Multimedia
Literacy

Multimedia Literacy

THIRD EDITION

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Dedication

To JoAnn Balingit,
for your eyes.

Contents

Introduction

As onetime chairman of Chrysler Corporation, Lee Iacocca said, "Lead, follow, or get out of the way." So it is with multimedia. Never has an industry grown so quickly or had such an impact on the way we receive, process, and communicate ideas.

This book is designed to teach you about the world of multimedia—how multimedia is changing the world we live in, how to use it effectively, why it became a multibillion-dollar industry so quickly, and the impact it will have on your way of life. This book will also teach you how to tell when someone is using multimedia, how to see through the hype, and most important, how to do it yourself—how to create your own multimedia applications and make them sizzle with effectiveness.

This book defines and teaches the basic skills of multimedia. Skills that will enable you to create beautifully typeset text, full-color pictures, animation, audio commentary, motion video clips, and stereo sound tracks. Skills that let you surf the Internet, download multimedia objects, and create multimedia Web pages. Skills that let you put any word or picture anyplace on your computer screen and make any part of the screen into a trigger that you can link to any object on your computer. When a user selects one of the triggers, the object of the link will appear. This object can be text, a picture, a sound, a movie, an animation, a Web page, or an application on your computer or network.

Think about the power this provides: Once you can display an object on your computer screen and link it to any other object on your computer, you have gained control over all your computer's capabilities. You can have your computer provide you with instant access to every note you ever took, every talk you ever gave, and every slide you ever photographed. You can create an effective presentation that includes instant access to all of your company's information when your boss asks you for a report. You can author a multimedia title and publish it on a CD-ROM or mount it on the World Wide Web. You can broadcast multimedia creations to anyone with a multimedia PC connected to the Internet. Would you like to be able to do some of these things? Then this is the book for you.

Organization

This book has eight parts. The first four are conceptual, dealing with definitions, principles, applications, hardware, future trends, and social issues; the rest of the book is a tutorial, which teaches you how to create multimedia applications and publish them on the World Wide Web. The CD-ROM is full of *Show-Me* movies that will help you master the tutorial. The Web site links to hundreds of Web pages that bring what you read to life through color pictures, stereo sound, animation, demonstrations, and full-motion video clips.

Part One defines multimedia, tells you who uses it for what, describes how it is changing the world, tells you who needs to know about it, and provides a taxonomy of multimedia objects that you can use when creating your own applications.

Part Two deals with multimedia applications. Dozens of full-color screen prints and photos illustrate how multimedia is being used in classrooms, boardrooms, homes, retail stores, just-in-time training, cinema, video arcades, government, and industry. The Web site that accompanies this book links to demonstrations of these applications and the development packages that were used to create them.

Part Three focuses on multimedia hardware. Remember how the VHS and Beta videotape standards competed for market share when home VCRs were invented? There are even more competing multimedia standards today. Part Three tells you what the standards are, recommends a strategy to follow, and provides a checklist of features to look for when buying a multimedia computer.

Part Four looks into the future of multimedia and discusses how it will impact us all. Acknowledging the rapid rate at which the technology is advancing, Part Four describes how you can keep up with this fascinating field, continue to increase your multimedia skills, and help influence future uses of multimedia.

Parts Five through Seven provide you with a multimedia toolkit. Step-by-step tutorials guide you through the creation of text, graphics, sound, and video. You will learn how to manipulate text, import clip art, digitize photographs, draw new pictures, record sound, make CD audio clips, edit digital video, create buttons, and interact with the user. Then you will use these skills to create a multimedia application on the History of Flight.

Part Eight concludes the book with a tutorial on multimedia publishing, providing you with strategies and techniques for distributing your applications.

The book concludes with a glossary that defines the terms a multimedia-literate person should know. The author has coined a new term that combines the words *multimedia* and *literate* into the adjective *multiliterate,* which is what you will be when you finish this book:

> **mul-ti-lit-er-ate** \ ˌməl-tē-ˈli-tə-rət \ *adj* : understanding the principles of multimedia, its impact on the world, and how to use it for attaining business, professional, educational, and personal objectives.

