## Symbols

2D 113, 149, 190  
2D learning environments 33, 45, 53  
2D web-based environments 32  
3D chat 113  
3D computer game 289, 301  
3D console-game 288  
3D environment 99, 100, 104  
3D Game Engine 185, 190, 191, 195, 196, 210  
3D immersive environments 3, 6, 250, 256  
3D immersive learning environments 249  
3D immersive virtual environment 99, 100, 106, 110  
3D immersive world 1, 11, 12, 13, 248  
3D immersive worlds 1, 211, 222, 248  
3D interfaces 76  
3D learning environments 16  
3D learning spaces 31, 32, 35, 39, 52, 53, 54  
3D space 33, 58  
3D spaces 35, 43  
3D video games 77  
3D virtual environment 211, 212, 213, 214, 217, 222, 223, 225, 211, 228  
3D virtual environment 107, 130, 136, 142, 225  
3D virtual learning 229  
3D virtual learning environments 229  
3D virtual worlds 7  
3D world 112, 118, 151, 272  
3D worlds 2  

## A

Aboriginal people 272  
Access to Virtual and Action Learning live 
ONline (AVALON) 152, 153, 155, 156, 159, 164  
A Chronicle of Education 101  
Action Learning 112, 115, 121, 128, 151, 153, 167  
action-reaction event 19  
Active Worlds 100, 107, 113  
Activity Theoretical model 151  
Activity Theory 112, 114, 115, 116, 124, 128, 151, 153, 154, 156, 163, 164, 165, 166, 167  
American K-12 education 74  
American Library Association (ALA) 105  
Appalachian Educational Technology Zone (AET Zone) 1, 2, 3, 7, 8, 14, 89, 90, 91, 96, 98, 99, 100, 103, 104, 105, 106, 109, 110  
Appalachian State University 1, 2, 5, 12, 14, 84, 85, 98  
Architectural Design 210  
artifacts 3  
artificial intelligence 67, 269  
Asperger syndrome 117  
Association of College and Research Libraries (ACRL) 99, 100, 104, 108  
Association of Learning Technology (ALT) 37  
asynchronous 2, 3, 4, 9, 11  
asynchronous collaborative teamwork 33  
asynchronous communications 228  
Augmentation 169, 184  
Augmentationist 169, 184  
augmented reality 61, 62, 82, 229, 240, 244
Index

authenticity 72, 75, 76
autism 113
autistic spectrum disorders (ASD) 114
autonomous agents 63, 76
avatar-based 3D virtual world 33, 54
avatar technologies 61, 65, 76
aviation industry 251, 266
Awareness 31, 58
Aztlan Island 64, 65, 73, 77

B

BBK learners 22, 23
Blackboard 89, 186
blog entries 9
blogs 32, 33, 34, 38, 47, 56, 57, 172, 178, 182
bot 248, 254, 261, 269, 270
British Educational Research Association (BERA) 38
broadcasting 33

C

CAD models 194, 195, 196
Call of Cthulhu 180
case-based learning 258
cerebral palsy 113, 117
Chinese 211, 212, 214, 217, 218, 219, 220, 221, 222
clinical education 252, 258, 260, 267
clinical training 252
cognitive constructivism 188
cognitive learning 227
cognitive paradigms 18
cognitive presence 10
collaboration 226, 227, 228, 229, 232, 233, 234, 236, 237, 238, 239, 241, 242, 245, 246
collaborative context 133
collaborative creation 33
collaborative learning 124, 146, 164, 166, 185, 187, 188, 204, 208, 229, 242, 245
collaborative platforms 135, 213
Collaborative Virtual Environment (CVE) 129, 132, 133, 143, 149, 185, 186, 187, 188, 189, 190, 194, 195, 196, 197, 198, 199, 200, 202, 203, 205, 226, 229, 241, 243, 246
collaborative work 288, 293, 299
Collaborative World Design Tool (CWDT) 185, 190, 191, 192, 193, 194, 195, 196, 198, 203
Colossal Cave Adventure 113
communication 129, 130, 131, 132, 133, 134, 135, 136, 137, 139, 140, 143, 144, 145, 148, 149
communicative environment 152
community of practice 86, 87, 107, 108, 131, 224
Community of Practice 1, 2, 10, 14, 84, 86, 98, 99, 110
competent design 248, 255, 256, 262, 264, 265, 266
computer-aided design (CAD) 226, 232, 233, 234, 242, 245, 246
computer game 289, 301
computer graphics 17
computer-human interactions 290
computer motherboard 48, 49
Computer Supported Collaborative Learning model (CSCL-model) 157, 160
Computer Supported Cooperative Work (CSCW) 210
computer technologies 228
Conceptual Framework 2, 3
core game 288
constructivist 226, 228, 229, 230, 232, 241, 242, 243, 245
constructivist learning 1, 4, 11, 12
constructivist learning environments 228, 232, 242, 245
Constructivist pedagogy 43
Index

