

CHILDREN'S JOURNEYS THROUGH THE INFORMATION AGE



SANDRA CALVERT

Children's Journeys Through the Information Age

Sandra L. Calvert

Georgetown University



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About the Author

SANDRA L. CALVERT is an Associate Professor of Psychology at Georgetown University. She graduated magna cum laude from West Virginia University, where she was elected to Phi Beta Kappa. She received her masters degree in Human Development and Family Studies from the Pennsylvania State University, and she was awarded her doctoral degree in Developmental and Child Psychology from the University of Kansas. Professor Calvert has published numerous articles about the impact of media, including television, computers, virtual reality, and Internet applications, on children's understanding of information. She also investigates the impact of media images on viewers' understanding of gender roles. Professor Calvert is a fellow of the American Psychological Association, a member of the Society for Research in Child Development, and a member of the International Communication Association. She guides the development of children's media by serving on advisory boards and by consulting for children's programs.

For my family and friends

Foreword

Last week I ordered a software game for my younger son that builds math skills in the context of interplanetary exploration. He lacks confidence in math, so I thought he might benefit from the opportunity for some nonstressful practice of problem-solving skills in the midst of an enjoyable game. (I also ordered a computer game for myself to occupy my “spare” moments.) Later, I watched the NCAA basketball finals with both sons, who had been following the March Madness basketball tournament as avidly as I. We also watched an episode of *Star Trek* together, a regular weekly activity we share. I listened patiently as Brian announced that he “really, really” wanted to see a movie that was previewed in a commercial—a film that was clearly inappropriate for a 10-year-old. Yesterday I helped his older brother, Scott, search the Internet for information on a class project. My wife also videotaped a special program on Public Broadcasting about Thomas Jefferson to watch with the boys at a more convenient time.

It is as difficult for me to imagine family life without information technology as it would have been for my parents to imagine family life without electricity or refrigeration. Yet unlike electricity or refrigeration, the nature and scope of information technology—and its effects on us—are continuing to evolve. Cable television offers, for those who purchase it, unprecedented variety in entertainment and educational programs that will continue to broaden in the future. The World Wide Web provides access to expanding networks of knowledge and information—along with advertising, extremist rhetoric, and pornography. Computer software allows people to edit photographic and video images, compose music, create artwork, manage personal finances, communicate (through e-mail and chat rooms) with others worldwide, and engage in a growing range of personal and professional pursuits. And with the advent of virtual reality technologies, users can explore the full range of human experience upon request. Each of these technologies, and others under development, are changing our lives moment-by-moment; trying to understand their impact on children, as well as adults, is like trying to hit a moving target.

In *Children's Journeys through the Information Age*, Sandra Calvert tackles this challenge with thoughtfulness and insight. As a prolific contributor to research concerning the media's impact on children, Dr. Calvert describes the current and emerging information technologies that influence children's lives, summarizes what is known about their effects, and discusses their meaning

for parents, teachers, and policymakers. She does so with the excitement of one who has watched sophisticated technologies become increasingly accessible to children in their homes and schools, and with the concern of a developmental scholar who is committed to children's well-being. Because the newer technologies have emerged so recently on the landscape of family life, research on the effects of CD-ROMS, virtual reality interfaces, and even computer games on children is ground-breaking work. In light of this, Dr. Calvert focuses much of her discussion on the impact of television, which has been studied for many years, and enlists this research in a thoughtful exploration of its implications not only for the effects of TV but also for the effects of other technologies on children. Because research findings inform us of the consequences of televised violence for children, for example, they also offer a valuable perspective on the potential consequences of video games with violent themes. Because studies of educational TV provide insight about how technology can assist children's learning, they have implications for our appreciation of computer games with educational goals. In this manner, Dr. Calvert provides an analysis of information technologies that is not only informative and up-to-date, but anticipates future issues concerning the impact of newer and rapidly developing technological innovations on children.

Dr. Calvert also identifies the major messages that television, computer games, CD-ROMS, and other information technologies convey to the children who use them. We learn about the gender roles and ethnic and racial stereotypes that are implicit in many programs (on TV, CD-ROM, and diskette). We discover the power of the media to educate and to heighten either aggressive or prosocial tendencies in young viewers. We learn about the media as well as the messages they convey. We find, for example, that television and other media convey implicit lessons in their use of symbols, in how action is represented (through visual perspective, special effects, and background music), and in the strategies that enlist the viewer's participation in its content. We also learn about the media industry, especially the commercial interests that shape the content and form of television, the Internet, and other technologies. Dr. Calvert insightfully discusses the children who use information technologies. We discover that children of different ages respond differently to the television they watch or the computer games they play because of their developing capacities to remember, interpret, critically appraise, and act on what they view. In learning about children as viewers, we also discover how the media can sensitize or desensitize children to violence, displace other activities (like reading), reinforce cultural stereotypes and schemas, offer positive (or negative) role models, manipulate through advertising ploys, and motivate new learning and understanding. Finally, we learn about the responsibilities of parents, government, and the media themselves for regulating children's exposure to the media and the content of what they view. The text thoughtfully considers current issues concerning V-Chip technology, First Amendment rights, and the Children's Television Act.

Throughout this fascinating journey down the highway of information technology, Dr. Calvert cautions her readers against simplistic conclusions

about the media's influence on children. Contrary to those who either idolize or demonize the information technologies, her assessment is a more balanced recognition of its multifaceted potential for improving or blunting children's understanding, depending on how it is used. Yes, the media (primarily TV) contribute to sexist and racist stereotyping, and media content is overwhelmingly violent (even when it is intended for children), but the media also have the potential to challenge those stereotypes and foster children's awareness of non-violent forms of dispute resolution and the human costs of violence. Yes, the media have considerable potential to educate and inform, but as we are now learning from the Internet, we must manage information for children to find it beneficial. In offering a more judicious assessment of children's journeys through the information age, Dr. Calvert enables readers to draw more thoughtful and informed conclusions about the uses of the media and the responsibilities of the parents, educators, and policymakers who care for children.

