Index

Symbols

\ 317
1-parameter logistic 319
3D-centered tools 38
3D classroom 35, 40
3D collaborative e-learning 23
3D collaborative virtual environments 30
3D CVE platform 31
3D e-collaboration 20
3D environments 20
3D humanoid avatars 20
3D multi-user virtual spaces 38
3D text/bubble chat 32
3D virtual class 34
3D virtual classroom 39
3D virtual environments 38
3D virtual worlds 23
3D Whiteboard 32

A
Abstract Conceptualization 9
abstract knowledge 177
abstract learning 161
academic research 200
Access Control Lists 286
actions 258, 259, 260, 261, 262, 263, 264
action scripting 234
activation guards 260, 261
Active Experimentation 9
activist 240
adaptability 277
Adaptive Conceptual Map 160, 161, 165, 166
Adaptive Course Content 167
Adaptive Course Generation 166
Adaptive Educational Hypermedia 159
adaptive educational hypermedia and web-based system 161
adaptive Hypermedia 167
adaptivity 277
advanced mobile technologies 318
affective strategy 139
aggregation model 201
alternativeStrategy 166
Amici 205, 206, 207, 208
anxiety 101, 108
application sharing 28, 40
argumentation systems 329
argumentative collaboration 327, 328
argumentative collaboration environments 328, 329
argumentative collaboration tools 329
assessment 316, 317, 318, 319, 322, 324, 325
atomic actions 305, 306, 311, 312, 314
Atomic Taxonomy 279
attention 245
attribute 145
audio 28
audio chat 32, 40
audio collaboration 40
Audio - video conference 11
augment collaborative sense-making 328
authentication 12, 266, 267, 268, 269, 275
authentication scheme 121
autonomy 101, 104, 108
autoregulation 215
average variance extracted 91
awareness services 329
B

basic and communication tool 252, 253
behaviorism 212, 213, 215, 230
blackboard 54
blended learning 84, 184
blended mode 84, 88
blogs 176, 202
BPEL 294, 295, 296, 299, 300, 301, 302, 303
BPM 294, 295, 296, 297, 299, 300, 303, 304
BPMN 295, 296, 298, 299, 301, 303, 304
brainstorming 25, 33, 37
Brainstorming Board 32
Brainstorming/Roundtable 39
Bubble chat 34
business arena 226
Business Intelligence (BI) 11
Business Management 14
business process execution language (BPEL) 294
business process management (BPM) 294

C

campus constructs 235
CAT 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326
CAT-MD 316, 318, 319, 320, 321, 322, 323, 324
chat 191
Cloze technique 246
cognitive abilities 245, 246, 257
cognitive load 69, 70, 71, 72, 73, 74, 75, 77, 78, 80, 81
cognitive load theory 69, 71, 73, 74, 75, 77, 78, 80, 81
cognitive style 141
cognitivism 212, 213, 215, 230
collaboration 40
collaboration environment 332
collaboration items 329
collaboration services component 11
collaboration space 329
collaboration systems 336
collaborative activities 328, 337
collaborative e-learning 21, 23, 30, 31, 41
collaborative e-learning scenarios 38
collaborative environment 331
collaborative learning 38, 39, 216, 217, 221, 225, 231
collaborative virtual environments (CVEs) 21, 22, 23, 24, 27, 35
collaborative workspace 330
collaborative writing 177
commercial tagging systems 201
common database 3
common meaning 77
communication environment 118, 119, 120
Communication Media 35
Communication Technologies 29
Community building 180, 188
compensation and social strategies 138
compensation and social strategy 139, 151
complex 47
ComplexStatement 165
component-based software engineering 278, 279
ComposedStatement 168
counter-based technologies 317, 327
Computer Based Testing 316
Computerized Adaptive Testing 317
Computerized Adaptive Testing on Mobile Devices 316, 318, 324
Computerized Based Testing 317
counter-mediated communication (CMC) 61
counter-mediated learning 233
counter-supported collaborative learning (CSCL) 59, 60, 67, 68
counter-supported collaborative work 327
counter-supported environment 331
concepts and productivity tools 252, 253
Concrete Experience 9
conditions 259, 260, 261
confidentiality 267, 269
confirmatory factor analysis 91
constructionist 233
constructivism 178, 202, 212, 214, 215, 30, 232, 234
Constructivism paradigm 4
constructivist 177, 214, 216, 219, 226, 228, 230
constributivist environments 47
constributivist learning 22, 191
contemporary collaboration environments 332
content 212, 213, 215, 216, 221, 222, 227, 228
content formats 295, 302
Content Management 10
context-sensitive 330
conventional environment 104, 105
conventional learning 104
conventional learning environment 106
convergent validity 77
COOPER 306, 310, 311, 312, 313, 314
CoPe_it! 327, 328, 331, 332
core set 137, 142, 143, 145
corporate intranet 215, 221
corporate training 211, 212, 217, 219, 220, 222, 223, 224, 226, 229
Course Management Systems 84
creative development 252
Creator Resource Object 280, 281
Cross-disciplinarity 7
cross services layer 12
Curricula-driven approach 11
Customer Relationship Management (CRM) 11

