

Index

- achievement(s), 10, 11, 16, 19, 20, 53, 60, 75–81, 92, 180
- Activity Theory (AT), 9, 68, 73, 74, 83, 91, 92
- activity(ies), authentic, 206
- Aldrich, C., 6, 133, 162, 174, 234
- analysis
 - competitive, 10, 96–97, 108–111, 114–119, 126
- appointment, 75, 81–82, 91
- assessment(s)
 - client-based, 95, 119–123
 - peer, 95, 96, 97, 105–108, 122
- attention, 11, 16, 17, 238–239
- augmented reality, 225
 - and architecture, 230
 - and art, 244
 - and business, 244
 - and chemistry, 243
 - and ethics, 246
 - and gaming, 240, 242
 - and geography, 243
 - and history, 243
 - and languages, 244
 - and medicine, 232
 - and mental health, 232
 - and multitasking, 245
 - and object modeling, 242
 - and skills-based training, 241–242
 - and travel and recreation, 230, 232
- augmented reality projects
 - KARMA, 229
 - Milgram virtuality continuum, 227
 - Spatial Augmented Reality, 229
 - Videoplance, 229
- avatar(s), 10, 86, 129, 135, 138, 140, 143, 144, 152, 155, 184, 226, 299, 303
- award(s)
- combo, 82–86
- Azevedo, R., 24
- Bacon, N., 205
- badge(s), 75, 76, 77, 78, 79, 80, 84, 91, 92
- Beaty, L., 342, 346, 356
- Becker, J. D., 11, 205
- Becker, W. E., 342, 343, 347, 348
- behavior(s), 4, 8, 68, 72, 77, 82, 100, 131, 132, 137, 138, 165, 186, 188, 237, 257, 275, 316–317, 322, 325, 326
- Benyon, D., 207
- Bloom, B. S., 102, 118, 119
- Bransford, J. D., 212, 320
- Brown, A. L., 132, 138, 212
- Brown, M., 343, 346, 357
- Cabiria Flow Space*, 228
- Cabiria, Jon, 11
- case study(ies), 10, 12, 58, 105, 156, 157, 317, 322–329
- Center for System Security and Information Assurance (CSSIA), 265, 266, 273, 274, 279
- Cestone, C. M., 106, 107, 108, 120, 121, 126

- Christensen, C. M., 220
- classroom management, 124, 132, 137, 138, 157
- classroom, virtual, 129, 139, 140, 141, 144, 152, 157
- Cocking, R. R., 212
- Cognition, 11, 73, 236–244
- cognitive strategies, 333
- cognitive overload, 246
- collaboration, 6, 24, 25, 29, 30, 73, 169, 171, 195, 272, 290, 318–319
- Collegiate Cyber Defense Competition (CCDC), 273, 274, 276
- competition, 21–24, 28, 39, 51, 101, 104, 273, 308, 318
- computer lab, 167, 176, 254, 264
- constructivism, 7, 234, 316, 317, 330
- contact lenses, 230
- goggles, 232, 236, 240
- cooperation, 19, 21, 22–24, 30, 39, 52, 53, 78, 86, 319
- Council of Chief State School Officers, 11, 218
- course(s), online, 226, 253, 256, 258, 293, 301
- Csikszentmihalyi, M., 6, 16, 30, 41, 55, 57, 207, 208
- development
 - professional, 164, 222
- Dewey, J., 17, 205
- Dickey, M. D., 35, 39, 54, 206, 218
- Dillenbourg, P., 19, 21
- disbelief, suspended, 239, 240
- discovery learning, 234, 241, 242
- edutainment, 319, 332, 333
- emerging technologies hype cycle, 238
- empowerment of students, 256–257
- engagement
 - of Chinese students, 10, 161–195
 - of students, 17, 105, 117, 357
 - social, 88–89, 91
- enjoyment, 48, 99, 153, 332, 334
- environment, mediated, 136, 151, 239
- evaluation(s), formative, 13, 346, 347, 351, 354
- experience
 - optimal, 207–208
- externalization, 73, 74, 83, 91
- Faria, A. J., 99, 100, 104, 111, 124
- feedback, 5, 6, 8, 11, 13, 25, 29, 41, 57, 60, 74, 82, 83, 87, 88, 106, 118, 121, 123, 137, 171, 198, 220, 221, 277, 346–347, 350–354
- “flow” (psychological state), 207
- Fry, H., 357
- game(s)
 - design, 31, 39, 41, 47, 50, 52, 68, 82
 - epistemic, 133
 - experience points (XP), 75, 76
 - massively multiplayer online role-playing game (MMORPG), 83
 - mechanics of, 230
 - multiplayer, 22–23, 47
 - prize linked savings (PLS) in, 72
 - quest(s), 83, 85, 255
 - questing, 75, 82–84, 91
 - video, 72, 79, 208, 232
- gamification
 - in instructional design, 36, 37, 38, 41
 - “serious game”, 9, 15, 211
- Gartner Group, 71, 72

