdoor classroom eager to begin their Earthkeepers adventure. Sitting on recently constructed rows of wooden benches, I could now see their faces. The rain had induced an unusual sense of calm in the group of fifth graders, but their spirits weren’t dampened as bright, inquisitive eyes shown out from under hats and dripping bangs. The principal, acting as the activity leader, welcomed the students enthusiastically to “Mother Nature’s Munch Room” and launched into an energetic, experiential lesson on the food chain.- Post observation reflection 3/2003

Earthkeepers (EK) was the first environmental learning program adopted in conjunction with the Environment Woodridge reform effort initiated in March of 2003. In March of 2006, Woodridge Primary School ran the EK three-day immersion experience for the fourth time. This chapter will briefly review the format and goals of EK before explaining how the program has most recently been implemented at Woodridge. The 2006 implementation of EK marked the second time the program had
been run since my data collection in 2004. Thus, this explanation will include
information about the 2005 and 2006 implementations. After briefly describing the
program, the chapter will examine EK leadership, communication surrounding the
program, curricular integration, receptivity, and financial support.

*Head, Hands, Heart*

Earthkeepers (Van Matre & Johnson, 1987), an earth education program
for children between the ages of 10-12 years old, incorporates hands-on,
experiential education with a programmatic approach. Earth education’s
programmatic approach requires each program be a carefully crafted learning
experience that is focused, sequential, and designed with specific outcomes in
mind (Wholers & Johnsons, 2003). Earthkeepers (EK) begins with a three-day,
out-door immersion experience that acts as a springboard for further application
and integration of ecological concepts upon the students return to the classroom.
This three-day experience occurs in a natural setting; thus, Woodridge provides an
ideal setting for running the program as the school grounds include 13 acres of
forest.

Earthkeepers (EK) participants learn about the concepts of energy flow,
the cycling of matter, the interrelating of life, and the changing of forms. Going
beyond this, the program incorporates a “feeling” component that helps students
to build a connection to nature as well as a “processing” component that helps
students to transfer these new understandings to their everyday lives (Brauser,
2003). For example, at the end of the three-day, immersion, students make a
pledge stating how they will use less energy and materials at home. Thus, through using their heads, hearts, and hands, participants grow to understand the natural world and care enough about it to take action and protect it.

*Earthkeepers Leadership*

Field notes taken during my observations and interview data point to several ways the program has changed since the first implementation. The most obvious modification was to adult participation. When the program was initiated in March of 2003, the principal led the program with the assistance of 2 teachers. In the second year, one teacher shared the leadership responsibilities with the principal. During the last 2 implementations, no teachers were released from their classrooms to help lead the program. The principal was the only Woodridge staff member to play a leadership role.

According to Principal Sterling, this has been due to that fact that Woodridge is now teaching in a combined grade level format.

Since the initiation of EK, the NSW Department of Education and Training has mandated reduced class sizes in the lower primary grades. This has caused a flow-on effect that has increased numbers in the upper primary grades and forced the combining of grade levels.

The government saw at the last election that they would go to the people on the platform that they would reduce class sizes in kindergarten and year 1 and year 2. That they would phase that in over a 3-year period to 2007. So, we’re right in the middle of that. In 2005 it was the kindergarten classes would be limited to 20 children, ok? Last year we had 26 kindergartens enrolled so that caused us to
have a class of 20 kindees and a year 1 kindergarten composite. But, because there were kindergartens in there, for equity sake, um, we had to make that a class of 20, and it has a knock on effect through the school. So, now we have lots of composite classes and we’ve higher numbers in the upper primary. So, we’ve had no more human resources. We’ve just sort of shifted the deck chairs in the lower end of the school to the upper end of the school. James (A-1)

Year 5 students who participated in the EK program during 2005 and 2006 were pulled from two classes because the upper primary consisted of one year 6/5 and a 5/4 class. In other words, the 5th grade is split between two teachers. Both of these teachers were left with students in their classes while the year 5s participate in EK. The principal felt it would be a financial burden on the school to hire casual (substitute) teachers for the three-day period, thus the he led EK without the support of Woodridge teachers. He estimated that it would cost $900-$1,000 to hire one casual for the three-day period. James felt this was beyond the means of their budget.

During 2005 and 2006, outside schools (Westin and Ford) brought students to Woodridge to participate in the program. Thus, Woodridge students participated in EK alongside visiting children. In 2005 (the 3rd year of implementation), the principal of Westin shared leadership responsibilities with principal Sterling. Also, the principal of Westin brought five members of staff to observe the program over the three days. The Westin staff plan to continue running the program on their own with the use of Woodridge’s forest property for the immersion experience.
During the most recent implementation of the program (2006), visiting teachers and adult volunteers from Ford assisted with Earthkeepers. Ford is a very small rural school with only six students in year five. The principal of Ford, a former colleague of James’, had previous experience with EK and brought teachers with her to learn the program as well. Through our lunchtime discourse, I learned that they are planning on running the program every other year with year 5 & 6 students. In the future, Ford will be using Woodridge’s school grounds as the site of the immersion experience, but their own staff will lead the program.

While Westin and Ford teachers are getting involved in EK leadership, Principal Sterling remains the sole driving force for the program at Woodridge. The overwhelming consensus among parents and teachers interviewed was that EK is, as Angela (P-14) put it, “James’ baby”. James felt confident that he had three teachers capable of running the program. However, the teachers disagreed. Of the eight teachers interviewed, five felt that if Principal Sterling were to leave the school, EK would end. However, Veronica (T-8) thought that teachers in the upper grades had enough training to run the program. Two teachers felt they didn’t know enough about the program to comment. Like Veronica, James also identified Jane and David (upper primary teachers) as being capable of running the program. Jane and David felt quite the opposite.

Jane (T-1): If he (James) left, it would stop. There’d be nobody to run it. He has the resources…the resources that are here they belong in essence to Joe, and so if he left the physical things that have been built down in the bush would remain, but the things that would make EK work would go as would the
knowledge about EK. Because apart from James, there’s me so I’ve run a couple of the sessions and David who’s gone down with the group several times, but I don’t think his interest is whole-hearted in it. And Ruth who would like to be involved with it but doesn’t have her own class to take them down so it hasn’t been appropriate for her to go with any particular class group to go down there. So, between the three of us, we don’t have the resources to keep running EK. So, if James left, it would stop and it would stop dead.

Interviewer: The resources being the props?

Jane (T-1) The props.

Interviewer: Or the knowledge?

Jane (T-1) The knowledge and the enthusiasm to run it, and to promote it. So, while we get funding from Ricoh, so, we get the financial funding we probably have enough to sort of cover. It’s the actual- the enthusiasm from the staff. No, I would say no. Because unless you’ve actually got that interest, it’s not going to.

It takes an extensive amount of props to run EK. A great deal of time and money were invested in prop creation and maintenance, thus Jane introduces a valid concern that could impact the program. However, after checking with the principal, I learned that the props belong to the school and would remain if he were to leave. Regardless, the loss of knowledge and lack of enthusiasm for the program she speaks of could no doubt impact the sustainability of the program.

Over 15 years ago, David (T-2) attended an earth education workshop led by Steve Van Matre (co-creator of EK). In 2003, the class he was instructing participated in
EK, and he went along as an adult leader during the 3-day immersion experience. David felt that most of the teachers at the school were familiar with the program because they were “local” and familiar with James’ previous work with the program at other schools in the Blue Mountains. He too shared a bleak prediction for continuation of EK if Principal Sterling were to leave Woodridge.

Well, there’s no one here to continue it so I don’t think it would (continue). And that doesn’t mean we don’t value the program, but I just think that there’s no one here with the expertise to do that. James’ not training anyone to take that on. But having said that, that’s not unusual for our system.

David went on to say that often staff members with enthusiasm and expertise build programs that collapse after they leave the school. He gave the example of a previous colleague who was a skilled drama, music, and dance instructor. Parents became accustomed to the program he built and have been disappointed with the way it has been carried on since his departure. In David’s words, “When he left, there was no one to fill that void. There’s a couple of teachers trying to, but we don’t have his expertise.”

Apparently, James initiated EK at the last school he worked at, and the program promptly folded after he left. This is grim foreshadowing for the sustainability of EK at Woodridge.

It is evident that the workload for this program has not been distributed across Woodridge staff. Further, in the past two years Warrimoo parents have not been brought onboard to help with Earthkeepers leadership in significant ways. During the most recent data collection, one community member, who assisted with Earthkeepers during the 2003
and 2004, expressed interest in being trained on the program so that she could play a larger leadership role. She was excluded from the program during 2005 and 2006 (This will be discussed further in the next section). In it’s fourth year, EK has fewer leaders then when it was initiated.

Findings from the first two data collections showed James’ to be responsible for initiating EK at Woodridge. There was a strong environmental ethic among parents and teachers, and the program was welcomed with great enthusiasm. However, it was clear that Principal Sterling was the reason the program came to Woodridge. A great deal of energy and attention enveloped the program as it was initiated, but over the years this has subsided. This is evident in the fact that James’ remains the sole leader for EK at Woodridge. It is also evident in the lack of discussion of the program in its fourth year.

Communication Breakdown

While there was a lot of communication surrounding the program as it was being initiated (information nights, Earthkeepers parents’ day, explanations of the program in the school newsletter), the buzz has quieted significantly. Recent communication surrounding the program has been reduced to parental consent forms sent home prior to student participation. One teacher felt that parents don’t know what they’re paying for when they sign and return the parental consent form with the participation fees. This observation was reinforced by interview data as only four of the 12 parents interviewed had a clear understanding of the program’s goals and how it is implemented. It should be noted that these four parents attended the EK parents’ day held at the initiation of the program in 2003.
The remaining eight parents knew very little about the program. They understood that it focused on the environment and that students went down into the bush, but they knew little of the knowledge and experiences gained or the program’s goals.

Of the eight parents who knew little of the program, Lena (P-22) has yet to have a child attend the program; however, the other seven parents had children involved. Nancy (P-16) and April (P-19) had children participating this year. April shared that her understandings of the program had come from, “what the kids have mentioned.” Otherwise, communication from the school regarding the program occurred through a permission slip. April couldn’t remember if the note contained an explanation of the program, and Nancy admitted that she probably didn’t read it. This reinforces the concern shared by staff members that parents don’t read written communications.

The four parents who attended the initial EK parents’ day recalled that there was a great deal of excitement and discussion of the program among the parents in 2003. However, this year they had not heard parents discussing EK nor had the program been brought up at student assemblies or during P&C meetings. Nicole (P-7), a former parent, P&C leader, and the current co-owner of the after school care program maintains close ties to Woodridge. She was a key player in the initiation of EK.

Well, I helped set it up, and this is the first year I actually haven’t spent the day with the children because I was too busy this year and they didn’t tell me it was on. Actually, they didn’t tell me last year, but I managed to sneak in the bush
walk at the end. And that was really nice because I missed it the first time. So,

I’ve done it a couple of years and I pretty much know all of it. –Nicole (P-7)

Nicole, having a child in the program, volunteered to be an adult leader for EK during the 3-day immersion experience in 2003. Her enthusiasm for the program was evident as she took time to participate in every activity save one. In her second interview in 2004 she was disappointed that the administrator did not notify her when the program was to be run. However, she heard through the grapevine that the program was running and joined in on the last day. In the final interview, I asked her if she would be willing to undergo training to lead EK, and she responded that she had considered that in the past, but was unsure “where to go with it”. If the opportunity to be trained came up and it fit in with her schedule, she would do it. Again in 2006, she did not learn that the school was running EK until just before implementation. She couldn’t volunteer because her schedule for the week was already set. Thus, it appears that the principal has continued to overlook a potential EK leader in this community member.

Principal Sterling admitted that if communication surrounding EK had been inadequate it was his fault. He acknowledged that he had paid much more attention to sharing information about the program during initiation.

Ok, now that it’s just become an accepted thing within the school that we do - when I first started the program there was a lot of work to do updates with parents- first of all, an understanding of what this program is about and we actually did a one-day workshop where the parents were immersed in the program as participants. Um, I haven’t done that since. I have had one other night where a
parent information night about EK just so they understood that. That happened last year. Um, but this year, nothing. I’ve just sent home a note saying that EK was happening, and explanation etcetera etcetera.- James (A-1)

James felt that because the program has been an ongoing and regular part of the curriculum since 2003, it no longer needed explanation because parents just accepted the program. However, Brandy (P-8) felt that if she were a new to Woodridge, she “wouldn’t know anything about it.”

None of the parents of children that participated in the program raised concerns or asked for further information. Thus, it seems reasonable that they trust the program is not objectionable. However, it is clear that less information about the program is being shared, and there is less parent talk about EK. This may not be detrimental to the way the program is currently being run. However, as James’ pointed out, EK is a very energy intensive program. At this point, he is the main source of energy for sustaining the program. Perhaps if there were more information being shared about EK some of the initial excitement about the program could be carried on year after year. David (T-2) shared concerns for the lack information that had been shared with staff members. “I think that, if I was being totally honest, I think that maybe the staff in general needs to be made more aware of what EK actually is and run through it again.” Jane (T-1) and David’s (T-4) concern that no staff members have been trained to lead the program also highlights a lack of communication about EK among staff and administration. Expanded communication could elicit more parent volunteers and increase teacher interest. Also, as was the case with Nicole (P-7), better communication could foster the creation of parent
leaders who might have the drive and enthusiasm to continue the program after James leaves the school.