data acquisition 260, 261, 263
database requests 259, 263
data-intensive and cognitively-complex argu-
mentative collaboration 328
data-intensive argumentative collaboration
environments 329
data-intensive collaboration 329
data-intensive environment 330
data transfer object 285
deductive strategy 161, 162
Design Rationale 31
design time 307, 310, 311
dialectical constructivism 25
dichotomous IRT model 319
didactic content delivery 233
digital competence 47
digital comprehension 248
digital learning content 278
digital literacy 47, 175,
digital media 253
digital signatures 265, 266, 267, 274, 275
digital signature technology 266
digital technology 247, 248
digital text 247
direct instruction 60, 61, 64
discernibility function 140
discourse facilitation 60, 64
discussion forums 183, 192, 193, 338
distance education 226, 229
distance learning 160, 235, 241, 242
distance training 212, 213, 215, 218, 221, 226, 227, 228, 229
diverse community 29
Diversity 7
Document Management 10
domain knowledge 162
domain model 161, 162, 164, 167
double-loop learning 305, 306, 307, 308, 310, 311, 314
double-loop-learning-based educational sce-
narios 305
dual folksonomy triad 203
Dynamic Course Generation 161
dynamic environment 332
dynamic folksonomies 202, 204
dynamic loading 284
dynamic rules-based system 258, 259, 263

