

Danielle M. Zynda. Are Environmental Education Picture Books Appropriate for Elementary-School Children?: A Content Analysis. A Master's Paper for the M.S. in L.S degree. April, 2007. 62 pages. Advisor: Brian Sturm

This study is a content analysis of a selection of environmental awareness picture books. The analysis was conducted to determine the appropriateness of these picture books for teaching environmental education to elementary-school aged children.

It was found that most of the environmental education picture books used literary conventions that were inappropriate in terms of children's cognitive understanding, as well as in their understanding of environmental education, but that these problems would not prevent the child from understanding and enjoying most of the books. Ultimately, it was determined that the ideal environmental education picture book is a quality picture book that encourages appreciation of nature and environmental issues in a positive and developmentally appropriate manner.

Headings:

Children's reading -- Educational aspects

Children's literature -- Evaluation

Environmental education -- Children's literature

Environmental literature

Picture books -- Evaluation

Picture books -- Environmental aspects

ARE ENVIRONMENTAL EDUCATION PICTURE BOOKS APPROPRIATE FOR
ELEMENTARY-SCHOOL CHILDREN?: A CONTENT ANALYSIS

by
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Introduction

Environmental issues have become increasingly prominent in the media in recent years. The topics of global warming and climate change, energy dependence, and sustainability are being featured more and more in news magazines, in presidential election debates, on public radio, and in classrooms. These issues have also shown up in children's picture books. An increasing number of fiction picture books over the recent decades have encouraged children to recycle, save the rainforests, and use fewer resources. While picture books have always featured nature and animals prominently, some picture books have taken these common features and turned them into lessons of environmental education.

Many questions arise from this new trend, the most important being: Do these picture books appropriately and effectively teach children about the environment? In this paper, I will examine this question from the angles of child development and environmental education. I will attempt to ascertain whether these books are developmentally appropriate for elementary school children and whether these books teach environmental education in a way that is meaningful to these children.

Environmental issues are important to study because these issues affect us all. If children are taught to be knowledgeable of and to properly evaluate environmental issues, they will more likely carry these lessons to adulthood and be knowledgeable world citizens. Each of the picture books I studied seemed to have the purpose of teaching

children about the environment in hopes of creating a better future. Yet some books were much more effective than others in teaching these lessons. If adults are going to continue to teach children about the environment through picture books, it is essential to know how best to convey the information in such a way that children will enjoy, appreciate, and understand the process. Librarians and teachers should look at environmental education picture books with a discerning eye. This study means to aid these educators and librarians in their evaluation process.

Literature Review

Environmental Education

There is a copious amount of scholarly literature about environmental education for children. Countless instruction manuals, lesson plans, and theoretical treatises exist on how best to teach children from toddler age to college age about the environment. Environmental education is shown by the literature to be an effective way to teach children to appreciate nature and want to protect the environment, but it is also shown to be a frightening subject for some children, and therefore needs to be taught with sensitivity and caution (Kriesberg xvi).

A good general definition of environmental education as discussed in much of the literature is the “process through which children come to understand and appreciate the environment and their connection to it. It aims to develop the skills and willingness to make decisions and take action to sustain the planet” (Murdoch 3). While this definition is a succinct and accurate one, it does not include the value of environmental education. This value is often not discussed in the research, as if the value were a foregone conclusion or a somewhat obvious notion. However, this value has been described by the United States Environmental Protection Agency. The EPA lists the benefits of environmental education as such:

“Environmental education (EE) increases public awareness and knowledge of environmental issues and challenges. Through EE, people gain an understanding of how their individual actions affect the environment, acquire skills that they can use to weigh various sides of issues, and become better equipped to make informed decisions. EE also gives people a deeper understanding of the environment, inspiring them to take personal responsibility for its preservation and restoration” (“EPA – Environmental Education”).

Much of the literature on environmental education discusses the best way to teach it to young people; it also discusses when to start teaching environmental education to children. Much of what environmental educators teach to children can require the children to know complex concepts. Ruth Wilson relates an anecdote in her article about environmental education: “When asked the question, ‘Do you think you should help take care of the Earth?’ [Four-year old] Jeremy responded, ‘I don’t even know what Earth is.’” (24). Wilson suggests that environmental education for very small children should focus more on “fostering a sense of wonder” about nature and ecology. Many small children are scared of animals and natural occurrences, so in very early environmental education, children should be taught to love nature and not taught about the dangers the environment is facing (Wilson 26).

If young children should be given a gentler form of environmental education, the question then becomes, “When should children start learning about the complexities of environmental awareness?” Much is written about environmental education for the school-age child. Environmental education for this age group seems to be as much about teaching children critical thinking and decision making skills as about environmental issues. Good environmental education can perhaps provide a stepping stone for children to learn how to look at complex issues in a more mature way. Mary A. Christenson writes, “In addition to imparting knowledge of environmental science, environmental education must also help develop the social knowledge and critical thinking skills that are necessary for examining diverse viewpoints on environmental issues” (3-4). The EPA also supports this idea, writing that environmental education should be different from environmental information. While environmental information provides facts on an issue

from a specific viewpoint, environmental education encourages individuals to think for themselves about the issue at hand (“EPA-EE Basic Information”). When children enter elementary school, they begin to form the knowledge base that will eventually allow them to both understand the environmental concepts and to think critically about the sometimes controversial issues.

Even if environmental education is not begun until after children begin to form their knowledge base, it can still be a difficult subject for many educators and adults to explain to children. Daniel Kriesberg writes, “Environmental issues are complex. If there were simple answers, there wouldn’t be as many problems. There are shades of gray, not black and white. Young children can’t be expected to grasp all of the many sides of the argument” (xvi). Kriesberg points out some of the problems with today’s environmental education, noting that children can be intimidated by the seriousness of environmental concerns: “Focusing on environmental tragedies can scare children, giving them a sense of powerlessness and cutting them off from the natural world” (xvi). Teachers need to find a way to express the seriousness of environmental concerns without scaring the children.

Kriesberg also points out that children can feel disconnected from environmental issues. Many teachers teach about the rainforest or about endangered animals because they are popular topics. However, younger children may find it difficult to relate to issues happening so far away. Kriesberg says, “The problem is that a great deal of the environmental education being done in our schools is not helping children connect to the place where they live” (xvii). He suggests, as does Ruth Wilson, that the best way to teach environmental education is to allow children to have hands-on experiences.

Children should be taught about local issues and should be given ample opportunity to actually experience the environment. Once they have hands-on experience with nature, children become more receptive to the lessons of environmental education (Wilson 25).

The literature has produced a few “best practice” lists for environmental educators. The Environmental Education Council of Ohio proposed that quality environmental education should promote analytical skills, knowledge of environmental systems, skills for understanding environmental issues, and civic responsibility (Meredith et al. 12-14, qtd. in Christenson 4). These skills would prompt children to think critically about what they have been taught, as well as give them a reason to become actively involved in preserving the environment, which aligns with the goals proposed by the EPA.

Michael Sanera and Jane S. Shaw also propose another set of criteria for environmental education that addresses both Kriesberg’s concerns about environmental education and the belief in the importance of increasing cognitive abilities. Sanera and Shaw propose these four practices:

1. Environmental education should focus on the positive. Children “should be told of the many success stories; that commercial whaling has been virtually ended, toxic waste cleaned up, air quality improved, forest practices reformed, and endangered species protected. This should be balanced against an awareness of ongoing concerns over poverty and the loss of tropical forests” (x). This balanced approach will teach children about the positive impact they can make on the world and will show children that “environmentalism [is] at least as much about celebrating life and our ability to maintain it as it is about fear of future loss and change” (x).
2. Children should be taught to think critically, to tell fact from opinion, to question what they are told, and to identify inconsistencies in arguments and logic. These teachings will give children “a desire to seek a balanced view that takes all factors into account” (x).
3. Children should see the connection between the environment, their community, and the economy. Environmental education should promote “learning for

sustainability,” which means “both recognizing the real needs of six billion fellow humans, while at the same time understanding that those needs affect the environment, sometimes negatively.” Children should be encouraged to find practical solutions to problems (x-xi).

4. Children need to learn how to set priorities, make informed decisions, and to learn not to be afraid to change their opinions in the face of new evidence (xi).

These two sets of criteria represent general guidelines about the purpose of environmental education. Children should learn through this education to think critically, positively, and proactively.

Environmental education for children serves many purposes – it encourages children to be thoughtful about their personal impact on the environment, it reminds children that the world and its inhabitants are connected, and it encourages children to be proactive in protecting their natural community. Environmental education, when done correctly, can produce thoughtful, responsible young people.

Picture Books in Environmental Education Literature Review

Environmental education experts believe that environmental education should be taught in some way at all levels in a child’s educational career. When children in elementary school learn environmental education, picture books can be used to help the children understand the value and importance of the environment. Picture books can show children natural wonders that exist outside the child’s personal experience, which can help excite children about nature. They can also explore difficult topics in a succinct and understandable way. Kriesberg extols the value of picture books in environmental education: “Picture books are like bringing a storyteller to the class to act as a guide for the experience. Stories have always been the most powerful way to teach children about

the natural and human history of the place where they live” (xxi). Children relate to stories – by using narrative and illustrations to educate, children may become more receptive to the ideas expressed in environmental education (Meyer 227).

