

Dresang, E. T. (1999). Preface and What is radical change: An introduction. Republication from E. Dresang (1999), *Radical change: Books for youth in a Digital Age* (pp. xv-xx; 3-16. New York: H. W. Wilson. *Contemporary Issues in Technology and Teacher Education*, 8(3), 277-293.

A Note from the Editors

Radical Change: Books for Youth in a Digital Age (Dresang, 1999) is a landmark work that examines ways in which young readers are affected by the Digital Age. The impetus for the book grew out of Eliza Dresang's observation that printed books with nonlinear, interactive qualities appeal strongly to contemporary children. She noted that digital media have served as a catalyst leading to new styles of printed books with graphics in new forms and formats, nonsequential organization, and multiple layers of meaning.

Documentation of this generational shift is the foundation of the book. Printed books and reader's reactions to these books are affected by the Digital Age. Social networking on the Internet is evolving rapidly. Youth are spending increasing amounts of time in conversations with others in this nonlinear, hyperlinked environment. Dresang observed that this has influenced the way in which youth read and interact with printed books.

Radical Change and its thesis are well known among school librarians. It likely appeals to librarians because it provides an explanation for the changes in the reading habits of youth that they have observed.

There are several reasons for republishing the preface and introductory chapter of *Radical Change* as a seminal work in the *CITE Journal*. The first is that sufficient time has passed since its publication to warrant re-examination of its premise. MySpace, FaceBook, YouTube, and Twitter did not exist in 1998 but are now ubiquitous, among youth at least. These changes amplify and unscure the initial thesis of *Radical Change*, making reconsideration of its implications worthwhile.

The second reason for republication to make it accessible to a broader audience that extends beyond librarians. Librarians and educational technology specialists are affected by many of the technological and social events occurring outside of schools. Each group can contribute different perspectives about the implications. *Radical Change* provides common ground for this conversation.

The *CITE Journal* is a nexus that encompasses science educators, mathematics educators, English educators, and social studies educators in conversation with educational technology specialists. No group has been more affected by advances in technology than librarians, so we are pleased to have the opportunity to incorporate their perspective into the dialog about teacher preparation.

Future teachers need to be aware of the changes in young readers that are occurring in order to meet their needs. *Radical Change* offers an excellent starting point and context for thinking about implications for teaching in today's schools.

We also encourage you to read Dresang's contemporary reflection piece on *Radical Change*, published in *CITE Journal* as a related article.

Glen Bull & Lynn Bell
Editors

Preface and Chapter 1 excerpted from Dresang, E. T. (1999). *Radical change: Books for youth in a digital age*. New York: H. W. Wilson. Copyright 1999. Reprinted with permission from the author.

Radical Change: Books for Youth in a Digital Age

Eliza T. Dresang

PREFACE

The headings in this Preface—as throughout the book—are designed to serve as guideposts for the reader to use in deciding which topics to pursue.

The Intended Audience

This book is written for librarians and elementary and secondary teachers and for university educators who teach about and study books for youth. Parents who are "growing up digital" with their children are another of its potential audiences. It most likely will be of interest, as well, to scholars in childhood studies programs, many of which have been recently established in universities across America, and to other researchers who are in the forefront of studying (and caring about) the relationship between the digital world and children. I also wrote this book for the many authors, illustrators, designers, editors, and publishers who have demonstrated a commitment to books that have particular digital-age relevancy—and hope all in the publishing trade, including publishers of digital products, will find it provocative. Those are the specific intended audiences. The general audience consists of all those who care about children, their books, and the excitement of the digital environment. (Maybe even a few radical young readers will enjoy dipping in here and there.)

The Nature of the Beast

Radical Change is a way of understanding books that can be used by anyone interested in literature for youth—used to identify books with characteristics reflecting the interactivity, connectivity, and access of the digital world. Its relevance is not confined to the products of the digital age, however. It is a theory that can be applied to books for youth published in any time period, because digital-age characteristics existed both in society and in literature even before they became as commonplace as they are today.

Although literature with these traits may be regarded as either negative or positive for youth, I regard the type of literature singled out by Radical Change (and the underlying societal supports for it) as cause for optimism. I bring four basic assumptions that codify

the positive aspects of the digital world and the opportunities for young people in it to this study of literature identified by Radical Change (see page xxiv).

An affirmative regard for Radical Change resources rests in part on a belief that the principles of intellectual freedom (based on the First Amendment) are applicable to youth as well as to adults. There are many who see their mission in life as "protecting the innocence of youth" by limiting their access to information. Even if one does not believe philosophically in access for children, the futility of attempting to shield youth from information seems apparent as we read and hear and view daily reports of atrocities in the news. I am not naive enough, having worked with children much of my professional life and having mothered three, to think that the abundance of information in the digital world and concomitantly in literature for youth is the answer to all the world's ills. Nor am I naive enough not to recognize its dangers. But the danger of withholding information from youth far exceeds the danger of providing it. The onus is on us, the adults who care for and work with young people, to guide them to it, give them the background to sort through it and interpret it, and write, edit, and publish it in books that give them the opportunity to reflect upon and absorb it. A group of graduate students in a course on Radical Change at Florida State pointed out that the antiseptic world described in *The Giver* (Lowry, 1994) is the antithesis of the exciting, challenging—if not so safe—world of Radical Change.