E
earner model 161
e-Business component 11
e-Business services 9
e-collaboration 22, 24, 41
EDETEC 245
effective collaboration 336
efficiency problems 258, 259, 263
e-Framework 279, 283, 291
e-learning 22, 28, 29, 30, 41, 49, 56, 107,
134, 137, 160, 161, 177, 305, 307, 314, 316, 317, 318
e-learning architecture 282
e-learning communities 41
ELearningConcept 163
e-Learning environment 142, 208
e-learning platforms 258
eLearningProperty 163
e-Learning scenarios 202
e-learning systems 41, 152, 203, 265, 266
e-learning technology 294
electronic messages 247
electronic multimedia 247
electronic signatures 266
electronic survey 89
electronic text 247
elf-management conception in learning 138
e-Library 10
e-mail 3, 338
e-mail 191
embodied conceptualizations 200, 202, 206, 208, 209
embodied interaction 200, 204
embodiment 200
enhanced flexibility 278
Enterprise Resource Planning (ERP) 11
Escala Fatorial de Realização 248
e-students 259, 262, 263
e-testing 316
ethical issues 251
e-tutor 259, 261, 262, 263
EVAWEB 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275
everyday work 48
EVE Training Area 20, 30, 31, 32, 33
Exercise activity 166
expertise reversal affect 79
exponential phase 127
external learning repositories 166
extraneous load 72, 73, 74, 75, 76, 77, 78, 80
extrinsic cognitive load 69, 70, 72, 73
form-focused strategy 139, 151
form-focused strategy 139, 151
forums 183, 185, 186, 188, 190
frontal learning 21
Fundamental Data Object 280
Fundamental Learning Object 280
G
geotagging 201
germane load 72, 73, 74, 75, 76, 77, 78, 80
global economy 84
global organizations 3
goal orientation 211, 216, 225, 226, 227
Graphical icons 167
Grouped Learning Object 280
Group-structural awareness 331
group work 233, 234, 235, 236, 237, 239
H
half-normal phase 127
hash functions 267
Helper Resource Object 280, 285
high level cognitive abilities 245, 246
high quality visualisation 22
histogram method 142
Historical awareness 331
holistic mode 234
hooks 203
human capital 14
human cognition 70
Human Computer Interaction 199
humanoid avatars 38
human processing theory of information 246
human support 60
hybrid mode 84
“hybrid” typologies 7
hypothetico-deductive scientific research 85
I
ICC functions 319
ICT 46, 47, 48, 54, 84, 85, 89, 98, 99, 100
ICT-based Business Configurations 7
ICT-based course 86
ICT-based learning 86
ICT-based learning environments 87
ICT performance 250
ICT-supported learning environments  86
Immersive Virtual environments  23
Inclusive  30
Incubator  6
Informal awareness  330
information and communication technologies  83
Information and Communication Technologies  245
Information Society Technology (IST)  47
Information System for Learners’ Personality Characteristic  140
information systems  86
Information Technologies  191
inherent adaptability  41
Inherent adaptability  22
inherent flexibility  41, 22
instructional design  212, 213, 215, 226, 228, 232, 305, 310, 311, 314
instructional processes  305
instructivism  215
instructivist  216, 219, 226, 227, 228
integrated development environment  205
integrity  267, 269
Interactive Advertising Bureau  253
interactive computing  259
interconnected  47
Internationality  7
International Society for Technology in Education  248
Internet Business Management  14
Internet community  200
Internet/Web based learning  29
interpersonal skills  235
intrinsic load  71, 72
in-world commerce  235
IT  46, 47, 48
Item Characteristic Curve  319
Item Information Function  319
Item Response Theory  318, 319, 324

K
Kernel  283, 286
key personality attribute  140, 153
key personality characteristic attribute  140, 142, 143, 147
Key Personality Characteristics  147
KM taxonomy  14
knowledge application  8, 14
knowledge based society  175
knowledge creation  8, 14
knowledge management  1, 2, 9, 10, 202, 203, 329, 331
knowledge management component  10
knowledge management services  329
knowledge organisation  8, 14
Knowledge Pool System  167
knowledge sharing  8, 14
kurtosis  122, 124, 132

L
language learning conception  139
language learning styles  138
latent variable environments  95
lazy evaluation  258, 259, 263, 264
Learner  164
learner centered approach  4
Learner Interest  148
Learner Interest Model  146
learner knowledge  162
learner learning conception data  142
learner learning style data  142
learner model  136, 164
Learner Model  165
learner personality characteristic  136
learner personality trait  141
learner personality trait data  142
learners’ personalized learning strategies  140
Learning Activities  181
learning architecture  278
Learning Base  12
learning community  60, 61, 62, 63, 68
learning conception  138, 139, 143
Learning Content Management System  12
Learning Context  35
learning environments  84, 95, 104, 106, 177
learning infrastructure  278