While picture books can be positive tools in educating young children about the environment, they can also be used in ineffective ways as well. Anne Drolett Creany notes that, while some environmental picture books are valuable because they are “informative and allow children to formulate their own feelings about environmental issues,” others are didactic and fail to teach environmental education in an appropriate way (16). Didactic literature, according to Creany, does not allow children to have an individualistic response to what they are reading; the texts, in other words, expect a certain response and do not welcome any other (17). Since children absorb literature more fully when they feel connected to it, this didacticism may not teach environmental education as much as the author intended it to.

As there are both positive and negative characteristics of environmental picture books, it is necessary to find some way to distinguish between the valuable and the ineffective pieces of literature. Evaluative criteria for choosing environmental picture books have been suggested before in the literature, though not often. Audrey Rule and Joan Atkinson discuss ecology picture books in a 1994 article in *The Reading Teacher*. They note that ecology-related picture books should “heighten concern for the environment by portraying problems realistically and helping children realize they can be part of the solution” (586). Rule and Atkinson propose a series of criteria for choosing ecology books for children, taking into account both the quality of the book as a picture

book and the quality of the book as environmental education. Their criteria are as follows:

1. The book promotes nature appreciation.
2. The book shows the interrelatedness of nature and demonstrates the need for people to cooperate with nature.
3. The book presents a realistic ecological problem, without “oversimplification or exaggeration.”
4. The book offers hope for a solution.
5. The book offers steps for a solution. At least some of the solutions “could be realistically implemented by children.”
6. The book has a positive tone and does not induce fear or assign blame.
7. The book has nonstereotypical portrayals.
8. The book has appropriate illustrations that enhance the text.
9. The book has an appealing story with “appropriate action, suspense, pace, and outcome.”
10. The book is developmentally appropriate. (586)

The criteria proposed by Rule and Atkinson address some of the issues with environmental education that were proposed by environmental educators – the books should instill children with hope and optimism, as well as provide them with a love of nature. These criteria also echo the suggestions Creany discusses in her study of environmental literature. She suggests that environmental picture books should focus more on being well-written than informative, noting that children can go to nonfiction works for information. She writes, “Fiction and fantasy should not be overpowered by oppressive messages writers feel compelled to impart. Authors who hope to teach environmental issues would do well to foster children’s understanding of the unity and interdependence of nature and let children discover their own commitment to the environment” (21).

Picture books can be powerful tools in environmental education, if used correctly. Stories can give children new and different perspectives and engage their minds in ways

that nonfiction lessons cannot. However, according to the literature, in order to connect the children to the environmental issue, the authors and illustrators of environmental picture books must focus more on the story and the characters than the lessons of environmental awareness.

Child Development Literature Review

Environmental education requires children to look outside themselves and their immediate families. It asks them to consider the outside world, to see how one small action might cause a greater reaction, and to imagine events in the future. Clearly very young children, such as infants and toddlers, would not be able to grasp such information, while adolescents may be more able to. The main question that this paper hopes to answer is whether elementary-school aged children would be able to understand and appreciate the message of environmental picture books on their own.

In order to examine whether environmental picture books are appropriate for children between the ages of 6 and 12, I examined the cognitive development theories proposed by child development theorists. One of the earliest theorists in child development was Jean Piaget, who conducted a series of experiments on children in the early and mid-twentieth century. His findings prompted him to propose a stage theory of child development. These stages are as follows:

Sensorimotor Period (birth to age 2): Children are driven by motor reflexes; they learn gross motor skills and work to refine fine motor skills; they are egocentric and driven by repetition. They learn object permanence and gradually can combine multiple actions to achieve a result (Siegler 26-30).

Preoperational Period (age 2 to age 6 or 7): Children acquire representational skills, such as language and drawing. Their vocabulary dramatically increases and their ability to express language becomes increasingly complex. They can think about objects that are not present and can engage in

symbolic play. They are egocentric and are limited to viewing things from their perspective. They also have difficulty imagining transformations and often focus only on the static state of an object (Siegler 30-34).

Concrete Operational Period (ages 6 or 7 to ages 11 or 12): Children in this stage are less egocentric and can take multiple points of view. They can understand that operations can be “mentally reversed or negative” (Meece 135), which allows them to imagine possible situations. Children in this stage often cannot imagine all logically possible outcomes of hypothetical situations, and are limited in their ability to comprehend highly abstract concepts, such as love and justice (Siegler 21).

Formal Operational Period (ages 11 or 12 to adulthood): Children at this age can use scientific reasoning and can understand probability and proportions (Meece 142-44). Children can comprehend theoretical possibilities as well as reality. They can consider questions about abstract ideas such as truth, justice, and morality (Siegler 37).

Charlotte Huck, a children’s book expert who focused on the use of children’s literature in education, presented a more detailed breakdown of child development in her book *Children’s Literature in the Elementary School*. Huck’s description of a child’s developmental growth is strongly aligned with Piaget’s. A selection of Huck’s developmental guidelines for the concrete operational stage is outlined in Table 1. Huck breaks down some of Piaget’s concepts more specifically. For example, whereas Piaget asserted that children become less egocentric between the ages of 6 and 12, Huck maintains that children become less egocentric nearer the age of 8 or 9. Huck’s categories show the gradual development of children’s cognitive growth throughout the concrete operational years.

Whereas Huck and others still use Piaget’s theory as a good general description of childhood developmental levels, others have questioned its use. Piaget’s theory has come under scrutiny from almost the moment he proposed it. Other theorists rejected the idea that children’s cognitive abilities grow in stages. Psychologist Jerome Bruner, for example, believed that any subject could be taught in some way to any child at any

developmental stage (Langford 7). Bruner, Lev Vygotsky, and other such theorists conceived of their own cognitive development theories to address their concerns with Piaget's theory. Robert Siegler's comment represents modern-day objections to Piaget's theory: "Children's thinking is continually changing, and most changes seem to be gradual rather than sudden" (8). However, as Judith Meece notes, despite the criticisms, "Most theorists believe that Piaget captured many of the major trends in children's thinking. [...]. Piaget taught us that children do not see or think about the world as adults do" (149).

Lev Vygotsky, in reaction to Piaget's theory, created his own theory of cognitive development that also deserves mention in this paper. Vygotsky believed that knowledge was not individually constructed, but rather is socially constructed – social interactions with adults and more knowledgeable children cause children to develop cognitively. Children can learn concepts as long as they have a knowledgeable person to teach them (Meece 155-57). Vygotsky believed that this co-learning, or scaffolding, could cause children to learn tasks that Piaget would have considered too advanced (Meece 161). Piaget believed that children cannot be taught a concept before they are in the correct cognitive stage, while Vygotsky encouraged educators to raise a child's potential development level (Meece 159).

These two theorists proposed solid, if flawed, theories about how children gain cognitive abilities as they grow. Piaget's stages and Vygotsky's scaffolding "serve as the foundation for constructivist approaches in education" (Meece 167). When used together, these theories provide a well-rounded view of children's development. Piaget's theory can be used to evaluate the "typical" child and provides a general overview of normal

cognitive development, while Vygotsky's theory shows the importance of continual social interaction in the educational process.

Table 1: Charlotte Huck's Developmental Characteristics (by age)

Ages 6 and 7	Ages 8 and 9	Ages 10 and 11
<ul style="list-style-type: none"> • Continued development and expansion of language. • Attention span increasing • Striving to accomplish skills expected by adults. • Learning still based on immediate perception and direct experiences. • Continued interest in own world; more curious about a wider range of things. • Still sees world from an egocentric point of view. • Vague concepts of time. • More able to separate fantasy from reality; more aware of own imagination. • Beginning to develop empathy for others. • Has a growing sense of justice. Demands application of rules, regardless of circumstances. • Continues to seek independence from adults and to develop initiative. (47-49) 	<ul style="list-style-type: none"> • Attaining independence in reading skills. • May read with complete absorption; or may still be having difficulties learning to read. • Wide variation in reading ability and interest. • Reading level may still be below appreciation level. • Developing standards of right and wrong. • Begins to see viewpoints of others. • Less egocentric, developing empathy for others. • Time concepts and spatial relationships developing. This age level is characterized by thought that is flexible and reversible. • Cognitive growth and language development increase capacity for problem solving and word play. • Seeks specific information to answer questions; may go to books beyond own reading ability to search out answers. (49-51) 	<ul style="list-style-type: none"> • Increases cognitive skill can be used to serve the imagination. • Increased understanding of the chronology of past events; developed sense of own place in time. Begins to see many dimensions of a problem. • Highly developed sense of justice and concern for others. • Searching for values; interested in problems of the world. Can deal with abstract relationships; becoming more analytical. (51-53)

Methodology

My goal in writing this paper was to ascertain the appropriateness and value of environmental picture books for elementary-aged children. I evaluated these picture books based on a selection of criteria in order to make a recommendation of what I felt is the best type of picture book to use for environmental education. In order to do this, I decided to do a latent content analysis of a select number of environmental education picture books. According to Earl Babbie, “content analysis is particularly well suited to the study of communications and to answering the classic question of communications research: ‘Who says what, to whom, why, how, and with what effect?’” (314). Since I intended to evaluate how and to what effect authors and illustrators are expressing environmental concerns to children, content analysis was an appropriate way to evaluate these works of literature.

