THE NEW EDUCATIONAL TECHNOLOGIES AND LEARNING
ABOUT THE AUTHOR

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In addition to teaching, research, and writing, Dr. Hefzallah is a producer and director of educational and cultural television programs. A sample of programs he has produced include *The Fairfield Gallery, Photographic Vision, Transcribing Jazz, Teaching Children About Families*, and *Design for Life*, all of which have been shown on Connecticut Public Television. *Design for Life* focuses on teenage smoking and received the American Cancer Society 1980 Connecticut Media Award. His latest production, *If These Stones Could Speak*, focuses on the story of Fairfield University as told in its buildings. It won The Communicator Crystal Award for Excellence in 1996.
Second Edition

THE NEW EDUCATIONAL TECHNOLOGIES AND LEARNING

Empowering Teachers to Teach and Students to Learn in the Information Age

By

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To my family
When the first edition of this book appeared, the size of the web was estimated at 320 million web pages. Only 34% (108 million pages) of those pages were indexed. Pages that are not indexed stay invisible to search engines. Today, the web has over 17 billion web pages. Although only approximately 18% of those pages are indexed, the number of searchable pages has increased to over 3 billion web pages!

The increase in the size of the indexed web pages is just one example of the tremendous and fast pace of technology development that is affecting every phase of our lives and, of course, our educational practice. More and more technologies are introduced (software and hardware) providing the vehicles and tools through which excellence in teaching and learning may occur.

Statesmen, legislators, business leaders, parents, and educators are constantly advocating the infusion of technology in education. The CEO Forum on Education and Technology (2000) stated: “As part of our efforts at school reform, we should apply technology’s resources to develop the full academic abilities of all our students.”

Professional organizations interested in studying requirements for teaching certifications have recognized literacy in technology as an essential standard for teaching certification. Standards for technology-literate students have also been developed and practiced by many schools.

In light of recent studies, educational technology developments, and emerging educational needs of the twenty-first century, the chapters in the new edition have been revised and updated. A new section on children and youth’s safety on the Internet was added, and a new chapter on television in education was introduced.

In the preface to the first edition (1999), I wrote: “Prior to the accelerated evolution of information technologies, educators advocated the need for individualized, flexible, interactive, interdisciplinary and up-to-date learning environments in which students control their own learning—necessary conditions to enable students to become educated persons. However, with reliance on textbooks and audiovisual supplements it was difficult, if not impossible, to implement such progressive educational practices. Today, the new learning and telecommunications technologies can help realize educators’ pedagogical dreams.” Five years later, that statement is still true; teachers are required to infuse technology in their teaching.

Ibrahim M. Hefzallah
PREFACE TO FIRST EDITION

As the world prepares to enter the 21st Century, the goal of education has become more focused than ever on cultivating truly educated persons. On the threshold of a new millennium, the drive for educational reform should not be propelled by business needs only. Emphasis should also be put on graduating people who can deal with change in our world—a change that is accelerated by the technologies of the Information Age. An *Educated Person* in this Age is one who is capable of maintaining a high quality of life, and of contributing to the betterment of the community and the world as a whole.

Information technologies have proven to be a significant advantage to the teaching/learning process. Developments in these technologies provide more powerful and versatile applications in education. One can look at our current era as the golden era of technology in education. Never before have educators had the wide and effective range of instructional and telecommunications technologies that are available to them and their students in and out of class. Educators have at hand very efficient tools to structure learning environments conducive to achieving the goal of education: the cultivation of the *Educated Person*.

Prior to the accelerated evolution of information technologies, educators advocated the need for individualized, flexible, interactive, interdisciplinary and up-to-date learning environments in which students control their own learning—necessary conditions to enable students to become educated persons. However, with reliance on textbooks and audiovisual supplements it was difficult, if not impossible, to implement such progressive educational practices. Today, the new learning and telecommunications technologies can help realize educators’ pedagogical dreams.

This book examines these new learning and telecommunications technologies and their potential applications to enrich the learning process, to ensure educational equality for all students and to help cultivate the *Educated Person*.

*Ibrahim M. Hefzallah*
ENVIRONMENT, REFORM, TECHNOLOGY, AND
TWENTY-FIRST CENTURY CHALLENGE

“We never educate directly, but indirectly by means of the environment.”