On the other hand, I make it abundantly clear throughout this book that my enthusiasm for Radical Change books in no way disparages the other, vast majority of good books for youth. My belief in Radical Change is linked to my belief in access to many different kinds of experiences, including those encountered in more traditionally presented books for youth. And besides, as mentioned below, the radical soon becomes the regular. (To youth the radical is already the regular.)

Although I'm writing about books and find many of life's greatest pleasures there, I am not among those who deplore the virtual world. For me online digital resources are the answer to my lifelong need to have a vast amount of information at my fingertips and to explore freely many topics, some of which I can only discover by browsing. On any typical day while writing this book, I would move readily back and forth from my word processor to Web sites with related information, statistical sources, e-mail from colleagues, online bookstores, and library catalogs. But such fantastic digital resources do not keep me from the library, nor from the handheld book. I value exploration among selected passages in books; I like the chance to study and absorb a subject in depth that the handheld book provides. I want children to have this same freedom to explore information openly in all areas. And book and digital resources are not antithetical for me—nor will they be for the twentyfirst-century child.

There is a threat to the handheld book for youth in this digital world. It's not that the handheld book will disappear; it may come to us in a different form or by a different distribution method, but it will always exist. The danger is rather that the "protect the innocent children" forces will win out in the world of handheld books. And if they do, the contents of books will become largely irrelevant to youth—or relevant only as light entertainment. Because in the digital world, no matter how hard the adults try, information will not be kept from the young. And, as has already begun to happen, books—both fiction and nonfiction—must provide the same relevance and opportunities for exploration found in the online world, or they will indeed become relics on the trash heap.

The Roots of Radical Change

As I explain more fully in Chapter 1, the development of the concept Radical Change began nine years ago with a single book—*Black and White* by David Macaulay (1990)—and a single individual: Kate McClelland, Assistant Director and Head of Children's Services at Perrot Memorial Library in Old Greenwich, Connecticut, soon became an inspired collaborator. She and together and individually, have taken Radical Change "on the road" for the past six years, including appearances at three national conferences devoted specifically to the topic. I have taught graduate courses about Radical Change and have written articles about it for numerous journals with diverse audiences, e.g., *CHLA Quarterly*, *Book Links*, *Library Trends*, *Theory into Practice*, and *The Horn Book*. In all these arenas, the concepts in this book were tried tested, refined—and sometimes radically changed. But the fundamental theory has never given way under this scrutiny—it has only gained strength as time has gone on.

Perry Nodelman, Professor of English at the University of Winnipeg, children's literature critic, and himself the author of several novels for youth, inspired much of the intellectual muscle behind this book; you will find his name appearing time and again. The depth and acuity of his analyses and his concern for the children who read books have challenged and inspired me to be as a scholar and as a teacher.

One day in 1996, after I had moved to Florida from Wisconsin and my two decade-long job directing the library, media, and technology program in the Madison School District, I noticed in the e-mail signature file of one of my new faculty colleagues, Kathleen Burnett (now Associate Dean), the following quote:

Yet clearly, human thought processes include nonlinear, nonsequential, and interactive characteristics which, when acknowledged by traditional information structures, are not supported. In fact, one might characterize the history of information transfer as a tyranny against such characteristics, that is a tyranny against the rhizome.

Kathy Burnett's image of a rhizome—a horizontal, root-like structure with sprouts here, there and everywhere (first used by French thinkers Gilles Deleuze and Felix Guattari in the 1980s to describe an ideal book)—seemed to me the perfect analogy for Radical Change. I liked its suggestion of organic growth rather than rigid, hierarchical structure. Although I mention the image of a rhizome only briefly in this book, it has been constantly in my mind as the structure that explains the way the changes in literature in youth "sprout up" here and there just as they do in the online environment—connected yet heterogeneous, and in a nonlinear manner. One reason for proposing Radical Change to others is to offset a "tyranny against the rhizome" in literature for youth.

Finally, an opportunity offered by Marc Aronson, Senior Editor at Henry Holt, to read the manuscript of his fine nonfiction book for youth, *Art Attack: A Short Cultural History of the Avant-Garde* (1998), honed my thinking about Radical Change. Seeing the avant-garde described as first challenging the status quo, then becoming mainstream, reinforced my notion that a thing is radical in the sense of "provocative" for only a short period of time. After that, other meanings of radical, such as "fundamental" or "deep-rooted," take over. This strengthened my belief that the extraordinary changes we were seeing in literature for youth are here to stay.

A Journey Through the Book

The format of this book was inspired by Richard Wurman's *Information Anxiety* (1989). His book gave me the first comprehensive view of how form and format can enhance understanding while substantially reducing anxiety. It is my hope that the format of this book will allow you, the reader, to pick and choose, to see what is considered "core" to the argument. The annotated Table of Contents is the first guide for the reader. After Chapter 1: What Is Radical Change: An Introduction, Chapter 2 delineates the characteristics of books so identified. Chapter 3 focuses on digital-age youth and how the way they think and learn often leads them to prefer radically changed literature. Chapters 4 through 9 provide an in-depth exploration of the types of Radical Change. Chapter 10 focuses on how the sense of story has changed and yet remains the same in the digital world. Chapter 11 responds to the question, "What is a good book in the digital age?"