While manifest content analysis looks at the “visible, surface content” of recorded communication, latent content analysis looks deeper into the “underlying meaning” of communication (Babbie 319). Picture books often contain metaphors and other literary devices that would make manifest content analysis difficult. Picture books also rely heavily on the illustrations themselves, which in turn often require a deeper analysis. In analyzing the picture books, I looked first at common characteristics and themes of the books in order to ascertain how the authors and illustrators try to convey their ideas to children. These results make up the first half of my analysis section.

After determining how the environmental message was conveyed, I then looked to see if it was appropriate in terms of children’s cognitive understanding and the ideals of environmental education. In order to facilitate my content analysis of the appropriateness

of the picture books I selected, I set up a criteria list based on readings in child development and environmental education. This criteria list is not the only thing I based my analysis on, but it served as a tool to organize my thoughts about the books. The criteria are divided by subject in Table 2.

Table 2:

Child Development Criteria
The book requires children to understand the concept of time.
The book requires the reader to take on a foreign perspective, such as that of an animal or an adult.
The book asks the reader to make a value judgment, as opposed to predetermining right and wrong.
The book requires the reader to understand advanced ideas, such as ecology, or abstract concepts.
Environmental Education Criteria
The book encourages an appreciation of nature.
The book is realistic.
The book offers a solution.
Children are encouraged to become actively involved or the children in the book are actively involved.
The subject matter is something that most children would have experience with.
The book ends on a positive note.
The book does not assign blame.
The book presents a balanced view of the issue by showing the reasoning of both sides.

Child development literature indicates what children of certain developmental levels can cognitively understand. I looked for instances in the picture books of developmentally challenging concepts and discussed whether the inclusion of these concepts is detrimental to the child's understanding of the book. For the purposes of this paper, Piaget's general theory of cognitive development was used to ascertain the developmental appropriateness of environmental picture books. While I did not rigidly use the age ranges that Piaget suggests, I considered them to be good general guidelines for examining what the average child should and should not understand. In ascertaining the cognitive abilities of readers, I used both Piaget's description of the concrete

operational stage and Charlotte Huck's more detailed breakdown of elementary school development. I focused on children in the "concrete operational stage", which includes children between the ages of 6-12. I chose this stage because children of this age can typically read by themselves and it will be useful to see whether they could understand what they are reading without adult intervention.

Vygotsky's belief in communal learning is important to consider in this paper as well. When reading with other children or with adults, children often learn new information and gain different perspectives that they do not receive when reading by themselves. When reading aloud, educators and parents often help children understand confusing concepts or point out nuances in the text. This cooperation is a type of scaffolding and is important to consider when evaluating how children interact with picture books. However, since children come from different environments and interact with people of varied values and knowledge, it would be difficult to take into account this scaffolding when evaluating picture books. For that reason, I looked solely at what children should be able to understand when reading the books by themselves. Because I concentrated on independent reading, Piaget's general theory about cognitive development was more useful than Vygotsky's.

I also took into account recommendations proposed by the environmental education literature in my analysis of the books. In general, the literature called for positive, informative, and proactive books about environmental issues. There was little in the literature about criteria for picture book illustrations. Illustrations are more difficult to categorize and analyze because art is so subjective. Therefore, I decided to look at the

illustrations of each book on a case by case basis instead of grouping them together by subjects or literary device, as I did for the text of the books.

I chose these picture books by looking at the listing of “Ecology” books in the *A to Zoo* picture book subject guide, and then by looking in the catalog for the Chapel Hill Public Library to see which of these books were available to me. Since *A to Zoo* is not a complete bibliography of all published books, I searched elsewhere for additional material. I included the books in the Rule and Atkinson article that were available to me, as well as searched the Chapel Hill Public Library catalog to include books that were left out of the *A to Zoo* book. Some of the subjects I used in my catalog search were “Ecology - Fiction”, “Conservation of Natural Resources – Fiction”, and “Pollution – Fiction.” Some of the books I found in my initial search were pure ecology books that discussed natural ecosystems and did not involve environmental awareness or conservation issues. Others were nonfiction works about environmental issues. Since I wanted to focus on fiction books about environmental awareness issues, I left these books out of this study, though a more thorough and lengthy study of this issue may find it useful to include them. A list of the final 32 books I chose is as follows, with brief plot summaries. I divided these books into categories by the primary focus of each book:

Books about Habitat Destruction:

Sadler, Marilyn. *Elizabeth, Larry, and Ed*.

A golf-loving crocodile named Larry and his human friend Elizabeth live happily between a golf course and a swamp. When the golf course starts encroaching on the swamp, Larry has to deal with the infiltration of swamp creatures.

Peet, Bill. *Farewell to Shady Glade*.

A group of animals flee their natural habitat once human development threatens to destroy their home.

Locker, Thomas. *The Land of the Gray Wolf*.

American settlers drastically alter the life of a young Native American boy after they disrupt the peaceful arrangement the natives had made with their natural habitat.

Yolen, Jane. *Letting Swift River Go*.

The towns around Swift River decide to create a reservoir, disrupting the natural landscape and causing young Sally Jane to wonder if the decision was fair.

Burton, Virginia Lee. *The Little House*.

The area around a little house is shown to change from pastoral countryside to busy city life as the years go on.

Seuss, Dr. *The Lorax*.

A man tells the story of how his excessive consumption of natural resources destroyed a habitat and chased away the enigmatic Lorax.

Ernst, Lisa Campbell. *Squirrel Park*.

A boy and his squirrel friend fight to save the squirrel's tree from being cut down.

Joslin, Mary. *The Tale of the Heaven Tree*.

A young girl is devastated by the polluted, overcrowded state of the earth and plants a tree that reaches to Heaven.

Base, Graeme. *Uno's Garden*.

The land surrounding Uno's garden evolves as people develop the land and then abandon it.

Child, Lauren. *What Planet are You From, Clarice Bean?*

Clarice's family comes together to protest the cutting down of an old tree on their street.

Franklin, Kristine L. *When the Monkeys Came Back*.

Set in the Costa Rican rainforest, Marta is devastated when the local howler monkeys disappear due to habitat destruction. Years later, she finds a way to bring the monkeys back.

Baker, Jeannie. *Window*.

The world outside a boy's window changes as he grows up over two decades.

Brown, Ruth. *The World That Jack Built*.

A cat takes the reader on a tour of the environmentally diverse area around Jack's house.

Books about Ecological Harmony:

San Souci, Robert D. *The Birds of Killingworth.*

The ecological balance of the town of Killingworth is disrupted when the townspeople decide to eliminate the bird population.

Kleven, Elisa. *The Dancing Deer and the Foolish Hunter.*

A hunter encounters a dancing deer in the woods and brings him back to his home, only to discover that the deer requires the rest of his natural habitat in order to dance.

Cherry, Lynne. *The Great Kapok Tree: a tale of the Amazon rain forest.*

A group of rainforest animals convince a human that he should not cut down the great Kapok tree upon which all their lives depend.

Greene, Carol. *The Old Ladies Who Liked Cats.*

The ecological balance of a town is upset when all the cats are banned from going outside.

Books about Pollution:

Leedy, Loreen. *The Great Trash Bash.*

The residents of Beaston make an effort to eliminate the trash and pollution in their town.

Grindley, Sally. *Peter's Place.*

A boy's seaside sanctuary is devastated by an oil spill.

Bunting, Eve. *Someday a Tree.*

A family's favorite tree is poisoned by pollutants, which devastates the family and their community.

Cole, Babette. *Supermoo!*

A cow with superpowers battles polluting creatures around the world.

Testa, Fulvio. *Too Much Garbage.*

Bill and Tony take a journey through their neighborhood and decide that there is too much garbage in the world.

Books about Depletion of Resources:

Pfister, Marcus. *Milo and the Magical Stones.*

A book with two possible endings, this story tells of a mouse named Milo and his discovery of magic stones on the island on which he lives. In the different

endings, Milo and his friends either take the stones responsibly, or consume recklessly and destroy themselves.

Rowe, John A. *Moondog*.

A monkey is sent to the moon to determine if it is suitable for human habitation, since humans have consumed all of the earth's resources. A dog that lives on the moon tricks the humans into believing that the moon is unsuitable.

Orr, Katherine. *My Grandpa and the Sea*.

Lila's fisherman grandfather teaches her about responsibly using the earth's resources.

Books about Recycling:

Wallace, Nancy Elizabeth. *Recycle Every Day!*

A young bunny explores many different ways to recycle in an attempt to create a recycling poster for a community contest.