Interactive CD-ROM Brings the Book to Life

The CD-ROM packaged with this book is known as the *Multilit* CD. The CD is tied to each chapter in the tutorial part of the book and includes:

- Clip art, clip music, and clip video to get you started creating multimedia applications

- Dozens of *Show-Me* movies teaching you how to use multimedia graphics, sound, and video software

- *Show-Me* movies also illustrates the step-by-step tutorial that shows you how to create multimedia applications using PowerPoint

- A keynote presentation created with PowerPoint as an example of the kind of application the tutorial will enable you to create

Web Site Links the Book to the Internet

The Web site that accompanies this book is known as the *Multilit* Web site. The Web address of the *Multilit* Web site is

http://www.mhhe.com/cit/hofstetter

There is a corresponding chapter at the Web site for each chapter in the book. The Web site contains:

- Demonstrations of many of the most popular commercial multimedia packages available today

- Links to online clip libraries full of photographs, sound effects, songs, animations, and videos

- Shareware versions of the graphics programs, video tools, and multimedia utilities used in the tutorials

- An electronic version of the chapter titles and goals, with bookmarks taking you to materials to help you reach your goals

- Hundreds of links to more information about stimulating topics raised in the book

- Links to buyer's guides that will help you shop for multimedia computers and accessories

The book, the CD, and the Web site are designed to serve either as a course of instruction that can be used in more formal settings, or for self-study by those learning more informally. The reading level and computer skills required are appropriate for any business professional, teacher, executive, college student, marketing rep, audiovisual professional, or high-school student.

- Chapter 1 illustrates how multimedia impacts everyone's way of life, with charts and graphs that show why it is to anyone's advantage to become multiliterate.

- Chapter 2 provides a taxonomy of multimedia, and the Web site brings the taxonomy to life with multimedia examples in full color with stereo sound, animation, and full-motion video clips.

- Chapters 3 through 8 survey multimedia applications in business, education, entertainment, government, health, and public information. The book provides a comprehensive overview of these applications while the Web site links to demonstrations that allow you to take products for a "test drive" and consider whether you would like to purchase a retail copy.

- Chapter 9 profiles several of the development packages that were used to create these applications. The book explains the purposes of the different packages and provides the Web site links to free trial versions and demonstrations of their features.

One of the most important issues in multimedia is deciding what hardware to buy.

- Chapter 10 reviews the competing multimedia standards and recommends a strategy for coping with the differences in brand-name platforms.

- Chapter 11 presents the components of a multimedia computer.

- Chapter 12 provides a checklist that will come in handy when you buy a multimedia computer.

- Chapter 13 shows you how to configure a multimedia computer so you can minimize its complexity and maximize its versatility.

- The Web site links to individual product Web sites and multimedia buyer's guides that can help you compare and purchase computers and peripherals.

The next four chapters look into the future of multimedia:

- Chapter 14 explores the multimedia frontiers of electronic publishing, fiber-optic superhighways, rural datafication, appliance-based computing, and virtual reality.

- Chapter 15 reviews emerging video, voice, and datacommunication technologies and shows how they are creating a new form of multimedia called telecomputing.

- Chapter 16 addresses the issues raised by the impact multimedia is having on our sensibilities and moralities, questions who is in control, describes the problems multimedia is causing, and suggests what you can do to solve them.

- Chapter 17 offers suggestions for staying abreast of new developments in this fast-paced field and how to contribute your own ideas to the continued evolution of multimedia.

Hands-On Tutorial and Projects

The rest of the book is a hands-on tutorial you complete on your multimedia computer.

- Chapters 18 through 25 cover introductory multimedia tools and techniques. The book provides step-by-step instructions for the tools and techniques that you will use to create multimedia projects.

- The CD includes *Show-Me* movies that you can watch whenever you would like to see a detailed video explanation of one of the step-by-step tutorials.

- Chapters 26 through 32 contain a project in which you will create a simple multimedia application on the History of Flight. You will use multimedia on the CD to make the aircraft come to life with full-color slides, audio clips, and full-motion video.

- For students with Internet access, Chapter 33 teaches World Wide Web search strategies and shows how to download multimedia objects from the Internet.

- Chapters 34 through 38 present more multimedia tools and techniques, including image manipulation, video editing, advanced drawing, chart making, and designing your own custom style templates.

- The projects culminate in Chapters 39 and 40, where you learn how to distribute applications on CD, on diskettes, or on the World Wide Web.