Curricular Integration

Just as less attention as been paid to EK communication, curricular integration of the program has been decreasing significantly since initiation. As previously explained, the three-day immersion experience is intended to act as a springboard for continued application and integration of the concepts taught in EK throughout the school year. During their time in the bush, participants earn a K (Knowledge) key for the concepts they learn and an E (Experience) key as they learn to get in touch with nature. These keys open boxes that contain secret meanings that further their understanding of the impacts they have on the earth. At the conclusion of the immersion experience, students make pledges to use less energy and materials at home or school. Parents or teachers monitor their adherence to the pledge through the course of a month. If the students stick with it, they will earn a Y (Yourself) key as they make positive changes in their own actions. The final key to be earned is the S (Sharing) key for sharing what they have learned with other people. At this stage, students create and lead environmental activities similar to those they participated in during EK. It should be noted that the earning of all four keys (K.E.Y.S) is not the end of curricular integration. Ideally, teachers will integrate EK throughout the year by making connections to experiences and concepts learned during the program. These connections could be made across curriculum through science, social studies,
English, etc. For example, a science unit on electricity could be connected to the flow of the sun’s energy through the food chain, as this is the starting point for the creation of fossil fuels often used in the generation of power. Further connections to the EK concepts of interrelationship, change, and the cycling of matter could be discussed in social studies as students explore the implications of the use of fossil fuels.

*Earthkeepers in the Classroom 2005*

During the 2005 school year, the principal worked with students on the earning of the Y and S keys after the 3-day experience. He did this by pulling year 5 students out of the classroom to award keys when the students demonstrated completion of the required tasks. Sitting in the lunchroom on my first day of observation in 2006, I heard Jane (T-1) and James (A-1) discussing the year 6 students earning their keys. (These would have been the students that participated in the program the previous year.) Apparently, at the start of the 2006 school year, many students had yet to finish earning their keys. Beyond this, interview data illustrated that there was no integration of concepts learned in Earthkeepers throughout regular curriculum during 2005. This was partly due to the fact that the program was run at the end of the school year leaving little time.

Well, as I say, um, because it was November, we effectively had a month of school left. When your children have experienced EK at the beginning of the year, right throughout the year, there’s lots of occasions where the integration just naturally fits. Um, so, I believe it was a mistake running it
late in the year. We should have run it early like we’re doing this year so then the teachers can pick up on it. – James (A-1)

James has been working with EK for over a decade so it was surprising that he scheduled the immersion experience near the end of the school year (November).

“We left it ‘till November because you were going to come in November so, we thought we’d delay it. Westin came, I think it was about April or May last year so, I delayed ours from their program to the end of the year.”

Originally, I had planned to visit the school in November of 2005, but scheduling constraints required that I move the date to March of 2006. I had not intended to observe EK during the proposed November visit, and therefore had not requested to see the program. In the response above, it appears that he assumed that I wanted to see the program and this determined EK scheduling. However, he contradicts this by stating that scheduling around another school using the property caused them to push EK to the end of the year. It was a shock to hear that my research agenda may have negatively impacting curricular integration. I followed up on this by asking the two teachers who had students participate in the past if they could explain the reasoning behind running the program at the end of the year.

David (T-4) agreed that running EK late in the 3rd term was a major barrier to curriculum integration. However, in his estimation, “we were forced to do EK then just because that was the first time in the year that it would fit”. He
described the 2005 school year as extremely busy with “so many things happening in our program” and interruptions to throughout the year. Another barrier to integration was lack of time as he and Veronica (co-team teacher) were consumed with trying to establish a rhythm band and organize a formal band and choir district performance at a performing arts center. He also felt that lack of integration “probably also had something to do with that neither of us were there for it”. Again, none of the classroom teachers who had students participate in the program attended the three-day immersion. However, it should be noted that in 2005, they were teaching in composite classes, thus, David’s year 5 students were in class with year 4s as well. Mystery and intrigue are major components in setting up Earthkeepers and getting the students hooked into the experience. In order for the program to be most effective, prior to EK students should know as little about the goals and activities of the program as possible. Thus, curricular integration would be impossible in a 4/5 combined class as it would spoil the surprise for the year 4 students.

My field notes of an interaction between Jane (T-1) and myself in the staff lunchroom offer another possible theory as to why the program was scheduled so late in the school year. During morning tea, I asked Jane if she felt that my research had anything to do with EK planning in 2005. She instructed me not to worry because James simply had neglected to schedule it until the year had already become full. Later, in our formal interview session, if she offered more insight into the scheduling of EK in 2005:
They’ve mentioned it a couple of times. I keep forgetting. It was something that happened that meant that it had to be put off, and then they looked at when was a good alternative and found reasons for it. So, your coming out was one reason.

Jane was teaching a year 3 and 4 combined class during 2005 so her students did not participate in EK. Thus, she wasn’t directly involved in planning the program. Woodridge being a small school, her insights came from hearing conversations in the lunchroom and interactions with other staff members. She, like David, also attributed the late implementation of EK to interruptions in the schedule, but felt that my potential research visit was used as justification for running the program at that time. Thus, it seemed likely that my research did not directly impact the scheduling of EK, but the interview data did not provide a definitive answer so I probed further in the exit interview with the principal.

During my last interview with James, I shared that differing rationales for scheduling EK at the end of the year had been given. He offered this clarification:

Ok, we had an extremely busy year for various reasons. One of the reasons we wanted to put it was because you were expected to be coming in November. So, that wasn’t the sole reason, but we thought, “Well, Jamie’s coming then as well so we might as well put it towards that end of the year”. We had a very big production here. Which we do every 2 years… So, that was a really big deal. Every class performed 2 nights here, and the stage 3 (year 5&6) also performed at the Jane Sutherland...
center at a big performing arts evening for the district. So, there were lots and lots of things on. It was a very busy year, and we had a very big P.E. program here last year as well... So, it just so happened that it was convenient to leave it to the end of the year. Plus, I wanted to see how the kids reacted because they’re just that bit more older than at the beginning of the year... And even though they reacted very well and we’ve got really great kids, um, I wouldn’t push it that far to the end of the year again.

Given this response, I feel more confident that my research did not have a large impact on EK integration. Regardless of the causes, it is clear that running the program at the end of the year did not allow for integration of EK concepts through regular curriculum. However, even if the program had been run earlier in the year, teaching in combined classes would have been another barrier since some year 5 students were in class with year children in year 4. As James explained, the “follow-up with the keys was difficult”, but students were allowed to continue the processes in 2006.

_Earthkeepers in the classroom 2006_

Students in the year 5 class during 2005 may have another chance to review concepts taught in EK through curricular integration. Principal Sterling was confident that Jane (T-1), currently the teacher of a year 5 and 6 combination class, would be making connections to the program throughout the year. He felt that given her past experiences with EK she was very close to the program. This
was one of his reasons for assigning her to this group of students. Jane agreed that she would be integrating EK throughout her curriculum in 2006.

Yes, because next term I’ll be looking at earth sciences at energy and that sort of whole concept of how we use, well, how we create electricity and looking at alternative methods. So, we’ll look at the solar panels and things like that, and we’ll look at wind energy. So, we’ll be looking at all those sorts of things, and we will refer back to the carbon cycle- what they would have done with EK. And we’ll visit a power station and things like that, hopefully. So, yes, it will refer back and tie in with what they did. Jane (T-1).

Jane has had two years of experience integrating EK into the classroom as she worked with the program during the first and second year of implementation. Again, she did not work with the program in 2005 as she was teaching a year 3 and 4 group. It was clear that year 5 students in her class during 2006 would have the opportunity to continue building upon concepts learned during the three-day immersion experience. While David (T-2) also worked with EK during the first year of implementation, he was less enthusiastic about the program. Regardless, the year 4 and 5 combination class he was teaching in 2006 would not receive EK integration because it would spoil the magic of the program for students who had yet to participate in the program. These year 5 students will have to wait a year for EK integration. Of course, this will also depend upon whether the teacher assigned to the year 6 class in 2007 is motivated and familiar enough with the program to foster connections.
It is reasonable to believe that the government mandated class size changes were the largest barrier to EK curricular integration during the 2005 and 2006 school years. Beyond this, time constraints during the 2005 school year pushed the program back to the 3rd term making it hard for students to earn their Y and S keys while the program was still fresh in their minds. The three-day immersion occurred early in the 2006 school year so this should not have been an issue. Beyond this, as David (T-4) shared, the fact that Woodridge teachers are no longer attending the three-day immersion experience may also negatively impact teachers’ ability or motivation to make connections to EK throughout the year. As David pointed out, this does not mean that the teachers do not value Earthkeepers.

Receptivity

Most interviewees had positive feelings toward the program and were glad that it was being run at Woodridge. All of the parents that had children participate in EK in previous years agreed that they would recommend the program to other parents.

I think it’s a great program. I do. I think it’s fantastic. Certainly we live in the mountains so we’re in a bush setting anyway. So, I think it’s important to think of that. Also, the reality of world’s resources shorting and the need to pay attention to how much water or how much whatever you use. Electricity or that sort of thing is important. I think, as you get older, it will make more sense to the kids if they’ve learned it now. Angela (P-14)
Findings from previous data collections in 2003 and 2004 showed a strong environmental ethic among members of the community. Interview responses in 2006 reinforced these findings. Woodridge’s location in a World National Heritage Park may foster a greater environmental ethic among community members. Thus, it seems reasonable that environmental learning programs such as EK are likely to receive little resistance.

Um, because of the area that we live in, everyone’s very aware of their environment an, um, so I think any type of education specific to the environment through the school is, um, everyone’s pleased to have that extra. Even though everyone, you know, everyone tries to educate their children at home. Laura (P-18)

Frank (P-20) and Elizabeth (P-21), grandparents of a child who participated in EK in 2005 had strong feelings about the inclusion of programs like EK in school curricula because it’s important to help students realize “the environment is precious”. Residents of the community since 1977, they felt the environment had long been a part of the curriculum, as the staff would take students down in to the bush even before EK. As, Principal Sterling, suggested, it appears that Woodridge parents who are aware of the program have really “taken it on board”.

Most of the teachers also had positive things to say about EK. Veronica (T-8) shared that her own children participated in the program years ago and even in their late 20s and early 30s, talked about EK. Many years ago, Sarah (T-4) worked with EK as a Girl Guide (Girl Scout) leader. She was pleased to share that her daughters, now 23 and 25, had gone through Earthkeepers and were leading Girl Guide groups through the
program today. “So it goes on another generation! So, that was really good.” Ruth (T-5) goes for bushwalks when she can and has very strong feelings about integrating environmental learning. She went along for two days during the three-day immersion in 2005 and “really enjoyed” the program. “If I wasn’t on library, if I was on class, I would enjoy extending that into the classroom and doing follow-up”. However, she did raise concerns about the impact of the program. When speaking about environmental education at Woodridge she stated:

I think with environment, we could go further. I think sometimes it’s a bit tokenistic, you know? Like even with the kids. They can do EK. They can have these beautiful events, and come up with these ideas and enjoy it. And then you go out on duty and there can be papers on the ground, and you think, “huh.” You know, that’s a disappointment.

She also felt that the staff’s environmental ethic was “tokenistic” as they have paper-recycling boxes but don’t use recycled paper. “Then again, there might be reasons for that. I’ve been told it’s expensive and it jams the machine, but I’m not sure.”

David (T-2) also had criticisms of EK. He felt that the program was in need of some updates as it is now competing with “glossier” programs. However, he felt that it was futile to voice such criticisms of the program.

David: I feel that if you’ve got criticisms of EK, you don’t really get much response. If you say- if you are critical of some aspect of it, it’s not open for change. You know, it’s basically run as it’s run, and I think that perhaps that might have something to do with it. People think, “Well, I can’t- I’m not happy
with the whole program. I’d like to see some things change” and that won’t happen. Therefore it looses some value for me.

Interviewer: Do you feel that there are people who have that perception?

David: I feel at the moment that because we’ve got maybe four staff members that probably still don’t- who are fairly new to it- don’t really know what it’s about. That’s one of the major issues. The people who might be a little critical of it might be people like me who’ve seen it over a long period of time and think maybe it needs a bit of an update in some areas because it’s now competing with other things that are glossier.

When talking with David, it seemed that he felt strongly about protecting the environment and was in favor of environmental education. His criticisms of the program center on effectiveness and making the program better for contemporary learners. These seem like reasonable concerns.

Aside from David’s unrequited criticisms and Ruth’s concerns about tokenism, the staff seem very committed to environmental learning and are glad EK is a part of their school. It appears that Principal Sterling is very passionate about the environment and is leading a staff that also shares a strong environmental ethic.

We put it down in our core beliefs and values that environment is an important thing for kids to understand and how it operates etcetera. And I believe that parents feel that way too.

James identified location and parent receptivity as factors that have contributed to the success of EK.
Um, I haven’t had any person come up and say, you know, “Hey, what’s this tree hugging stuff?” or, you know, “Are you a greeny” or any of that. Which I have had in previous places, you know, where they sort of turn around and say, “What are you a greeny”, and it was very negative. None of that here, like, very positive community response to the program.

No doubt the 13 acres of forest behind the playground provide quick and easy access to a picturesque corner of the natural world. A public school couldn’t ask for a better location in which to run environmental learning programs. It seems that living in such beauty has increased community members’ desire to preserve the environment and fostered an awareness of the need for environmental learning. The program received no resistance when it was initiated in 2003, and still enjoyed high levels of receptivity three years later.

