

**THE NEW EDUCATIONAL
TECHNOLOGIES AND LEARNING**

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His articles have appeared in such publications as *Babel*, *The National Association of Secondary School Principals Bulletin*, *Educational and Industrial Television (EITV)*, *International Journal of Instructional Media*, *Journal of Advertising Research*, *The Journal of the University Film Producers Association*, and *Vocational Guidance Quarterly*. Some of his research has focused on critical viewing of television, electronic publications, and the use of the World Wide Web in education.

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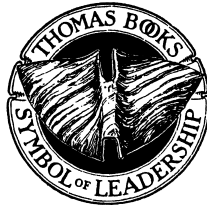
THE NEW EDUCATIONAL TECHNOLOGIES AND LEARNING

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

By

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To my family

PREFACE

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.

This book is divided into four sections: *Education in the Information Age*, *The Learning Environment*, *The New Learning and Telecommunications Technologies*, and *Necessary Conditions for Effective Utilization of the New Learning and Telecommunications Technologies*.

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

	<i>Page</i>
<i>Preface</i>	vii
<i>Preface to First Edition</i>	ix

SECTION I—EDUCATION IN THE INFORMATION AGE

Chapter

1. Educational Reform	5
The Need for a Comprehensive View of Educational Reform . . .	5
<i>No Child Left Behind Act 2001</i>	6
Comments on <i>No Child Left Behind Act of 2001</i>	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
2. The Education Person in the Information Age	17
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

3. Significance of the Learning Environment	37
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

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

Part Five—Distance Education

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

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
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<i>Index</i>	347
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**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