contemporary learning theories 248, 266
design learning 228, 238
dialogic format 294
Diatribes 294
didactic instructional approach 43
digital age 88
digital avatars 63
digital culture 249
digital design 226, 228, 229, 231, 232
Digital design skills 238
digital face 133
digital identity 149
digital media 102
digital natives 216
digital spaces 132
dimensionality 271, 272, 276, 280, 284
disability 112, 113, 114, 117, 118, 119, 121,
122, 124, 125, 126, 127
discussion board posts 4, 9
discussion boards 3, 4, 9
distance learning 226, 228, 241
distant learning environments 228
Division of Labor in Activity Theory 112, 128,
167
down syndrome 117
Dungeons and Dragons 179
dynamic aspects 130, 132

E
ecology of culturally competent design 248,
255, 256, 262, 266
educational platforms 248
educational research 271, 272, 277
educational strategies 227
educational theory 250
Educational Virtual Environments (EVEs) 229
educational virtual world 255
EDUCAUSE 171, 182, 183
e-learning 17, 26, 28, 129, 130, 131, 133, 135,
142, 143, 144, 145, 148, 149, 252, 257
electronic devices 290, 293, 295
electronic information resources 102
electronic-scale 288, 295
e-mail 102, 150
empirical investigations 32, 36, 37, 45, 52
Enter-the-Story method 211, 212, 214, 215,
216, 217, 218, 222, 225
<table>
<thead>
<tr>
<th>Term</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Presence</td>
<td>82</td>
</tr>
<tr>
<td>environmental science</td>
<td>272</td>
</tr>
<tr>
<td>episteme</td>
<td>171</td>
</tr>
<tr>
<td>Epistemological</td>
<td>144</td>
</tr>
<tr>
<td>equilibrium</td>
<td>131</td>
</tr>
<tr>
<td>ethnocentricity</td>
<td>87, 88</td>
</tr>
<tr>
<td>EU EACEA Life Long Learning Programme (LLP)</td>
<td>153</td>
</tr>
<tr>
<td>EUROCALL</td>
<td>212</td>
</tr>
<tr>
<td>experience design</td>
<td>228, 231</td>
</tr>
<tr>
<td>experiential-knowledge</td>
<td>289, 301</td>
</tr>
<tr>
<td>experiential learning</td>
<td>226, 230, 250</td>
</tr>
<tr>
<td>experiential learning theories</td>
<td>250</td>
</tr>
<tr>
<td>Experiential pedagogy</td>
<td>43</td>
</tr>
<tr>
<td>Extension and Distance Learning Program</td>
<td>85</td>
</tr>
<tr>
<td>extensive information technology</td>
<td>102</td>
</tr>
<tr>
<td>Facebook</td>
<td>16, 17, 33, 34, 170, 175, 176, 272, 293, 296</td>
</tr>
<tr>
<td>face-to-face</td>
<td>1, 2, 4, 5, 11, 15, 16, 17, 20, 21, 23, 32, 33, 34, 35, 41, 42, 54, 66, 74, 85, 89, 119, 120, 162, 174, 213, 228, 237, 272, 287, 298</td>
</tr>
<tr>
<td>face-to-face classroom</td>
<td>2, 4, 5, 11</td>
</tr>
<tr>
<td>face-to-face practices</td>
<td>16</td>
</tr>
<tr>
<td>face-to-face setting</td>
<td>54</td>
</tr>
<tr>
<td>fast-paced world</td>
<td>33</td>
</tr>
<tr>
<td>fictive world</td>
<td>271, 272, 276, 277, 278, 279, 280, 281, 283, 284, 286, 287</td>
</tr>
<tr>
<td>Fidelity</td>
<td>19</td>
</tr>
<tr>
<td>first-person shooter</td>
<td>170</td>
</tr>
<tr>
<td>flash-based tutorials</td>
<td>105</td>
</tr>
<tr>
<td>Flickr</td>
<td>17</td>
</tr>
<tr>
<td>folksonomic communities</td>
<td>272</td>
</tr>
<tr>
<td>formative feedback</td>
<td>23</td>
</tr>
<tr>
<td>four-dimensional framework</td>
<td>18, 22, 25</td>
</tr>
<tr>
<td>France</td>
<td>129, 135, 145</td>
</tr>
<tr>
<td>G</td>
<td></td>
</tr>