Van Loan, Nancy. *Round and Round Again*.

Mama recycles everything, sometimes to the embarrassment of her children, but they appreciate her habit when she builds a house and a rocket ship out of recycled materials.

Books about Multiple Issues:

Van Allsburg, Chris. *Just a Dream*.

A boy has a disturbing dream about the future and resolves to take better care of the Earth.

Wood, Douglas. *Old Turtle*.

The various parts of nature argue about who God is, until they realize that the human inhabitants of Earth need their help.

Cheng, Christopher. *One Child*.

A child becomes discouraged by the environmental problems she sees in the news and becomes proactive in solving them.

Burningham, John. *Whaddayamean*.

God encourages two children to spread the word of environmental harmony and peace to the world.

Browne, Anthony. *Zoo*.

A family of four visits the zoo, where the animals watch them as much as they watch the animals.

Analysis

Time Frame

Concern over environmental issues seems to be a relatively new topic in children's literature. Most of the environmental picture books I looked at – 66% of them – were published in the 1990s. A quarter of the books were published between the year 2000 and 2006, and 9% were published before the 1990s. The earliest published book in this set is *The Little House*, which was published in 1942. There likely are more environmental awareness picture books published before the 1990s, but judging by what I found available on the library shelves and in the literature, books on this issue were not as numerous in the earlier years as they are now. (See Chart 1 in Appendices).

Subject Matter

The authors and illustrators of the 32 books I examined likely chose the subject matter of their books because they felt that that subject was an environmental issue that children either could or should care about. I divided the books into subject areas based on the main focus of the book. Many of these books include multiple issues, but most focus on one definable topic. A number of the books – 40% of them – discuss issues dealing with habitat destruction. The subject of pollution and those books with more than one main issue each had the second highest with 16% of the books, followed by ecological harmony with 13% of the books. Depletion of resources and recycling were less popular categories, with 9% and 6% of the books respectively. (See Chart 2 in Appendices)

These topics were perhaps used in these picture books because they are easy to visually represent. Almost all of the picture books on habitat destruction, for example, start with an image of natural beauty and juxtapose that image later in the book with a picture of natural destruction. Children can visually compare the two images and see the difference, though they may not be able to cognitively understand the importance or significance of the difference.

The top two topics, habitat destruction and pollution, are also issues that most children encounter on a daily basis. Almost every child who travels along a busy road or an interstate will see trash on the ground and construction vehicles on the side of the road. While the picture book may not use an example of habitat destruction or pollution that the child would be familiar with, children may be able to make the connection between what they see depicted in the books and what they see in the world outside.

Habitat Destruction

Each author and illustrator addresses his or her subject in a different way from others in the same subject area. The books on habitat destruction are quite varied in their treatment of the issue. The books *The Little House*, *Squirrel Park*, *Window*, *What Planet are You From*, *Clarice Bean?*, *Elizabeth*, *Larry, and Ed*, and *Farewell to Shady Glade* are set, at least part of the time, in what appears to be suburban America. These books show forestland or neighborhood trees being cut down in order to make room for development. The animals featured in these books are familiar to American children – raccoons, squirrels, and frogs. *The Land of the Gray Wolf* and *Letting Swift River Go* also are set in America, though are placed in a historical setting. Those books that take place

in modern day America are likely the easiest for American elementary-school aged children to identify with. Those set in the past, or in foreign locations, such as Costa Rica, as in *When the Monkeys Came Back*, may be more difficult for children to relate to, simply because most modern American children are not familiar with old Native American camps or tropical rainforests. If they have no personal connection with the subject at hand, the idea of habitat destruction may not impact them as much. Authors may decide to set their picture books in exotic locations to show that environmental issues are worldwide, but this idea of “global impact” may be ignored by children in the early concrete operational stage, who are fairly egocentric and have difficulty applying concepts to entities outside their immediate world.

Two of the books about habitat destruction are set in places that are depicted in an abstract or nonspecific way (*The Tale of the Heaven Tree* and *The World That Jack Built*). Those books set in the undefined, nonspecific locations may be more effective in engaging older children because these children can think more abstractly and impose their own settings on the book at hand. For example, *The Tale of Heaven Tree* talks about the world at large and how it is destroyed by humans. At the end of the book, a girl plants a tree that grows to heaven and provides shelter for all the animals. The tree could have been planted anywhere, and this potential could excite children in ways that a more specific location would not have. However, younger children, as mentioned before, generally lack the ability to think so abstractly and apply concepts in such a way. Younger children may benefit more from books set in concrete, easily recognizable locations.

Two of the books about habitat destruction are set in imaginary locations. *The Lorax* is set in a typical Dr. Seuss world of odd names and make-believe creatures, whereas *Uno's Garden* is set in a forest full of unreal animals with names like "snortlepig." These imaginary locations make for fantastical drawings which are often more appealing than their realistic counterparts. However, the very fact that these habitats and animals are imaginary may make light of the environmental issues at hand. Fantasy or imaginative books could potentially be used to show children that environmental issues are not frightening or realistic. However, these books do not use the fantastical aspect in such a way. These books were not comedic or light-hearted, but rather serious books about environmental issues that were simply placed in an imaginary location. Children may not make the connection that habitat destruction is a real issue if it is shown to be happening to fantastical creatures. However, if children *can* make such a connection, these books may be entertaining and valuable resources for a child's understanding of environmental issues.

The effect of habitat destruction varies in the 13 books on the subject. In *What Planet are You From, Clarice Bean?*, the habitat that is being destroyed is a single tree, whereas in books such as *Uno's Garden* and *When the Monkeys Came Back*, the habitat is an entire forest. In *The Tale of Heaven Tree*, the entire earth is at risk. Children may understand the dangers of habitat destruction more easily from those books which deal with smaller habitats. Children may view the destruction of the whole world's natural environment to be impossible or too frightening.

Interestingly, in only one of these books is the issue of habitat destruction seen from both a positive and negative viewpoint. Most of the books portray habitat

destruction and development as a bad thing, as it destroys natural habitats. *Window*, a wordless picture book that shows the gradual development of the natural landscape outside of a boy's window, could potentially provide readers with the opportunity to self-determine if the development of new stores, homes, and restaurants is better or worse than a natural landscape. However, the author expresses her negative view in an author's note at the end of the book, seriously reminding the reader that wilderness is being eliminated at an alarming rate. Likewise, *The World that Jack Built* does not explicitly state negative views about the habitat destruction, but the clear change in the story's pictures, from peaceful and beautiful to dark and ominous, makes it clear to children that something is not right about Jack's factory.

Indeed, the only book that provides a somewhat balanced view of habitat destruction is *Letting Swift River Go*, which tells of the building of a reservoir. Sally Jane, the main character, discusses how her lovely town is ripped apart and flooded in order to provide Boston's citizens with water. Sally Jane seems to appreciate both the beauty of her town and the beauty of the newly created reservoir. She misses her old town, but she describes the reservoir in positive tones, discussing the "starry water" (Yolen [30]). While it is made clear that Sally Jane would have liked to keep her town the way it was before the reservoir, the book does not condemn reservoirs. Rather, it presents them as a sort of necessary choice. Jane Yolen reminds us in her author's note that, "Such reservoirs are trade-offs, which, like all trades, are never easy, never perfectly fair" ([3]). The book provides a good discussion point for why reservoirs may be necessary, whereas the other books on habitat destruction do not discuss the positive effects of the

development of suburbs or cities. In these books, children are not reminded that their very own homes and schools were built through some sort of habitat destruction as well.

Pollution

By and large, children understand the concept of garbage. They are urged by their parents and caretakers from a young age to “pick up your trash.” It follows, then, that two of the five books about pollution specifically discuss the idea of litter. *The Great Trash Bash* and *Too Much Garbage* show how throwing your trash on the ground has far-reaching consequences. *The Great Trash Bash* discusses how generating trash can affect nature in many ways, such as by pointing to the air pollution caused by trash incinerators. *Too Much Garbage* is a simple story about two boys that notice how garbage has taken over their lives; they see a flower blooming in a landfill and decide to plant more flowers and reduce the amount of garbage they produce. Both of these books make the problem of garbage easy for children to understand, though only *The Great Trash Bash* gives children ideas on how to reduce trash.

Supermoo! and *Peter’s Place* both deal with water pollution, specifically from tanker ships, though the books have a very different tone from each other. *Supermoo!* is a humorous take on pollution, with superhero cows fighting the evil, pollution spreading Bots. The Bots cause tankers full of molasses to spill into the ocean; Supermoo solves the problem by soaking up the molasses with a giant bubble. He later uses the molasses to make a giant toffee tube. This story is not at all serious, as even the issue of pollution is dealt with lightly. The pollutant in this book is not shown to be very damaging at all – indeed, it is used to make candy. *Peter’s Place*, on the other hand, is a sad and serious

book that shows how a young boy's sanctuary is ripped apart by an oil spill. Peter and his community are left to try to save the animals and natural landscape that are harmed by the oil. It is realistic, both in story and illustrations, and shows the truly devastating effects pollution can have on an ecosystem. Children may enjoy reading *Supermoo!* more because it is a simpler, funnier tale than *Peter's Place*, which is full of ominous text such as "From deep inside [the tanker's] belly a foul-smelling blackness spread into the night" (Grindley [15]). *Supermoo!* may help introduce children to the issue of pollution without making the issue seem too frightening, but it also makes light of the issue. Children may not be able to make the connection between "molasses" and "oil" – without this connection, the environmental message of the book is diminished and it becomes a simple fantasy picture book. *Peter's Place* treats the issue seriously, but realistically. Its contents may frighten some younger readers, but the environmental issue should not be lost on any of its readers.