Financial Resources

Sitting in a corner of the staff room that had been partitioned off and transformed into EM’s lab for the EK program, I became aware of the dichotomous nature of the group surrounding me. I had followed a group of corporate representatives, outdoor adventurers, naturalists, city and national park affiliates, and members of the P&C over from the conclusion of the opening ceremony for the Environment Woodridge project to E.M.s’ lab.

Principal Sterling was planning on giving the group an overview of the Earthkeepers program. He began by welcoming the group and thanking them for their support and attendance at the opening ceremony.
The principal then proceeded to read an excerpt from Rachel Carson’s *A Sense of Wonder*. It was at this point that I glanced around the very small, crowded room and felt as if I needed to pinch myself. How odd it seemed to see so many expensive suits in a setting such as this and surrounded by environmentalists. I chuckled inwardly at the sight of the fifty-something corporate icon in his power suit, complete with sharp yet whimsical tie, seated in front of a naturalist who looked as if he had walked straight out of the bush and at any moment a woodland creature might emerge from his massive, gray beard. They looked as if they were of the same generation but from completely different worlds. I found myself amused yet wondering, “Can this really work?” “Can the corporate lion lie down with environmental lamb for the betterment of environmental learning?”

Post observation reflection 3/2003

While initiation of the EK program was bolstered by a strong environmental ethic among community members, outside funding from a corporate sponsor was also vital to implementation. Hargreaves and Fullan (1998) suggest that change agents move toward “danger” by drawing outside forces into collaboration with the changes being made at a school. However, some educators feel that involving corporate sponsorship in environmental learning is too great of a danger (Van Matre, 1990; CUES, 1995). Corporate interactions in the past have often resulted in the creation of biased education materials and programs based on content that fails to implicate either the company’s actions or consumer habits as the cause of environmental degradation. I too was
skeptical when I learned of Ricoh’s involvement. How did little Woodridge Primary School become involved with a corporate giant? What did this colossus stand to gain and Woodridge to lose?

My findings over these three years have quieted my disbelief. Worldwide, Ricoh projects an image of social responsibility through encouraging recycling and conservation throughout their own business practices and by funding environmental projects. At the end of my 2006 data collection, I spent a full day with Adam Mackenzie (pseudonym), National Manager for Quality and Environment for Ricoh, Australia since 2000. Adam has been a key player in Environment Woodridge. According to field notes of our conversations, “Ricoh is aiming for zero waste to landfill”. One example of waste reduction has been the creation of a composite material much stronger than wood made from recycled printer cartridges. Ricoh has been making park benches from the material. These extremely durable benches have been donated to schools (Woodridge received one), parks, or sold. The remainders of Ricoh’s waste cartridges are sold to a company that creates lumber with them. They are also working to be stewards of their products from the “cradle to the grave” making sure that parts of copy machines are recycled rather than sent to the dump. According to Adam, Ricoh piloted a waste program in the Camera branch (Victoria, Australia) and reduced their total waste by 94% over the course of a year and a half.

Beyond efforts to reduce waste within the company, Ricoh also funds environmental projects. In 2003, Ricoh, Australia donated $10,000 to Woodridge to be used for environmental education and to help the school make physical changes for more
sustainable use of energy and materials. This initial start up money allowed the school to do trail maintenance and build outdoor classrooms in the 13 acres of bush property owned by the school. These funds also allowed for the creation of a multitude of props required by EK.

After the first year of Project Woodridge, Adam awarded additional funding (approximately $20,000 total funds donated) over the span of four years. This has allowed the school to build solar panels, a water catchment system, gardens filled with native plants, and worm farms. Further, this funding enabled a project to restore the school’s bush property to a more pristine state by eliminating invasive plant species and planting native trees. Finally, these funds have allowed for the expansion of environmental learning curriculum as a new program, Lost Treasures, was implemented with stage 2 (years 3 and 4) students during 2005.

Adam also sat for a formal interview during my visit to Ricoh headquarters. He shared that “It’s expected that each sales company in each country will become involved in the environment, which means dollars”. However, by funding Environment Woodridge, he was defying a norm within the Ricoh community.

We were seeking a project, an environmental project, and Ricoh Japan were sort of trying to tell us that we should have a project that is related to you might say “tree hugging” where we should- an forestation project. Which is all very nice really, we didn’t have a problem with that except that those sorts of projects in Australia require large amounts of money for a start and not much involvement at the grassroots level.
Seeking a more “grassroots” approach, he notified sales representatives that they were looking for an environmental project. A man who had been servicing Woodridge’s copy machine came forward and described what the school was aspiring to achieve. Thus, Adam visited the school and spoke with Principal Sterling. James’ enthusiasm and description of EK and Environment Woodridge quickly sold the project. “So, we came upon it, I don’t know, by accident more than anything”.

Focusing on environmental education rather than planting trees would save some money, but this also reflected Adam’s strong convictions about environmental education. What we were expected to do was to carry on this forestation type activity here in Australia. But, we came to the realization that that wasn’t going anywhere and the way forward is to get to the kids and teach them about environmental things. The average person, adult person, here in this country is probably like most other countries, really is not going to make a hell of a difference to the environmental activity that’s around every day- “Why should I bother?” type of thing. But, if you get to the kids early enough and teach them how to- or firstly where they connect and how they are part of the whole processes- and more particularly how they also have got the answer to fix things as well, then at that point that’s where it’s starting to become meaningful. - Adam (R-1)

Adam has been involved in surf lifesaving since age 15 and also enjoys surfing and fishing. Thus, he has spent a lot of time on beaches and in nature. He felt that this had led him to “appreciate the beauty of the pristine environment” and in turn he recycles at home and leaves no trace in the natural world after he leaves it. In discussions that I had
with Adam both in 2004 and 2006, it was evident that his convictions toward the
environment were heart felt. Further, he had great enthusiasm for the EK program and
felt that it could really have a positive impact on the environment.

Adam’s choice to fund Earthkeepers raised eyebrows among the Ricoh
community.

We had a dialogue with our peers in Singapore which went something like:
“Where’s your program? We said, “Well, we haven’t got a tree program.” “Well,
what are you doing then?” We said, “We’re looking at sponsoring this
Earthkeepers”. “Ah, what’s that?” And we explained what it was. “Oh, ya, but
that’s not trees.” They like to think that if it comes down from Japan then that’s
exactly what you’ve got to do. You don’t rock the boat. So, we said “No we’re
not going out tree hugging. There’s no way we’re going to do that. We’re going
to do this”. And since that time the whole focus of the Asia-Pacific region has
changed around. Now, they don’t want you to be doing tree hugging, they want
you to be out there doing environmental education activities and one thing and
another. So, we turned over some dirt there and things have now gone in the
opposite direction and along the way that we’re traveling.

Beyond this, funding EK has allowed Ricoh to be more involved at the “grass roots”
level. Adam spoke about “social responsibility” and what he called “green washing”. In
his estimation, many companies’ involvement in environmental projects is tokenistic.

Adam: What their doing is writing out fat checks and doing nothing else. Our
program, and we’ve got heaps of them going, is all predicated on involvement.
Interviewer: Involvement meaning?

Adam: Involvement in the program. Not writing out a fat check and sitting in the office and saying, “Aren’t we good?” We’re in there. We’re involved. And that’s what we’ve been doing and that’s what we’ll continue to do as long as I’ve got anything to do with it (chuckling).

Since the initiation of Environment Woodridge, Ricoh has sent representatives to the school on tree planting day (similar to Arbor Day in the U.S.). I observed this during my second data collection in July of 2004. Gentlemen from the corporate headquarters as well as a couple of sale representatives got their hands dirty as they helped the children who had participated in EK plant trees. No doubt this was a great photo opportunity for public relations, but even when the cameras weren’t snapping, Ricoh representatives were interacting with the students and appeared to be enjoying themselves. When we returned to the staffroom for lunch, I sat next to Adam explained my research to him and how Ricoh stood to gain from my work. Throughout the course of our conversation, it appeared his convictions about environmental preservation were authentic. In a meeting with Principal Sterling and myself after lunch, Adam agreed that Ricoh would pay for my airfare back to Australia to conduct my final data collection. At first I was hesitant to ask, because of my skepticism of corporate involvement in research and education. However, I found the terms more than agreeable. In return, I would share my findings with them, use the Ricoh trademark insignia in any presentations that mentioned the companies’ involvement, and journalists would interview me for a press release.
Environment Woodridge is not the only environmental education program with which Ricoh has been involved. At the time of the final data collection, Ricoh’s Quality and Environment team was planning on spending $5,000- $6,000 to initiate Earthkeepers in a school in Sydney’s North Shore area. This came to fruition in September of 2006. Aside from EK, over the past three years, the company has sponsored an annual school art competition with an environmental theme. For example, the theme for the 2005 contest was “Our earth our tomorrow”. Schools who were participating in the NSW Department of Education and Training Sustainable Schools program were invited to participate. Each school that submitted a mural was awarded either $500 or a park bench made from recycled toner cartridges. The winning mural earned $3,500 that was presented at an art workshop hosted by Ricoh. Smaller, individual art projects were also a part of the contest and later incorporated in a monthly calendar. Ricoh also funds the Envirothon, an academic decathlon based on environmental topics.

Ricoh Australia’s Quality and Environment division has demonstrated a strong commitment to increasing environmental education in the state of New South Wales. I could see no negative impact to curriculum or any other elements of Woodridge Primary School. Other than including the Ricoh trademark insignia at the bottom of any documents that refer to the company (i.e. school newsletters), Woodridge has had to make no changes contingent upon funding. Ricoh’s financial support has made it much easier for this school to integrate environmental learning. While parents pay a small fee for materials and supplies students will use during the Earthkeepers program (i.e.
booklets, keys earned during the program, pouches to carry materials in, prop upkeep, etc.), the props and outdoor classrooms were initially created with Ricoh money.

*Full Circle*

> After the lesson on energy flow through the food chain concluded, James led the group down the trail further into the bush. On our way to Spec Trail Junction, I noticed that the fire ring I had spotted in July of 2004 remained on the edge of the trail. It looked much the same as it had a year and half ago as there were cinders and garbage in the center. I had alerted James to the presence of the ring in 2004, and he said that some high school kids had probably been back there. I was shocked to see that the ring remained. - Post observation reflection 3/2007

It is clear that EK has received plenty of financial support to sustain the program. The larger threat resides in decreasing energy and attention given to the program, and the lack of adult leadership beyond the principal. Beyond the lack of adult involvement, my observations of the three-day immersion experience show that the program is being run in a similar fashion as it was in 2003. With the exclusion of an obnoxious reporter who interrupted the flow of the interrelationship activity to make a small group of students and I pose for a very contrived picture (Disney worthy), the integrity of the EK learning activities has not declined. Once again, it appeared that my presence could be impacting the EK program since the reporters were there on my behalf. Luckily, the three journalists who converged on the school during the second morning of EK only caused a
brief distraction as they had to rush back to their keyboards to generate mildly factual accounts of my research and the EK program at Woodridge.

The Principal was pleased with the outcome of the three-day immersion experience in 2006.

How did it go? Oh, really well. Really good bunch of kids. They were a smaller number this year. Just happened to be a small enrollment, and that’s why we boosted it and invited the people from Ford to come along just to make the group a bit bigger and make the activities a bit more. But, ya they were really good. And the kids from Ford were blown away ‘cause they’re not used to this landscape.

It appeared that the three-day immersion experience was still very effective. However, curriculum integration was falling away. Half of the year 5 students would continue to explore concepts from EK throughout the 2006 school year, the other group would have to wait a year (pending a teacher who knew the program). The earning of Y and S keys in 2006 would continue under the guidance of the principal.

It appears that the introduction of composite classes caused by the changes mandated by the New South Wales Department of Education and Training have been the largest barrier to EK curricular integration. Again, it should be emphasized that the three-day outdoor immersion experience is designed to act as a springboard for continued learning once the students return to the classroom. Thus, when curricular integration is neglected, the program is not being fully implemented.
At the initiation of EK in 2003, I witnessed parental involvement in trail maintenance, grounds keeping, and reforestation. I saw no parents engaging in these activities during the following two visits. Interview data reinforced this as parents and teachers shared that there were fewer parents around for working bees (organized days for volunteering). The fire ring that remained on one of the bush trails was further confirmation that the property was receiving less attention. Of course, this could be attributed to the fact that parents were busier and unable to volunteer. But one has to wonder if the school has solicited further help with trail maintenance. Nicole (P-7) is a prime example of a community member who was willing to help with EK, but hadn’t been notified when the program was being run the past two years. Has the principal been taking any steps to mobilize for support in running this program?