<tr>
<td>game-based environments</td>
<td>249, 250, 258, 260, 262, 266</td>
</tr>
<tr>
<td>game-based immersive environments</td>
<td>248</td>
</tr>
<tr>
<td>game-based learning</td>
<td>16, 18, 25, 26, 249, 253, 255, 259, 266, 268, 269</td>
</tr>
<tr>
<td>game-based settings</td>
<td>24</td>
</tr>
<tr>
<td>game-based virtual worlds</td>
<td>255</td>
</tr>
<tr>
<td>game design</td>
<td>255, 266, 267, 269</td>
</tr>
<tr>
<td>game-play</td>
<td>24</td>
</tr>
<tr>
<td>gameplay online</td>
<td>292</td>
</tr>
<tr>
<td>gamers</td>
<td>22, 24</td>
</tr>
<tr>
<td>gaming environments</td>
<td>54</td>
</tr>
<tr>
<td>generational change</td>
<td>227</td>
</tr>
<tr>
<td>gizmos</td>
<td>194</td>
</tr>
<tr>
<td>global aspect</td>
<td>292</td>
</tr>
<tr>
<td>globalization</td>
<td>87</td>
</tr>
<tr>
<td>global reach</td>
<td>17</td>
</tr>
<tr>
<td>Google</td>
<td>293, 294, 300</td>
</tr>
<tr>
<td>graphic design</td>
<td>228, 231</td>
</tr>
<tr>
<td>group-oriented activities</td>
<td>106</td>
</tr>
<tr>
<td>guild</td>
<td>114</td>
</tr>
<tr>
<td>Guitar Hero</td>
<td>170, 181</td>
</tr>
<tr>
<td>H</td>
<td></td>
</tr>
<tr>
<td>habit-of-mind</td>
<td>301</td>
</tr>
<tr>
<td>heteroglossia</td>
<td>277</td>
</tr>
<tr>
<td>higher education</td>
<td>226, 227, 242, 245</td>
</tr>
<tr>
<td>high-fidelity game</td>
<td>251</td>
</tr>
<tr>
<td>high-fidelity simulation</td>
<td>251, 267</td>
</tr>
<tr>
<td>holistic</td>
<td>86, 114, 154, 164</td>
</tr>
<tr>
<td>homo ludens</td>
<td>171</td>
</tr>
<tr>
<td>human–computer interaction (HCI)</td>
<td>54</td>
</tr>
<tr>
<td>human relations</td>
<td>133</td>
</tr>
<tr>
<td>Hypervirtual Telecopresence</td>
<td>61, 82</td>
</tr>
<tr>
<td>I</td>
<td></td>
</tr>
<tr>
<td>ICT-based content</td>
<td>153</td>
</tr>
<tr>
<td>ICT skills</td>
<td>22</td>
</tr>
<tr>
<td>Immersion</td>
<td>18, 19, 28, 30, 169, 179, 184</td>
</tr>
<tr>
<td>Immersionist</td>
<td>169, 184</td>
</tr>
<tr>
<td>immersive environments</td>
<td>248, 249, 250, 256, 264, 266, 267, 269</td>
</tr>
<tr>
<td>immersive experiences</td>
<td>18, 24, 25</td>
</tr>
<tr>
<td>immersive learning</td>
<td>15, 16, 17, 18, 20, 24, 25, 27</td>
</tr>
<tr>
<td>immersive learning environments</td>
<td>248, 249, 250, 256, 264, 266</td>
</tr>
<tr>
<td>Immersiveness</td>
<td>211, 225</td>
</tr>
<tr>
<td>immersive spaces</td>
<td>250, 257, 266</td>
</tr>
<tr>
<td>immersive virtual reality</td>
<td>250</td>
</tr>
<tr>
<td>immersive worlds</td>
<td>15, 17, 24, 30, 248, 258, 264</td>
</tr>
<tr>
<td>IMPACT model</td>
<td>90, 91, 92</td>
</tr>
</tbody>
</table>
informal situations 39
Information Literacy 99, 110
Information Management (IM) 119, 120, 121
inner speech 215, 216, 222
Instant Messaging (IM) 275, 276
Instructional pedagogy 42
Instructional Technology (ITC) 89
Instructor Immediacy Behaviors 83
intellectual 6
interaction design 228, 231
interactive education 33
interactive learning 258
interactive learning environments 258
interactivity 18
International Society for Technology in Education (ISTE) 172
interpersonal coordination 187, 206
invisible college 133
in-world 248, 249, 252, 253, 254, 257, 258, 260, 261, 262, 263, 264, 269, 270
in-world identity 259
Island in Second Life 31, 58
Island Life 170