- As a grand finale, Chapters 41 and 42 teach you how to broadcast presentations live over the Internet and hold online meetings in which you can share your application live with other users on the Internet.

Instructor's Guide

An *Instructor's Guide* accompanies *Multimedia Literacy*. The guide includes suggested course outlines, a test bank, teaching tips, hints for helping students when they encounter difficulties, and strategies for using the text, CD, and Web site in class.

How to Access the *Show-Me* Movies on the CD-ROM

The CD that comes with this book is known as the *Multilit* CD. The CD is very easy to use on any computer that has a Web browser, such as Microsoft Internet Explorer or Netscape Navigator. Simply insert the CD into your CD or DVD drive. Use the Windows Explorer, My Computer, or Macintosh Finder to locate the file called *index.htm* in the root of the CD. Double-click the *index.htm* file to launch it. The index of movies on the CD will appear on-screen in your computer's Web browser window. Follow the links to watch the movie of your choice.

The movies on the *Multilit* CD will play on any Windows or Macintosh computer with a CD-ROM or DVD drive and either the Microsoft Internet Explorer or Netscape Navigator Web browser. If one or more movies do not play on your computer, install the latest version of the Web browser of your choice from either www.microsoft.com or www.netscape.com. If the movie still does not play, install the latest version of the QuickTime Player from www.apple.com. All of these downloads are free of charge.

Acknowledgments

Creating this book is one of the most exciting projects I have worked on. While researching it I made many new friends, and the brainstorming that ensued inspired new ideas and innovations.

I want to acknowledge and thank all of my students, who continue to teach me a lot.

Pat Fox, Trident Technical College's professor of computer graphics and CD-ROM designer par excellence, produced the *Multilit* CD. She recorded the *Show-Me* movies and created the index that allows users to access the movies from a Web browser. When you try the CD, you will surely agree that Pat is an expert in making hypermedia easy to use.

When Mary Tise enrolled in the Multimedia Literacy course offered at the University of Delaware, she created for her final project a PowerPoint version of the *History of Flight* application. It worked extremely well, demonstrating that PowerPoint had gained the hyperlinking capability needed to base the third edition's tutorial on PowerPoint. I will always be grateful to Mary for pointing the way to this important new direction.

When Becky Merino, Julie Bockrath, and Ann Lenzini took the Multimedia Literacy course, they created PowerPoint versions of the Information Superhighway application and granted permission for the author to include some of their screens on the *Multilit* CD. I'm grateful to Becky, Julie, and Ann for their creativity and resourcefulness.

University of Delaware research professor L. Leon Campbell provided valuable service as the author's "intelligent agent" on the Internet. Almost daily, Leon sent the author information about new media and the Web from his extensive surfing of the network. Leon is a valued friend and colleague.

Caravel Academy teacher Judith Conway and University of Delaware professors Frank Murray, Al Cavalier, and Lou Mosberg contributed to the section on cognitive psychology in Chapter 4. I am grateful for their insight and collegiality.

When Frank Ruggirello worked for McGraw-Hill, he managed the first edition of this book. Rhonda Sands of McGraw-Hill succeeded him and oversaw the production of the second edition. Jodi McPherson followed Rhonda and managed the third edition. I am grateful to Frank, Rhonda, and Jodi for many inspirations and contributions, especially for providing the resources needed to create the *Multilit* CD and the *Multilit* Web site.

Information Technology at McGraw-Hill/Irwin

InformationTechnology

At McGraw-Hill Higher education, we publish instructional materials targeted at the higher education market. In an effort to expand the tools of higher learning, we publish texts, lab manuals, study guides, testing materials, software, and multimedia products.

At McGraw-Hill/Irwin (a division of McGraw-Hill Higher Education), we realize that technology has created and will continue to create new mediums for professors and students to use in managing resources and communicating information to one another. We strive to provide the most flexible and complete teaching and learning tools available as well as offer solutions to the changing world of teaching and learning.

McGraw-Hill/Irwin is dedicated to providing the tools for today's instructors and students to successfully navigate the world of Information Technology.

- **Seminar Series**—McGraw-Hill/Irwin's Technology Connection seminar series offered across the country every year demonstrates the latest technology products and encourages collaboration among teaching professionals.