Like *Peter's Place*, *Someday a Tree* shows how nature can be a sanctuary for people. The family in *Someday a Tree* has shared many of its pivotal moments with the large oak tree on Far Meadow. When the tree is poisoned by pollutants, the family and the community at large rally to save its life, much as the community did for the seashore in *Peter's Place*.

Ecological Harmony

The four books that discuss ecological harmony all do so in the same way – they show how one animal or plant can affect the lives of many. In each book, the animal or plant is taken away or threatened to be taken away from the natural environment and the

consequences of doing so are discussed. These books show readers that there is a connection between every living thing in an ecosystem. Three of these four books have a strong story that children can enjoy without understanding much about the environmental issues involved. *The Birds of Killingworth*, *The Dancing Deer and the Foolish Hunter*, and *The Old Ladies Who Liked Cats* discuss how ecological harmony is important, but they all do so through a story with a developed plotline. In *The Birds of Killingworth*, for example, the issue of ecological harmony is exhibited alongside the issues of family and romance. *The Great Kapok Tree*, on the other hand, consists mostly of testimonies of animals, who are pleading with the sleeping woodcutter to leave their tree alone.

As I will discuss later in the paper, children may not understand these books as much as the author may wish them to because the concept of ecology can be a difficult one to understand. Since three of these books rely heavily on the story rather than just discussing the environmental issue, understanding the concept of ecology is not entirely essential to enjoying the story. Younger elementary school children reading *The Great Kapok Tree* may have some difficulty understanding the intricacies of the environmental issue; since the book has little story besides the environmental issue, this book may not be suitable for them. However, all of these books portray the issue of ecological harmony in a fairly simple and engaging way, and can serve as good introductions to the topic.

Depletion of Resources

The three books about resource depletion deal with the same issue in very different ways. *My Grandpa and the Sea* is a realistic book that deals with the problem of overfishing. The main character, Lila, learns from her fisherman grandfather about the

delicate balance of the sea. The grandfather admonishes modern fisherman, who use fast boats with large nets, saying, “They come to God’s table each with a wheelbarrow instead of a plate. You cannot prosper by taking more than God can give” (Orr [16]). In the end, Lila’s grandfather decides to farm seamoss, which will provide for his family and give back to the natural ecosystem. *Milo and the Magical Stones* also shows the value of giving back to the natural ecosystem. This book, while featuring imaginary mice in a fantastical setting, teaches much the same lesson that *My Grandpa and the Sea* does. Milo and his mouse friends take magical stones from their island. In one ending of the story, the mice give back to the island by creating beautiful stones to replace the magical ones; however, in the alternative ending to the story, the mice do not give back to the earth and perish.

Moondog does not discuss the idea of “giving back to the earth” as the other two books do. Rather, it shows the consequences of using more resources than you need. In this book, humans have used all of earth’s resources and now want to exploit the moon. This is a silly book seemingly meant to make kids laugh, but it has a preachy message to it as well. At the end of the book, the earth’s scientists decide that “the Earth is a special place, and they will never find another place like it” (Rowe [22]), so they should take better care of it. Likewise, *Milo and the Magical Stones* is a more didactic book than *My Grandpa and the Sea*, with its disastrous possible ending that seems to say, “Give back to the earth or else you die.” *My Grandpa and the Sea* shows the delicate balance and beauty to nature without being overly depressing. All of the books, however, display the delicate nature of the earth’s resources. The idea that the earth may one day run out of

resources may be a difficult one for many children to understand, however, as will be discussed further on.

Recycling

Only two books out of my research set focused on recycling. This may be because recycling can be a difficult concept to understand. Since children often dispose of recyclables into bins or machines, much in the same way they dispose of regular trash, the idea of recycling may be confused with throwing the trash out. The process of recycling is also an enigma as well; the vast majority of children do not actually see soda cans or paper plates being turned into new objects by recycling machines. The first of the recycling books, *Round and Round Again*, avoids this issue by having the main character, Mama, recycle everyday objects that are not conventionally recycled. She reuses candy wrappers and basketball nets, as well as paper and tin. The purpose or value of recycling is not discussed in this book, but rather is portrayed as a fun activity that can result in fantastic results.

Completely different in almost every way from *Round and Round Again*, the second recycling book, *Recycle Every Day!*, is a didactic book that discusses *ad nauseum* the value of recycling. Each page offers ideas about how to recycle, and the final pages of the book provide a list of recycling opportunities for readers to pursue. While this book enlightens readers about the purpose and process of recycling, it does not have the same sense of fun as *Round and Round Again*. Even the illustrations in *Recycle Every Day!* are more orderly than the fantastical images in *Round and Round Again*.

Multiple Issues

These five books involved many of the same issues discussed above, but did not focus on a single topic. *Old Turtle* tells of how people “began to argue about who knew God, and who did not. [...] And often the people misused their powers, and hurt one another. Or killed one another. And they hurt the earth. Until finally even the forests began to die” (Wood [34]). This book shows how nature comes together to encourage the people to treat the earth and each other with respect. It is a simple book, told in a folk tale style. The environmental and social issues are not heavily discussed – the focus of the book is more on nature and how God is in every aspect of nature.

Whaddayamean also involves God and multiple issues, but it is a very different book. It deals with issues of pollution, habitat destruction, and climate change, but also discusses religious intolerance, poverty, world hunger, and war. The book shows what is wrong with the world, and then encourages children to solve these problems. While the general message is a good one, it requires a lot of prior knowledge and understanding about world affairs. The combination of social issues and environmental issues indicates that these two groups of issues can be solved in similar ways, which is not always the case. It also shows children that no one will listen to them unless they claim they are speaking for God. Many of the book’s exchanges between child and adults resemble this one, without a trace of sarcasm:

“And so the little children set out to find the men with the money who cut down the trees, dirtied the waters, and fouled the air.

‘We must save the world,’ the children told them. ‘Stop cutting the trees, dirtying the waters, and fouling the air.’

‘Whaddayamean? Don’t waste our time, you snotty little kids. You can’t tell us what not to do. Run away, we’re busy.’

‘But God said to tell you not to cut down the trees, dirty the waters, and foul the air.’

‘Oh, if it was *God* who said we must not do this, then we must stop,’ said the men with the money” (Burningham [27]).

Zoo also requires a great amount of discernment of its readers. The book’s subject seems simple, a family of four visiting the zoo, but the underlying messages that the book sends out are not so simple and would likely be overlooked by younger children. *Zoo* mostly consists of two-page spreads, the picture on the left showing the humans at the zoo, the picture on the right showing the animals in their cages. The humans are shown acting like or physically resembling animals, while the animals are shown calm and bored in their cages. The comparison that this juxtaposition of illustrations presents may be lost on younger readers, but older ones should see that it is the humans who are acting like animals. At the end, the mother comments: “I don’t think the zoo really is for animals.[...] I think it’s for people” ([Browne 22]). This sentiment could be taken in several ways, but it requires some thoughtfulness on the part of the reader nonetheless.

One Child and *Just a Dream* deal with multiple issues as well. *One Child* shows how one girl is empowered after seeing stories of animal cruelty and pollution on television and in the newspapers. The girl starts making changes to her life and the book says, “Just imagine if the children of the world did all that they could” (Cheng [20]). The mosaic pattern of illustrations in the book starts off with mostly dark and depressing illustrations and eventually turns to all positive, beautiful illustrations of nature and children doing good throughout the world. *Just a Dream* shows how children can be empowered as well. Walter, the main character, has a dream in which his future has been destroyed by pollution, overuse of resources, and habitat destruction. He wakes up and

makes changes to his life, and then later has another, more positive dream of the future. Like *Whaddayamean*, these two books use multiple world problems to provoke children into action, but unlike *Whaddayamean*, these children decide to make a difference of their own accord.

Common Themes

There were two important common themes that I saw in books from multiple subject areas. The first of these is the discussion of God, who is heavily featured in *Old Turtle*, *The Tale of the Heaven Tree*, *Whaddayamean*, and *My Grandpa and the Sea*. In the first three of these books, God is shown as a displeased creator who wants to stop humans from destroying His beautiful earth. In *Old Turtle*, God speaks through nature in order to encourage humans to stop destroying the natural resources. The emphasis in this book is on the idea that humans are a part of nature as much as animals and plants. In the book, “the people forgot. They forgot that they were a message of love, and a prayer from the earth (Wood [34]). Only when people begin to listen to nature “and to see God in one another” (Wood [41]), do they stop harming the environment.