J
Javascript 173
JISC MyPlan project 15, 16, 20, 21, 22, 23, 24

K
Katamari 288, 289, 290, 291, 292, 293, 294, 296, 297, 298, 299, 300, 301
Key Activity 3 153
kinesic science 134
Kingdoms 211, 212, 217, 218, 219, 220, 222
knots 114
knowledgebase 33
knowledge-construction 289, 291, 292, 293, 299, 300

L
Language learning 212, 213, 222
Leadership and Educational Studies (LES) 85
learner-centered constructivist 1
learner centered philosophy 115, 117
Learner dimension 18
Learner Interaction 225
learning 31-57, 99-110, 151-167, 211-225
learning artifact 117
learning communities 3, 4, 6, 10, 11, 12, 13, 14
learning design 19, 23, 25, 29
learning experience 15, 19, 21, 24, 35, 41
Learning Management Systems (LMS) 114
learning theories 248, 250, 266
Learning Virtual Environments (LVEs) 229
Library Science (LIB) 89
Linden Lab 114, 120, 128
Linden Scripting Language (LSL) 173
logo 133
Ludus / Ludic 184

M
magic cottage 214
Massively Multi Online Role-Playing Gamers (MMORPG) 32, 139
massively multi-player online game (MMOG) 248, 252, 256, 266, 270
massively multi-protagonist online environments 272
massively multi-protagonist online games 271
massively-multiprotagonist worlds 275, 276
massive multi-user online virtual environment 114
media technologies 61, 74, 149
mediating artefact 154, 155, 160, 161, 162
Mediating Artifacts in Activity Theory 112, 128, 151, 167
metacognition 272, 273, 274, 287
metaphoric environments 129, 132
Metaplace 170
micro-culture 131
Millennials 169, 172, 174, 175, 176, 178, 179, 182, 183, 184
mixed realities 62, 72, 76, 83
mobile phones 16
monologue-formats 294
Moodle 89
mother tongue 152
Multiliteracies 184,
multimedia literacy 248, 250, 256
multiplayer online games 22
multi-player online games (MMOGs) 63
multiplayer online role-playing games 32
multi-protagonist online environments 272
multi-protagonist online games 271
Multi-User Domain Object Oriented worlds (MOOs) 113
Multi-User Dungeons (MUD’s) 150, 170, 254
Multi-User Object Oriented Virtual Worlds (MOO’s) 254
multi-user virtual environments 292
MySpace 275

N
National Distance Education Learning Week 105
neo-millennial 292
Networked Mind Instrument 71, 72, 83
New Media Consortium (NMC) 114, 172
Newtonian-scale 288, 295, 298
nings 172
non-gaming 3D virtual worlds 54
non-player character (NPC) 218, 248, 254, 258, 261, 265, 270
non-playing characters (NPCs) 213
Non-Verbal Communication 129, 133, 140, 149
non-verbal community 130, 136
non-verbeto-expert continuum 107

O
Objects in Activity Theory 128, 167
online environments 272, 286
online games 271
online learning experiences 1
online services 276
online setting 3
online virtual platforms 17

