

CONTENTS

1 Introduction - Changes in Higher Education	1
1.1 Global Competition and the Emerging Knowledge Economy	1
1.2 Repercussions of Globalization in the Educational Sector	2
1.3 Paradigm Shift in Education as a Result of Globalization Effects	8
1.4 Competition in Higher Learning	12
1.5 Potential of IT and Multimedia Learning	17
1.6 Higher Learning in Germany	19
1.7 Road Map	21
2 Emerging Organizational Models and Players in the Education Services Business	27
2.1 Overview	27
2.2 Emerging Organizational Concepts	32
2.3 Organizations in Net-Based Lifelong Learning	35
2.3.1 Extended Traditional Universities	35
2.3.2 For-Profit Adult-Centered Universities	40
2.3.2.1 Apollo Group	41
2.3.2.2 DeVry	46
2.3.3 Corporate Universities	53
2.3.4 University/Industry Strategic Alliances	59
2.3.4.1 Michigan Virtual Automotive College	59
2.3.4.2 Sylvan Caliber Learning Network	62
3 Human Learning and Instruction	67
3.1 Overview	67
3.2 Instruction, Behavioral Psychology, and Cognitive Constructivism	70

3.3 Vygotsky's Sociocultural Approach to Learning	74
3.4 Keller's Personalized System of Instruction	77
3.5 Knowles' Learning Contracts	79
3.6 Modular Instruction	81
3.7 Learning Objectives - Acquiring Competencies	84
4 Educational Concepts for Net-Based Learning and Teaching	89
4.1 Overview	89
4.2 Lifelong Learning Considerations	97
4.3 Asynchronous Learning Networks	99
4.3.1 Overcoming Barriers and Joining Communities	99
4.3.2 Self-Study and Asynchronous Interactivity	100
4.3.3 Traditional Pedagogic Concepts and Net-Based Learning	101
4.3.4 Traditional Educational Services and Lifelong Learners	103
4.3.5 Cost of Net-Based Educational Systems	104
4.4 Managing Lifelong Learning Careers	106
4.4.1 Lifelong Learning and Personalized Curriculums	106
4.4.2 Role- and Competence-Focused Learning	110
4.4.3 Learning Balance	117
4.4.4 Remaining Problems	118
4.5 Managing Personalized Learning Experiences	120
4.5.1 Sequencing Learning Experiences	122
4.5.2 Activity Templates	124
4.5.3 Learner Model	129
4.6 Migrating to Competence-Focused Learning Environments	134
5 Operational Functions, Subsystems, and Roles	139
5.1 Overview	139
5.2 Organizational Design and Business Process Engineering in Higher Education	142
5.2.1 BPR Objectives and Restrictions in Higher Education	142
5.2.2 Documenting Organizational Functions and Work Processes	147
5.3 Operational Functions to Support Net-Based Learning	156

5.3.1 Curriculum Development, Marketing, and Educational Consulting	159
5.3.2 General Student Services	162
5.3.3 Intellectual Property, Patents, and Copyrights	163
5.3.4 Technical Infrastructure, Learning and Assessment Systems	167
5.3.4.1 IS Platforms and Application Services (TIS)	171
5.3.4.2 Learning and Assessment Systems Development (LAS)	171
5.3.4.3 Learning and Assessment Systems Administration and Archiving (LAD)	174
5.3.5 Learning Management and Facilitation	175
5.3.5.1 Learning Management and Support (LMS)	175
5.3.5.2 Learning Resources Services (LRS)	179
5.3.5.3 Learner and Learning Team Work Environments (LWR)	183
5.3.5.4 Learning Communities and Meeting Points (LCM)	185
5.4 Subsystems and Roles in Net-Based Learning Systems	190
5.5 Organizational Units and Teams	196
6 Core Processes in Net-Based Educational Systems	201
6.1 Overview	201
6.2 CC - Create and Certify Competencies	204
6.3 LB - Specify Learning Balance	207
6.4 ML - Co-Constructivist Progressive Mastery Learning	212
6.5 DA - Demonstrate Achievements	217
7 IS Support for Net-Based Education	221
7.1 Overview	221
7.2 IS Functions in Institutions of Higher Learning	224
7.3 Groupware Infrastructure and IS Functions for Net-Based Education	228
7.4 Learner and Learning Facilitator Work Environments for Net-Based Learning and Teaching	238
7.4.1 Learner Work Environment	239
7.4.2 Learning Facilitator Work Environment	244
8 Case Study - Groupware-Based Asynchronous Learning and Teaching	249

8.1 Overview	249
8.2 Migrating to Competence-Focused Course Structures	254
8.3 Developing Activity Templates for Progressive Mastery Learning	264
8.4 Using Groupware to Manage Learning Experiences	270
Bibliography	277
Index	299