Whaddayamean shows God unhappy with how His creations have been treated as well. Instead of involving nature in the solution, as in *Old Turtle*, the God of *Whaddayamean* has children spreading the word that He is displeased. A child plays a similar role in *The Tale of Heaven Tree*. In this book, a young girl is distressed at the state of the earth. God, who is called the Maker, encourages her to plant a special tree, which grows into a tree tall enough to reach heaven and provide a safe haven for God’s creatures. In *Whaddayamean*, the children save the entire earth, whereas in *The Tale of*

Heaven Tree, the child just saves herself and those animals that can live amongst the tree, but the message of both books is the same: God wants children to make a difference.

My Grandpa and the Sea uses God in a slightly different way. Lila's grandfather does not attend church, but insists that his time fishing is more valuable than time in Church. He says, "God is in the sea and sky, and in the fish and in ourselves. He is all about if we look and listen with our hearts" ([Orr 10]). This belief is reasserted when he insists that those who overfish are doing a disservice to God. As in *Old Turtle*, nature is shown to be in harmony with God.

These books give religion as a reason to stop harming the environment. There is little explanation in some of these books about the dangers of environmental problems other than, "God does not like this." Including religion in these books may not make much of an impact on children who do not believe in God, or who wish to have another reason for learning about the environment, but this motivation may be useful for religious children. All of these books show God as a creator, but not a steward. In none of the books does God simply fix the problem. Rather, He shows children how to do so. The implication in this is that humans, and not God, are responsible for the protection and maintenance of the earth. These books place control in the hands of humans, not in the hands of the deity.

While religion can be a motivator for more environmentally sound actions, the use of God in these books may also serve to scare children. While God is only shown as angry in one of the books (*Whaddayamean*), the implication in the others is that God disliked the changes to the environment. Religious children taught to fear God may feel

guilty or horrified by the notion that God is displeased with human beings. If children do feel some of this shame or fear, they may resist learning about the environmental issue.

Another theme, perhaps more universal than that of religion, that I noticed in multiple books was the theme of planting trees. Six of the books, or almost 19%, feature characters planting trees to combat environmental issues. Marta in *When the Monkeys Came Back* successfully reintroduces howler monkeys to the Costa Rican rainforest when she replants the forest near her village. *The Tale of the Heaven Tree* shows a young girl planting a tree to provide sanctuary for the earth's living things. A boy at the end of *The Lorax* likewise is given a *Truffula* seed to plant in order to bring the natural habitat back. Alice plants an acorn seed in *Someday a Tree* to replace her poisoned oak tree, while the main characters in *Just a Dream* and *One Child* also plant trees to prevent habitat destruction. This theme is perhaps used in so many books because planting a tree is a simple process that any child who has access to land and a seedling can do. While planting a tree can not solve all of the environmental issues, it is often seen as a simple and proactive step in the right direction.

Evaluative Criteria

I have discussed the ways in which the authors and illustrators of these books convey the environmental message to their readers. I will now discuss the effectiveness of their methods and look at how these books stood up to the criteria gleaned from my research into child development and environmental education.

Child Development

In evaluating these books for children in elementary school (about ages 5 or 6 to 11 or 12), I looked at what the developmental theorists had determined that this age group should be able to understand. Piaget's concrete operational period of his developmental theory applies to children in this age range and states that these children can take multiple points of view, but are limited in their ability to understand hypothetical situations and abstract concepts. Charlotte Huck maintains that younger elementary children are fairly egocentric and have difficulty taking others' points of view. Their knowledge base is formed by their direct experiences, and they have difficulty understanding the concept of time. Older elementary school children become less egocentric, more curious about the world around them, and can better understand the passage of time. Children in elementary school also start to feel empathy for those around them, and as they grow begin to develop their own value systems. I focused on the issues of perspective, values, abstract thinking, and time here because these concepts are used often in picture books about environmental issues. I looked at how these four concepts were used while I analyzed the 32 environmental picture books.

Perspective

In my analysis, I looked to see how point of view was used in the books. If younger elementary school children still have trouble seeing the world through other points of view, a book told from the perspective of a human child may be the easiest for them to relate to. However, 19 of the 32 books, or about 60%, told the story from an adult, animal, or deity's point of view. This in and of itself may not be a negative aspect

of the books. While it may be easier for children to engage themselves in a book told from a familiar perspective, those books told from other perspectives may explain the environmental issue in more detail.

Many children's books are told from the perspective of animals. When dealing with environmental issues, many of which concern animals as well as humans, showing the issue from the perspective of the animal may help the child understand the impact of the environmental concern. Additionally, exposing children to an alternate perspective may help increase their ability to take such perspectives. In order to ensure that children in elementary school understand these environmental picture books, however, the authors and illustrators should make clear that the main character's perspective is not completely removed from their own. If they fail to do so, children may not see their own role in protecting the environment. Rather, they may feel that it is something out of their hands.

Values

Since children start to form their own values, rather than just adopting those of their parents, in elementary school, I looked to see how these books asked children to make value judgments. All of these books have a pro-environment message, and almost all of them predetermine the values for the reader. Almost every book preaches a moral or value without inviting the child to look at the alternative moral or value. As discussed above, only one of the books about habitat destruction (*Letting Swift River Go*) truly looks at the positive side of development. Likewise, few of the other books show multiple sides to each environmental issue. In a rare exception, in *The Great Trash Bash*, the Mayor of Beaston visits the incinerator to discover where all the trash goes. A fox says

about the incinerator “The incinerator burns trash and makes energy!” and the Mayor says, “It makes air pollution, too!” ([Leedy 13]), thus presenting both a positive and negative effect of the incinerator. But more often than not, environmental destruction, whether it is to build houses or fish more efficiently, is presented as bad without showing the benefits to human beings. These books present the authors’ values, and invite the children to accept them as their own. Those values that are presented in these books can give children the opportunity to re-examine or reinforce their own thoughts on the matter at hand. Younger, more egocentric children may not have the cognitive skills to consider another’s values, but older children who are eager to form their own values may be willing to do so.

Abstract Thinking

Piaget believed that children in the concrete operational stage had difficulty understanding abstract concepts, such as love and justice. The ability to understand these concepts, he thought, comes later, when children are in the formal operational period. It is difficult to measure the use of abstract thinking in children’s literature. Love, after all, is an abstract concept, but it is a theme in many children’s picture books. For the purposes of this analysis, I looked to see if the picture books required children to understand difficult or theoretical concepts. One concept that I believe particularly difficult for children to understand is the issue of ecology, or the idea that all living things are interconnected. Ecology is portrayed in 13 of the picture books I studied, but I noted that most of these books explain ecology in a simplistic way that most elementary-aged children would be able to understand. In order to understand these books, a basic

knowledge of ecology is required, but the most of the stories provide this knowledge for the reader.

For the most part, these books require very little understanding of abstract concepts, even though environmental issues are full of abstract concepts, such as justice and truth. As mentioned above, these books often do not go into the different sides of environmental issues. They rarely invite children to ask, “Is this fair? Is this just? Is this the truth?”, but rather explain the issues in a rather black and white way. While this may be the developmentally appropriate way to approach these issues, most of these books do not explicitly invite children to ask questions. These issues could be further explored by parents, teachers, and librarians by asking the children to discuss their books.

Time

Many environmental issues, such as global warming or resource depletion, do not happen overnight. Over time, events happen that cause certain environmental problems. Many times, especially with the issue of resource depletion, the matter is not of immediate urgency, but rather something that will become a problem in the future. If children cannot grasp the idea of history and the future, as is often the case with younger elementary-school children, this presents a problem in their understanding of environmental issues. Twenty of the books, or about 63%, involve the passage of time. In some of these books, such as *The Birds of Killingworth*, the passage of time is fairly insignificant in understanding the story. In others, such as *Window*, understanding the passage of time is essential. Children may also have difficulty caring about issues that will not affect them for some time, if ever.

Environmental Education

The literature on environmental education made it clear that not all environmental education is effective or useful. Environmental education for children, and likewise picture books on this subject, should encourage an appreciation of nature, be realistic, present a subject that children are familiar with, focus on the positive and provide a solution, encourage children to actively get involved, and present a balanced view of this issue so that children can employ critical thinking skills and make their own decisions. I used this criteria list to evaluate the picture books and found none met all of the criteria and several met only a few.

Nature Appreciation

Perhaps the first step in teaching children to take care of the environment is to teach them to appreciate the environment. Twenty-seven of the 32 books I examined, or 84%, involved some obvious level of nature appreciation in the text or the pictures. Some books, such as *Peter's Place* or *Uno's Garden* spoke specifically about the natural environment and displayed it lavishly in the illustrations. Others showed natural appreciation in subtler ways. *The Great Trash Bash*, for example, talks about the "rolling hills" and "shady trees" that make the town "a beautiful place" (Leedy [31]). Only a few books made no mention of the beauty of nature at all. *Elizabeth, Larry, and Ed* talks about a habitat reserve for swamp creatures, but this reserve is not said to be beautiful, but rather just a useful place to send the swamp creatures so that they will not come on the golf course. Neither of the books on recycling discusses nature or the outside

environment, and while the titular character in *Supermoo!* saves the world from pollution, he does not show how nature is better without pollution.

