## **CONTENTS**

Acknowledgments	ix
Introduction	xi
Part I Technology	1
1. Radio and Television Broadcasting	3
Leonard Shyles	
Broadcasting in America	4
The Basics of Electromagnetic Radiation	6
From Radio to Television Transmission	13
The Expanded Video System	24
Conclusions	28
Cyberinterview: Michael Young	30
2. Computers in Communication: Concepts	
and Application	45
Leonard Shyles	
The Language of Binary Code	46
The Move Toward Machine Calculation	50
Conceptual Foundations	54
From Theory to Practice	59
ASCII: Why 1 (a Single Standard) Is a	
Beautiful Number in the Computer Industry	72
Capturing Sound With Binary Code	74
Capturing Images	77
Standard Computer Architecture:	
ALU, CCU, Memory, Input, and Output	78
Modern Computers	81
Chip Manufacturing	88
Conclusions	91
Cyberinterview: Dan Birenbaum	94
3. Sending Messages Across the Network	109
Leonard Shyles	
Connecting Users: Access	112
From Analog to Digital Transmission	119

Growth of the Telecommunication Network	126
Cellular Telephony	136
Conclusions	141
Cyberinterview: Charles Ehlin	147
Part II Markets	157
4. Children in Cyberspace	159
Mark R. Banschick	
Josepha Silman Banschick	
The Child/Internet Interface	159
Intellectual Development	171
Internet and the Social World	178
Identity Formation and the Internet	187
Conclusions	199
5. Social and Psychological Uses of the Internet	201
JoAnn Magdoff	
Jeffrey B. Rubin	
Who Uses the Internet?	202
When the Web Resembles the Real World	205
Re-creating Identity	208
What Is the True Self? Online and Offline	213
Emergence and Complexity	215
Conclusions	216
Cyberinterview: Marvin Kane	220
6. Connected Learning in the Information Age	231
Thomas A. McCain	
Leigh Maxwell	
The Infrastructure of Education	231
The Unique Qualities of Digital Media	239
Administrative Challenges	248
Conclusions	256
Cyberinterview: Rick Marx	258
7. Adopting Instructional Technologies <i>Judy C. Pearson</i>	265
Brief Overview	266
Assessing the Impact of Instructional Technologies	266
The Promise of Instructional Technologies	269
Challenges Facing Administrators	278
Conclusions	281
Conclusions	287

Part III Policy	291
8. Law and Regulation, Part I: Individual Interests Keith Lee	293
Janessa Light	
Freedom of Expression	294
Constitutional Right to Privacy	303
Copyrights	309
Epilogue	318
9. Law and Regulation, Part II: Business Interests  Janessa Light	323
Katherine Neikirk	
Trademarks	324
Jurisdiction	333
Defamation	338
Epilogue	344
Appendix: U.S. Radio Spectrum	
Allocations and Uses (30 MHz-300 GHz)	349
Glossary	359
References	367
Further Readings	375
Index	401
About the Contributors	413