- **McGraw-Hill/Osborne**—This division of The McGraw-Hill Companies is known for its best-selling Internet titles, *Harley Hahn's Internet & Web yellow pages,* and the *Internet Complete Reference for more information,* visit Osborne at **www.osborne.com.**

- **Digital Solutions**—McGraw-Hill/Irwin is committed to publishing digital solutions. Taking your course online doesn't have to be a solitary adventure, nor does it have to be a difficult one. We offer several solutions that will allow you to enjoy all the benefits of having your course material online. For more information, visit Osborne at **www.mhhe.com/solutions/index.mhtml.**

- **Packaging Options**—For more information about our discount options, contact your McGraw-Hill/Irwin sales representative at 1-800-338-3987 or visit our web site at **www.mhhe.com/it.**

Resources for Instructors

We understand that in today's teaching environment offering a textbook alone is not sufficient to meet the needs of the many instructors who use our books. To teach effectively, instructors must have a full complement of supplemental resources to assist them in every facet of teaching from preparing for class, to conducting a lecture, to assessing students' comprehension. *Multimedia Literacy* offers a complete, fully integrated supplements package and Web site, as described below.

Instructor's Resource Kit

The **Instructor's Resource Kit** is a CD-ROM, containing the Instructor's Manual in both MS Word and PDF format, Brownstone test generating software, and accompanying

test item files for each chapter. The features of each component of the Instructor's Resource Kit are highlighted below.

- **Instructor's Manual:** The Instructor's manual contains a list of learning objectives, a chapter overview, and a lecture outline for each text chapter. Also included are solutions files for all end-of-chapter exercises and recommended course outlines. The guide incorporates teaching tips, hints for helping students when they encounter difficulties, and strategies for using the text, CD, and Web site in class.

- **Computerized Test Bank:** The *Multimedia Literacy* test bank contains over 500 multiple choice, true/false, fill-in the blank, short answer, and essay questions. Each question will be accompanied by the corresponding correct answer.

Digital Solutions to Help You Manage Your Course

PAGEOUT

PageOut is our Course Web Site Development Center that offers a syllabus page, URL, McGraw-Hill Online Learning Center content, online exercises and quizzes, gradebook, discussion board, and an area for student Web pages.

Available for free with any McGraw-Hill/Irwin product, **PageOut** requires no prior knowledge of HTML, no long hours of coding, and a way for course coordinators and professors to provide a full-course Web site. PageOut offers a series of templates—simply fill them with your course information and click on one of 16 designs. The process takes under an hour and leaves you with a professionally designed Web site. We'll even get you started with sample Web sites, or enter your syllabus for you! PageOut is so straightforward and intuitive, it's little wonder why over 12,000 college professors are using it.

For more information, visit the PageOut Web site at **www.pageout.net.**

ONLINE LEARNING CENTERS/WEB SITES

The Online Learning Center (OLC) Web site that accompanies *Multimedia Literacy* is accessible through our Information Technology Supersite at **www.mhhe.com/it** or at Hofstetter's book site **www.mhhe.com/cit/hofstetter**. This site provides additional learning and instructional tools to enhance comprehension of the concepts presented in the text. The OLC/Web site is divided into these three areas:

Information Center: Contains information about the text, supplements, and the author.

Instructor Center: Offers downloads and relevant links for professors.

Student Center: Contains chapter objectives, definitions, additional Web links, and statistics pertaining to each text chapter—over 25 links per chapter!

ONLINE COURSES AVAILABLE

Online Learning Centers (OLCs) are your perfect solutions for Internet-based content. Simply put, these Centers are "digital cartridges" that contain a book's pedagogy and supplements. As students read the book, they can go online and take self-grading quizzes or work through interactive exercises. These also provide students appropriate access to lecture materials and other key supplements.

Online Learning Centers can be delivered through any of these platforms:

- McGraw-Hill Learning Architecture (TopClass)
- Blackboard.com
- Ecollege.com (formally Real Education)
- WebCT (a product of Universal Learning Technology)

McGraw-Hill has partnerships with WebCT and Blackboard to make it even easier to take your course online. Now you can have McGraw-Hill content delivered through the leading Internet-based learning tool for higher education.

At McGraw-Hill., we have the following service agreements with WebCT and Blackboard:

Instructor Advantage   Instructor Advantage is a special level of service McGraw-Hill offers in conjuction with WebCT designed to help you get up and running with your new course. A **team of specialists** will be immediately available to ensure everything **runs smoothly** through the **life** of your adoption.