P
paideia 170, 171, 176, 184,
parallel stratigraphic alignment 290, 297
parametric design 228, 231, 238
pedagogical 1, 2, 6, 11
pedagogical approach 135
pedagogical value 64
Pedagogic dimension 18
pedagogy 32, 34, 35, 42, 43, 44, 52, 53, 55, 56, 89, 90, 94, 98, 131, 153, 169, 170, 172, 214
personal identifiers 5
person-to-machine relationship 136
person-to-person communication process 137
physical space 11
physical world 7
podcasts 32, 47
points of view 129, 131, 132, 143, 144
post-constructivism 288, 289, 290, 291, 293, 296, 298
post-constructivist 289, 291, 292, 293, 294, 295, 299, 300
postmodern 288, 290, 295
Postmodern 301
Power Point 186
pragmatic orchestral approach 144
Presence 1, 5, 9, 11, 14
Presence Pedagogy (P2) 1, 5, 14, 89, 90, 94, 98, 99, 104, 106, 108, 110, 131
Problem-Based Learning (PBL) 226, 227, 228, 229, 230, 231, 232, 235, 238, 243, 246
product design 228, 231
projective identity 248, 259, 263
proxemics 129, 130, 131, 134, 140, 142

Q
Q1 32
Q2 32, 42
Q3 32, 45
Q4 32, 45

R
Rambles 294
real-time interactions 33, 186
real world 113, 114, 116, 248, 250, 251, 252, 254, 256, 257, 258, 259, 260, 262, 263, 265
real-world problem 19
receivers 61
<table>
<thead>
<tr>
<th>Term</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>reflection-on-action</td>
<td>250</td>
</tr>
<tr>
<td>Region in Second Life</td>
<td>31, 58</td>
</tr>
<tr>
<td>Reifications / Selves / Phenomena (RSP)</td>
<td>273, 274, 277, 279</td>
</tr>
<tr>
<td>representational dimension</td>
<td>18, 21</td>
</tr>
<tr>
<td>Representational fidelity</td>
<td>211, 212, 225</td>
</tr>
<tr>
<td>reproduction</td>
<td>288, 289, 290, 294, 295, 296, 297, 298</td>
</tr>
<tr>
<td>reproduction qua reproduction</td>
<td>290</td>
</tr>
<tr>
<td>Research Advisory Program (RAP)</td>
<td>104, 105, 106</td>
</tr>
<tr>
<td>Resource-rich 3D immersive environments</td>
<td>6</td>
</tr>
<tr>
<td>Rock Band</td>
<td>170, 175, 179, 181</td>
</tr>
<tr>
<td>Rules in Activity Theory</td>
<td>128, 167</td>
</tr>
<tr>
<td>Schön’s theory</td>
<td>250</td>
</tr>
<tr>
<td>self-paced classrooms</td>
<td>45</td>
</tr>
<tr>
<td>self-regulation</td>
<td>272, 274, 287</td>
</tr>
<tr>
<td>senders</td>
<td>61</td>
</tr>
<tr>
<td>sensory-motor mediation</td>
<td>137</td>
</tr>
<tr>
<td>serio-ludic</td>
<td>171, 175, 176, 183, 184</td>
</tr>
<tr>
<td>serious game</td>
<td>249, 259</td>
</tr>
<tr>
<td>simulated environments</td>
<td>31</td>
</tr>
<tr>
<td>simulation-based games</td>
<td>22</td>
</tr>
<tr>
<td>simulation-based learning</td>
<td>251, 252</td>
</tr>
<tr>
<td>Simulator</td>
<td>31, 58</td>
</tr>
<tr>
<td>situated learning</td>
<td>250, 263</td>
</tr>
<tr>
<td>Six Learnings framework</td>
<td>271, 278, 287</td>
</tr>
<tr>
<td>social behaviors</td>
<td>133, 273</td>
</tr>
<tr>
<td>social communities</td>
<td>131, 132</td>
</tr>
<tr>
<td>social constructivism</td>
<td>1, 14, 87, 98, 99, 110</td>
</tr>
<tr>
<td>social constructivist</td>
<td>2, 6, 12</td>
</tr>
<tr>
<td>social constructivist approach</td>
<td>33</td>
</tr>
<tr>