In our exit interview, Principal Sterling admitted that the EK “does really keep going because of my energy and setting it up and that sort of thing”. He reiterated that staff members had been trained on the program and were “quite capable of doing the teaching part”. (Unfortunately, excluding Veronica, he was the only staff member who felt this way.) James went on to discuss the plan for other schools to continue bringing students to Woodridge to run the program on their own. He also shared ideas for making Woodridge a “field studies center” so EK could be run regularly for visiting schools. While he felt he had staff members who were trained and ready to run EK, he also shared a concern that his staff was aging and may not have the energy to run the program. At the time of this interview, James had not tried to recruit parents or community members to be trained on EK and take leadership positions.
During my first visit to Woodridge, I was moved by the dramatic re-growth of the forest property that had been burned a year prior. The bright greens and wildflowers vibrated with such intensity against the backdrop of blackened trees. This forest bursting forth seemed like a wonderful metaphor for all of the energy and enthusiasm surrounding the initiation of Environment Woodridge, a new beginning for both. In my final visit the woods were still beautiful, but the vibrant greens had given way to more mellow hues, and the dense, shady canopy had reduced the number of wildflowers. Visually, these woods had transformed from a place of dramatic contrast to one of calm. Perhaps this too is an apt metaphor for the journey EK had taken since initiation. Maybe it is natural for periods of tremendous growth in a school to be followed by a slowing of pace. However, the lull in energy flowing to EK appears to have more to do with the fact that it has not been institutionalized. Rather than being supported by varying forms of interrelationship, the program is fed by the energy of one individual. In a school culture heavily defined by collaboration, EK appears to be out of the loop.
CHAPTER VI
CONSIDERING ECOLOGY

One of the most effective ways to achieve ecological literacy is to transform our schools into collaborative learning communities—vibrant living systems that emulate the principals and values inherent in natural ecosystems…A learning community is not so much a place as a process… Schools have squelched diversity rather than accepting and honoring it… Schools have operated on principles that run counter to those inherent in ecological systems. (Cooper, 1993, p.20)

Just as Dewey felt schools should be run democratically, since they are preparing students for life within a democracy (1916), it seems logical that schools that adopt the structures of natural systems could deepen students’ and teachers’ understandings and experiences of ecology. However, beyond collaboration, Cooper’s assertion fails to identify “principles and values inherent in a natural system” (Cooper, 1993,p.20). Further, it should be noted that principals and values are human constructs that exist outside of natural systems. My research has offered a more focused ecological framework (see figure 3.1) through which school systems and change processes might be viewed. While collaboration, a form of interrelationship, is a key factor in the health of an ecosystem, energy flow, the cycling of matter, and change are also vital components.

Findings from data collections in 2003 and 2004 demonstrated that multiple forms of collaboration shaped Woodridge Primary School’s culture. Thus, it appeared the school possessed an element Cooper identified as central to transforming schools into
“vibrant living systems” and setting the foundation for eco-literacy. Given this and the school’s success, Woodridge seemed like a reasonable candidate on which a new ecological framework might be tested. As a part of this exploration, this chapter uses the previously mentioned ecological concepts to discuss the major findings of this research. The first section briefly reviews the ecological framework, giving explanations of how energy, matter, interrelationships, and change appear in natural and school systems. From here, the chapter synthesizes how these ecological concepts were revealed through Woodridge’s current school culture. This allows for a greater understanding of the context in which EK has been implemented and integrated. The chapter then moves on to more directly address the first two research questions.

1. How is Earthkeepers being integrated throughout curriculum, and has it become an ongoing and regular part of the school culture?

2. What elements have impacted or might impact sustained implementation and integration of Earthkeepers?

This section will discuss how energy flow, the cycling of matter, change, and interrelationships have impacted the EK program directly. Next the chapter will address the third research question.

3. Does the application of an ecological framework contribute understandings of schools and educational change processes?

The final section will discuss the strengths and weaknesses of the ecological framework for interpreting change processes within this school. Implications for change agents and researchers will also be shared.
Ecological Framework

Energy in a natural system comes from the sun. The flow of the sun’s energy provides organisms with fuel for growth, action, survival, and thriving. In short, energy creates the ability to do. It cannot be created or destroyed but only change forms (Rifkin, 1980). For example, a plant receives energy from the sun and transforms it into molecules of sugar that are then used to build leaves, roots, seeds and other plant tissue (Van Matre, 1990). The energy stored within that plant might then be transferred to an animal that consumes it. Energy flow is not a closed system. Some of the energy that was passed on will be used to forage for more food, create shelter, escape from a predator, etc. The energy that is used up for this work may be lost to the food chain but still exists as heat that escaped from the animal’s body back into the atmosphere. While the energy that escaped from the food chain still exists, it can no longer be used for the work of carrying on life. If this plant-eating creature has a particularly bad day and is consumed by another animal with larger teeth and claws, the energy will be passed on once more. Again, some of the energy that has been passed on will be lost to the food chain as the predator continues the work of remaining alive. Survival is an energy intensive process. It takes a lot of energy to get more energy. Thus, the further you travel up the food chain the less energy is available. This is why the are fewer animal-eaters in the world then there are plant-eaters (Van Matre, 1990).

The transformation of energy used to sustain life to energy that escapes as heat from an animal’s body is an example of entropy. “Entropy is a measure of the amount of energy no longer capable of conversion to work” (Rifkin, 1980,p.35). Webster’s Ninth
New Collegiate Dictionary (Mish, 1991) describes entropy as “the degradation of the matter and energy in the universe to an ultimate state of inert uniformity”. Van Matre (1990, p.118) describes the law of entropy as energy’s tendency to flow from a “concentrated high-quality state to a less concentrated low quality state”. In short it is the transformation of energy from organized and utilizable to disorganized and of no use to the continuation of life.

Just as in a natural system, energy creates the ability to do in schools. A school needs fuel for growth, action, survival, and thriving. However, energy in schools flows from multiple sources (money, enthusiasm, commitment, time, will, and drive). It takes energy to get energy. For example, teachers in a lower socioeconomic school might have to invest time in writing for grants to secure funding for a field trip to a nature center. This willingness to go above what is required of them for the benefit of their students could be fueled by enthusiasm and commitment.

A school is not a closed system; thus, a continuous supply of energy is needed to keep the school afloat. In many schools class sizes are increasing, and day after day professional educators must meet the needs of an increasingly diverse population of students. This requires tremendous drive and the will to overcome burnout. Education is also more costly then it used to be. As educators are preparing students to succeed in a technologically advanced society, schools must constantly organize for funding to upgrade computers. Further, the increasing price of fossil fuels has left many schools scrambling to find enough money to pay their electric bills. Thus, once a school has been created, it takes more and more energy every year to keep it vital. Growing up in
Nebraska during the 1980s I can testify that there was a major push for rural high schools to consolidate. This reform lead to the creation of several large schools in the middle of cornfields. Conestoga High School near Weeping Water, Nebraska is an example of one such school. Being in the middle of a field rather than in a town, many students have to be bused to and from school. As this school serves students from multiple small towns in the area, the new structure had to be much larger than the old schools it was replacing. Recently, budgetary constraints and a community that is unwilling to increase taxes have led the school to reduce the number of days in their school week to four in order to save money on energy needed to fuel the buses and heat the building in the winter. Just as in natural systems, schools must adapt to the conditions under which they are trying to survive.

Energy flow is central to natural systems, but the cycling of matter provides plants the nutrients, water, and soil needed for growth, creating the foundation for the entire food chain. “The basic building materials of life are hydrogen, carbon, oxygen, nitrogen, phosphorus, and sulphur” (Van Matre, 1990, p. 109). There is a limited amount of these materials on earth so they must be used over and over again. The sun’s energy powers the cycling of these building materials through the air, soil, and water cycles. For example, the sun’s heat over the ocean causes water to evaporate forming clouds. Water droplets in these clouds condense becoming heavier and eventually may fall back to the earth again to be consumed by a plant or animal.

Matter constitutes the basic building materials of school life. For example, schools need physical structures to provide shelter from climatic elements. Writing
utensils, books, desks, and computers are also very helpful. There is a limited amount of these materials within a school so they must be used over and over again. Energy (money and the time and will to seek out additional funding) powers the renewal of these resources. When I visited three inner city New Orleans public elementary schools in 2004, I saw school buildings that were deteriorating. Peeling paint, missing ceiling panels, and holes in walls signaled a serious lack of energy directed toward renewal of school materials. A playground that consisted of one large cement slab with no playground equipment further highlighted the fact that the basic building materials of schools are much different for children growing up in lower socio-economic areas.

Situations such as this illustrate entropy at work in a school system. Because energy flows from a high quality to a low quality state, it is necessary for more and more energy to be supplied to an organism after it’s creation. It may take a tremendous supply of energy and materials to create a school, but it will take more and more to keep it flourishing.

Interrelationships are the mechanisms through which energy flows and matter cycles in an ecosystem. All living things are connected and interact in a variety of ways: dependence, interdependence, cooperation, competition, communication, etc. For example, predatory animals must compete for food as more and more habitat is destroyed. Because of the intricate way in which all life is interconnected, you can not do just one thing within a system (Van Matre, 1990). A farmer that sprays his cornfields with pesticides may increase his yield, but all the animals that once fed on the insects in that ecosystem will suffer. Further, residues from the pesticides may run off into ponds,
lakes, and rivers impacting multitudes of ecosystems. Residues that do not wash away may remain in the corn that is then either consumed by humans or fed to cattle that will later be eaten by humans. Since there are a limited amount of materials in the world, a toxin that is introduced into a system will be cycled over and over through multiple organisms. The impact of one action (spraying a cornfield) may travel through a community, ecosystem, and the entire planet.

Educational researchers who have adopted an ecological perspective have long understood that classrooms are settings in which individuals are highly interdependent (Arends, 2007). For example, Walter Doyle’s (1986) research helps us to understand that classrooms are complex systems in which unpredictable events in a very public setting are continually requiring teachers to make decisions and take actions in response to their students or outside interventions. Student behaviors are also greatly impacted by the activity they witness around them and interactions they may have with the teacher and other students. Some students may feel the need to compete for the teachers’ attention while others adopt a more autonomous stance. Regardless, students are to some degree dependent upon the teacher to facilitate the learning processes within the classroom. Spenser Kagan’s (1994) structural version of cooperative learning highlights the importance of interrelationships as it emphasizes positive interdependence in all activities.

Interdependence in the school system extends beyond the classroom. School change researchers understand that cooperative relationships among school leaders can engender collaborative cultures in which great innovations may flourish and be sustained
(Cochran-Smith & Lyle, 1999; Fullan, 1997; Fullan & Hargreaves, 1996; Hargreaves, 1992; Lieberman, 1995; Mc Laughlin, 1991). However, given that there is a limited amount of energy and materials in a school, teachers may have to compete in order to secure funding needed to replenish supplies or pay for professional development training.

In the U.S., public schools are dependant upon funding from the school district that is relying on funding from property taxes and the state and federal government. If the government mandates one change it will create a multitude of actions and reactions throughout the entire chain. Take for example the decision to emphasize standardized tests as the main mechanism through which teachers will be held accountable for student learning. This mandate has impacted curriculum in many schools since teachers have had to teach to the test in order to increase student performance. Students who do not perform well on these tests for varying reasons must deal with the deflating effects of having their entire educational experience summed up by a number derived from one test given on one day. Schools that serve a large population of students like this (often in poor neighborhoods) stand to lose government funding if they are unable to demonstrate adequate yearly progress. Thus, the pressure to adapt curriculum to the test is increased as schools that are already starved for energy are forced to compete to stay alive.

Adaptation in the natural world helps organisms to be as efficient as possible at collecting energy and materials, protecting themselves, and reproducing. This is one example of ecological change. Everything in an ecosystem is constantly changing at varying speeds. For example, blooms on a saguaro cactus in the Tucson Mountains will appear and fade in a nanosecond compared to the geological processes that caused the
rocky slope it lives on to take the form that it does today. Living things come and go as a result of continuous, unstoppable change. The aging process in humans reminds us of this fact. However, other factors may impact the life cycle of any organism. For example, changes in our diets can help us to live longer, healthier lives. Conversely, suburban sprawl so dramatically alters habitat that many species will be cut off from food sources and shelter. Thus, they must move on to a different location, adapt to living near humans, or perish. The gore marks left by javalinas on the recycling bin on my front porch are evidence of this sort of adaptation. Unfortunately, most humans are not pleased with the javalinas’ heartiness and adaptability. Not all changes are for the betterment of a system.

Schools must constantly change so that they can get and use energy and materials more efficiently. Conestoga High School reducing the number of days in their school week is an example of one such adaptation. Adaptation is only one form of change within schools. Teachers, students, and administrators come and go. Buildings must be kept up, school grounds must be maintained, and books will deteriorate after being used over and over again. These things cannot be stopped. Some changes happen quickly and some slowly in school systems. For example, we are still struggling to manifest a public school system that is socially just. Socio-economic strata that align with racial divisions have prevented children living in poorer school areas like inner city New Orleans from enjoying the same opportunities as their peers in more affluent locations. However, government mandated reforms like No Child Left Behind (Kim & Sunderman, 2005) generate changes that happen relatively quickly. This very controversial legislation
provides an apt illustration of the fact that not all change may be considered good for a system. Of course, this would be relevant to the system you are evaluating. The government may benefit from an inexpensive way to quantify student achievement and teacher effectiveness, but, as I have witnessed in Tucson, schools in poorer neighborhoods serving linguistically diverse populations are struggling under increasing pressure to demonstrate adequate yearly progress.

Finally, while I have described nature and schools as two separate systems, we need to remember that they are inextricably connected. Enthusiasm, will, drive, and money appear to be sources of energy within schools, but none of these would exist without the flow of the sun’s energy creating food and powering the cycling that make our lives possible. Indeed, it has been our ability to view ourselves as separate from natural systems that has allowed us to so severely degrade the earth. If this is not the case, then we are a race suffering from seriously suicidal tendencies for we have been increasingly poisoning ourselves by introducing harmful chemicals into our environment for a century. Or perhaps, as David Orr suggests (2002), we are blinded by ecological denial. I would like to believe that if humans truly understood the four ecological concepts explained above, they would realize that what they do to the earth, they do to themselves and that changing their ecological habits is a form of self-preservation. Schools would do well to model this by reducing their use of harmful chemicals and decreasing the amount of energy and materials they consume (Keniry, 1995). After all, it is the children that they are helping who are going to have to deal with the messes all the generations ahead of them have created. Further, perhaps adopting ecological
frameworks through which we view human systems may help to bring us closer to understanding our place in the systems that sustain our lives.