John Dewey

“I have learned to undertake reform of the environment and not to try to reform man.”

Buckminster Fuller

“We are unlikely to obtain the schools we want until we take greater advantage of the power of modern technology and its appeal to youth.”

Howard D. Mehlinger

“Our economic survival and leadership in the free democratic world rest on the educated individuals of our nation. The need to achieve excellence in education and educational equity for everyone is urgent. Only when our quest is multilateral and targets the student as a whole person will we realize excellence in education.”

Ibrahim M. Hefzallah
INTRODUCTION

Since man perceived the need to educate the young, educational goals and practices have been examined to assess the efficiency of the educational system. As a result, different views of educational reform have emerged. These views reflect the values and aspirations of those who express them, as well as their perception of the economic, social, political, national, and international conditions of the time. However, the road to educational reform has many paths, and one must consider a broad range of educated points of view to formulate a comprehensive vision of the goal of educational reform. Reforming education should not be driven by business needs only. It also should target the cultivation of well-rounded educated persons. Education for earning and education for learning are two sides of one coin, which form the goal of education: the cultivation of the educated person.

Since we educate by means of the environment, special attention must be given to the design of learning environments conducive to the cultivation of the educated person. An essential element of that design is ensuring the learner’s interactivity with models of excellence, both in human resources and in learning materials. Fortunately, the technology of the information age provides students and teachers with the tools and vehicles through which models of excellence can be accessed.


Section I examines the need for educational reform, the goal of that reform, and the role of technology in realizing that goal.

Section II addresses the significance of the learning environment and the necessary conditions for providing teachers and students with access to models of excellence in human resources and in learning materials.

Section III presents the new learning and telecommunications technologies with emphasis placed on their potential applications in education.

Section IV focuses on necessary conditions conducive to the empowerment of the teachers to teach and the students to learn in the Information Age. Among these conditions are the cultivation of technology-literate teachers, technology-literate students, and effective school media specialists.

I.M.H.
## CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
</tr>
<tr>
<td>Preface to First Edition</td>
</tr>
</tbody>
</table>

### SECTION I—EDUCATION IN THE INFORMATION AGE

#### Chapter 1. Educational Reform
- The Need for a Comprehensive View of Educational Reform | 5
  - No Child Left Behind Act 2001 | 6
  - Comments on No Child Left Behind Act of 2001 | 9
- The Need to Emphasize Development of Values in Education | 11
- A Comprehensive Educational Reform Goal | 12
- The Educated Person—A Definition | 12
- Technology and the Cultivation of the Educated Person | 13
- Conclusion | 14
- References | 15

#### Chapter 2. The Education Person in the Information Age
- Introduction | 17
- Basic Characteristics of the Modern Age | 17
  - Accelerated Rate of Scientific Developments | 17
  - Education for Change | 19
  - Serious World Problems | 20
  - Technology and the Changing Family Lifestyle | 21
  - Increased Automation | 22
  - The Need for a Common Shared Information | 24
  - The New Literacies | 27
  - Borderless Information | 31
- Conclusion | 31
- References | 33

### SECTION II—THE LEARNING ENVIRONMENT

#### Chapter 3. Significance of the Learning Environment
- Access to Excellence | 37
Teachers as Designers of the Learning Environment . . . . . . . 38
Creativity ................................................. 38
Learning to Learn ........................................ 39
Critical Mind ............................................. 40
Self-Evaluation ........................................... 40
Real People ............................................... 41
Clear Understanding of the Teacher’s Role ................. 42
Clear Understanding of the Educational Technology Concept .... 44
Structuring the Learning Environment ...................... 46
Pedagogical Dreams Come True ......................... 46
Necessary Conditions for an Effective Learning Environment ........ 46
A Flexible Learning Environment ...................... 46
An Interactive Environment .......................... 47
An Interdisciplinary Environment ..................... 49
An Up-to-Date Learning Environment ................. 50
References .............................................. 51

4. The Educational Technology Environment ............. 53
Paradigm Shift in Assessing Advantages and Limitations of Technologies of Instruction ..................... 53
Media Comparison Studies .......................... 53
A Paradigm Shift ........................................ 55
Unique Characteristics of the Educational Technology Learning Environment ............. 56
An Extended Environment .......................... 56
A Multimedia Environment ........................ 56
An Engaging Environment .......................... 59
An Educational Equality Environment ............... 59
An Interactive Environment ...................... 60
References .............................................. 61

