

MULTIMEDIA AUTHORING



BUILDING AND DEVELOPING DOCUMENTS

SCOTT FISHER

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Multimedia Authoring

Building and Developing Documents



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Scott Fisher



AP PROFESSIONAL

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Preface

At the beginning of the 20th century, one of the most exciting new developments in consumer technology was the electric motor. The people who today would be industry analysts and market pundits envisioned a time not far off in which there would be an electric motor in every home, in a central location, and that homeowners would be able to fit attachments to this motor that would help them in a number of tasks such as washing clothes and dishes, grinding up waste for disposal, and other chores that required physical effort.

Of course, no such thing happened. Electric motors soon grew cheap enough that they became ubiquitous, powering everything from washing machines and dishwashers through coffee grinders, food processors, and even the climate control system. It happened this way because the electric motor provided an inexpensive and reliable way to do something that people found uncomfortable or difficult to perform. Later, electric motors made possible new tools that performed tasks people hadn't had any way of performing in the past, such as refrigeration. True, there were and are motorized toys as well, such as model trains and automobiles, in which the electric motor makes it possible for a plaything to act like its full-sized counterpart.

But apart from a few diehard hobbyists, nobody today purchases, uses, builds, restores, or collects electric motors as pure objects.

Their utility is in the work that they perform, not in their interest as devices. We're not fascinated by the mere fact of their existence as we were a hundred years ago; we want them for what they do for us.

Interactive multimedia is presently interesting because of the mere fact of its existence. That will change as information developers, publishers, journalists and entertainers learn to use interactive multimedia the way appliance manufacturers learned to use electric motors. Before it can become ubiquitous, it must first become useful; it must first demonstrate that it can help us perform some task more readily, more easily, more effectively or more competitively than we could without it. The aim of this book is to guide you through the steps involved in designing the "information appliances" that will make multimedia not only useful but ubiquitous. And as interesting as the technical aspects of multimedia are, they are fundamentally like the specifications of an electric motor: necessary to build them in the first place, but of no concern at all to the homeowner looking to purchase an air conditioner—or a CD-ROM cookbook.

For the present, you'll still need the user's manual for your authoring tool, a set of specifications for the various hardware components you need to integrate into a single development system, and a lot of patience as you solve the problems that still face the development of usable, exciting, interactive multimedia documents. But don't lose sight of the fact that your documents must not only look good to demonstrate this exciting new technology. They must also solve a problem for some human being somewhere, and solve it in a way that no other combination of media can for the cost or the effort involved. Whether that problem is education, entertainment, reference or communication, multimedia's success will hinge on your ability to solve that problem in a way that your customers find effective, enjoyable, and affordable.

Acknowledgments

Many people contributed to this book, either directly or indirectly. Many of the indirect contributions are acknowledged in the Bibliography, in the form of references to published books on related fields.

People who have helped in person include Michael Sands of Kaleida, whose knowledge of Apple multimedia products got me pointed in the right direction on my on-line examples and on early research. Chris Kantarjiev of Xerox Corporation's Palo Alto Research Center (PARC) lent me the use of much of his library, as well as helping me with the all-important task of getting my own M.G. running while I was engrossed in the development of the book. Raj S. Perumal helped beta-test the Unix on-line example, for which I am grateful.

My agent, Carole McClendon of Waterside Productions, gave me the idea for making this a book; I had been developing the information here as a seminar in interactive document development, and Carole's speech at a conference on the computer publishing field prompted me to turn my class notes into a book proposal.

The editorial and production staff at Academic Press have been unfailingly helpful in the development of the book, especially Jenifer Niles for her tracking of higher-level editorial concerns and design issues, and Karen Pratt for her ability to bring focus and clarity to complex issues and even more complex sentences.

But without the efforts of my wife, Kim Fisher, this book would probably not have been finished. Kim read the first draft and checked me on any sections that didn't make sense; she researched the bibliography on trips to the library (in the company of the very two-year-old referred to as the liberator of cockatiels elsewhere in the book); she managed much of the final production, helping with the index and table of contents and with identifying terms needed for the glossary. Perhaps most important, she put up with and even helped me adhere to a schedule that meant too many nights till midnight followed by getting up at 5 AM. Thank you, Kim. I owe you big.