The Woodridge System

In an ecosystem, interrelationships allows for energy to flow and materials to cycle through the food chain. This is a major determining factor in the health of the system. If one strand in this web of interconnections fails to receive energy or nutrients, the entire structure may be compromised. The findings presented herein show that interrelationships remain a major component in Woodridge Primary School’s culture. School change literature has discussed the importance of collaboration in educational reform (Cochran-Smith & Lyle, 19993; Fullan, 1997; Fullan & Hargreaves, 1996; Hargreaves, 1992; Lieberman, 1995; Mc Laughlin, 1991), but the research presented here offers a deeper consideration of interrelationships. Beyond collegiality and camaraderie, the atmosphere of this school is like a happy, caring family. Parents trust in the professionalism of the teaching staff and feel that their children are safe and well cared for. The staff is driven and enthusiastic about changes they perceive will benefit their students. Just as in any family, it is difficult to please everyone all the time. This was evident in one parent’s call for increased basics education, but overall, the school is perceived by members of the community as successful and innovative.

Participants felt that the small size of the school fostered this success as it allowed for greater interrelationships. All of the teachers and students knew each other’s names, and many of the parents interacted socially. In the span of a two-hour staff meeting, the teachers discussed issues thoroughly and built consensus allowing everyone the
opportunity to voice their opinion. This would be very difficult in a large school. As Sarah (T-4) put it,

Well, having come from a very large school where you’ll never get two people to agree on any one thing at any one time, I think it’s the fact of the size that we are and the willingness of people to listen and to try new things that makes that innovation possible.

Thus, it appears the size of this school had a direct impact on the nature of interrelationships. In turn, these positive interactions have allowed for greater energy flow throughout the web of school culture enabling change processes.

Energy creates the ability to do, fuel for growth, action, and survival. Thus, the drive and enthusiasm of the staff coupled with the trust of a happy and supportive parental body have allowed tremendous development over the past eight years. However, this growth would not have been possible without financial resources. Just as it takes energy to get energy in a natural system, school leaders must constantly organize for funding to allow programs to remain vital. At Woodridge, parents interacted with school leaders to determine the flow of money through the system. Beyond this, outside organizations had been brought into collaboration with the school to fund technology and environmental programs. Again, interrelationships had played a major role in the success of this school by providing multiple sources of income through which energy has flown.

As energy powers the cycling of materials in nature (movement of air and water are governed by the sun’s energy), money fosters the renewal of buildings, desks, and books. The Woodridge community is not particularly affluent. The general parent
population is middle class; however, school leaders have been able to direct funding in ways that have led to a school well equipped with material resources. The physical structures were renovated under Paul Grey’s leadership and have been maintained to perfection. Small gardens of native plants throughout the school grounds create a pleasant atmosphere and are studied by students. Hiking trails within the thirteen acres of forest property allow quick and easy access to the natural world for environmental learning. Paul Grey initiated a focus on the integration of technology throughout curriculum, and this emphasis remains today. However, a lightening strike during the 2005 school year left staff members scrambling for funding to replace thousands of dollars worth of equipment. For the most part, all of their computers were back online by the 2006 data collection, but teachers had to invest tremendous amounts of time on these efforts.

The concept of time is complex in the context of this ecological framework. In interview responses, teachers spoke about time as if it created the ability to do. For example, the Woodridge staff had a very full school year in 2005. Therefore, as David (T-4) shared, they didn’t have time to run EK until the end of the semester. This in turn reduced curricular integration, as there wasn’t enough time left in the school year to do it. Time also relates to processes of change within an ecosystem. Likewise, in a school some changes happen fast and some happen slow. Further, it seems logical that the amount of time that members of a learning community have to dedicate to change efforts will dictate the speed with which the reform moves from initiation to integration.
Some times again we start off all keen and then we don’t get time to make the changes. So, they get put on the sideboard, you know. You get this “Ya, let’s try that. Let’s do this”. And them it peters out because there’s no time for people to do the follow-up.- Ruth (T-5).

Or as Ruth pointed out, lack of time may create a state of entropy that leads an initiative to completely disintegrate.

Woodridge teachers were happy to take the time to make changes they felt would benefit their pupils. Alice (T-11), in her first year at the school felt “Woodridge teachers are fantastic with change”. The principal even went so far to say that Woodridge represents a culture of change. Along with this, parents also felt that the teaching staff dealt well with changes. However, the changes to class size mandated by the New South Wales Department of Education and Learning were met with some resistance.

Reducing class sizes in the lower primary grades has created a flow-on effect increasing numbers in the upper primary. This has led teachers like Jane (T-4) scrambling for material resources like computers, and has altered the curriculum in her class.

Specifically, here I suppose our class numbers are getting bigger in the upper classes. Which means that in terms of hands-on types of activities and supervising children when you go outside, it’s harder. Where two years ago I had a maximum class of 25, taking year fives out into the bush setting wasn’t quite such a drama. Taking 30 kids out is becoming more of a challenge, and as the class sizes get bigger, next year I would imagine they will get bigger again, it’s
just harder to manage. When you want to do something that involves using water, it’s a real battle to organize that, and when you’ve got 5 computers in the class to sort of access. You know, 30 kids, the only option is to have less time on them. This change brought up equity issues among staff members as workloads had been shifted but no adjustments had been made to salaries nor had additional resources been awarded to hire extra teachers.

By what I can see, the teachers did have difficulty with it in the beginning. I think that especially the primary teachers, but they have dealt with it so well because they’ve realized that the problems are not- instead of turning on each other in terms the staff, they realize that the problem is the system and the way the whole system works within the department of education. At other schools I’ve seen where infants (lower primary) and primary have been divided because they’re thinking the workloads are more for the upper primary. But this school, I think what’s happening is that they’re realizing that we have to ban together to fix the problem, and we did. We’ve written a letter to our member. Alice (T-11)

Alice was very passionate about this reform, and wrote a letter explaining the negative impacts of the mandate to a member of parliament that was signed by all members of the staff. Several of the teachers were planning on visiting this government official in person so that they could more explain in more detail how the change is impacting Woodridge Primary School.

Parents were also concerned about the placement of students in composite classes. Angela (P-14) has a daughter in the upper primary that has learning difficulties. She was
afraid her daughter might fall behind or flounder because she does better in small groups.

Through much discussion and a few parent information meetings, parental concerns began to lessen. However, Brandy (P-8) and Cindy (P-9) still felt that the NSW Department of Education and Training was getting in the way. Cindy described the department as “archaic” and also planned to send a letter to a member of parliament complaining about the class size reform. While Brandy had negative feelings toward the department, she felt that the school community should have taken greater responsibility in fighting this change.

Well, I think on the whole most people look at the department of education and look at the government and say, Well, they’re putting these rules into place- these limits on class size, and they’re not actually providing any extra resources or extra teachers for us to implement it. So, they’re at fault”. Whereas that’s what the general parent body would think. Whereas I think, well, no, as a school we should be saying, well, that’s just not practical for us, and if you don’t provide us with extra teachers or extra resources even for a classroom aide, we just can’t implement it, and we are not going to. And that’s what I think we should be doing, but, ya. On the whole, I think everybody looks higher up the chain and says, “Well, they’re making this decisions, and they’re not giving us enough to go by”.

Brandy touches on a vital issue in educational reform. It is commonplace, both in the U.S. and Australia, for government mandates to be handed down without funding for educators at the local level to be able to successfully implement the reform. It takes
energy (time, money, enthusiasm, drive) to create change in school systems. Mandated reforms that do not make provisions for this are essentially setting schools up to fail as the limited amount of energy and material within the school system are stretched even further, enabling entropy.

*Entropy*

*Entropy: the steady degradation or disorganization of a system or society* (Mish, 1991).

The class size reform was not the only change handed down from “higher up the chain” that taxed local resources. David (T-2) had noticed a slowing of innovation within the school over the past couple of years. He attributed part of this to increased government mandates.

There’s lots of other dimensions. I mean we’re being asked to do a whole new, from above, we’re getting a whole new assessment system, and there’s been that continual influx of political pressure to change in ways that we don’t really want to go. So, we’re forever saying, ‘Well, do we want to do that?’ ‘How do we not do that if we don’t want? How do we just follow what we’re doing?’ And that’s sort of not letting you move then. You’re sort of forever saying, ‘Well, this is what we’re doing. Is it right compared to what the department wants us to do?’ You know, you’re trying to justify where you are at at the moment instead of saying, ‘Well, where am I going?’

David’s comments highlight the fact that government mandates are steering the school away from determining their own course for innovation. Again, this is a school that has
been highly innovative over the past nine years receiving outside recognition for integration technology and the environment throughout core curriculum. Parents and teachers have been happy with these changes. At both of the staff meetings I observed, numerous suggestions for new programming were shared. Along with this, teachers discussed changes to procedures and regulations that weren’t fully serving the needs of Woodridge students and teachers. Over the course of these three years it has become blatantly obvious that these teachers are not afraid of change. They have a vision of what they want this school to be, and are willing to take the time and invest the effort in creating changes that will help them further realize these goals.

Uniqueness was a recurring theme throughout teacher interviews. Their commitments to fun traditions, progressive pedagogy, and student welfare have helped to create a niche for themselves. Beyond this, being unique is one of the unwritten goals of this school. Sarah (T-4) described their commitment to this goal by sharing that “we’re running ourselves ragged here trying to keep up. Well, not to keep up but to be different”. Veronica (T-8) is a fierce defender of the traditions that make Woodridge stand out from other schools in the Blue Mountains. She felt this took a lot of extra time and energy but that it was worth it. Increased pressure from government mandates are taxing a teaching staff that is already investing tremendous amounts of energy in their school.

On the whole the feeling that I have, and I do release from face to face, is year after year teachers just go under with the more there is to do. There’s just more for them to do. So, even though we try to pull together and we help out, I still
think that a lot of us feel that we just will never get through everything we’re supposed to. So, morale in that way, you see a lot of people working really hard, but sometimes not feeling like they’re realizing there being as successful as they are. You know what I mean? You’re sort of looking at what you should be doing and what you haven’t done. The focus isn’t on what you have achieved. So, the morale can get a bit down because feel a bit snowed under. –Ruth (T-5)

Again, teachers are collaborating to withstand the pressures of these outside reforms, but Ruth offers bleak insight into the fact that even dedicated, enthusiastic teachers have their limits. If it takes energy to get energy, resources should be dedicated to revitalizing teachers, especially when they are navigating change processes. Paul Grey did this in his early days at the school by constantly praising the progress teachers were making and helping them to feel valued. Principal Sterling is also very supportive of his staff, but as Ruth pointed out, there is little time to enjoy their successes before they must meet the next challenge. This is no doubt a prescription for exhaustion and burnout.

Fullan (1993) speaks about the importance of educators having a moral purpose. A strong sense of purpose can help to sustain teachers and ward off burnout. But what happens when government mandates contradict or disallow the realization of that purpose? Being a public school, Woodridge is dependent upon the government for the continued flow of energy (money) that allows them to renew physical resources and keep the school running. Just as living things in a natural system often must change in order to continue receiving vital energy and nutrients, a public school must adapt to align with its main source of income. Thus, Woodridge teachers who gain great satisfaction and pride
from cultivating a school that is “different” are faced with the grim reality of enforced monoculture.

Cooper (1993) felt schools had “squelched diversity”. This research implicates mandated government reforms rather than schools in the stripping away of diversity. The Woodridge staff has worked hard to create this very unique and successful school. In return, they are beginning to witness a decline in morale, and the ability to continue to innovate. It takes energy to change, but no additional resources have been provided to aid the class size reform. Thus, the NSW Department of Education and Training are expecting a magic trick. If Woodridge refuses to pull the rabbit out of the hat, they stand to lose energy supplied by the government causing further degradation of morale, programming, and facilities. Perhaps the most disturbing aspect of this is that government mandated reforms are degrading the energy of a school that works. The teachers are motivated to create changes they feel will benefit their students. They are constantly striving to be innovative and have received much recognition for their efforts. The parents and students are happy. It has taken tremendous energy to maintain this. Teachers and parents feel that many of these reforms contradict what Woodridge is trying to achieve; thus, they are a costly distractions that divert energy away from their vision of the school.

At this point, the teachers are managing by banning together and making their grievances known to public officials. Interrelationships have allowed Woodridge teachers to share resources and the occasional laugh to bolster their energy, but will this be enough to stave off the encroaching monoculture? This research presents a relevant
concern for American schools that are also facing large-scale government reforms. Will increased pressure to perform without additional energy and materials create a state of inert uniformity among public schools? While Woodridge remains an effective school, EK may be the first casualty of the class size reform.

Earthkeepers Unkept

Entropy appears to be setting in with the EK program as well. The program received tremendous amounts of energy as it was being initiated and through the first implementation. Multiple information meetings and an EK parents’ day in 2003 publicized the program and created quite a buzz. Parents collaborated to do trail maintenance and create props. Two teachers as well as parent volunteers attended the first three-day immersion experience. Most recently, no Woodridge teachers or parents participated in the program, and EK is scarcely discussed among the parent body. Principal Sterling remains the sole driving force behind the program. As he admits, the program is dependant on his energy alone. Thus, EK has not become ongoing part of school culture that is defined by interrelationships. If James goes, the energy that has fed the program will cease to exist, leaving the program to die.