5. Mediated Interaction .................................. 62
Types of Mediated Interaction ....................... 62
Live Mediated Interaction .......................... 62
Delayed Feedback Mediated Interaction ............... 64
Indirect Feedback—Totally Mediated Interaction ....... 64
Mediated Interaction and Educational Technology .... 65
General Guidelines for the Design of Live Mediated Interaction .......................... 65
General Guidelines for the Design of Totally Mediated Interaction ......................... 66
Reasons for Using Mediated Interaction ............... 68
To Help Achieve Excellence in Education ..................... 68
To Support Evolving School Curricula ....................... 69
To Meet Various Needs, Interests, and Learning
   Styles of Individual Students ......................... 69
To Educate Students in the Process of Self-Learning .... 70
To Educate Students in the Use of New
   Communications and Information Delivery Systems . . 70
Conclusion .................................................. 73
References ................................................. 73

SECTION III—THE NEW LEARNING
AND TELECOMMUNICATIONS TECHNOLOGIES

Part One—Computers In Education

6. Forerunners to Computers in Education .................... 79
   Introduction ......................................... 79
   Programmed Instruction and Teaching Machines ........ 80
      A Definition ....................................... 80
      Historical Review of Programmed Instruction
         and Teaching Machines ......................... 81
   References .......................................... 86

7. Current Uses of Computers in Education .................... 88
   Introduction ......................................... 88
   A Storyteller ........................................ 88
   Multimedia Producer/Presenter ......................... 90
   Interactive Medium of Communication ................. 91
   Gateway to the Information World ..................... 92
   Digital Publishing Medium .......................... 93
      Tools for Digital Publications—Word Processing .... 94
   Desktop Management of Instruction .................... 102
      Student Portfolios .............................. 103
   Lesson Plans ....................................... 106
   Connecting to Web Resources on Teaching Plans ....... 107
   Virtual Reality ...................................... 112
   Virtual Reality on the Internet ...................... 114
   The Computer as a Tutor—Teaching Strategies .......... 115
      Drill and Practice ............................... 115
      Tutorials ....................................... 116
      Simulations and Demonstrations .................. 117
      Games .......................................... 117
   Multimedia-Assisted Instruction ....................... 118
   References .......................................... 119
Part Two—Compact Disc Read-Only-Memory (CD-ROM)

8. Compact Disc Read-Only-Memory (CD-ROM) .................................. 125
   Introduction .................................................................................. 125
   Laser Videodiscs ......................................................................... 125
   CD-Audio and the Birth of CD-ROM ........................................... 127
   The CD-ROM Medium .................................................................. 129
   Producing CD-ROM Discs ............................................................. 129
   CD-ROM Unique Characteristics .................................................. 130
      Huge Disc Capacity ..................................................................... 130
      A Searchable Medium of Vast Information ................................. 130
   Characteristics of CD-ROM Search .............................................. 132
      Efficient Search Options .............................................................. 132
      Hyperenvironment ...................................................................... 133
      Immediate Assessment of Search Efforts ..................................... 133
      A Choice Medium ....................................................................... 133
   New Developments in CD-ROM Technology ............................... 134
      CD-R and CD-RW ..................................................................... 135
      CD-I Compact Disc Interactive ................................................... 135
      Development of Photo CD .......................................................... 137
   The Evolution of CD-ROM Software .......................................... 141
      Introduction .............................................................................. 141
      CD-ROM Early Products ............................................................. 142
      Progress in Software Design ...................................................... 142
   References ..................................................................................... 145

Part Three—The Internet

9. The Internet—Its Early Development and Accelerated Growth . 151
   Introduction .............................................................................. 151
   What Is the Internet? ................................................................. 151
   Early Developments .................................................................. 153
   The Accelerated Growth of the Internet ...................................... 156
      The Creation of the World Wide Web ....................................... 156
      Evidence of the Internet Accelerated Growth .......................... 157
   Summary ..................................................................................... 169
   References ................................................................................... 170

10. Unique Characteristics of the Internet and Its Potential
    Applications in Education ........................................................... 174
    Introduction ............................................................................. 174
    Universal Borderless Access ....................................................... 175
    Rich in Multimedia Resources ................................................... 176
    Publishing Medium .................................................................... 178
    Interactive Medium .................................................................... 179
## Contents