J
Java Applet  286
Jigsaw  39
learning interest 145
learning management 192
learning management system (LMS) 11, 192, 258, 259, 263, 264, 294
learning models 162, 164
Learning Module 278, 280
learning object 277, 278, 279, 280, 289, 295, 297, 301, 302, 303
Learning Object Metadata 285
learning ontology 161, 163, 164
LearningPedagogy 163
LearningPerson 163
learning platforms 278
learning process 208, 250, 252, 317
learning processes 202, 204, 215, 296, 303
learningResourceAuthor 168
learningResourceRole 168
learning resources 160
learningResourceTopic 168
learning strategies 136, 137, 138, 143, 147, 152
learning strategy 135, 139, 141, 142
learning strategy data 142
learning strategy module 136
learning style 138, 139, 141, 143
LearningTopic 163, 168
Lego Mindstorms system 205
lifelong learning 48, 160, 192
Life-long-learning 180
Linden dollar 235
LMS 258, 259, 260, 261, 262, 263, 264, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303
LoaderApplet 286, 288
Log-In User Service 286
logistics models 319
LOM metadata 160, 161, 167
long term memory 70, 71, 72

M

Macromedia Flash 321
Macromedia Standalone-Flash Player 322
macroscopic visualisation 22, 40
Management Information System 52
market dynamics 212
massively multiplayer online role-playing games 234
maximum likelihood estimation 320
meaning-focused strategy 138, 139, 151
media performance 253
MediumTopic 165
memory 245
Message Service 284, 287
metacognition 217, 230
metacognitive strategy 138, 139, 152
metacognitive support 211, 216, 217, 225, 226, 227, 228
metadata 203, 285
meta-model 161, 166
meta-model knowledge 162
meta-reflection 62, 64
Microblogging 193
microscopic visualisation 22, 40
Microsoft’s NetMeeting 21
MMORPGs 234
mobile devices 316, 317, 318, 321, 324
mobile technologies 317
moderator variables 84, 87, 97, 104
modular architecture 281
modularity 277, 278, 279, 281, 286, 289
modular knowledge organization 162
Moodle 121
multicultural 29
multidimensional 47
multilingual virtual space 29
Multiple Choice Cloze Test 251
Multiple media 317
Multi-user 21
Multi-user Virtual Reality technology 23
Multi-user VR 21
multi-user VR technology 21
mutability 247
MySpace 234

N

National Agency for School Autonomy Development 49
networked classroom 105
Networking 7
New Media Consortium (NMC) 24
newsgroup 3
nocore set 137, 142, 143, 145
nonproctored exams 266
non-repudiation 265, 266, 267, 274, 275
non-repudiation security services 266
normal phase 127

O
object construction 234
Object Request Brokers 286
online assessment 265, 266, 274, 276
Online Education 250
online facilities 235, 236
online learning 84
on-line meeting space 3
online mode 83, 88
on the fly 305
Open 30
OpenSSL 266
Operator 163, 165, 167
optimal learning strategies 147
Organisateur de Parcours Adaptatifs de Formation 160
organizational aspects 60, 63, 64
organization planning 48

P
packages 264
Partial Least Squares 90
participation 101, 108
Partitioning 25
PBL strategy 11
pedagogical 279, 285
PedagogicalActivity 166, 168
pedagogical community 52
pedagogical content 215
pedagogical flexibility 277
pedagogical formations 102
pedagogical knowledge 162
pedagogical methods 277
pedagogical model 161, 164, 166
Pedagogical Paradigm 52
pedagogical services 291
pedagogical strategy 161, 162
pedagogical value 191
pedagogy 316, 318
People 8
Personal Digital Assistant 318
Personality characteristic 138
personality trait 138, 139, 152
personalized e-learning 135, 151, 153
personalized e-learning environment 135, 136, 137, 138
personalized e-learning system 154
Personalized English Learning System 146
personalized information services 134
personalized learning 160
Personalized Learning Path Organizer 160
personal knowledge 192
Personal Learning Environments 179
personally-managed space 180
personal storage 201
PGP 266, 276
Phase and Activity Management 10
Photobucket 239
platform neutrality 277, 287
podcasts 176
portable media players 321
pragmatist 240
preferedAuthor 164
preferred learning activities 240
Preprocessing 142
prerequisiteOf 163, 165, 169
Presence awareness 331
presence indicators 332
Presentation Board 36
printed texts 247
project making 48
Problem-based Learning (PBL) 11, 14
Problem-driven approach 11
problem solution tools 253
Procedure 167
process building blocks 305, 306
Processes 8
Processing Flow 146
professor pedagogy 87
professors’ pedagogy 85, 86, 96, 98, 102
programming language 206, 207
Progress display 37
Index