- Gee, J. P., 17, 18, 68, 133
geolocation, 241
geotagging, 241
Global Positioning System (GPS), 230
Gutman, J., 42, 45, 47
- hacking, ethical, 271
hands-on tool(s), 254, 256, 257, 265, 271, 272, 332
head-mounted display, 229
history of, 229
higher education in UK, 183, 197
Horizon Report, 233, 234
Horn, M. B., 220
Hype Cycle, 71, 72, 91, 233
- identity, 6, 21, 104, 135, 198
immersive, 3–31, 97, 101, 134, 136, 145, 234, 299
interaction
analogical interface and, 218
interactivity, 5, 8, 135, 204, 230, 232
interdependence, 5, 9, 19–21, 22, 27–28, 30
internalization, 73, 74, 83, 91
- Johnson, C. W., 7, 19, 169, 171, 220, 233, 286
- Kahle, L. R., 45, 47
Knowles, M. S., 98
- laboratory(ies), 12, 255, 273, 278, 315–334
laboratory(lab) set-up, 255, 278
Larrivee, B., 356, 357,
leaderboard(s), 75, 86–87, 92
leadership development, 161, 164, 165, 166, 167, 169–178, 197
leadership, educational, 11, 203–222
graduate degree courses and, 205
learner(s), diverse, 132, 137, 138, 156
learning
active, 4, 10, 12, 17, 18, 22, 95, 96, 97, 98, 99, 105, 121, 125, 126, 134, 181, 212, 213, 219, 241, 257, 298, 315–334
by doing, 234, 318
collaborative, 4, 7, 15, 18, 19, 21, 22, 23, 24, 26, 30, 31, 36, 59
experiential, 11, 37, 133, 161, 163, 164, 171, 176, 178, 182, 183, 184, 185, 188, 194–195, 196, 197, 198
fun, 18, 36
game-based, 4, 16, 28
ill-defined context of, 212
inquiry-based, 4, 212, 212, 234
long-term, 184
problem-based, 4, 9, 56, 57, 58, 61, 212
project-based, 4, 9, 56, 57, 58, 61, 212
short-term, 197
simulations and, 8, 98, 99, 100, 103, 105
social, 7, 37, 73
student-controlled, 234
“learning and teaching”, 180, 301
LEGO MindStorms, 321
Linguafolio, 78, 79, 88
Linux, 258, 259, 262, 268–269, 275, 282, 284–285, 286–291, 294, 310
loop, 74, 82, 83, 88–89, 167, 170, 177, 189, 190, 191, 198

- Malaysia, 46
- Malone T.W., 39, 40, 41, 50, 51, 52, 53, 54, 56, 57
- mammalian brain, 236–237, 239
 - management, strategic, 96, 100, 101, 102, 103, 108, 109, 111, 114, 124
- Mann, D., 11, 201, 212
- Mantovani, G., 239, 240
- Marshall, S., 357
- massively multiplayer online role-playing game(s) (MMORPG), 43
- Master of Business Administration (MBA), 10, 95, 96, 102, 103, 109, 121
- McGonigal, J., 68, 78, 79, 91
- mechanics
 - of game(s), 9, 30, 67–92
 - viral and social, 67, 88
- mediation, 6, 73, 74, 91, 219, 227
- metacognition, 213
- metrics
 - quantitative, 217
- modifier(s), 67, 75, 89–90
- motivation, 5, 6, 7, 8, 9, 10, 13, 17, 20, 24, 30, 37, 38–41, 42–43, 49, 52, 53, 54, 55, 60, 67, 68, 69, 74, 78, 80, 86, 87, 92, 101, 106, 125, 126, 165, 176, 197, 206, 211, 213, 214, 220, 318, 319, 334, 345, 352, 354
- MySQL, 217, 294
- New Jersey, 207
- New Media Consortium (NMC), 233
- object recognition, markerless, 231
- object-orientedness, 73, 80, 83, 91
- onboarding, 76, 77, 80
- open source
 - software implementation(s), 258–259, 284, 310
- operating system(s)
 - Linux, 258, 259, 262, 268–269, 275, 282, 284–285, 286–291, 294, 310
- Papert, S., 316, 317
- penetration testing, 271, 288
- PHP code
 - “Yet Another Markup Language” (YAML), 217
- Symfony, 217
- Piaget, J., 7, 316, 317
- point(s), 9, 73, 75, 76–77, 78, 79, 80, 81, 82, 84, 85, 86, 88, 89, 90, 91, 92, 98, 99, 231, 232, 244, 246, 248, 261, 274, 325, 333
- Prensky, M., 18, 21, 26, 29, 39, 134, 146
- presence
 - virtual207
- privacy, 67, 75, 87, 257, 297, 302, 359
- professionalism, authentic, 133
- Quick Response (QR) code(s), 231, 232
- reality
 - peculiar, 208, 209, 210
- Reardon, R. M., 11, 203, 205
- reflection, 6, 12, 161, 169, 170, 171, 176, 186, 194, 197, 198, 219, 228, 319, 341, 355–364
- report(s), 12, 58, 96, 97, 101, 104, 105, 107, 109, 111, 115, 117, 119, 121, 123, 124, 126, 132, 168, 233, 323, 325, 326, 330, 333, 334, 342