Throughout the book, border information relates to the adjacent text, providing ready reference and (hopefully) added value to the discussion. Another part of the book that will serve as a useful reference guide for readers is Appendix A, a compilation of more than two hundred books annotated to highlight their qualities of Radical Change. I've tried to represent all the characteristics of Radical Change through the books in this list (which, of course, had to be highly selective). Delving into these books is perhaps the best way to verify for yourself the existence of books with Radical Change characteristics—and to learn how to recognize them in the future. From this Appendix the trail leads to the digital world and to the Radical Change Web site at

http://slis-one.lis.fsu.edu/radical_change/

I will update the Appendix frequently on this Web site. In addition, the site will provide a forum for discussion of Radical Change principles and for links to up-to-date, related Web sites as they become apparent. Thus, this Appendix will be the part of this book that is continuously updated, yet it will also continue to serve as the basis for understanding Radical Change. Appendixes B and C are tables, the one showing changing attitudes to childhood in western society, and the other showing the expansion of Radical Change literature among books singled out for honors. Appendix D provides some suggestions for the use of Radical-Change books; Appendix E lists some Frequently Asked Questions about Radical Change—and directs the reader to the Radical Change Web site, where responses can be found and more such questions posed.

The Future of Radical Change

It must be recognized from the start that this book is about theory development. It represents scholarship that comes from much reading, thinking, observing, and analyzing, tempered by a lifelong association with others interested in the study of literature for youth, and with children, books, and (since it has been available) the digital world. It comes from trying out new paradigms, as Joel Barker suggests in his *Paradigms: The Business of Discovering the Future* (1992). It is a book based upon intellectual analysis. From the perspective of Information Studies, it fits into the area of intellectual access to information. I will continue to apply the Radical Change theory to literature, looking for new types of interactivity, connectivity, and access in books for youth, past and present.

But I am interested also in pursuing Radical Change using other research methodologies. With one faculty colleague, Myke Gluck, I hope to follow the trail of information-seeking behavior which I set out on some years ago with my dissertation and test the "usability" of

books reflecting Radical Change principles. I have begun to develop a sense of the ways in which Radical Change may be particularly relevant to youth who have previously been denied access to information, and want particularly to test these observations. In other directions, I hope to look formally at the language of discourse, to compare, in content analyses, books that do not have the characteristics of Radical Change with that do, to more clearly understand the difference. I also want to study Radical Change from the point of view of the diffusion of information to see how librarians, teachers, parents, and children are learning about, adopting, and using the books of Radical Change. I have started this research with a federally-funded Institute held at FSU in 1998. In the future I hope to collect data to expand upon and extend the usefulness of the ideas in this book.

Currently I am co-authoring a book called *Dealing with Censorship in the 21st Century: A Guide for Librarians and Teachers* (Greenwood, forthcoming). The topic is relevant to the survival of Radical Change literature. I hope to continue discussions with academic and professional colleagues in person and via the Radical Change Web site, as such discussions have proved invaluable in the past. Above all else, I hope to continue to talk with young readers about their books.

Radical Change has created an extended community of adults and children talking and thinking together—this is the best that the future can hold.

-Eliza T. Dresang
November 1998

1

**WHAT IS RADICAL CHANGE?
AN INTRODUCTION**

WARNING

This book appears to contain a number of stories that do not necessarily occur at the same time. Then again, it may contain only one story. In any event, careful inspection of both words and pictures is recommended. (Macaulay, Black and White, 1990, title page)

This book grew out of a puzzle. The idea that something radical is taking place in children's books first occurred to me when I was a member of the 1991 Caldecott Committee. This Committee awarded the medal for the best picture book of the year to David Macaulay's *Black and White* (1990). After excitement over the award died down, I began to wonder why *Black and White* appealed so strongly to contemporary children but not always to contemporary adults. Like the book itself, the reaction to it seemed a puzzle. Looking around, I discovered other books that evoked the same sort of mixed response. Like *Black and White*, these books invariably had interactive, nonlinear qualities. The words *interactive* and *nonlinear* struck a familiar chord. These are words heard often in

contemporary society; they are used to describe digital media such as CD-ROMs and the Internet.

My Caldecott colleague, Kate McClelland, and I began to give talks for other librarians and teachers about this book-digital connection. As we talked we learned. We began to recognize other changes in books—not just in formats, but in perspectives and in topics, and not just in picture books, but in all types of books. Eventually we realized that the changes in books for young people have a lot to do with changes in society, a society that daily becomes more interactive and connected through digital networks. We began to see more and more similarities between this world and the world of literature. We saw that something was happening in books for youth, and we called it "Radical Change."