FIGURES

Figure 1-1	Spiral of Knowledge Creation and Utilization	4
Figure 1-2	Changing Patterns of Work Force Qualification	6
Figure 1-3	Demographic Structure of German Students	8
Figure 1-4	US Adult Education Market Segmentation by Student Counts	10
Figure 1-5	Adult Education Market Segmentation	13
Figure 1-6	Change Drivers in Higher Education	22
Figure 1-7	Building Blocks	24
Figure 2-1	Structure of Chapter Two	30
Figure 2-2	UW System - Geographical Structure	36
Figure 2-3	UW Extension - Organizational Structure	39
Figure 2-4	MVAC - Hub for Auto Industry Education and Training	60
Figure 2-5	Sylvan, Caliber, and University Partners	63
Figure 3-1	Structure of Chapter Three	68
Figure 3-2	Learning and Information Processing	71
Figure 3-3	Vygotsky's Zone of Proximal Development	74
Figure 3-4	Dochy's Modular Learning and Testing Process	82
Figure 3-5	Competence, Knowledge, and Skills	86
Figure 3-6	Competence Requirements, Learning Experiences, and Learning Modules	87
Figure 4-1	Structure of Chapter Four	95
Figure 4-2	Structure of the Lifelong Learning Process	108
Figure 4-3	Specification of Competence-Focused Curriculum	113
Figure 4-4	METO Management Competence Specification	116
Figure 4-5	Learning Balance	118

Figure 4-6	Learning Process, Learner Characteristics, and Instructional Strategies	125
Figure 4-7	Learning Experience as a Cognitive Process	126
Figure 4-8	Elements of Co-constructivist Learning System	128
Figure 4-9	Assigning Activity Templates Based on Previous Performance	130
Figure 4-10	Series of Learning Experiences	132
Figure 4-11	Migration to Competence Based Learning	137
Figure 5-1	Structure of Chapter Five	140
Figure 5-2	Integration of Analysis and Documentation Tools	148
Figure 5-3	Workflow Analyst - Speech Act Based Workflow Loop	150
Figure 5-4	Workflow Analyst - Workflow Map	152
Figure 5-5	Espresso Organization Modeler - Hierarchical Structures and Teams	153
Figure 5-6	Espresso Process Modeler - Information Flows Between Activities	154
Figure 5-7	Decomposition, Functions, Processes and Structures	156
Figure 5-8	Functional Areas in Net-based Educational Systems	158
Figure 5-9	Technical Infrastructure, Learning and Assessment Systems	170
Figure 5-10	Master-Teacher Concept	176
Figure 5-11	Learning Experiences Facilitation	177
Figure 5-12	Learner Work Environment - Communication and Collaboration Web	184
Figure 5-13	Subsystems and Roles in Net-Based Educational Systems	190
Figure 5-14	Organizational Structures and Teams	198
Figure 5-15	Integrating Team-Based and Traditional Organizational Structures	199
Figure 6-1	Structure of Chapter Six	203
Figure 6-2	CC Workflow Map 'Create and Certify Competencies'	205
Figure 6-3	CC-LB Workflow Map 'Specify Learning Balance'	208
Figure 6-4	CC-LB Information Flow Model	210
Figure 6-5	CC-ML Workflow Map 'Co-Constructivist Progressive Mastery Learning'	213
Figure 6-6	CC-ML Information Flow Model	215
Figure 6-7	CC-DA Workflow Map 'Demonstrate Achievements'	218

Figure 6-8	CC-DA Information Flow Model	219
Figure 7-1	Structure of Chapter Seven	222
Figure 7-2	Technical Infrastructure for Net-Based Learning	229
Figure 7-3	Databases and Enduser Navigation	231
Figure 7-4	Enduser Navigation using LearningSpace	233
Figure 7-5	Implementing Learning Content	234
Figure 7-6	Overview - Personalized Learning Environment	239
Figure 7-7	Activity Tab - Personalized Learning Environment	240
Figure 7-8	What&Why Tab - Personalized Learning Environment ...	241
Figure 7-9	Work Environment Tab - Personalized Learning Environment	242
Figure 7-10	Deliverables Tab - Personalized Learning Environment	243
Figure 7-11	Lessons Learned Tab - Personalized Learning Environment	244
Figure 7-12	Overview - Learning Facilitator Work Environment	245
Figure 8-1	Subject Matter Structure of WINF-G01 Course Content	250
Figure 8-2	Structure of Chapter Eight	252
Figure 8-3	IT Competence Hierarchy for Business Administration Roles	253
Figure 8-4	Activity Template - Organizing the Learning Experience	264
Figure 8-5	Activity Template - Why & What - Complete Orientation	265
Figure 8-6	Activity Template - Learning Resources for H&T Activity	267
Figure 8-7	Activity Template - Peer Review Section	268
Figure 8-8	Competence Structure and Learner Work Environment	272
Figure 8-9	Learning Team Set-up and Activity Template Access	273
Figure 8-10	CourseRoom - Learning Team Work Environment	274
Figure 8-11	Assessment - Randomizing Questions and Setting Time Frames	275

TABLES

Table 2-1	Academic Programs at the University of Phoenix	44
Table 2-2	Academic Programs at DeVry Institutes	49
Table 2-3	DeVry Institutes Bachelor in Computer Information Systems	52
Table 3-1	Learning Theories	72
Table 5-1	Services Areas, Knowledge Domains, and Support Functions	196
Table 7-1	Dolence/Norris's 21st Century IS Functions	224
Table 8-1	IT Competence Specification 'Business Administration & Industry'	256
Table 8-2	Performance Dimensions and Observable Behavior	261