project management component 10
Proximity and activity 25
psychological characteristics 105
psychometric theory 318
puntoedu 49
Purpose 8

Q

qualitative data analysis 96
qualitative measures 74
Queried learning resources 160
Quickwrites / Microthemes 40

R

reactive software 258
reading comprehension 245, 246, 247, 249, 250, 252, 253, 254, 255, 256
Really Simple Syndication 337
reasoning 245, 246
reasoning processes 246
Recommendation Engine 10
Reduction Efficiency 141
reflection 235, 241
Reflective Observation 9
reflector 240
Reflexive writing 179
Relational orientation and reciprocity 25
Remote task support 26
repositories 295, 297, 302, 303, 304
repository functions 295, 301
Representational State Transfer 290
resource connectivity 201
Resource Objects 280, 282
RMI Activation System Daemon 286
RMI Servers 286
role-playing games 234
ross-disciplinary approach 7
rules generation 260, 261
rules-running system 258, 259, 260, 263
run time 307, 311, 312

S

Scaffolding tools 26
SCORM 11

SCORM standard 14
Second Life 233, 234, 236, 237, 241, 242
Second Life validation 36
security 265, 266, 269, 270, 274, 275, 276
self-efficacy 247, 248
self-motivation in learning 235
self-steered learning 202
self-steered learning processes 199
self-study 160
semantic conformance profile (SCP) 295
SemanticLanguage 167
Semantic Navigator 10
semantic Web for E-Learning 160
Semantic Web Services 290
Semantic Web technology 290
sequencingStrategy 166
server-based system 323
Service-Oriented Architecture 281
sets of rules 262, 264
Sharable Content Object 278
shared tagging 204
shared workspaces 332
Simple Object Access Protocol 281
SimTeach 235, 244
single attribute 145
Single-loop learning 307
single-sign-on 121
sixteen personality factors 138
skewness 122
smart-card signature 269
SMS messages 338
Snapzilla 239
SOA 277, 279, 281, 282, 283, 284, 287, 289, 290, 291, 293
SOA architecture framework 282
SOA framework 282, 287
social awareness 22, 331
social capital 14
social computing 200
social connections 201
social connectivity 201
social constructivism 178
social interactions 328
socialization phase 65
social negotiation 4
social networks 328
Social Software 175, 181, 183
social tagging 200, 202, 203, 206, 208
Social tagging systems 200, 201, 202, 204, 207, 209
socioconstructivist 59, 60, 66
software engineering 177
Software tools 317
standard deviation 253
standardized architectural frameworks 278
Statement 163, 165
Static-Group Comparison 88, 108
strategic decision-makers 106
structural capital 14
structural equation modeling 90
structured interview 89
students’ characteristics 84
students’ learning outcomes 84
students’ psychological processes 86
subTypeOf 165, 169
success factors 211, 212, 219, 220, 224, 227, 228
Supply Chain Management (SCM) 11
Supply Resource Management (SRM) 11
synchronous training 21