This school has provided an ideal setting for the implementation of EK. Initially, the principal drew outside organizations into collaboration with the Woodridge project allowing energy (money) to flow for the creation of props, outdoor classrooms, solar panels, worm farms, spring-loaded taps, and the purchasing of environmental programs such as EK. Beyond this, having 13 acres of forest on the school property in the most valuable material resource of all. Most schools that run EK have to organize for funding
to bus students out to natural settings. This can be quite costly and prevents some
schools from being able to run the program. Yet, with all of these resources, elements of
the program are falling away. Principal Sterling’s enthusiasm for the program has
fostered consistency in the three-day immersion experience over the years; however,
curricular integration is degrading. While the earning of keys was continued under the
leadership of the principal, only half of the year 5 students participating in EK during the
2006 school year experienced further integration of EK concepts. None of the students
who did EK in 2005 experienced curricular integration.

The largest barrier to the EK program has been caused by the changes to class
size mandated by the NSW Department of Education and Training. Students
participating in EK learn that a key factor in interrelationship is that you can’t do one
thing with in natural system. The same is true of change in schools. This one reform
designed to positively impact learning experiences in the lower grades has created a flow-
on effect throughout the web of Woodridge’s school culture. EK is one of many
elements within the school that has been affected. This reform has required that the
school combine classes. Thus, the year 5 students who participated in EK during 2005
and 2006 were split between two teachers. Magic and suspense are key elements in the
success of EK. In order to achieve these and hook the students into the program,
participants should know as little about the EK as possible as they begin their adventure.
For this reason, it is impossible for year 5 students sharing a classroom with younger
students to receive further EK integration throughout curriculum following the three-day
immersion experience.
The class size changes have also impacted EK leadership. According to the principal, it would have been too costly to hire a casual teacher for three days to cover for a teacher participating in the program. He estimated the cost to be near $1,000 for one teacher. Time was also a barrier to integration in 2005 as a busy schedule pushed the program to the end of the year disallowing curricular integration. Beyond scheduling around their own programming, Woodridge had to make adjustments to accommodate other schools that needed to use the school grounds to run their own EK programs. The schools that have been visiting Woodridge have brought teachers to be trained on the program so that they may lead it in following years. Principal Sterling was under the impression that he had staff members who were prepared to step in and lead the program. However, the same teachers that he identified as potential EK leaders felt no one had been sufficiently trained to take the program over if James were to leave. In their estimation, the knowledge and enthusiasm that would sustain the program resided in James alone.

Knowledge was an emergent theme that I had not accounted for in my original ecological framework. It appears in this context that knowledge creates the ability to do. Thus, I would consider it a form of energy. Again, we see a form of energy surrounding EK that has not been allowed to flow through the web of school culture. Earthkeepers has been relegated to an increasingly isolated position within this school. While changes imposed by the class size reform have required adaptations, the program appears to be evolving in ways that are decreasing the flow of energy to the program. All of the material resources are in tact. However, the enthusiasm, drive, and knowledge that
sustain the program are flowing from one source alone. Should a change occur that severs this connection, it is doubtful that EK will continue to be sustained at Woodridge. Why hasn’t the principal worked harder to make himself less central to the program? I have observed that Principal Sterling is an extremely busy man who is very passionate about environmental learning. He was very enthusiastic about the program spreading to other schools in the Blue Mountains, and shared a vision of making Woodridge a field studies center allowing more schools to use their forest for earth education. One Woodridge teacher shared that it is hard to communicate with him because “you can’t catch him”. Being a dynamic change agent, James is constantly on the move has been a major catalyst impacting environmental education throughout the Blue Mountains, yet EK has not become an ongoing and regular part of Woodridge school culture. In my estimation, he has simply been too busy to cultivate connections that would spread EK leadership among members of the school community (including parents).

*Ecological Lessons*

It takes multiple forms of energy flowing from various sources to keep a program vital. While EK received tremendous support from parents, teachers, the administrator and the Ricoh Corporation at it’s initiation, the energy surrounding the program has degraded significantly. Thus, it is clear that entropy in school systems is real. Principal Sterling spent considerable time and energy publicizing the program and educating parents about the EK when initiating the program. However, once the program was up and running, he assumed that EK had just been accepted by the community and moved on to other things. As the law of entropy illustrates, it takes more and more energy to
sustain a change after it has been implemented. Change agents must keep this in mind when they are initiating reforms. Before a program is initiated, a plan should be formulated to account for the continual supply of energy that will be needed to sustain the program and prevent entropy. For example, as interrelationships are the mechanism through which energy flows, change agents should plan to immediately make themselves less central to program implementation by developing a collaborative network of individuals who will share in the workload. This means that a plan must immediately be implemented to insure that energy is directed toward passing on the knowledge required to run the program to members of the community. As it will take a tremendous amount of energy to keep the program going after initiation, this plan should be thought through before the program is initiated. Given the increasing pressures teachers are dealing with, parents are a resource that should be explored. Nicole (P-7) is an example of a parent who has demonstrated a great deal of interest in EK. During our last interview, she stated that, if training were available, she would be interested in pursuing EK leadership.

Creating a diversified leadership base will increase the sustainability of a program after the change agent leaves the school.

Another lesson we can take from entropy is the fact that “all growth results in less available energy for the future” (Van Matre, 1990, p. 119). Each time a program is added a school’s resources are spread further. Thus, educators must avoid being overzealous initiators. Program initiation can be very gratifying, and it is easy to get caught up in the adrenalin rush of these energy intensive times. However, once the newness has worn off, a tremendous amount of commitment will be required to keep the program afloat. “Every
time we expend energy trying to order the world we end up losing more high-quality energy and creating more low-quality disordered energy” (Van Matre, 1990). Educators who understand this will work slower and smarter rather than harder and faster. Initiators of change should avoid bringing new programming into a school until previously introduced reforms are supported by a dynamic web of interrelations that will allow for increased energy flow over an extended period of time. This type of follow-through requires tremendous time and focus.

Earthkeepers at Woodridge has received all the material resources necessary for successful implementation. As I previously mentioned, the fact that the school owns 13 acres of forest property adjacent to the school grounds makes Woodridge an ideal place to run the program. Most schools have to organize for transportation to bus students out to natural areas. Thus, lack of funding for transportation can be a barrier prohibiting some schools from participating in EK. Woodridge brought in outside funding to pay for the creation of props and outdoor classrooms. Small fees paid by the parents of children participating pay for the renewal of props and other required materials. Yet the program will not survive if the principal leaves and curricular integration is falling away. Thus, a program can have everything going for it in the material since, but if the energy that powers the program declines, the program will too. Change agents need not go to the trouble of securing outside funding for material resources if they are going to neglect to create a collaborative network surrounding a program within the school. As nature informs us, if one link in a web in compromised the entire structure will be degraded.
The class size reform has negatively impacted curricular integration of EK beyond the three-day immersion experience. This is further proof that not all change is good for a system. While students still have the opportunity to earn their Y and S keys, half of the year 5 students will not receive instruction that continues to apply concepts learned in the program to the world around them. This could be overcome by creating additional learning sessions where the year 5 students are reunited on a weekly, bi-weekly, or monthly basis to receive continued instruction and concept integration. For example, one session could focus on how old sunlight energy (fossil fuels) is transformed into electricity. Another session could discuss how creating energy in this way introduces harmful chemicals into our environment that travel through air, soil, and water cycles. No doubt creating such a program would take a great deal of time and additional funding. The Woodridge staff is already extremely busy; thus, they might need to bring someone in from the outside. Further, as David (T-2) stated, the fact that he did not participate in the program during 2005 or 2006 probably negatively impacted his motivation to integrate the concepts further. He simply wasn’t involved. In order for either of the year 5 teachers to have participated in EK, the school would have to have paid approximately $1,000 each for a substitute (casual) teacher. Some Woodridge teachers felt that the program would die if James left because he holds all of the knowledge required to run the program. However, there are published materials and workshops available designed to help educators learn how to lead the program. Of course, this would require additional funding and teachers would have to take the time to be trained. All of this is further proof that once a program is initiated, it will require more
and more energy to be sustained. There are ways to circumvent entropy, but educators must be willing to make the investment.

Ecology, Research, and Practice

We shall require a substantially new manner of thinking if mankind is to survive.

-Albert Einstein

In the film An Inconvenient Truth, Al Gore echoes Einstein by stating that the most important thing we can do for the environment is change the way we think (David, et al., 2006). Adopting ecological frameworks through which we view human systems is way to begin. Further, as Fullan (1993) has suggested, change processes are incredibly complex. Thus, a framework that organizes complex phenomena can be very helpful when analyzing school change processes. An ecosystem is an example of ultimate complexity. At any given moment there are billions of actions and reactions occurring in just one corner of nature. Yet, if one understands the concepts of energy flow, the cycling of matter, interrelationships, and change, discernable patterns arise out of what may have once seemed chaotic. Schools also represent intricate fields of infinite possibility. Thus, I found adopting an ecological framework very helpful in understanding the Woodridge school system and how EK has operated within that context. Beyond this, I also found that this framework provided a language that has made it easier to synthesize and discuss my findings.

When I was coding the data, I looked for examples of energy flow, matter cycling, interrelationships, and change. During interviews, I asked participants to explain whether they thought the program had received enough energy and materials, if the
workload had been shared, or if any other programs or changes had an impact. However, it was unnecessary to be that overt. Themes relating to these ecological concepts were naturally interwoven throughout participants’ discussion of school culture, change processes, and the EK program. I saw the most dramatic interactions of these ecological concepts when participants were describing changes that had created difficulties. An example of this would be Jane’s (T-1) explanation of the impact the change in class sizes had had on her classroom. Having an increased number of students in her class with the same number of computers used in previous years with smaller groups meant that students were able to spend less time on them. Having a larger group has impacted curriculum, as it’s harder for her to organize and manage hands-on activities. Teachers have dealt with these difficulties by collaborating to more effectively share material resources. For example, Jane’s class in housed in one of the larger classrooms, and a few computers have been moved from lower grades to the upper. Tensions created by workload inequity were eased by discussion and brainstorming. Veronica (T-8) felt that because the government is giving them so much extra to do traditions that have made the school unique are falling away. Teachers simply don’t have the energy to keep them up, but she is fighting to keep the traditions alive. Thus, she feels like she’s in conflict with other teachers at the school. Property prices in Woodridge have been increasing as more and more people are leaving Sydney to live in the Blue Mountains. This change has required more parents to work harder to maintain their mortgages. In turn, parents are less available to collaborate with the school. All of the previously mentioned examples
represent changes that have not been beneficial to the school. However, there have been good changes at Woodridge.

Before initiating the after school care program, Cindy (P-9) and Nicole (P-7) questioned community members to determine if there was a need for the service. After receiving the green light, they decided against seeking government funding because they didn’t want to be “beholden” to them. Rather than sacrifice any elements of their vision, they looked around to see what the competition in the area was charging and set a “fair” price from there. This very successful program is run in the school assembly hall with games, toys, and learning materials that were donated by community members. Here we see a change that was initiated through the collaboration of two members of the learning community who are keeping costs low by using previously used materials. Regardless of whether a change is perceived as good or bad, it is clear that it will create ripple effects that will impact energy, materials, and interrelationships and may create other changes as a byproduct. Also, as the last example illustrates, collaborative planning and sourcing of materials can allow for the creation of programs that are less energy intensive and more easily sustainable.

Initiators of change, be they individuals or institutions, should consider the vast impacts one reform might have on a school system. Of course, it’s impossible to plan for all of the possible outcomes; however, applying an ecological framework to planning processes is a way of organizing the chaos. Is there sufficient energy (funding, will, knowledge, etc.) to sustain the change past initiation? Will the energy that supports the program be flowing through multiple sources? Have patterns of collaboration been
established within the school to allow for easy flow of communication and sharing of ideas and materials? How can you supply increasing amount of energies over the life of a program to prevent entropy? These are just a few of the questions that might inform school change efforts that have adopted an ecological perspective.

Researchers who wish to study the impact of a change can gain valuable insight quickly by examining energy flow, matter, and interrelationships surrounding the initiative. This framework provides a concise way to study change processes, but may lead you in multiple directions as you trace the impact of the reform throughout a school system. Also, researchers should avoid using the ecological framework that I have suggested in a completely prescriptive way. Just as organisms and materials are constantly changing forms in a natural system, my understandings of how the ecological concepts in my framework are represented in schools have evolved. For example, originally, I had not taken time into consideration, but teachers were continually describing time as if it created the ability to do. Trust was another emergent theme that seemed to enable the ability to do. However, I view trust as a type of interrelationship that allows for increased energy flow. Further, I had not considered size as a factor impacting interrelationships, but it is clear that the small size of the school has allowed for increased interactions among community members and solidified a family-like atmosphere. Further, it is obvious that the scale of a reform or the amount of change a school faces at one time will greatly impact energy flow, the cycling of matter, and interrelationships. Larger school buildings require more energy for maintenance. It is logical that the amount of energy it took to initiate a program might be relative to the
amount needed to prevent entropy. For example, the after school care program at Woodridge uses a previously exiting school structure. The program initiators do not have to pay rent to use the space and most of the other materials they use have been donated. Conversely, a program that is dependant on computers or scientific equipment would require much more energy to remain vital. Therefore, size appears to be a theme that impacts the way in which all for concepts are revealed in a school. Given the success of this school and the law of entropy, it appears that small is good.