After one of our first public presentations about Radical Change, a librarian came up to the podium to say, "You've saved my life. I have to appear before my school board next Tuesday and convince them why we need funds for both books and computers. I could not quite see the connection until I heard you talk. Now I know exactly what I'm going to say." Many more librarians, educators, critics, parents, and young people themselves have grown excited by this new way of thinking about literature and literary-digital connections. They say the concept of Radical Change helps them understand, select, and use books in this digital age, and they have asked to have it all written down to use as a guide. It was for this reason that Radical Change, an idea about books, became a book itself.

David Macaulay explained a lot about the "radical" or unusual nature of *Black and White* in his Caldecott Medal Acceptance speech, when he said that "it is essential to see, not merely to look; that words and pictures can support each other; that it isn't necessary to think in a straight line to make sense; and finally that risk can be rewarded" (1991, p. 346).

WHAT DOES RADICAL CHANGE MEAN?

Change needs no definition. *Radical Change* does. Understanding the various meanings of *radical* helps in understanding the extensive changes in contemporary literature for youth.

The English word *radical* derives from the Latin *radix*, meaning "root." I think of the entire body of existing literature for youth as a sort of rhizome (a horizontal, root-like structure), from which new developments emerge in a random, spontaneous manner.

Next, the word *radical* means "fundamental." The changes in literature for youth are basic.

The word *radical* also means "a departure from the usual or traditional." All changes identified as *Radical* emerge out of, but at the same time depart from, the time-honored characteristics of literature for youth. Some teachers, librarians, and critics are upset when they see such changes referred to as "new" or "departures," because they can think of books with many of the same traits that were published in the past. These adults are often less disturbed when they realize that the literary changes which depart from the traditional may well have appeared in the past, but not in significant numbers. Now they appear in far greater quantities. What was highly unusual is now commonplace, in part because of a more supportive environment.

The term *radical* often describes extreme or insurgent actions in times of political turmoil. Literary critic Rod McGillis asks in *The Nimble Reader* (1996) whether radically-styled contemporary books for youth are "in any political sense radical, or do they put to rest the transgressive instincts of their readers?" (pp. 111-12).

Finally, the word *radical* means "extremely different from commonly existing views." Most changes in literature for youth are not extreme. Nonetheless, a few of the examples described in this book do represent developments that are "extremely different" from the literature of the past.

Considering all these definitions together, *Radical Change* means fundamental change, departing from the usual or traditional in literature for youth, although still related to it. According to an ancient Chinese proverb, wisdom begins when things are called by their right names. Radical Change gives those of us with a serious interest in contemporary literature for youth the right name to apply to what otherwise would remain an enigma.

"Radical change" is used in two different ways throughout this book, as shown in Figure 1.

Figure 1
KEY

- The term *Radical Change* with initial caps is used to describe the framework or theory that allows the reader to identify literature with characteristics of the digital age.
- The term *radical change* with no capitals is used to refer to the evidence of the changes themselves in literature or (sometimes) in society.

DOES RADICAL CHANGE APPLY TO ALL BOOKS FOR YOUTH?

Radical Change *can* apply to all types of books for youth. However, in this book it will be applied only to texts that are generally regarded as "literature" for children or young adults.

Literature is writing, illustration, or other graphic representation demonstrating excellence of form or style and expressing ideas of widespread or long-term interest. It makes sense to focus here on books with literary merit, because many of the adults for whom the discussion is intended are responsible for choosing "good books" to use with children or for teaching others about such books. This examination of Radical Change in literature for youth centers on the *handheld book*, a term that means, as it would seem, a book which can be held in the hand and read without the assistance of an electronic device. Our discussion looks at how literature has been and will continue to be transformed within this portable "package." The scope of literature selected for examination is that published *for* young readers in the United States, most often but not always, by the juvenile divisions of trade publishing houses.

When books for children change, it follows that parents, teachers, and others will raise concerns and questions about what this means for reading. *Reading* in relation to Radical Change means "decoding" words *and* pictures to arrive at meaning. Evolving ideas and issues about reader response and constructing "story" now and in the future are scrutinized as part of the discussion.

Overall, the annual children's Book Selling Survey conducted in March 1996 showed steady sales of children's books. Over 34 percent of the respondents increased their children's book sales over the previous year, while 31.5 percent reported no change (Roback and Maughan, 1996, p. 52). *Children's Books in Print* (1998) lists more than 127,000 active titles.

WHO ARE THE YOUTH?

A good friend in publishing recently asked me to guess the age that editors "always" say intended readers are, when they want to sell a book to an editorial committee. The answer (which I did not know) is eight to twelve. Whether or not this practice is widespread, setting age limits is imprecise at best and often unduly restrictive.

The readers (or listeners and viewers) with whom this book is concerned range from preschool through adolescence, and include as well any other readers who choose materials published and marketed specifically for young people. The specific age of young readers is rarely referred to in this book, and when age is mentioned, it is usually the age intended by the author or illustrator, rather than the age of the actual reader. These readers are the young people Don Tapscott calls the Net Generation in his book *Growing Up Digital* (1996). They were born after 1977. They have grown up with televisions and computers. Indeed, computers have become more evident and available each year of their lives.

The only type of literary books for youth which seem thus far not to have been influenced in a substantial way by the radical changes of the digital age are those known as "easy readers." Perhaps publishers and authors believe that children need linear text, simplified concepts, and familiar subjects in order to learn to read.