<td>Social constructivist learning</td>
<td>211, 225</td>
</tr>
<tr>
<td>social constructivist learning principles</td>
<td>188</td>
</tr>
<tr>
<td>social context</td>
<td>7</td>
</tr>
<tr>
<td>social-cultural artifacts</td>
<td>274</td>
</tr>
<tr>
<td>social-cultural aspect</td>
<td>273</td>
</tr>
<tr>
<td>social cultural environment</td>
<td>213, 215</td>
</tr>
<tr>
<td>social dimensions</td>
<td>130</td>
</tr>
<tr>
<td>social educator</td>
<td>115, 116, 117, 118, 119, 120, 121, 122</td>
</tr>
<tr>
<td>social groups</td>
<td>22, 24</td>
</tr>
<tr>
<td>social interaction</td>
<td>133, 149, 273</td>
</tr>
<tr>
<td>social interactions</td>
<td>16, 17, 20, 24, 25, 30, 105, 107, 115, 130, 133, 137, 138, 143, 189, 215, 219, 225</td>
</tr>
<tr>
<td>social interactive</td>
<td>16, 20, 24, 26</td>
</tr>
<tr>
<td>social interactive learning</td>
<td>16, 20, 24</td>
</tr>
<tr>
<td>Social interactive Learning</td>
<td>15</td>
</tr>
<tr>
<td>socialisation</td>
<td>34, 56</td>
</tr>
<tr>
<td>socialization</td>
<td>31, 39, 43, 51, 52</td>
</tr>
<tr>
<td>social learning theory</td>
<td>14</td>
</tr>
<tr>
<td>socially situated cognition</td>
<td>248, 254, 266</td>
</tr>
<tr>
<td>social mask</td>
<td>133</td>
</tr>
<tr>
<td>social medium</td>
<td>131</td>
</tr>
<tr>
<td>social milieu</td>
<td>272</td>
</tr>
<tr>
<td>social milieu</td>
<td>272</td>
</tr>
<tr>
<td>social presence</td>
<td>61, 62, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 75, 76, 77, 78, 79, 80, 81, 82, 126, 187</td>
</tr>
<tr>
<td>Social Presence</td>
<td>66, 67, 71, 74, 83</td>
</tr>
<tr>
<td>social sciences research</td>
<td>38</td>
</tr>
<tr>
<td>social software</td>
<td>32, 33, 56</td>
</tr>
<tr>
<td>social spaces</td>
<td>134, 146</td>
</tr>
<tr>
<td>social system</td>
<td>114, 115, 116, 128, 153, 167</td>
</tr>
<tr>
<td>socio-constructivist</td>
<td>137</td>
</tr>
<tr>
<td>socio-cultural theory</td>
<td>271</td>
</tr>
<tr>
<td>sociological accounts</td>
<td>39</td>
</tr>
<tr>
<td>socio-regulation</td>
<td>271, 274, 276, 277, 280, 284</td>
</tr>
<tr>
<td>socio-technical systems</td>
<td>153</td>
</tr>
<tr>
<td>Socrates</td>
<td>290, 301</td>
</tr>
<tr>
<td>spectrum disorder</td>
<td>113</td>
</tr>
<tr>
<td>spiritual aspect</td>
<td>273</td>
</tr>
<tr>
<td>Spoken Electronic Language learning (SPELL)</td>
<td>213</td>
</tr>
<tr>
<td>stakeholders’ interactions</td>
<td>52</td>
</tr>
<tr>
<td>Strategy Board-funded Serious Games: Engaging Training Solutions (SG-ETS)</td>
<td>15, 22, 23, 24</td>
</tr>
<tr>
<td>stratigraphic</td>
<td>288, 290, 294, 295, 296, 297, 299</td>
</tr>
<tr>
<td>stratigraphic alignment</td>
<td>290, 294, 297</td>
</tr>
<tr>
<td>stratigraphic characteristics</td>
<td>295</td>
</tr>
<tr>
<td>stratigraphic misalignment</td>
<td>296</td>
</tr>
<tr>
<td>Subjects in Activity Theory</td>
<td>128, 167</td>
</tr>
<tr>
<td>symbolic mechanism</td>
<td>50</td>
</tr>
</tbody>
</table>
Index

synchronization of behavior 187  
Synchronous 8  
synchronous communication 32, 34  
synthetic speech output 117  
synthetic worlds 31  