On a surface level, *Zoo* does not promote nature appreciation at all. The animals in the zoo are drawn as dumb or lazy, and the human characters of the book do not appreciate them either. However, this lack of appreciation for these animals and their wellbeing is meant to prompt the reader to have sympathy and concern for the animals. Older children with the ability to see beyond the surface level will be able to feel this appreciation for the animals, but younger children with less discernment may actually believe that the book's author does not care for the animals either.

Realism

One of the criteria set for good environmental education literature is that it presents a realistic environmental problem to the reader. During my analysis, I looked at the realism of the story itself, rather than the realism of the environmental problem. Half of the 32 books presented realistic stories; that is, they had human characters doing things or experiencing events that were possible. Most of the books that I deemed not realistic actually dealt with realistic environmental problems, but had talking animals or imaginary creatures as main characters. While many children's books have animals as main characters, this may pose problems for young readers' understanding of environmental issues. As I discussed before, to see an environmental problem from an animals' perspective may make the problem difficult to understand or difficult to see as important. A child may read *Milo and the Magical Stones* and not make the connection that it is symbolic of human actions. Rather, he may just see it as a silly book. Even if he

saw the environmental issue, he may not apply it to humans because the book has not done so. Older children can make these connections, but younger children may not be able to think in such a way.

A realistic environmental problem is a different evaluative criterion than a realistic story, however. All of the books show true environmental problems, but not all do so through realistic stories. Is it a real problem that trees are being torn down to make room for houses? Yes. Is it realistic that a boy and his talking pet squirrel would engage in trickery and breaking and entering to save said trees from being torn down? Not exactly. However, is it important that the story be realistic as long as the environmental problem is real and children can understand it? Many children's picture books deal with fantasy and make-believe, and elementary-school aged children usually have no problem separating the truth from the make-believe. In fact, many of these older children who are identifying with new perspectives and values embrace the fantasy world because it lets them explore possibilities outside their own lives. If the readers of these environmental education books can successfully see the environmental problem and make the necessary connections, it should not matter for the purposes of education if the story is a fantasy or not. The key, however, is that the environmental problem is easy to understand and apply to the real world. Younger children may not have the cognitive abilities to do this; they might enjoy the story, but find the story too far removed from the real world to make the necessary connections.

Positive Solutions

Almost every environmental education resource I looked at indicated that environmental education should dwell on the positive. It should emphasize the good things humans have already done to help the earth, and encourage children to become actively involved in supporting environmental causes. Telling children that the earth is being destroyed and then not giving them any solutions only serves to discourage and alarm them.

Most of the books – about 91% of them – ended on a positive note. Even in *Peter's Place*, when the book's second to last page says, "For, not far below the surface, in little nooks and crannies, between the rocks, under the sand, are ugly black scars that can never be washed away" (Grindley [28]), the book still manages to end positively. The next page reminds readers that, despite this, "this land's end is full of life" (Grindley [31]). The three books that did not end positively were *Window*, *The World that Jack Built*, and *Zoo*. *Window* ends with the grown boy moving out to undeveloped land, then looking out his window at signs for future development. This book has no text, but it is clear from the pattern of development that we saw in the previous pages of the book that the natural landscape will soon be taken over by the development of buildings and roads. *The World that Jack Built* travels through the beautiful countryside that surrounds Jack's house, then gradually the illustrations grow darker and darker until it gets to the factory that Jack built. While many of the books start with images of polluted landscapes or destroyed habitats and end with renewed natural landscapes, *The World that Jack Built* does the opposite. *Zoo* ends with the family coming home from the zoo, and one of the

sons having a dream about being caged in a zoo habitat. The dream is somewhat disturbing and certainly not positive.

In general, however, many of the picture books show how environmental problems can be remedied by planting trees, reintroducing animals, or picking up trash. All of the books provide a solution for the environmental problem, with the exception of the negatively ending books above and *Letting Swift River Go*. Ideally, these solutions would be ones that children are actively engaged in the book itself, or ones that children could engage in outside the realm of the story. Seventeen of the books feature such solutions. Books like *The Great Trash Bash* and *Recycle Every Day!* provide lists of environmentally friendly activities for children to do in their daily lives. *Recycle Every Day!* even provides a recycling game. Other books, such as *Peter's Place*, *Squirrel Park*, and *When the Monkeys Came Back*, show how children actively become involved in a community effort to help the environment. *What Planet are You From, Clarice Bean?* shows how a family of three children, two parents, and one grandparent come together to protest an old tree from being cut down. This book shows how family members can work together to make simple environmental changes.

Critical Thinking

While child development experts are more concerned with abstract thinking and the creation of personal values, environmental educators seem concerned with teaching children how to make decisions for themselves. Most of the books clearly state the author or character's opinion on the environmental issue. One of the evaluative criteria proposed by environmental educators was whether the book presented a balanced view of the issue

in order to let children decide for themselves. In analyzing this, I looked for the books that explained the point of view or reasoning of both sides of the environmental issue. While most of the books dismissed the anti-environment side as immoral or corrupt, these books at least presented their argument. Only ten of the books, about 31%, showed a balanced view of the environmental issue. The other books did not address the point of view or reasoning of the “other side” at all. In order to promote critical thinking, an alternative view must be presented. We cannot ask children to think thoughtfully about environmental subjects if we do not present both sides of the argument. By simply insisting that habitat destruction or air pollution is wrong without showing children the arguments for housing developments or incinerators, we do not give children the opportunity to engage their critical thinking skills.

The authors of these books may not wish to engage children’s critical thinking skills; rather, they may wish to tell a story that expresses an environmental belief. Most of these authors seem just as concerned with the enjoyment and emotional impact that their books contain as with their educational value. For the purposes of environmental education as described by the research these books should show multiple viewpoints. However, it seems that it is more difficult to do this through picture books than in a classroom setting. Presenting children these critical thinking opportunities in short picture books is not easy to do without sacrificing the story. In terms of environmental education and critical thinking development, it may be better to use multiple picture books that present different issues than to expect that each picture book show all sides of the issue. Picture books are not usually meant to be comprehensive texts; rather, they exist to tell a story and occasionally teach a lesson. Each of these books could be used to promote a

child's critical thinking skills, but it would be best to include other materials as well in order to provide the balanced viewpoint.

Experience

Children's knowledge base, up to a certain point in their lives, is formed by the immediate world around them. As discussed earlier, books set in locations far removed from the child's own may be difficult for the child to understand. Children may not feel emotionally invested in the destruction of a rainforest if they have no conception of what a rainforest is. Obviously, a child's knowledge base grows as they enter school and learn more about the world. As children grow, they become more curious about the outside world. Many of these environmental picture books encourage this curiosity as they deal with matters outside the child's own personal experience.

Eleven of the picture books dealt with issues that most modern American children would have some experience with. These books may be best suited for younger elementary school children who have difficulty understanding life outside their own experience. If children learn that the squirrels and raccoons they see every day are in danger of being killed by some environmental threat, they may identify with the environmental issue and want to help. However, as they grow children should also gradually explore books that deal with issues outside their own experience. Books like *When the Monkeys Came Back* and *My Grandpa and the Sea* teach children about the universality of environmental issues and also introduce them to foreign cultures and ways of life.

Conclusions

All of these 32 books seem to have been written for the purpose of introducing environmental education concepts to children. However, in many of the environmental picture books I examined, understanding the environmental message was not an essential part of enjoying the story. Some of these books are silly, fun, and engaging and would be enjoyed even by young children who do not know what “environment” means. Other books were didactic and were not overly enjoyable; the main purpose of these books was not to entertain, but to preach environmental messages.

The purpose of this paper was not to determine the enjoyment each book would cause children, though I did make some comments to that effect in my analysis. Rather, the purpose of this paper was to determine if the books were written in such a way that elementary school children would be able to understand the environmental messages. By and large, most of the books were written so that elementary school aged children could understand them. While many of the books required the children to have knowledge of environmental issues, or the concept of time, or some other aspect that younger children may not be developmentally able to understand, most of the books seemed to be able to entertain or inform in some way even if the child could not understand all of the book’s concepts. The average elementary school child would be able to read each of these books and understand most of the text.

However, several of these books were written in such a way that many elementary school children would be confused or frustrated by their reading experience. Books like *Window*, *Whaddayamean*, and *Zoo* are on a level that older elementary children may be able to understand, but the average younger elementary school child

would struggle with. The problem with this limited appeal to children is that most upper elementary school aged children are not reading picture books. They have moved on to chapter books and find picture books too immature or even babyish. The general audience for picture books is pre- and beginning readers. Authors of such mature picture books should realize that few in their target audience will be reading their books. Furthermore, those children who will be reading the books will need some outside help to understand the themes and ideas presented by the authors. While ideally it is best that children be able to read with the support of a parent or educator, not all children have this opportunity. These three books almost required adult support for many of their potential readers.