Instructor Advantage Plus   Qualified McGraw-Hill adopters will be eligible for an even higher level of service. A certified WebCT or Blackboard specialist will provide a full day of on-site training for you and your staff. You will then have unlimited e-mail and phone support through the life of your adoption. Please contact your local McGraw-Hill representative for more details.

Technology Connection Seminar Series

McGraw-Hill/Irwin's Technology Connection seminar series offered across the country every year demonstrates the latest technology products and encourages collaboration among teaching professionals.

MS Office 2000 Applications Texts and CDs

McGraw-Hill offers three applications series: The *O'Leary Series*, The *Advantage Series*, or The *Interactive Computing Series*. Each series features its own unique approach to teaching MS Office in order to meet the needs of a variety of students and course goals.

- The *O'Leary Series* features a project-based, step-by-step walk through of applications.
- The *Advantage Series* features a case-based, what, why and how approach to learning applications to enhance critical thinking skills.
- The *Interactive Computing Series* features a visual, two-page spread to provide a more skills-based approach to learning applications.

Each series offers Microsoft® OfficeUser Specialist (MOUS) approved courseware to signify that it has been independently reviewed and approved in complying with the standards of content coverage related to the Microsoft® Exams and Certification Program. For more information on Microsoft's MOUS certification program, please visit Microsoft's Web site at **www.microsoft.com/office/traincert/.**

Also available for applications are the *Interactive Computing Series* Computer-Based Training CD-ROM tutorials. These CD-ROMs offer a visual, interactive way to develop and apply software skills. The CD-ROM features a unique "skills-concepts-steps" approach, and includes interactive exercises and performance-based assessment. These CD-ROMs are simulated, so there is no need for the actual software package on the computer.

Skills Assessment

McGraw-Hill/Irwin offers two innovative systems to meet your skills assessment needs. These two products are available for use with any of our applications manual series.

ATLAS (Active Technology Learning Assessment System) is one option to consider for an application skills assessment tool from McGraw-Hill. ATLAS allows students to perform tasks while working live within the Microsoft applications environment. ATLAS provides flexibility for you in your course by offering:

- Pre-testing options
- Post-testing options
- Course placement testing
- Diagnostic capabilities to reinforce skills
- Proficiency testing to measure skills
- ATLAS is Web-enabled, customizable, and is available for Microsoft® Office 2000

SimNet (Simulated Network Assessment Product)—SimNet is another option for a skills assessment tool that permits you to test students' software skills in a simulated environment. SimNet is available for Microsoft® Office 97 (deliverable via a network) and Microsoft® Office 2000 (deliverable via a network and the Web). SimNet provides flexibility for you in your course by offering:

- Pre-testing options
- Post-testing options
- Course placement testing
- Diagnostic capabilities to reinforce skills
- Proficiency testing to measure skills

For more information on either skills assessment software, please contact your local sales representative, or visit us at **www.mhhe.com/it**.

Interactive Companion CD-ROM

This free student CD-ROM, designed for use in class, in the lab, or at home by students and professors alike, includes a collection of interactive tutorial labs that illustrate some of the most popular and difficult concepts in information technology. By combining video, interactive exercises, animation, additional content, and actual "lab" tutorials, we expand the reach and scope of the textbook. The lab titles are listed below:

Available Now:

- Computer Anatomy
- Binary Numbers
- Storage
- E-Mail
- Learning to Program I
- Learning to Program II
- Network Communications

- Intro to Multimedia
- Databases
- Workplace Issues (ergonomics/privacy/security)

Coming Soon:

- User Interfaces
- Photo Editing
- Word Processing
- Spreadsheets
- Directories, Folders, Files
- Using Files
- CPU Simulator
- Troubleshooting
- Web Pages and Html
- SQL Queries

PowerWeb

PowerWeb is an exciting new online product available from McGraw-Hill. A nominally priced token grants students access through our Web site to a wealth of resources—all corresponding to computer literacy. Features include an interactive glossary; current events with quizzing, assessment, and measurement options; Web survey; links to related text content; and WWW searching capability via Northern Light, an academic search engine. Visit the PowerWeb site at **www.dushkin.com/powerweb**.