The McGraw-Hill Series in Developmental Psychology, of which this volume is a part, has been designed to enrich and expand our common knowledge of human development by providing a forum for theorists, researchers, and practitioners to present their insights to a broad audience. As a rapidly expanding scientific field, developmental psychology has important applications to parents, educators, students, clinicians, policymakers, and others concerned with promoting human welfare throughout the life course. Although the fruits of scholarly research into human development can be found on the pages of research journals, and students can become acquainted with this exciting field in introductory textbooks, this series of specialized, topical books is intended to provide insightful, in-depth examinations of selected issues in the field from which undergraduates, graduate students, and academic colleagues can each benefit. As forums for highlighting important new ideas, research insights, theoretical syntheses, and applications of knowledge to practical problems, I hope these volumes will find many uses: as books that supplement standard general textbooks in undergraduate or graduate courses, as one of several specialized texts for advanced coursework, as tutorials for scholars interested in learning about current knowledge on a topic of interest, and as sourcebooks for practitioners who wish to traverse the gap between knowledge and application. The authors who contribute to this series are committed to providing a state-of-the-art, accurate, and readable interpretation of current knowledge that will be interesting and accessible to a broad audience with many different goals and interests. We hope, too, that these volumes will inspire much-needed efforts to improve the lives of children, adolescents, and adults through research and practice.

We can be certain that the information highway children travel (along with adults) will change and grow in the years to come. Fortunately, *Children's Journeys through the Information Age* equips us all to be better travelers along the way.

Ross A. Thompson
Series Editor

Preface

Each and every evening, flickers of light illuminate millions of American homes. Television, a pervasive medium in the lives of our children, unites us by providing a common source of information, a common source of cultural stories. Now the flickers of video games join those of the television set, and virtual reality games are not far behind. Children's journeys through the information age begin early in development. They are journeys that will last a lifetime.

In the past, children observed the content depicted on their television sets. They listened to the songs broadcast on their radios. As a mass audience, they made choices only by selecting the specific reception channel they wanted to watch or listen to.

Newer information technologies now afford more choices to the audience. As members of the information age, children now have many more options for selecting television content because of videocassette recorders, cable television, and even the remote control device. Increasingly, media experiences require interaction. Computer, video game, CD-ROM, and virtual reality interfaces call upon children to act, not observe.

The content depicted in newer technologies often bears a close resemblance to its predecessor. For instance, the "action-and-violence" formula, in which actors injure or kill each other in fast-action chase scenes, appears in television programs, video games, and now virtual reality games. Similarly, simple formulas about men and women and about people of different ethnic backgrounds are used to convey cultural messages via television programs, advertisements, and even educational computer games. For example, girls play with Barbie while boys play with G.I. Joe in children's toy commercials, thereby promoting gender-stereotyped activities. Similarly, computer math programs are often paired with race cars, thereby stereotyping the computer with stereotypical male school subjects and leisure-time activities.

But while the content is much the same, the forms of presentation are changing. Visual and auditory experiences from television are expanding to include touch and smell in virtual reality games. These expansions represent a fundamental breakthrough in human experience as representations of events become increasingly enmeshed with computer-generated images. No longer do we always have a direct link between perceptual experiences and what is "really" there. Young minds may be deceived into believing that programmed representations of experience really exist, thereby blurring the distinction between what is pretend and what is real.

All information technologies share one common link: each is a symbolic medium accessed by a real person. Much of the past research has portrayed children as passive players in the information technology maze. As children learn to control media interactions, active choices and decision making can become more prevalent outcomes in these symbolic interactions.

Although the potential for children to use technologies to learn and to expand their educational horizons has always existed, children have historically used media for entertainment. This paradox between education and entertainment means that we will either become an illiterate nation addicted to visual information at the expense of reading, as many fear, or that we will rise to the occasion and learn to utilize these technologies for educational purposes to enhance learning, as many hope. This challenge is extremely pressing for us now because we will increasingly access information via technologies in the future.

The purpose of this book is to examine how children's journeys through the information age impact their development. Our study of changes in information technologies will focus on three trends: (1) the shift from observational to interactive technologies; (2) the shift to technologies that present increasingly realistic experiences; and (3) the potential use of media to educate children as it entertains them.

The child will take center-stage in this experience as he or she organizes choices about media interactions around personal cognitive skills and goals. In this text, we will pay special attention to the characteristics of children that impact their learning and behavior. For instance, we will examine exactly how children learn from information technologies, and how characteristics, such as age, gender, and ethnic backgrounds influence children's decisions to watch, play with, and master different technologies. We will also examine the link between learning and action. For instance, a child may learn how to hit another child from watching a violent television program, but may choose not to do so. Why not? We will also consider the changes in technology, such as virtual reality games, that will diminish the boundaries between thought and action.

Our study will address the financial incentives to present violent and sexual content, based on an advertising system designed to maximize profits. We will also discuss legislative and social policy initiatives designed to limit sex and violence in the media and to promote educational content in television and computer programs.

Ultimately, our final destination will be to make education interesting for those who are growing up in the information age, to maximize what we know about integrating education with entertainment. In doing so, we will consider ways to use production techniques like action to convey educational and prosocial messages.

As children journey through the changing landscape of the information age, behavioral and cognitive effects will be unprecedented. The children who master this journey, who learn to control our information technologies, will ultimately control our future. Thus, it is timely and important for our society to make that journey accessible and interesting to all of our children, and to ensure them a safe passage during their journey.

Sandra L. Calvert

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