So what, then is the ideal picture book for environmental education? Initially, I believed that the ideal picture book would be the one that met the most of my criteria. But in evaluating the books through the criteria that were suggested by environmental educators and child development theorists, I found that some of the criteria did not apply to children's picture books. The environmental educator's belief that environmental education should teach critical thinking skills, for example, can be a difficult criterion to meet for most picture books. Most fiction picture books cannot present scientific issues in a balanced way without sacrificing the story. Ultimately, the criteria that discussed the development of children's critical thinking skills, the realism of the book, and the issue of perspective were thrown out of my conception of the ideal picture book. These issues are important to consider when thinking about environmental books, but they can be too limiting to apply to fiction. These criteria would be useful in evaluating non-fiction science books.

Ultimately, I found that the ideal environmental picture book should fit these characteristics:

Firstly, the ideal environmental education picture book should be able to stand alone as a quality picture book, environmental message notwithstanding. The book should be engaging in terms of storyline, character development, and illustrations. Several of these “fiction” books, such as *Recycle Every Day!*, were so didactic and without quality story that they would be better off treated as a nonfiction book.

Secondly, the book should promote an appreciation of nature. The best books I looked at in this selection set showed a strong appreciation for nature through the story’s text and illustrations without being didactic. *Peter’s Place* discussed the sense of peace that nature can provide, while the *Birds of Killingworth* and *The Old Ladies Who Liked Cats* use simple and engaging text and pictures to show how one aspect of nature can affect all others. Readers leave these books understanding the importance of nature without having been lectured to.

Thirdly, the book should be appropriate for younger elementary school children as well as older elementary school children. While the book does not have to be at the pre-school level, it should be at such a level that a first or second grader would be able to read it by himself without becoming confused. Many children cannot understand the idea of “the future”, for example, so environmental picture book should focus more on the present and immediate future in order to engage children. Often environmental issues are too complex to be fully explained in a picture book, so the authors should not attempt to do so. Chapter books or nonfiction books can be used to enlighten children about the more complex environmental issues.

Fourthly, the book should not dismiss the seriousness of the environmental issue by poking fun at it, as in *Supermoo!*, nor should the book depress children with the gravity of it all. Rather, the book should deal with the environmental issue in an appropriate, but positive way. Children should not leave their reading experience thinking that the world is going to come to an end, or that their drinking water will kill them, or that they are bad children for using too much paper. Instead, they should feel cheerfully empowered by what they have just learned. One of the better books in the set, *What Planet are You From, Clarice Bean?*, was a funny, lighthearted book that nonetheless expressed the seriousness of the potential loss of the old tree. It also shows children becoming actively involved with their friends, family, and community.

Picture books do not have to teach a lesson at all to be quality picture books. Many of the best picture books, such as Margaret Wise Brown's *Goodnight Moon*, are simply enjoyable, comforting stories that do not focus on teaching a moral. However, if authors and illustrators intend to teach environmental lessons in their books, they should focus first on the story itself, and gradually weave the environmental message through the story in an age-appropriate, positive way that will delight children rather than lecture to them.

Appendices:

Chart 1 – Picture Books by Subject:

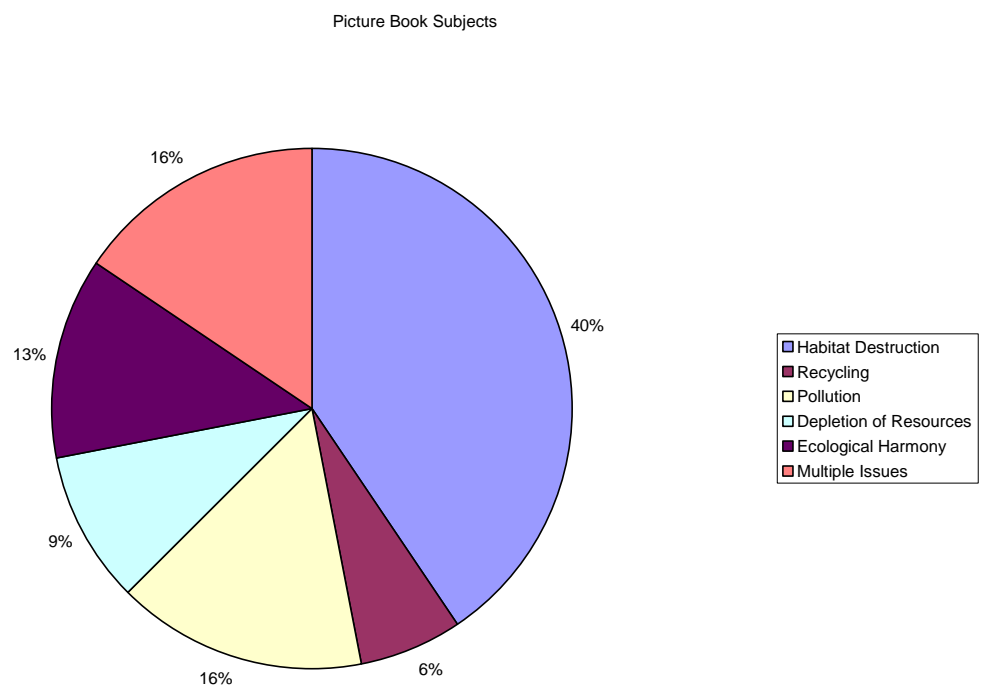


Chart 2 – Picture Books by Publication Year:

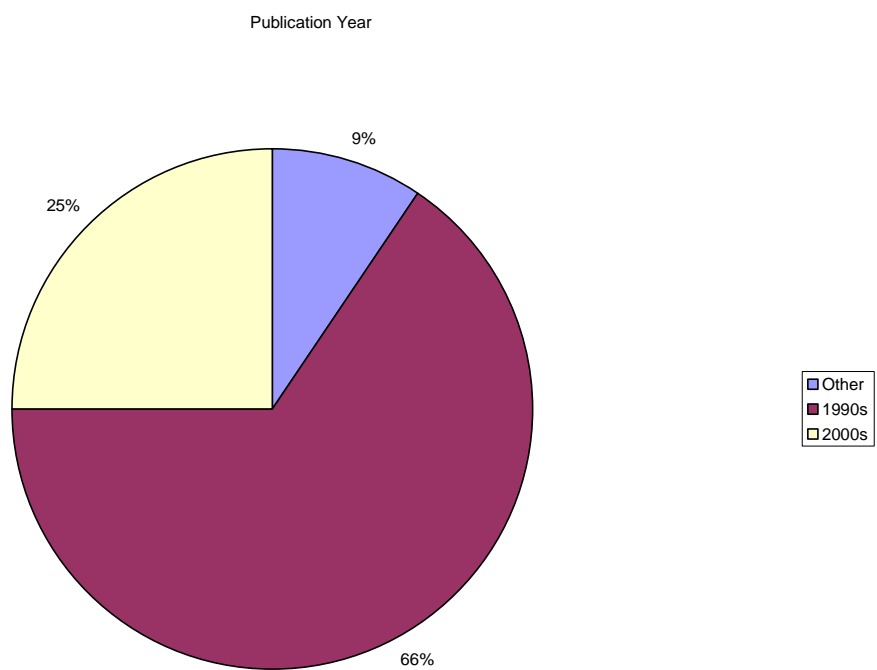


Chart 3 – Criteria Chart:

	<i>The Birds of Killingworth</i>	<i>The Dancing Deer ...</i>	<i>Elizabeth, Larry, and Ed</i>	<i>Farewell to Shady Glade</i>	<i>The Great Kapok Tree</i>	<i>The Great Trash Bash</i>	<i>Just A Dream</i>	<i>The Land of the Gray Wolf</i>	<i>Letting Swift River Go</i>	<i>The Little House</i>	<i>The Lorax</i>	<i>Milo and the Magical Stones</i>	<i>Moondog</i>	<i>My Grandpa and the Sea</i>	<i>The Old Ladies Who Liked Cats</i>	<i>Old Turtle</i>	<i>One Child</i>
Child Development Criteria																	
The book requires children to understand the concept of time.	x				x		x	x	x	x	x	x		x	x	x	
The book requires the reader to take on a foreign perspective, such as that of an animal or an adult.	x	x	x	x	x	x		x		x	x	x	x			x	
The book asks the reader to make a value judgment, as opposed to predetermining right and wrong.									x								
The book requires the reader to understand advanced ideas, such as ecology, or abstract concepts.	x	x			x			x			x	x		x	x	x	
Environmental Education Criteria																	
The book encourages an appreciation of nature.	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
The book is realistic.	x						x	x	x	x				x	x		x
The book offers a solution.	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
Children are encouraged to become actively involved or the children in the book are actively involved.	x				x	x	x				x						x
The subject matter is something that most children would have experience with.						x	x			x							x
The book ends on a positive note.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
The book does not assign blame.									x								
The book presents a balanced view of the issue by showing the reasoning of both sides.	x	x	x			x			x		x	x		x	x		

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