Collaborative Medium .................................................. 181
References ................................................................. 187

11. Commonly Used Internet Resource Tools and Their Potential Applications in Education .............................. 190
  Introduction .............................................................. 190
  E-mail ................................................................. 190
    The Educational Values of E-mail .............................. 191
  USENET ............................................................... 197
  Web Discussion Forums ............................................ 199
  File Transfer Protocol (FTP) ........................................ 200
    Tools to Enhance Searching for Files Containing Specific Information ............................................... 201
    Telnet ............................................................. 202
  The Web Browse ...................................................... 203
    Searching for Information ....................................... 204
    Original Search .................................................. 208
  Children and Youth’s Safety on the Internet ..................... 211
    Putting Parents in Control ....................................... 212
    Schools and Children’s/Youth’s Internet Safety ............ 220
    The Internet Community and Youth’s Safety on the Internet ......................................................... 222
  The School Home Page .............................................. 223
References ............................................................... 226

**Part Four—Video Telecommunications**

12. Television in Education .............................................. 233
  Proven Advantages of Television as a Medium of Instruction ......................................................... 233
  The Shining Star of Technologies Takes a Back Seat ........... 236
  Television, the Most Popular Medium of Communication ... 238
    Easy Accessibility ................................................. 238
    Abundance of Television Channels ......................... 239
    New Information Services ..................................... 240
    Television in Distance Education ......................... 240
    Cable in the Classroom ....................................... 241
    Educational Television Collaboration Among K–12 Schools .............................................................. 242
    Continuous Introduction of New Technologies ............ 243
    TV on the WEB .................................................. 243
  The Need to Develop K–12 Students’ Television Critical Viewing Skills ............................................. 244
References ............................................................... 250
13. Satellite Communications for Learning

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>254</td>
</tr>
<tr>
<td>Basics of Satellite Communication</td>
<td>254</td>
</tr>
<tr>
<td>Educational Satellite Consortia</td>
<td>256</td>
</tr>
<tr>
<td>National University Telecommunications Network (NUTN)</td>
<td>256</td>
</tr>
<tr>
<td>Public Broadcasting Service—Adult Learning Service (PBS ALS)</td>
<td>258</td>
</tr>
<tr>
<td>Public Broadcasting Service—The Business Channel (PBS TBC)</td>
<td>260</td>
</tr>
<tr>
<td>Satellite Communications for Learning International (SCOLA)</td>
<td>260</td>
</tr>
<tr>
<td>Potential Uses of Satellite Communication in Learning</td>
<td>264</td>
</tr>
<tr>
<td>Reception of Specialized Cultural and Instructional Programs</td>
<td>264</td>
</tr>
<tr>
<td>Distribution of School-Based Television Programs on a Satellite Network</td>
<td>264</td>
</tr>
<tr>
<td>Participation in a Growing Teleconferencing Activity</td>
<td>265</td>
</tr>
<tr>
<td>Programming a Special Campus Channel</td>
<td>266</td>
</tr>
<tr>
<td>Innovative Use of Satellite Communication in Learning</td>
<td>266</td>
</tr>
<tr>
<td>Visiting with Experts in Their Research Working Environment</td>
<td>266</td>
</tr>
<tr>
<td>Home, Away From Home</td>
<td>268</td>
</tr>
<tr>
<td>Experiential Learning</td>
<td>269</td>
</tr>
<tr>
<td>Interactive Communication Among People from Different Nations</td>
<td>270</td>
</tr>
<tr>
<td>Conclusion</td>
<td>273</td>
</tr>
<tr>
<td>References</td>
<td>274</td>
</tr>
</tbody>
</table>