- reptilian brain (R-Brain, triune brain), 236, 237
- reputation, 75, 76, 77, 88
- retention, 12, 88, 89, 244, 246, 254, 315, 317, 319, 322, 323, 324, 326, 331, 333, 334
- reward system(s), 24, 72, 80, 84, 85
- reward(s), 5, 9, 24, 41, 45, 49, 53, 57, 59, 67, 72, 75, 76, 77, 78, 79, 80, 81, 82–86, 87, 88, 89, 92, 106, 206, 240
- Riva, G., 239
- Robotics, educational, 12, 315–334
- role-play, 41, 55, 129, 133, 134, 135, 138, 156, 169, 170, 176, 193

- Schlechty, P. C., 207
- Schroeder, R., 134
- second language acquisition (SLA), 67, 69, 70, 73, 74, 82, 90
- Second Life, 8, 10, 131, 137, 140, 144, 154, 155, 156, 157, 254, 298, 304
- self-regulation, 5, 240
- Sensorama, 229
- sensory gloves, 229
- Seton Hall University, 10, 129, 130, 138
- setting(s)
 - creation of, 205–206
 - dysfunctions in, 218
 - virtual, 205
- Shaffer, D. W., 133
- Shakeshaft, C., 11, 203, 205
- simSchool project, 137
- simulation(s)
 - ActionScript 3, 217
 - business, 103, 111, 112, 113, 169, 186
 - Capstone™ Business Simulation, 111, 112, 113, 114, 115, 116, 117, 272
 - distinction between games and, 204
 - immersive, 8, 101, 125
 - interactive, 11, 198
 - learning and, 210
 - of decision paths, 219, 220
 - online, 205, 217, 221
 - Sensorama, 229
 - turn-based, 217
 - video, 11, 203–222
 - whole enterprise, 10, 95–126
- skill(s), 4, 5, 6, 8, 10, 11, 12, 31, 73, 74, 76, 77, 83, 89, 90, 92, 105, 106, 119, 125, 129–157, 162, 163, 164, 165, 169, 170, 179, 183, 187, 192–193, 194, 203, 206, 219, 221, 226, 236, 241–242, 245, 254, 258, 265, 269, 273, 274, 283, 289, 295, 296, 304, 315, 316, 317, 318, 319, 321, 324, 357
- Society for the Advancement of Games and Simulations in Education and Training, 133
- special education, 131, 138, 140
- standard(s)
 - best-practice, 210, 217
- structure, hierarchal, 74
- Student Evaluations of Teaching (SET), 13, 341, 342, 343–346, 347–350
- student-centered, 162, 181, 182, 193–196

- task-based, 74, 91, 171, 301
- teacher candidate(s), 10, 129–157
- teacher education, 132, 138

- teacher preparation, 10, 131, 132, 149
- teacher resources, 271
- teaching
 - cross-cultural, 178
- teaching methods, 11, 74, 91, 273, 343, 351
- TeachMe (Teaching in Mixed-Reality Environments) project, 137
- technology(ies), educational, 98, 132, 149
- Time-on-Task, 15, 16, 17, 30
- tool(s), 3, 4, 7, 8, 13, 24, 26, 28, 29, 30, 44, 73, 74, 78, 89, 90, 97, 102, 109, 111, 115, 116, 117, 118, 119, 120, 124, 132, 133, 136, 137, 140, 146, 148, 157, 162, 168, 174, 198, 204, 205, 219, 234, 236, 241, 253, 254, 258, 262, 263, 270, 271, 272, 278, 283, 284, 285, 286, 287–290, 292, 293, 294, 296, 297, 298, 301, 303, 306, 308, 310, 311, 316, 317, 333, 334, 344, 350, 352, 353, 354, 355, 357, 358, 359, 360, 362, 363
- Topping, K. J., 105, 106, 107, 108, 125
- Turner, P., 207
- Turner, S., 207
- university(ies), private, 46, 108
- virtual build, 92, 261, 262, 267, 268, 269, 270, 272, 275, 277
- virtual learning environment (VLE), 12, 13, 134, 232, 341–364
- virtual worlds, 3, 8, 10, 13, 30, 50, 68, 69, 129, 130, 131, 133, 134–136, 137, 138, 140, 144, 145, 146, 150, 153, 154, 155, 156, 157, 170, 213, 226, 247, 298–302, 303, 304–306, 307
- virtualization
 - Virtual Box, 260
 - VMware, 259, 265, 284, 285, 289
- Vorderer, P., 21, 29
- Vygotsky, L., 7
- Watts, M., 342, 343, 347, 348
- Whitton, N., 18, 105, 204, 207, 213, 214
- Wolfe, J., 99, 100, 101, 103, 104