Niche was another emergent theme that I had not accounted for. “The role or job in the community performed by a plant or animal is called its niche” (Van Matre, 1990, p. 113). Woodridge has fashioned a unique place for itself among the Blue Mountains community. They have a definite vision for the school and work hard to be different from the other schools in the area. Woodridge is a friendly, caring school that focuses on technology and the environment. Five of the eight educators are veteran teachers. Of these, three have been at the school for over 10 years. The teaching staff and administration are passionate about education and meeting the needs of students in the 21st century. These professionals have a clear sense of purpose and have acted as skilled change agents bringing about innovations that have brought considerable attention to the school. However, government reforms seem to be threatening the identity they have crafted.

As Fullan (1993) suggested, it is very important for educators to have a vision, but borrowing someone else’s vision is not advisable. You can’t fake moral purpose; thus, you can’t fake vision. Vision building means constantly reexamining the differences we
are trying to make as professionals. Shared vision is a vital component in change processes and revitalizing schools. Woodridge teachers manifest a shared vision on a weekly basis in their staff meetings. What happens when a school is forced to align with someone else’s vision? Woodridge teachers would tell you that you begin to feel “snowed under”. That it’s increasingly more difficult to hold on to the very things that once created your identity. What happens when all the public schools throughout a state or nation are faced with upholding a vision that is not their own?

Developments in agricultural technology over the past century have allowed farmers to work more and more land in less time. Thus, small family farms have become relatively extinct, as farmers must produce increasingly higher yields to compete in the global market. This has led to larger plots of land being dedicated to the growth of a single species, the super sizing of farm equipment, and increased use of herbicides and pesticides. The biodiversity that once created the delicate systems of checks and balances has been eradicated in these environments. The domination of one species of plant in an area will no longer draw a diversity of animals. This allows a pest species that is particularly fond of that one type of plant to flourish requiring the use of more chemicals to prevent crop yields from being diminished. Because monoculture defies nature, maintaining it is a very energy intensive venture. Similarly, reforms that go against the vision of a school take tremendous amounts of energy away from teachers. Government mandated, large-scale reforms are enforcing monoculture and setting schools up to fail by not providing the extra energy required to make required changes. There is much talk both in Australia and the United States about honoring diversity in schools. The success
of Woodridge Primary School and the entropy that mandated reforms are causing signal that perhaps it is time for policy makers and reformers start honoring the diversity of schools.

**Strengths and Weaknesses of This Study**

This is only a case study of one school; thus, it is difficult to make generalizations about the findings presented herein. Perhaps there are public schools that have experienced great success and benefited from mandated reforms. However, this research provides an in depth, highly descriptive portrait of educational change at the local level. The success of any mandated reform is dependant upon members of the local school community. Thus, it is important that we take the time to get to know the cultures in which reforms are expected to take place in. Future research studying multiple schools in such a manner may allow us to see similar patterns of successes and failures. Or perhaps this line of research might further solidify that each school is a distinct organism and should be treated as such.

While this study was conducted outside of the U.S., it represents issues that are relevant to American schools. Relevant issues include large-scale government reforms and program entropy. American schools are also facing the pressures of monoculture. Further, the need for effective environmental learning programs to be implemented and sustained is globally relevant. There have been many strange and wonderful creatures that have come and gone before we had the chance to know them. Unfortunately, changes imposed on natural systems by humans have often been the cause of reduced biodiversity. Our disconnection from the natural world has prevented us from
understanding much of what we have lost. Earthkeepers helps young people to connect with the earth by building conceptual understandings and fostering feelings of kinship with nature. It is hoped that this will lead participants to protect and care for the planet. In the U.S. so much attention as been given to the “decline of public education” that it seems the glass has become habitually half empty. Perhaps in-depth case studies of successful American schools will help us to understand, care for, and protect the diversity we stand to lose by imposing monoculture in public school systems. Conversely, future research of this nature might help educators to understand why many schools in the U.S. are struggling.

Further research is needed to continue examining the appropriateness of applying ecological understandings to school systems. While the ecological framework presented herein contributed to understandings of change processes at Woodridge, it should not be assumed that the same results would emerge at any other school. Given that each school is different, the framework may yield a completely different set of understandings in each location where it is applied. Woodridge seemed an appropriate candidate for testing this ecological framework because the school already demonstrated some of the characteristics of an ecosystem (i.e., high levels of interrelationship, successful change processes). Perhaps the framework would be less useful in a school that does not share these characteristics.

Difficulty remaining a detached observer is a possible draw back to conducting longitudinal case studies. This was definitely a case in this study. As I previously mentioned, the warm, friendly nature of this school seemed to disallow detachment.
Thus, bias could be an arguable issue. However, I employed triangulation and checked my interpretations and observations against interview data. Further, my ability to become a part of school culture allowed to develop deeper understandings of the school. However, my presence may have impacted events at the school since distracting photographers visited the EK program on my behalf. Along with this, my research was used as a rational for moving EK to the end of the school year in 2005.

Before I was introduced to the EK program during my first year of graduate school, beyond interrelationships, my understandings of the concepts explained through the program were vague and difficult to articulate. How was it that a college graduate was so unfamiliar with the natural processes that made her life possible? I had passed all of my required science classes throughout high school and college. After conducting interviews exploring teachers’ understandings of ecological concepts, I realized I was not alone. Leading EK activities and studying the program have been tremendous educational experiences for me. Further, creating and implementing the ecological framework used in this research, has helped me develop deeper understandings of the concept of entropy and the impact of scale in change processes. The lessons I have learned from EK and this research have helped me to better understand the elements and interactions necessary in maintaining healthy systems in the natural world, schools, and even in my own body.

Earthkeepers is available to elementary students, but there is a large population of adults in the world who do not understand how energy flow, the cycling of matter, interrelationships, and change support their lives. In turn, many individuals don’t
understand the impacts they are creating through the consumption of energy and materials. Beyond providing a way to organize the study of human systems, research that uses ecological frameworks can act as another form of environmental learning. The more these concepts are discussed, the more likely it is that people will begin to understand how natural systems work and their places within them. It would be particularly helpful if educators and policy makers became more aware of these concepts and integrated them throughout their practices. Perhaps then we would see a greater shift toward Einstein’s vision of a “substantially new manner of thinking” to insure the continuation of the human race.
APPENDIX A - U.S. HUMAN SUBJECTS APPROVAL
Jamie Carson/BOE/18/Teach/Teacher Ed/Bringing Earth Education into School Curriculum
NAME OF INVESTIGATOR/PROJECT APPROVAL NUMBER/TITLE OF PROPOSAL

Human subjects approval for this activity expires on the date indicated above. Depending upon the activity status of the project, attachments may be required. Refer to IRB website (www.irc.arizona.edu) for detailed instructions and report template. Note: If renewal is not granted before the expiration date, all study activities must stop at that time. If study procedures/treatment must be continued for subject safety, contact the IRB office immediately.

Activity Status – check one box only
Category A: attach items 1-13 listed on reverse
  a) Enrollment of new subjects in progress
  b) Enrollment not initiated, but still planned
  c) Enrollment closed to new subjects but current subjects are still undergoing study procedure or being entered into extensions and/or sub-studies
Category B: attach items 1-12 listed on reverse
  d) Enrollment closed, follow-up only (non-sensitive data collection via telephone contact, questionnaire and/or record review)
  e) Local data analysis only: no subject contact and additional data collection (annual review required)
Category C: attach items 1-8 listed on reverse
  f) Concluded: enrollment and all participation/follow-up/local data analysis completed
Category D: no attachments required; complete and submit this form only
  g) Study not begun: permanent withdrawal of study

Subject Numbers (local enrollment)
If more than one study population is involved, report enrollment under number 2 of checklist (see reverse)
  a) Number of new subjects enrolled (consented) since last reporting period
  b) Total number of subjects enrolled (consented) since start of project
  c) Number of males/female enrolled since start of project

Conflict of Interest Statement (COI): see COI policies at http://rsrc.admin.arizona.edu/rr/conflict_of_interest.htm
a) Do any of the investigators serve as a speaker or consultant to the sponsor; i.e., manufacturer, or the owner of the test article? □ Yes □ No
b) Do any of the investigators (or their family members) derive a direct or indirect benefit, equity and/or royalty relationship with the sponsor, manufacturer, or owner of the test article? □ Yes □ No
If yes to either of the above, review COI policies to determine whether U of A Conflict of Interest and Commitment Disclosure form must be filed.

I certify that this research will be conducted in accordance with the currently approved protocol/amendments and that no changes to procedures or study documents will be made without the knowledge/approval of the IRB.

Signatures of Principal Investigator (required for all projects)

Date

Signature of Departmental Review Chair (not required for Category C or Category D)

Date

FOR COMMITTEE USE ONLY

☑ Approve  □ Disapprove
Subject to the following conditions: N/A Protocol changes which involve expansion of selection criteria to include one representative from a corporate sponsor, reducing observation period from 18 days to 13 days, and eliminating group interviews (revised consent form reflects changes) approved concurrently.

Date Reviewed:

Period of Approval: FEB 03 2006 - FEB 03 2007

Date: FEB 03 2006
APPENDIX B- AUSTRALIAN HUMAN SUBJECTS APPROVAL
Ms Jamie Carson  
6651 N. Campbell Ave #133  
Tucson, AZ 85718 USA

Dear Ms Carson  

SERAP Number 02.217

I refer to your application for extension of your research project in NSW government schools entitled *Bringing Earth Education into Elementary School Curriculum*. I am pleased to inform you that your application has been approved.

This approval will remain valid until 3 February 2007.

This approval covers the following researchers and research assistants to enter schools for the purposes of this research: Jamie Carson only.

When your study is completed please forward your report marked to the General Manager, Planning and Innovation, Department of Education and Training, GPO Box 33, Sydney, NSW 2001.

Yours sincerely

Dr Brian Davies  
Manager, Research and Analysis  
14 February 06
Dear Woodridge Public School Parent:

My name is Jamie Carson, and I am a graduate student at the University of Arizona in Tucson, Arizona U.S. I am a former public school teacher with a Master’s degree in education. Currently, I am completing research based on a study of Woodridge School. This project will act as my dissertation research for a PhD in Teaching and Teacher Education. On March 6th, I will be returning to Woodridge for the third time to collect data. I would like to invite you to participate in this segment of the study.

The goal of this study is to examine the change processes of a school that has striven to integrate environmental learning (i.e. Earthkeepers) into its core curriculum. It is my hope that this research will help Woodridge Public School and other schools gain insight into how to effectively initiate and sustain programs like Earthkeepers. I am asking now for your voluntary participation in this research project. Parents, teachers, and the administrator of Woodridge Public School are invited to participate by being interviewed and/or being observed as they participate in their normal day-to-day activities at the school. Individual interviews will take approximately 30 minutes. Observations of participants will focus on interactions between individuals and groups during the regular school day. This will not take time away from daily procedures.

This research is being done with Principal Sterling’s full support and has been approved by the New South Wales Department of Education and Training.

If you would like to participate, please express your interest on the sign up sheet at the administrative office. Consent forms are required by both Australia and the United States before individuals may participate in research projects. If you would like to participate in this research, you will need to read and sign a "subject's consent" form. This form may be retrieved from the office. It may be returned to the school office in person or by post.

I will be glad to answer any questions and can be reached either through e-mail at jcarson@email.arizona.edu or by phone between March 6th and March 22th at the Woodridge Public School number (02) XXX XXXX.

Thank you for your time, and I look forward to working with you in person.

Sincerely,

Jamie Carson
PhD Candidate University of Arizona
APPENDIX D- SUBJECT’S CONSENT FORM

Subject's Consent Form

Project Titled: Bringing Earth Education into the Elementary School Curriculum

I AM BEING ASKED TO READ THE FOLLOWING MATERIAL TO ENSURE THAT I AM INFORMED OF THE NATURE OF THIS RESEARCH STUDY AND OF HOW I WILL PARTICIPATE IN IT, IF I CONSENT TO DO SO. SIGNING THIS FORM WILL INDICATE THAT I HAVE BEEN SO INFORMED AND THAT I GIVE MY CONSENT. U.S. FEDERAL REGULATIONS REQUIRE WRITTEN INFORMED CONSENT PRIOR TO PARTICIPATION IN THIS RESEARCH STUDY SO THAT I CAN KNOW THE NATURE AND RISKS OF MY PARTICIPATION AND CAN DECIDE TO PARTICIPATE OR NOT PARTICIPATE IN A FREE AND INFORMED MANNER.

PURPOSE
I am being invited to participate voluntarily in the above-titled project. The purpose of this project is to examine the process of change that a school experiences as it strives to bring environmental education programming into its curriculum.

SELECTION CRITERIA
I am being invited to participate because I am an adult of at least 18 years of age, and I am an administrator, teacher, staff member, representative of a corporate sponsor, or the parent of a student in Warrimoo Public School. Approximately 50-60 adults will be involved in this study.

PROCEDURE (S)
If I agree to participate, I will be asked to consent to either or both of the following: I will participate in a one-on-one interview. Individual interviews will take approximately 30 minutes and will be audio taped. If I consent to being included in observations, my activities and interactions at the school site will be recorded in hand written field notes. These observations will take place over a 13-day period while the researcher is visiting our school and will not take any time from my regular schedule. I may choose to participate in either one or both research activities.