14. Distance Education

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>279</td>
</tr>
<tr>
<td>The First Generation of Distance Education Practices</td>
<td>279</td>
</tr>
<tr>
<td>Current Correspondence and Independent Studies</td>
<td>281</td>
</tr>
<tr>
<td>Developmental Phases of Distance Education</td>
<td>282</td>
</tr>
<tr>
<td>Definition of Distance Education</td>
<td>284</td>
</tr>
<tr>
<td>Uncertainty and Professional Frustration</td>
<td>286</td>
</tr>
<tr>
<td>Distance Education and Challenges Facing Education</td>
<td>287</td>
</tr>
<tr>
<td>Changing Career Requirements and Preparing Citizens for Productive Lives</td>
<td>287</td>
</tr>
<tr>
<td>Imparting Information vs. Assessing Information</td>
<td>289</td>
</tr>
<tr>
<td>Lifelong Liberal Arts Education</td>
<td>289</td>
</tr>
<tr>
<td>Providing Educational Equality</td>
<td>290</td>
</tr>
<tr>
<td>Levels of Implementing Distance Education Projects</td>
<td>293</td>
</tr>
</tbody>
</table>
Contents

Total-Distance Education ........................................ 293
Total K–12 Distance Education ................................. 296
Partial Distance Education Strategies ...................... 296
Technologies of Blended Learning .......................... 296
Use of Television in Distance Education .................. 296
Telecourses in Distance Education ........................... 297
Web-Based Distance Education ............................... 299
Live Audio-Video Distance Education Technology .... 299
Two-Way Video and Audio Transmission Technologies. 299
Summary .......................................................... 302
References ....................................................... 302

SECTION IV—EFFECTIVE UTILIZATION OF THE NEW LEARNING AND TELECOMMUNICATIONS TECHNOLOGIES

15. Empowering Teachers to Use the New Learning and Telecommunications Technologies in Their Teaching .... 309
   Introduction .................................................. 309
   Educating Teachers in the Use of Information Technologies ........................................ 310
   Recommendations of Legislators and Learning Communities .................................... 310
   Comments on the Studies and Recommendations ............................................... 319
   Necessary Conditions for Preparing Technology-Literate Teachers ............................ 321
   The School Media Specialist ................................ 325
   Community Partnership ...................................... 332
   Conclusion ................................................... 332
   References ................................................... 333

Appendix—The School Media Specialist Program at the Graduate School of Education and Allied Professions, Fairfield University .... 337

Index ............................................................. 347
THE NEW EDUCATIONAL TECHNOLOGIES AND LEARNING
SECTION I

EDUCATION IN THE INFORMATION AGE

Chapter 1: Educational Reform
Chapter 2: The Educated Person in the Information Age

INTRODUCTION

Chapter 1, “Educational Reform,” addresses the need for a comprehensive view of educational reform. It reviews various studies focusing on reforming education and presents the goal of educational reform as the cultivation of the “educated person.”

Chapter 2, “The Educated Person in the Information Age,” examines the basic characteristics of the modern age in an attempt to identify the qualities that an educated person should possess. Identifying these qualities is essential to the effective design of learning environments conducive to the achievement of these qualities.
Chapter 1

EDUCATIONAL REFORM

THE NEED FOR A COMPREHENSIVE VIEW OF EDUCATIONAL REFORM

Since man perceived the need to educate the young, educational goals and practices have been examined to assess the efficiency of the educational system. As a result, different views of educational reform have emerged. These views reflect the values and aspirations of those who express them, as well as their perception of the economic, social, political, national, and international conditions of the time.

Toward the end of the twentieth century, various studies and reports addressed the need for educational reform. One major report was the 1982 National Science Foundation’s *Today’s Problems, Tomorrow’s Crises*. In this report, the National Science Foundation (NSF) alerted the nation to potential crises resulting from citizens not being prepared to participate fully in the technological world:

> We appear to be raising a generation of Americans, many of whom lack the understanding and the skills necessary to participate fully in the technological world in which they live and work. Improved preparation of all citizens in the fields of mathematics, science, and technology is essential to the development and maintenance of our nation’s economic strength, military security, commitment to the democratic ideal of an informed and participating citizenry, and leadership in mathematics, science, and technology.¹

In 1985 and 1992, The National Center for Education Statistics (NCES) conducted assessments of adult literacy. (A 2003 study, *The National Assessment of Adult Literacy* [NAAL], is under way²). The 1992 study indicated that almost half of the American adult population was much less likely to respond correctly to the more challenging literacy tasks that require higher-level reading and problem-solving skills.³

Proficiency scores of young adults who participated in the 1985 literacy survey were higher than the 1992’s scores. The *National Adult Literacy Survey* (NALS) study suggested that this might be due to changes in the demographic composition of the population with an increase in the percentage of participants who learned English as a second language.⁴