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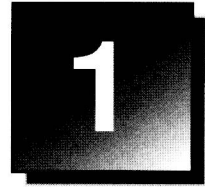
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Introduction

Learning to Think Multimedia

What are the problems inherent in multimedia development? What does it take to make a successful, usable interactive multimedia document? What guiding principles can you follow to get started in multimedia document development? And what does multimedia document development really mean?

This chapter introduces you to multimedia authoring with discussions on the following subjects:

- how multimedia breaks the enforced linearity of traditional methods of composing and disseminating information;
- the historical developments in the study of human learning and information transfer that led to modern multimedia;
- some of the specific ideas, words and phrases that make up the jargon of multimedia and interactive documents;
- some of the technical and aesthetic disciplines that go into making good multimedia documents, which ones this book focuses on, and some suggestions on how to find out about the other ones; and

- who can benefit from reading this book and what specific benefits they're likely to enjoy from having completed it.

This chapter also contains brief descriptions of the contents of the following chapters, introduces the concepts they explain and serves as a structural overview to the body of the book. After reading Chapter 1, you can choose to follow the organization and flow of the book as designed. This provides the advantage that the exercises in each chapter were developed to be performed in the sequence of the book, building on each exercise in each successive chapter. Alternatively, you can begin reading the subsequent chapters according to the order in which your own interest leads you, based on the information presented in the structural overview. This will, require some fairly heavy cross-referencing in places, as each chapter is to some extent built on concepts explained in previous ones. But providing you with this option—making the linearity of the book subject to the requirements of your interests, your experience and your set of tasks—is the first lesson in multimedia document development: how to use interactive electronic documents to break (more easily than with paper) the enforced linearity of information.

The Restrictions of Linearity

For the last few thousand years, when humanity has wanted to present information formally, we have done so in a linear format. Because our passage through time is linear, we made paintings on the walls of temples and tombs that told the stories of the kings and gods to whom those walls were hallowed, stories that unfolded in unalterable succession as we walked past them. Because we arrived at our philosophies through long contemplation, we wrote them into scrolls which we unrolled in order, displaying the early stages of our thoughts first and introducing more complicated ideas as they unrolled in our minds. Because the dramas of our lives had meetings, interactions, and partings, we put them on as plays that occurred within the confines of linear time. And because our knowledge had elementary and complex components, we wrote books in which the early pages told the simple facts and the later

pages led the reader through the details. This book, paperbound in more ways than one, is organized this way.

The problem with this approach is that it can't keep up with the rate of change in the information itself but, more importantly, with the diversity that audiences bring to that information. In many subjects and circumstances today's audiences vary widely in the knowledge that they bring with them and in the uses to which that knowledge will be put. It becomes nearly impossible to write a single linear book that can be all things to all people, even on a fairly focused subject.

One set of compromises forced on both the writer and the reader by this necessity is the tradeoff of size versus utility. An encyclopedia is fairly comprehensive, but its size makes using it cumbersome at best; a short introductory book is tidy, easy to carry and easy to scan through for items of interest but is usually far from thorough on all but the most limited subjects. The compromises in the past have been along this continuum of completeness versus ease of use; the writer picked what he or she thought was most important and compromised on the other factors. The resulting book was either incomplete for some people or difficult to use for others—because it could only be one book for all readers.

This compromise was necessary until the past generation or so because the overriding paradigm of publishing was the printed book, manual, magazine, or newsletter. More recently, video images have become available at a low cost both to the producer and the consumer of information, but videocassettes are, if anything, more cumbersome to search through than a well-indexed reference book. Whatever its format, its mission or medium, the video message has been presented in the traditional linear manner: you open the book to page one, you rewind the cassette and zero the counter before you press play, you follow the natural and unalterable restrictions of linear time imposed on an abstract presentation of information that is not always best served by such an unalterably linear organization.

Within the past decade, however, computers have given users a power not widely understood till now: the power to break the enforced linearity of information, if not of time. The computer's