It is difficult to find a consistent term to apply to these young readers. *Children* and *youth* are used interchangeably here as umbrella terms to cover both preadolescent and adolescent readers. However, when literature is specifically written and published for an intended audience of adolescent readers, the term *young adult* is applied.

WHAT IS THE DIGITAL AGE?

The digital age referred to in this book is the societal landscape that has gradually emerged as computers have become more commonplace and as the Internet has become a locale where children can learn and play. The digital age was clearly emerging in the 1990s, the years that are the focus of this book. No specific beginning date can be identified, for this era, like the books it has influenced, evolved over time, out of what came before. *Digital* refers not only to the media themselves but also to the interactive, connective qualities they possess, which seem to have permeated much of society. Nicholas Negroponte, head of the MIT Media Lab, vividly describes the impact of this digital culture in the collection of his columns from *Wired Magazine* called *Being Digital* (1995): "Being digital is different. We are not waiting on any invention. It is here. It is now. It is almost genetic in its nature, in that each generation will become more digital than the preceding one" (p. 231).

In 1997 the Children's Book Council (CBC), an organization of publishers of books and book-related multimedia products for youth, compiled a bibliography, *Not Just for Children Anymore*. It is stated in the Preface that "children's books are now books for the young and the older. One thing is certain: they are Not Just for Children Anymore!" The pamphlet is available in electronic form on the CBC web site
<<http://www.cbcbooks.org/navigation/parindex/htm>>.

What Does *Digital* Mean?

Digital is a term that is often used when referring to electronic media in the 1990s. There are technical and cultural aspects to its meaning. Technically, *digital* means media that are created using bytes made up of bits. A bit is a binary unit which is created by the presence or absence of an electrical impulse, in essence a 1 or a 0, thus the name *digital*. The significance for us is that, because bits and bytes are really only electrical impulses

without substantial being, they cannot be fixed into place or frozen in a linear order—they can be endlessly and instantly arranged and rearranged. The electrical impulses of which bytes are composed can speed around the world in seconds—and become something entirely different within a few moments of their arrival at a destination. (In a pre-digital medium, the smallest units of matter—the atoms—once set in place, stay in that order. Print, radio, and television—as originally conceived and transmitted—are pre-digital, linear media.) In a broad sense, *digital* refers to media which provide for users a high level of choice and interactivity because the bits and bytes can be rearranged and transmitted so easily.

Today's digital age has its roots in the 1950s, when television entered the homes of most Americans. The years between 1960 and 1990 can be thought of as the developing digital age. The beginnings of the global village—the instant connectivity among peoples across the world—and the emergence of the visual as a widespread means of communication date back to the late 1960s or early 1970s. However, the quantum leap in connectivity, interactivity, and access that marks the fully emerged digital age did not occur until digital media had started to touch the lives of the general populace, in the last decade of the twentieth century. Digital communication had become ubiquitous by the early 1990s. By 1994, sales of personal computers were approaching those of televisions, and the phenomenal growth of Internet connectivity had begun. The nonlinear, interactive digital communication media have reached out and drawn in older, linear media—video, sound, print—and made all accessible in a user-controlled way never before known.

Table 1
Development of the Digital Age

1960s	Television becomes widely available; the global village begins
1970s	Internet precursor comes into use
1980s	Personal computers and digital media become widely available; video games bring digital media to youth
1990s	Internet becomes widely available; "older" electronic media such as television become digitized; technologies converge

In 1997, 44 percent of all U.S. households had personal computers. But an astonishing 60 percent of the households with children had them. Predictions are that by the year 2000, nearly half the households with children will be online (Tapscott, 1997, p. 22-23). Network Wizards, an online source which provides statistics on worldwide connectivity, can be found at <<http://www.nw.com/>>.

The digital age acknowledges the continued influence of other electronic media, but the focus is on the spreading network of interconnected personal computers. This is the age of the Internet, the Information Superhighway, the National Information Infrastructure. It is the age of digitized media, often in multimedia format. While there are certainly

In 1997, 44 percent of all U.S. households had personal computers. But an astonishing 60 percent of the households with children had them. Predictions are that by the year 2000, nearly half the households with children will be online (Tapscott, 1997, p. 22-23). Network Wizards, an online source which provides statistics on worldwide connectivity, can be found at <<http://www.nw.com/>>.

downsides and pitfalls, the more positive, nurturing, challenging aspects of this digital age can unleash the potential of all of us—and, most importantly, children.

DIGITAL-AGE PROPHET

"The medium is the message." "The global village." "Hot and cool media." These are all common phrases coined by Marshall McLuhan. Thirty-some years ago, McLuhan wrote extensively and passionately about the electronic environment. Although his ideas were often speculative rather than "proven," and criticized as such, they've been persistently discussed during thirty years of immense social, technological, and political change. Many of McLuhan's concepts seem more relevant than ever. Recognizing his continued influence, the Massachusetts Institute of Technology recently reissued his book, *Understanding Media: The Extensions of Man*, originally published in 1964.