RISKS
There are no risks involved in my participation.

BENEFITS
There is no guaranteed direct benefit to me, but there are potential benefits to society. This study may contribute to building the knowledge base of how to better
educate about the environment. It may also help Warrimoo Public School educators by giving them insight into elements that have impacted or may impact the implementation on new environmental education programming.

CONFIDENTIALITY

My identity will be kept separate from data collected through my participation, thus reducing the risk of a confidentiality breech. Any data collected directly from me will be assigned a code that represents my name. After the research has been analyzed and documented the key that connects the code with my name will be destroyed. My name will not be used in written reports or discussions of this research. The following are the only two individuals that will have access to the data collected: Jamie Carson, graduate student researcher, University of Arizona and Bruce Johnson, education professor, University of Arizona.

PARTICIPATION COSTS AND SUBJECT COMPENSATION

The only cost I will incur through participating in this research is the loss of time spent participating in an interview. There will be no compensation for my time.

CONTACTS

I can obtain further information from the principal investigator Jamie Carson, PhD Candidate between the dates of March 6th and March 22nd at Warrimoo School, telephone number (02) 4753 6182, or e-mail at jcarson@email.arizona.edu. If I have questions concerning my rights as a research subject, I may contact Dr. Susan Rebano, NSW Dept. of Ed. And Training at (02) 9561 8822.

AUTHORIZATION

BEFORE GIVING MY CONSENT BY SIGNING THIS FORM, THE METHODS, INCONVENIENCES, RISKS, AND BENEFITS HAVE BEEN EXPLAINED TO ME AND MY QUESTIONS HAVE BEEN ANSWERED. I MAY ASK QUESTIONS AT ANY TIME AND I AM FREE TO WITHDRAW FROM THE PROJECT AT ANY TIME WITHOUT CAUSING BAD FEELINGS. MY PARTICIPATION IN THIS PROJECT MAY BE ENDED BY THE INVESTIGATOR FOR REASONS THAT WOULD BE EXPLAINED. NEW INFORMATION DEVELOPED DURING THE COURSE OF THIS STUDY WHICH MAY AFFECT MY WILLINGNESS TO CONTINUE IN THIS RESEARCH PROJECT WILL BE GIVEN TO ME AS IT BECOMES AVAILABLE. THIS CONSENT FORM WILL BE FILED IN AN AREA DESIGNATED BY THE HUMAN SUBJECTS COMMITTEE WITH ACCESS RESTRICTED TO THE PRINCIPAL INVESTIGATOR, JAMIE CARSON OR AUTHORIZED REPRESENTATIVE OF THE TEACHING AND TEACHER EDUCATION DEPARTMENT AT THE UNIVERSITY OF ARIZONA. I DO NOT GIVE UP ANY OF MY LEGAL RIGHTS
BY SIGNING THIS FORM. A COPY OF THIS SIGNED CONSENT FORM WILL BE GIVEN TO ME.

Please signify which research activities you are consenting to participate in by SIGNING YOUR NAME next to those activities. If more than the required number of adults choose to participate in interviews, you may not be selected for an interview.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Your Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERVIEW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBSERVATION</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INVESTIGATOR'S AFFIDAVIT

I have carefully explained to the subject the nature of the above project. I hereby certify that to the best of my knowledge the person who is signing this consent form understands clearly the nature, demands, benefits, and risks involved in his/her participation and his/her signature is legally valid. A medical problem or language or educational barrier has not precluded this understanding.

_____________________              ________________
Signature of Investigator        Date
APPENDIX E- INTERVIEW QUESTIONS

Parent Interview Questions (Parent of student participating in EK)

What do you know about the Earthkeepers program?

How/when did you learn that the Earthkeepers program was being run at Woodridge?
   How did the school communicate to you that the program was being run?
   Has there been much discussion of the program among the parental body?

Has your child spoken with you about his/her experiences with the program?
   If so, what did they have to say about the program?

Did your student engage in environmental activities at home to earn their Y or S keys?
   If so, what did he/she do? Did he/she earn all of their Y and S keys?

What are your reactions to the program?
   Did you feel that it was a worthwhile experience for your child?
   Would you recommend the program to others?
   Do you have any criticisms of the program or suggestions for improvement?

Do you feel the program has been received well by the parental body? Why/why not?
Are you aware of any barriers that may have affected the continued implementation of the program?
   Do you feel the program has been granted enough time and money?
   Do you feel communication surrounding the program has been adequate?
   Do you feel the teachers and administrator have dedicated sufficient energy toward the program?
   Are you aware of any changes at Woodridge that may have impacted Earthkeepers?

Do you feel that Earthkeepers will continue to be implemented at Woodridge if the principal leaves? Why/Why not?

Who are leaders in Woodridge school?
   Are parents leaders? Is so, how do they participate in leadership?
   Are parents involved in decision-making processes at Woodridge?

Could you characterize communication between teachers and parents at Woodridge?
   Between the administrator and parents at Woodridge?

How do you feel Woodridge Primary School deals with change?
How would you describe the atmosphere of Woodridge Public Primary School?

Parent Interview Questions (Non-Earthkeepers student)

What do you know about the Earthkeepers program?
   What do you know about the initiation and implementation of Earthkeepers?
Has there been much discussion of the program among the parental body?
Do you feel the program has been received well by the parental body? Why/why not?
Are you aware of any barriers that may have affected the continued implementation of the program?
Do you feel that Earthkeepers will continue to be implemented if the principal leaves?
Are you aware of any changes to curriculum or new programs that are being run at Woodridge? If so, what do you know about them?
Who are leaders in Woodridge school?
   Are parents leaders? If so, how do they participate in leadership?
   Are parents involved in decision-making processes at Woodridge?
   Are you involved in leadership or decision-making? If so, how?
Could you characterize communication between teachers and parents at Woodridge?
   Between the administrator and parents at Woodridge?
How do you feel Woodridge Primary School deals with change?
   Parents?
   Teachers?
   Administration?
Are you aware of any changes to curriculum or new programs that are being run at Woodridge? If so, what do you know about them?

How would you describe the atmosphere of Woodridge Public Primary School?

Teacher Interview Questions (Participant in Earthkeepers)

How long have you worked at this school?

How would you describe Woodridge Primary School’s current culture?

Has Woodridge school’s culture shifted over the past four years?

How do you feel Woodridge Primary School deals with change?
   How do parents, teachers, and administration handle change?

How have you been involved with the Earthkeepers program?
How were you prepared to participate in Earthkeepers?
How did the 3-day outdoor, immersion experience go?

**Did/will you integrate Earthkeepers into your classroom curriculum after the 3-day immersion?**
- If yes, how did/will you integrate the program? Activities?
- Were you satisfied with the number of students who earned their Y Key? S key?
- What were/are your reactions to the program?
  - Did you feel that it was a worthwhile experience for your students?
  - Would you recommend the program to others?
  - Do you have any criticisms of the program or suggestions for improvement?
- Do you feel the program has been received well by the parental body? By the faculty? Why/why not?

**Are you aware of any barriers that may have affected the continued implementation of the program?**
- Do you feel the program has been granted enough time and money?
- Has the workload been appropriately shared?
- Do you feel communication surrounding the program has been adequate?
- Do you feel the teachers and administrator have dedicated sufficient energy toward the program?
- Are you aware of any changes at Woodridge that may have impacted Earthkeepers?
  - Do you feel new programming has diverted energy and resources away from Earthkeepers?
  - Do you feel Earthkeepers has diverted energy and resources away from other programming?

**Do you feel that Earthkeepers will continue to be implemented at Woodridge if the principal leaves? Why/Why not?**

**Who are leaders in Woodridge school?**
- Are parents leaders? Is so, how do they participate in leadership?
- Are parents involved in decision-making processes at Woodridge?

**Could you characterize communication between teachers and parents at Woodridge?**
- Between the administrator and teachers at Woodridge?
- Between teachers and teachers?

Are you aware of any changes to curriculum or new programs that are being run at Woodridge? If so, what do you know about them?
Teacher Interview Questions

What do you know about Earthkeepers?
   What do you know about the initiation and implementation of Earthkeepers?
Do you feel the program has been received well by the parental body? By the faculty?
   Why/why not?
Are you aware of any barriers that may have affected the continued implementation of the program?
   Do you feel the program has been granted enough time and money?
   Do you feel communication surrounding the program has been adequate?
   Do you feel the teachers and administrator have dedicated sufficient energy toward the program?
   Has the workload been shared appropriately?
   Are you aware of any changes at Woodridge that may have impacted Earthkeepers?
      Do you feel new programming has diverted energy and resources away from Earthkeepers?
      Do you feel Earthkeepers has diverted energy and resources away from other programs?
Do you feel that Earthkeepers will continue to be implemented at Woodridge if the principal leaves? Why/Why not?
Who are leaders in Woodridge school?
   Are parents leaders? Is so, how do they participate in leadership?
   Are parents involved in decision-making processes at Woodridge?
Could you characterize communication between teachers and parents at Woodridge?
   Between the administrator and teachers at Woodridge?
   Between teachers and teachers?
How do you feel Woodridge Primary School currently deals with change?
   How do parents, teachers, and the administrator handle change?
Are you aware of any changes to curriculum or new programs that are being run at Woodridge? If so, what do you know about them?

How would you describe Woodridge Primary School’s culture?

Staff Interview Questions

How long have you been at this school?

How would you describe Woodridge Primary School’s current culture?

Do you feel the culture has changed over the past four years? If yes, how?

How do you feel Woodridge Primary School currently deals with change?
   How do parents, teachers, and the administrator handle change?
Who are leaders in Woodridge school?
   Are parents leaders? Is so, how do they participate in leadership?
   Are parents involved in decision-making processes at Woodridge?

How would you characterize communication between yourself and parents at Woodridge?
   Between yourself and the administrator and teachers?
   Between parents and school faculty and administration?

Are you aware of any barriers that may have affected the continued implementation of the Earthkeepers program?
   Do you feel the program has been granted enough time and money?
   Do you feel communication surrounding the program has been adequate?
   Do you feel the teachers and administrator have dedicated sufficient energy toward the program?
   Has the workload been appropriately shared?
   Are you aware of any changes at Woodridge that may have impacted Earthkeepers?
   Do you feel new programming has diverted energy and resources away from Earthkeepers?

Do you feel that Earthkeepers will continue to be implemented at Woodridge if the principal leaves? Why/Why not?

Are you aware of any changes to curriculum or new programs that are being run at Woodridge? If so, what do you know about them?

Administrator Interview Questions

Characterize your involvement with Earthkeepers over the past year?
How has Earthkeepers been going?
   Have you been satisfied with the 3-day immersion experiences?
   Have you been satisfied with the level of integration throughout regular classroom curricula?

What has been communicated to parents regarding the program?
Do you feel the program has been received well by the parental body? By the faculty?
   Why/why not?
Are you aware of any barriers that may have affected the continued implementation of the program?
   Do you feel the program has been granted enough time and money?
   Do you feel communication surrounding the program has been adequate?
   Do you feel sufficient energy has been dedicated to the program?
   Has the workload been appropriately shared?
Are you aware of any changes at Woodridge that may have impacted Earthkeepers?

Do you feel new programming has diverted energy and resources away from Earthkeepers?
Do you feel Earthkeepers has diverted energy and resources away from other programs?

Do you feel that Earthkeepers will continue to be implemented at Woodridge if you leave?

Why/Why not?

Who are leaders in Woodridge school?
Are parents leaders? If so, how do they participate in leadership?
Are parents involved in decision-making processes at Woodridge?

Could you characterize communication between teachers and parents at Woodridge?
Between teachers and yourself?
Between teachers and teachers?

How do you feel Woodridge Primary School deals with change?
How do parents and teachers handle change?

Outside of Earthkeepers, are there any recent changes to curriculum or new programs that are being run at Woodridge? If so, what do you know about them?

How would you describe Woodridge Primary School’s culture?
APPENDIX F- INTERVIEW SUMMARY SHEET

Interview Summary Sheet
Woodridge Primary School
March 2006

Participant’s Role in Learning Community:

Years participating in this study:

Connection to Earthkeepers Program:

Evidence relating to research questions:
1. How is Earthkeepers being integrated throughout curriculum, and has it become an ongoing and regular part of the school culture?

   Knowledge about program:

   3-day immersion experience:

   Curricular integration beyond 3-day:

   Receptivity to program:

   Any other pertinent info:

2. What elements have impacted or might impact sustained implementation and integration of Earthkeepers?

   Earthkeepers leadership/workload:
Communication surrounding program:

School Culture:
  Atmosphere:
  Communication:
  Leadership:
  Decision-making:

Change processes:

Interaction between Earthkeepers and other curricular offerings:

Any other pertinent info:
3. Does the application of an ecological framework contribute understandings of schools and educational change processes?

**Broad questions**

Energy flow:

Cycling of matter:

Change:

Interrelationships:

**Probing questions**

Energy flow:

Cycling of matter:
Change:

Interrelationships:

Evidence of other ecological concepts:

Other pertinent info:
REFERENCES


Australian primary school’s endeavor to create a comprehensive, integrated environmental education program. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.


New York: Teachers College Press.


In A. Lieberman & L. Miller (Eds.), *Staff development for education in the ‘90s* (pp. 15-36). New York: Teachers College Press.


Publications.