tagging action 206
tagging process 208
tagging rights 201
tagging support 201
tagging systems 201, 202, 204, 206
tag semantics 201
Task awareness 331
task completion 239
task orientation 216, 225
taxonomy 207
TD-SSIS 61, 62, 63, 64, 65, 66
teacher role 216, 217, 225
teacher’s centered approach 4
teaching modalities 249
teaching pedagogy 102
Teaching Transparency Information System 84
technical flexibility 277
technological equipment 253
technological literacy 246
technological resources 249
Technology 8
Technology Acceptance Model 87
technology development 48
Technology Enhanced Learning 277
technology frameworks 282
Technology Management 14
Technology Performance Scale 245, 248, 249, 250
technology platform 281, 282
telephone 191
testing environments 317
test management 317
TETIS 46
TETIS platform 52, 53, 54, 55, 56
text-based 250
text chat 28, 40
thematic analyses 90
thematic unit (TU) 119, 120, 121, 123, 124, 125, 126, 127, 131, 132
theoretically-based research 86
theorist 240
Tool 283
ToolDTO 285
Tool Service 285, 286
traditional lectures 70
traditional mode 234
transformative mode 234
treasure hunt task 237
tripartite networks 200

United Nation Educational, Scientific and Cultural Organization 248
Universal Description, Discovery, and Integration 288
usage data 118
user-action-oriented software 258
User-centred 30
user-centred awareness services 330
user groups 118, 120, 126
User Management, Personalization 12
User Service 284
Using Universal Unique Identifiers 288
Index

V

verbal elaboration strategies 246
video 28
videoconference 3, 120
Video presenter 32
virtual businesses 234
Virtual Classroom (VC) 11, 32, 39
virtual communities 3
Virtual Community of Practices (VCoPs) 1, 2, 3
virtual company 305, 306, 308, 309, 310, 311, 314, 315
Virtual eBMS 1, 6, 7, 8, 9, 14
Virtual eBMS’Community 2, 6
virtual environment 27, 56
virtual environments 23, 31
virtual group identity 26
virtuality 3
virtual learning environments (VLEs) 233, 277
Virtual meeting 11
virtual reality technology 28, 40
Virtual Reality (VR) 21, 28
virtual space 28, 30
Virtual Workspace Environment 279
virtual worlds 27, 233, 234, 236, 239, 242, 243
VLE 234, 237, 239
VR applications 23
VR technology 21, 23
VWE architecture framework 279, 285, 289
VWE framework 286, 290
VWE kernel 285, 286
VWE Learning Object taxonomy 277, 279, 280, 281, 282, 288
VWE Resource Objects 288
VWE service-framework 286
VWE SOA architecture framework 290
VWE SOA framework 283
VWE Tools 281, 283, 285, 286, 289
VWE workspaces 284

W

web 28
Web 1.0 176
Web 2.0 23, 31, 176, 278
Web 2.0 tools 84
web-based argumentative collaboration environments 338
Web-based assessment system 265, 266, 267, 274, 275
web-based classroom 249
web-based collaboration 327
web-based communities 327, 338
Web-based course 87
Web-based distance training 218, 226, 228, 229
web-based education 175
web-based learning 41
web-based services 206
web-based social software 175
web-based sources 317
web-based tool 328, 331
Web-based training 212, 215, 216, 217, 218, 219, 225, 226, 227, 228, 229
web browser 281
WebCT 21, 97
Web environment 104
web-interface 206
Web Learning 1, 2, 9, 10, 12, 14
web learning component 11
Weblog 181
weblogs 175, 176, 183, 190, 192, 193
Weblogs 182, 191
Web Mining 10
web repositories 160
Web Service Description Language 281, 288
Web Service standards 338
Web Service technology 282, 287, 290
Website 3
Web technologies 46
Web tools 84
weight value 140
wiki 187, 191
Wiki 181
Wikipedian Community 187
wikis 176, 177, 183, 185, 186, 188, 190, 192, 202
Wikis 175, 193
wireless technologies 318
workflow 305, 306, 307, 310, 311, 312, 314, 315
Workflow Definition 10
Index

working memory 70, 71, 72, 77
Workspace 283
Workspace awareness 331
WorkspaceDTO 285
Workspace Editor 283

workspace head up display 334
Workspace Service 284, 286
Workspace Teleporting 335
World of Warcraft 234
World Wide Web 134