

Contents

<i>Foreword: how to use this book</i>	ix
PART 1: INSTRUCTIONAL DESIGN AND THE MEDIA SELECTION PROCESS	1
<i>Introduction to part 1</i>	1
1. Learning and Instruction	3
1.1 Basic Concepts: communication and learning; instruction; methods, materials, media and messages	3
1.2 Theories of instruction and their use in method and media selection: emergence of an educational technology; emergence of behavioural objectives; the cognitive and developmental viewpoints; the expanded model of Gagné and Briggs; other approaches	15
2. A Systematic Approach to Instructional Design	29
2.1 The emergence of the systems approach	29
2.2 The four levels of instructional design and development	32
2.3 A practical example	47
3. The Selection of Media	57
3.1 A basic media selection model: factors affecting media choice; optional and essential media characteristics; media selection as part of lesson design	57
3.2 Other media selection models and approaches: a proliferation of models; matrix-based models; worksheet-based models; flowchart-based models	76
3.3 A multi-level model of media selection: the realities of media decisions; media selection decisions at Level 1; media selection decisions at Level 2; media selection decisions at Level 3; media selection at Level 4	87
PART 2: MEDIA AS INSTRUCTIONAL AIDS: THE USE OF BASIC PRESENTATION MEDIA TO PROMOTE EFFECTIVE MESSAGE TRANSMISSION IN CONVENTIONAL INSTRUCTIONAL SETTINGS	101
<i>Introduction to part 2</i>	101
4. When to Use Still Visual Media	103
4.1 Why use visual aids at all – why not the real thing?	103
4.2 Models or Pictures?	103
4.3 Reading of visual material	106
4.4 Research on the comprehension of visuals	106

5. Non-projected Graphic and Print Media	115
5.1 The chalkboard and its derivatives	115
5.2 Felt boards and magnetic boards	116
5.3 Charts and posters	118
5.4 Using print media	128
6. Projected Visuals	137
6.1 Types of still projected visuals	137
6.2 The use of projected visuals: filmstrips; slides; projectors; screening; design of slides and film strips; opaque projection	137
6.3 The overhead projector: uses; methods of transparency preparation; screening; clarity of transparencies	146
7. Simple Audio and Audio-visual Media	159
7.1 The need for sound media	159
7.2 Research on sound media	160
7.3 Research on the use of slide-tape presentations	161
7.4 The use of simple audio media: radio; records; tape recorder	163
7.5 The functions of AV media in an instructional system	167
8. Film	189
8.1 How much is film used in education?	189
8.2 Research on cine film	189
8.3 The selection of off-the-shelf films	194
8.4 Film equipment	196
8.5 Speaker placement	199
8.6 The screening of films: troubleshooting guide	201
9. Television and Video	205
9.1 The variety of educational TV delivery systems: live broadcasting; recorded broadcasts; successes and failures of broadcast TV; closed circuit television (CCTV); individual study of pre-recorded video; teletext as a medium of instruction; a schema of educational TV systems; current and future growth in usage	205
9.2 The benefits of TV and video: research on TV versus film; research on the instructional effects of TV; some practical benefits of video	221
9.3 Selecting and using TV/video for instruction: adopt, adapt, repurpose or produce; initial media decisions; adopting and adapting existing ITV; repurposing existing materials; producing your own material; delivering and evaluating ITV lessons	224
9.4 Television and video equipment: operating standards; monitors and receivers; portable video recorders; troubleshooting guide	236

**PART 3: MEDIA AS INSTRUCTIONAL SYSTEMS: THE USE OF
INTERACTIVE MEDIA TO PROMOTE INDIVIDUALIZATION
OF INSTRUCTION IN BOTH CONVENTIONAL AND
NON-CONVENTIONAL SETTINGS** **241**

<i>Introduction to Part 3</i>	243
10. Print-based Interactive Instruction	243
10.1 Programmed instruction and other forms of interactive structured communication	243
10.2 'Traditional' programmed instruction	244
10.3 The changing concept of programmed instruction	247
10.4 Selection of programmed instruction for a given course	252
10.5 Structured writing or 'mapping'	257
11. Simulators and Games as Interactive Media	263
11.1 Basic concepts	263
11.2 A schema of simulation and gaming techniques	266
11.3 Applications of simulations and games	268
11.4 Some examples of simulations and games	270
11.5 Using simulations and games effectively	287
12. Interactive Computer-based Learning	299
12.1 The field of study: computers in education; the impact of computers; describing the field	299
12.2 The computer as instrument for learning: computer-managed instruction; computer-assisted testing; drill and practice; the programmed tutorial mode of CAI; conversational or dialogue tutorial CAI; computer-based simulation; database inquiry; learning through programming	302
12.3 Research on the use of computers for learning: comparative studies: computers vs teachers; case studies – benefits gained through CMI, benefits gained through computer-based testing, 'programmed tutorial' CAI, research on conversational and intelligent CAI, benefits of computer-based simulation; benefits of 'inquiry' CAL, benefits of LOGO	325
12.4 Deciding whether to use computer assisted learning: is a course suitable for CAL? 'Micro' decisions. Is this CAL package suitable?	332
13. Interactive Video Systems	341
13.1 What is interactive video?	341
13.2 Modern systems of interactive video: the hardware	342
13.3 Some examples of interactive video: a simple classification of applications; interactive video files and databases; creating inserts, or repurposing existing videodiscs; the programmed CAI mode; the simulation mode	345
13.4 Some research results and some further questions	356
13.5 Advances in the technology: optical recording capabilities; CD-ROM and CD-I; DV-I, or Digital Video Interactive	359

14. Interactive Distance Education Systems	363
14.1 The networked society: a vision of the future	363
14.2 Teleconferencing: the telephone; audiographic teleconferencing; narrow band, or slow-scan video transmission; full-motion videoconferencing;	363
14.3 Computer conferencing and networking; what's special about computer conferencing? Some case studies	370
14.4 Videotex and information utilities: the concept of an information utility; Videotex or Viewdata	373
14.5 Conclusion: towards the education utility?	375
<i>Bibliography</i>	377
<i>Author Index</i>	389
<i>Subject Index</i>	393