The Global Village

Over and over McLuhan proposes that the electronic media are breaking down old habits of thought formed by the impact of Gutenberg and the printing press. The isolationist, nationalistic organization of the world will also be broken down, he says, as people begin to communicate via media that are involving and nonhierarchical. Even more than McLuhan imagined, the global community not only exists, but is increasingly interactive.

Hot and Cool Media

Luhan described media as either "hot," or not requiring active participation on the part of the recipient of the message, or "cool," requiring a high degree of participation. According to McLuhan, a hot" medium is one that is filled with the data the user needs for garnering the message. Often it calls into play only one of the five senses. Radio is a "hot" medium. So are handheld books—they marshal information and narrow the field of choice for the reader. Television, on the other hand, is a "cool" medium. It brings into play at least two senses and necessitates more extensive user involvement. Although McLuhan's examples can be challenged, he saw beyond the limitations of a one-way broadcast and defined a desirable, evolving principle of the new media: interactivity.

McLuhan and Books

McLuhan did not abandon books. He suggested transforming them. He transformed the books he himself wrote in precisely the same ways and for the same reasons that handheld books for youth are being transformed now. McLuhan spoke of one of the concepts of Radical Change, the interaction between print and electronic media, when he said, "Our job is not to wreck the book but save it by teaching grammars of new media" (quoted in Neill, 1971, p. 311). McLuhan said television was a "cool" medium because it is

In 1997, 44 percent of all U.S. households had personal computers. But an astonishing 60 percent of the households with children had them. Predictions are that by the year 2000, nearly half the households with children will be online (Tapscott, 1997, p. 22-23). Network Wizards, an online source which provides statistics on worldwide connectivity, can be found at <http://www.nw.com/>.

The impact of the emerging electronic age gained widespread attention during the sixties with Marshall McLuhan's *The Medium Is the Massage* (1967). This was McLuhan's only best-seller, and it brought ideas to the general public. At his death in 1980, McLuhan was not particularly respected as academician or spokesperson for popular culture. But, says Gary Wolf, executive editor of *HotWired*, "in the confusion of the digital revolution, McLuhan is relevant again" (1996, p. 124).

composed of "bits" which make up a mosaic—predicting the mosaic of the digital world, before it came into being. According to Sam Neill, a librarian who has studied McLuhan's work,

The effect of the mosaic approach ... evident in his publications, has naturally caused great howls to arise from those who expect the argument of a man's point of view to march forward word by word, page by page, chapter by chapter, each one rising out of and developing the preceding, to culminate in a visible and classifiable conclusion. He is accused of being a "communicator who can't communicate." (p. 312)

McLuhan uses three juxtaposed formats in *The Mechanical Bride: Folklore of Industrial Man* (1951)—advertisements, short witty quotations and statements, and an essay about advertising's cultural relevance. In the introduction to the volume he states, "Because of the circulating point of view in this book, there is no need for it to be read in any special order" (p. vi). In other books, McLuhan used alternating light and boldface type to make points; he published almost entirely visual texts, including *The Medium Is the Massage* (1967); and he foresaw the hypertext story and the sound bites of modern news reports in *Culture Is Our Business* (1979), where he said, "In the electric age the connection in narrative and art is omitted.... There is no story line in modern art or news.... Thus, isolated news items are more interesting than editorials" (p. 112). McLuhan employed many other nonlinear, nonsequential techniques in his writing—all of which he described as communication reflecting the electronic world. McLuhan was an accurate prophet for the radical changes to come three decades later to the handheld book for youth.

This imaginary dialogue between two contemporary children and their aunt, a McLuhan fan, is meant to show which of McLuhan's ideas seem valid at the beginning of the 21st century and which need rethinking. *Black and White* (1990) by David Macaulay is discussed extensively in subsequent chapters. It is a prototype of Radical Change.

Radical Change in Literature for Youth and McLuhan's Ideas

An imagined dialogue between two "Net Generation" children—Nell (13) and Willie (6)—and their favorite aunt, Rosa, who likes to hear what they think and has always been interested in the ideas expounded by Marshall McLuhan in Understanding Media:

- Nell:** Look, Aunt Rosa, I'm reading a good book by David Macaulay called *Black and White*.
- Aunt Rosa:** Ahhh! Then you have what a man named Marshall McLuhan referred to some thirty years ago as a "hot" medium, something that doesn't require the kind of intense involvement that television viewing or using your computer does. Professor McLuhan thought printed books—other than those he wrote himself—provide a pretty complete and straightforward experience. He compared them to the "mosaic" of electronic media that demand more thought.
- Willie:** Have you seen *this* book? Here, look at it. Look at this, look at the different sizes and shapes of the words, and where they are on this page.
- Nell:** Looks like more of a mosaic of items than I see online. And, look, here on the first page, the author won't even tell us how many stories there are in the book. The reader has to figure it out. It's pretty involving. [See Plate 1.]
- Aunt Rosa:** Yes. Very unusual, though, for a book. Things happening simultaneously, nonlinearly. Very unusual. I do remember Professor McLuhan's saying that Lewis Carroll in *Alice in Wonderland* foreshadowed the electronic media with his treatment of time and space. And he talked about what is "left out"

for the reader to supply in comics. And he wrote books to show how it could happen. Haven't seen so much of that in good literature for youth—but looks like you have an example here.