T  
task-based learning 213  
teaching 1, 2, 6, 7, 9, 10, 11, 14, 15, 16, 17, 18,  
25, 30  
technical stage 136  
Technology Enhanced Learning (TEL) 15, 22  
telecollaboration 151, 153, 165, 166, 167  
telecollaborative learning 151  
tele-communication 61  
Teleplace 98  
tele-presences 61  
TEL literature 16  
text-based chat 32  
text-based dialog 67  
text chat 5, 9  
The Commons 100  
“The Deserted Library” 101  
The Dreaming 271, 275, 280  
the Dreamtime 272  
theory-and-practice 289, 292, 296, 301  
theory of learning 289  
the Web 150  
thinking-in-action 250  
Thought and Language 215  
Three-dimensional (3D) immersive learning 2  
three dimensional (3D) virtual worlds 2, 5, 6,  
10, 12, 14, 31-36, 52, 53, 54, 56, 85, 89,  
97, 113, 228, 229, 231-246, 288, 292,  
293  
traditional classroom 1, 3, 10, 16  
Triage Trainer 23  
Twitter 77, 172, 272  
two dimensional (2D) web learning environ- 
ments 113  

U  
UK Technology 15  
United States Air Force 212  
Usability 31, 52, 56, 59  

V  
video conferencing 213  
videogames 251, 267  
video games 22, 28, 64, 77, 81, 217  
virtual campus 252  
Virtual Communities 129, 131, 150  
virtual design 226, 228, 229, 232, 240, 243,  
245  
virtual design studios 226, 228, 229, 232  
virtual environment 238, 240, 242, 243, 245,  
246, 248, 254, 256-272, 276-282, 286,  
287, 289, 292, 293, 298  
virtual environments 17, 19, 26, 28, 30, 39, 54,  
55, 57, 58, 74, 77, 79, 80, 82, 226, 228,  
229, 230, 238, 241, 243, 245  
Virtual Environment (VE) 185, 186, 187, 188,  
189, 190, 191, 193, 194, 195, 203, 208,  
209, 210  
virtual ‘globes’ 292  
Virtual Harlem 169, 172, 175, 180, 181  
virtual hospitals 256  
virtual immersive environments 250  
virtual immersive worlds 258  
virtual infidelities 172  
Virtuality 75, 83  
virtual learning 229, 231, 232, 258, 261, 264  
virtual learning environment 280  
virtual learning environments 229, 231, 232,  
258, 264  
virtual library 100, 101, 103, 107, 109  
virtually copresent 73  
virtually present 73  
virtual reality 61, 64, 66, 72, 73, 75, 77, 78, 81,  
249, 250, 252, 253, 255, 257, 264, 266,  
267, 270  
virtual reality environments 249, 266  
virtual reality environment (VRE) 214  
Virtual Reality (VR) 226, 227, 229, 230, 231,  
232, 233, 235, 237, 238, 239, 241, 244  
Virtual Reality (VR) environments 230  
virtual replication 19  
virtual situations 18  
virtual space 250, 252, 254, 256, 257, 258,  
259, 261, 262, 265  
virtual task 259
Virtual World 31, 59
virtual worlds 1, 6, 7, 8, 9, 11, 12, 13, 15, 16, 17, 20, 22, 24, 25, 26, 27, 28, 29, 30, 271, 275, 281, 282, 288, 292, 293, 297, 298, 300
Virtual worlds (VW) 113, 114, 118, 121, 122
Virtual World Watch project 212
visual realism 32, 36, 45, 46, 47, 48, 53
voice-over internet protocol 213
Voice over IP (VoIP) 3
VoIP audio 5
VR technologies 230

W
Web 2.0 1, 3, 11, 14, 272, 281
Web Alive 32
web-based education 249
web-based environment 89, 101
web-based environments 254, 262, 280
web-based technologies 17
web-based tools 14
web-page-based platforms 228
web-services 276
website usability 54
web usability 54
Wikipedia 16, 17
wikis 32, 170, 171, 172, 173, 176
WorldEditor interface 191
World of Phenomena 273
World of Reifications 273
World of Selves 273
World of Warcraft (WoW) 139, 170, 179, 256, 257, 272, 275, 276, 277, 282

Z
zone of proximal development (ZPD) 188
Zone of Proximal Development (ZPD) 272, 274, 287
Zone of Regulatory Development (ZRD) 271, 272, 274, 275, 276, 280, 286, 287