What's that on your computer screen?

Nell: That's an electronic book, a CD-ROM or digital version of David Macaulay's *The Way Things Work (1988)*.

Willie: See all the graphics that I can click on to get more information? Some of it will be words, some pictures, some video, some audio.

Nell: Maybe that's what your professor meant by being involved, by a mosaic of media. I can click on my mouse and link from one idea to another. But I have to do the same kind of thinking and can do the same kind of linking of ideas with *Black and White*.

Aunt Rosa: A handheld book that demands a large amount of reader interactivity and can be read nonlinearly? An electronic device consisting of linked print, pictures, video, and sound? Ahhh! Perhaps we've reached the kind of combined and compatible communication McLuhan hoped for but did not see. I'll have to think about this....

McLuhan did not use the words Radical Change, but he described a fundamental alteration in life, *extremely different from commonly existing views*, brought about by new media and potentially transforming books. He did not use children as his primary examples, but exempted no one from the developments he predicted.

More Than Thirty Years Later

More than thirty years after McLuhan's ideas were introduced, a digital age has emerged, changing our environment dramatically. The computer has become a common household and classroom tool. And the concept of the computer as a "box for manipulating data" has given way to the idea of the computer as a device for communicating data across geographical and political boundaries. Using a computer once required the skills of a professional programmer. Today a preschool child can perform a rich variety of computer operations even before she learns to read.

A rereading of *Alice's Adventures in Wonderland* brings a new appreciation of Lewis Carroll's genius and his understanding of children's thought processes. The full text from Project Gutenberg is available on the World Wide Web at <http://www.promo.net/pg/titles/A.html>.

Nicholas Negroponte emphasizes again and again that "computing is not about computers any more. It is about living" (1995, p. 8). The digital environment is ubiquitous; it cannot be avoided. All forms of information—voice, video, and data—have begun to move around not in linear streams, as with previous media, but rather in bits that are nonsequential and rearrangeable. The new technology, Negroponte says, has created a cultural gap between the generations. Referencing two digital media, CD-ROMs and the Internet, he explains that "one is an electronic book, the other a socializing medium. Both are being taken for granted by children the same way adults don't think about air" (p. 6).

As do many others, Negroponte believes the Internet is the great agent for change that will usher in McLuhan's global society. He predicts that one billion people will be connected by the year 2000. The epilogue of Negroponte's book is subtitled "An Age of Optimism." His parting comments bring the digital age back to youth: "The control bits of that digital future are more than ever before in the hands of the young. Nothing could make me happier" (p. 231).

CONNECTIVITY, INTERACTIVITY, AND ACCESS

Three digital-age concepts underpin and permeate all the radical changes that are taking place in literature for youth: connectivity, interactivity, and access. The librarian who had to explain to her school board that children needed books *and* computers, often for the same reasons, had recognized this fundamental change in books, but had no way to describe it to others until she heard about Radical Change.

Connectivity refers to the connections that readers make with hypertext-like links, both visual and mental, prompted by the changing forms and formats of handheld books. It also refers to the increased sense of community that these new books bring—both because of the sharing of story among readers that the formats and subjects encourage (sharing that Nell and Willie were experiencing) and because of the new perspectives and vistas with which young readers connect.

Interactivity refers also to both reader and book. The changing formats of books enable a more active, involved reading. All books require active readers—that is, readers must construe meaning and interpret the text, regardless of format. But some books seem to expect readers to react in one particular way while others seem more willing to encourage a wide range of differing responses. Digital-age readers interact with these books by making decisions as they read; they may approach the text in various nonlinear or non-sequential ways that the author does not determine in advance. Readers not only interact with the visual format but may interact with the context by mentally exploring levels of meaning or plateaus of story. The young reader may be encouraged to create or expand portions of the story, most commonly the ending.

Access refers to the breaking of long-standing barriers in literature for youth—barriers that blocked off certain topics, certain kinds of characters, certain styles of language. Methods of disseminating information more broadly have proliferated since the invention of the printing press. But dissemination of information does not always translate into access to information, especially where children are concerned—the benefits of dissemination have never been as clear for children as they have for adults. However, access to a wide diversity of opinion and perspective has now become possible in the digital world and is beginning to be reflected in children's books, both in a broader range of topics and in the manner in which fictional characters react to the problems presented. Increased intellectual access sometimes provokes in adults the impulse to raise more barriers—possibly a futile effort in the digital world.

In 1995 a number of books were published that incorporate a wide range of views about the digital world. *Being Digital* (1995) by Nicholas Negroponte lauds it, while *Silicon Snake Oil* (1995) by Clifford Stoll finds fault with it. Adding another optimistic (though hardly disinterested) voice to the fray is the Chair and Chief Executive Officer of Microsoft Corporation, Bill Gates, with *The Road Ahead* (1995). The social psychologist Sherry Turkle's *Life on the Screen: Identity in the Age of the Internet* (1995) examines the effect of the digital world on the individual's sense of identity.

WHY HANDHELD BOOKS?

If digital media provide a merger of print, video, audio, and graphic components in a dazzling array, why have handheld books at all? Reading a handheld book provides a pleasurable, aesthetic experience both like and not like that of reading print on a screen or experiencing multimedia in a digital format, even when the book and the digital medium have similar characteristics. Much of this book explores the similarities of these experiences rather than the differences. However, books have certain unique advantages. The handheld book provides the reader with the time to linger and ponder issues that might fly by in digital space. Reading a handheld book grants the reader the opportunity for a depth of examination that may elude many in other forms of media. When violence or chaos is depicted in other media, the focus is usually on the outcome. Handheld books give young readers time to explore the thoughts, feelings, and various possible reactions of youth like themselves. A handheld book is also convenient, "user-friendly"; it has a built-in portability and availability that no other medium can match. Literary handheld books provide youth with a model of good writing and sound information, often selected through a careful editing and review process; they help young people develop judgment and set standards that can be applied to other types of resources.

One Digital Day (1998) provides an example of a book/technology partnership. It is a handheld book that gives us a compelling, comprehensive, cumulative view of the impact of technology in every corner of the earth, showing that it is impossible to escape the fifteen billion microchips at work in our "digital world." A part of Rick Smolan's *Day in the Life* series of oversized books, for which one hundred of the world's top photographers are dispatched to take photos on a theme during the twenty-four hours of one day, this compendium of stunning scenes features a nine-year-old boy on its cover.

Insistence on the importance of the handheld book, however, should not be interpreted as a Luddite reaction. This book does *not* lament the digital world, but celebrates it. It does *not* suggest competition between books and digital media, but partnership. It does *not* set up an in-depth examination of handheld books in order to create a dichotomy, but rather to erase one. It *does* emphatically maintain that handheld books are a viable, fascinating, and challenging choice among many viable, fascinating, and challenging resources for youth. It *does* say that literature has its own unique place in the life of youth in the digital world, and it seeks to define that place. Whether in college classroom, kindergarten, home, or library, literature for youth is an integral part of our digital world, and I believe it will continue to flourish in and—most importantly—with it.

WHY RADICAL CHANGE?

Radical Change is a new way of looking at contemporary literature for children and young adults. It is needed to help us understand how books are changing in step with positive changes in the digital world. It is a holistic theory made up of numerous related parts. It is a new critical approach which proposes that connectivity, interactivity, and access in the digital world explain the fundamental changes taking place in the body of literature for young readers. It provides the vocabulary and concepts needed to describe a new paradigm. It is a literary theory or framework that has been proposed principally to explain and examine contemporary literature for youth as it exists in the digital age.

RESOURCES FOR CHILDREN AND YOUNG ADULTS

Carroll, Lewis. *Alice's Adventures in Wonderland*. London: J. Francis, 1865.

Macaulay, David. *Black and White*. New York: Houghton Mifflin, 1990.

_____. *The Way Things Work*. Houghton Mifflin, 1998.

_____. *The Way Things Work*. DK, 1994 (CD-ROM).

PROFESSIONAL RESOURCES

Dresang, Eliza T. and Kate McClelland. "Black and White: A Journey." *The Horn Book* 71, no. 6 (November/ December 1995).

Gates, Bill. *The Road Ahead*. New York: Random House, 1995.

Macaulay, David. "1991 Caldecott Acceptance Speech." *Journal of Youth Services for Libraries* 4, no. 4 (Summer 1991).

McGillis, Roderick. *The Nimble Reader: Literary Theory and Children's Literature*. New York: Twayne, 1996.

McLuhan, Marshal I. *Culture Is Our Business*. New York: McGraw-Hill, 1979.

_____. *The Mechanical Bride: Folklore of Industrial Man*. New York: Vanguard, 1951.

_____. *The Medium Is the Massage*. New York: Bantam, 1967.

_____. *Understanding Media: The Extensions of Man*. Cambridge, MA: MIT Press, 1964, 1994.

Negroponte, Nicholas. *Being Digital*. New York: Knopf, 1995.

Neill, Sam. "Books and Marshall McLuhan." *Library Quarterly* 41, no. 4 (October 1971).

Roback, Diane E., and Shannon Maugham. "Children's Business Survey: Playing on Strengths." *Publishers Weekly* 243 (June 3, 1996).

Smolan, Rick. *One Digital Day: How the Microchip Is Changing Our World*. New York: Time Books, 1998.

Stoll, Clifford. *Silicon Snake Oil: Second Thoughts on the Information Highway*. New York: Doubleday, 1995.

Tapscott, Don. *Growing Up Digital: The Rise of the Net Generation*. New York: McGraw-Hill, 1997.

Turkle, Sherry. *Life on the Screen: Identity in the Age of the Internet*. New York: Simon & Schuster, 1995.

Wolf, Gary. "The Wisdom of Saint Marshall, the Holy Fool." *Wired* (January 1996).

Contemporary Issues in Technology and Teacher Education is an online journal. All text, tables, and figures in the print version of this article are exact representations of the original. However, the original article may also include video and audio files, which can be accessed on the World Wide Web at <http://www.citejournal.org>