

INDEX

A

“A Flight Simulator for Business Skills,” xxvi, 125, 131, 132
A New Kind of Science (Wolfram), 31
Academy for Educational Development, 166
Accenture, 13, 64, 252, 302, 331, 332
Activision, 144, 145
Actor observers in role plays, 106, 116
Adacel, 13, 302
Afghanistan, 203
After action reviews (AARs, *see also* Debriefings), 66, 151, 198, 202, 247, 257
Age of Empires, The, 144, 145, 161, 178
Age of Kings, The, 145
AI (Artificial intelligence): as a component of next gen sims, 82, 160, 174, 196, 198, 202, 221, 274; challenges of xxxviii, 229
AICC (Aviation Industry CBT Committee), 153, 293, 295, 298, 299
Air Force pilots, 127–130
Air Force, U.S., 127, 132, 180
Airport Profiler, 167–168
Alfred P. Sloan Foundation, 186
Aliens vs. Predator, 93
Allen Interactions, 74
America’s Army, 333
American Airlines, 97, 129, 182
American Political Science Association, 110
American Society for Training and Development, *The* (ASTD), 333
Amiga, 329
Anark Studios, 156
Anderson, J., 74
Apple (*see also* Apple II), 329
Apple II, 134, 328
Apprenticeships, 77, 157, 288, 289, 290
Army, U.S. (*see also* *America’s Army*), 204, 328, 333
Arnold, E., 261–263
Artificial intelligence (AI): as a component of next gen sims, 82, 160, 174, 196, 198, 202, 221, 274; challenges of, xxxviii, 229
ASTD (The American Society for Training and Development), 333
Asteroids, 78, 328
Asymetrix (*see also* Click2Learn, SumTotal), 331
Asynchronous deployment, 245, 247
Atari 2600, 328
Atari, xxxvi, 134, 144, 327–329
Authoring tools, e-learning content, 285, 289, 290, 292, 294, 297, 317–320

Authorware, 329
Aviation Industry CBT Committee (AICC), 153, 293, 295, 298, 299

B

Baltimore Sun, 182–183
Bartle, R., 328
BASIC, 312, 318
Battlezone, 328
Beer Game, *The*, 71, 312
Bihrl Applied Research (*see also* Ralston, J. and *First Flight—The Wright Experience Flight Simulator*), 179–181
Billhardt, B. (*see also* Inspire Learning), 245–246, 313–314
Biography, 150
Blogger.com, 333
Bloomsburg University’s Institute for Interactive Technologies (*see also* Kapp, K.), 35, 36, 52
BMW, 43
Board games, using, 120, 315
Bogost, I., 164
Books as linear content, xli, 76, 136, 178, 179, 185, 271, 274, 338
Boston, J., xxix–xxxi, 334–342
Branching in computer games, 16
Branching stories: and other genres, xxxix, xl, 25, 26, 28, 29, 59, 82, 119, 217; building 16, 210, 117, 219, 230, 244, 254, 304–311, 315, 321–322; business model 259–263; choosing 12–13, 207, 208–209, 285, 301, 302; defining, 4, 7–11, 63–64; examples, 8, 11, 13, 261, 306–311
Break out rooms in virtual classrooms, 106
Breakaway Ltd., 150
Brigg, J., 182–183
Broderbund, 332
Brodsky, M. (*see also* Ulysses Learning), 260–263
Brown University, 195
Brown, J.S., xxix
Buchanan, K., 70–72, 104, 151
Business 2.0, 224
Business Dynamics: Systems Thinking and Modeling for a Complex World (Sterman), 31
Business models: faulty, xxxiv; of computer games, 147, 148; of educational simulations, 168, 194, 259–263; successful, in other industries, 118, 147, 148, 318; of toolkits, 318

Business school, 5, 13, 26, 27, 66, 141, 195, 301, 302
 C-5 training, 127
Caesar III, 145
 California community college system, 195
 Call center training, 4, 12, 13, 248–249, 259–262, 302
Call to Power, 145
 Capcom, 329
 Carliner, S., 93
 Carnegie Mellon (*see also* Garcia, S.), 115, 197
 Cartoon Network, 164
 Case studies, simulation: Air Force pilots, 127–130; *First Flight—The Wright Experience Flight Simulator*, 178–185; *Full Spectrum Command*, 202–203; *Full Spectrum Warrior*, 198–201; Global Kids, 166–168; *Legsim*, 108–110; Newport Medical Instruments, 46–48; *Strategic Account Management*, 97–100; Ulysses Learning 259–263; *Virtual Leader* (*see also* *Simulations and the Future of Learning* (Aldrich)), 264–269, *Virtual University*, 186–194

C

CBT Systems (*see also* SmartForce), 329, 331
 CD-ROMs, 14, 15, 30, 146, 152–153, 176, 251, 293, 297, 299, 300, 330, 331
 Centra, 330, 332
Chance, 120
 Choose Your Own Adventure books, 7–8
Chutes and Ladders, 120
 Cinematronics, 329
 CinePlay Interactive, 145
 Circuit City, 153
 Clemens, S., 273
 Clichés and universal truths, 91, 94
 Click2Learn, 331, 332, 333
 Coaches, 101, 288, 289, 290, 291; as a tool for simulation improvement, 257; corporate, 131; embedded in branching stories, 10–11, 306; embedded in interactive spreadsheets, 25; in deploying simulations, 29, 90, 183, 218, 227, 242, 245–248, 269–263, 265
 Cognitive Arts (*see* NIIT)
 Coleco, 328, 329
 Colecovision, 328
Colossal Cave Adventure, 327
 Columbia University, 331, 333
Command and Conquer, 68, 138
 Commodore 64, 328
 Commodore, 329
 CompeteNet, 286, 309–311
 Complicated equipment training, 208
 CompUSA, 153
 Computer games as counter-culture, 159
 Computer games as leading edge, 160
 Computer games, off-the-shelf, for classroom use: deployment of, 241–253; selection of topic of, 143–146;
 Computer languages, 154–155
Computer Space, 327
 Concordia University, 93

Construction/Destruction, 151
 Content, cyclical (*see also* Interfaces): as game element, 87, 228; as simulation element, 81, 82, 84; creating, 75, 223–224, 258, 275–276; definition of, 73–76; examples of, 75, 77, 103, 131, 157, 200–201; researching 75, 76, 215, 273; role of in an educational simulation, xl, 70, 78, 79, 89, 120, 152, 156, 173, 221, 254, 255, 270
 Content, linear, 33, 64, 252, 283; as simulation element, 81, 82; contrast to other content types, 26, 60, 62, 123, 176, 178, 180, 275, 312; creating, 223; definition of, 61, 76; examples of, 62, 63, 65, 77, 156–157, 252, 273, 287, 293, 324; researching, 77, 215; role of in an educational simulation, xl, 70, 78, 79, 89, 120, 152, 160, 173, 221, 254, 255, 270; with game elements 5, 37, 85, 86
 Content, systems (*see also* Variables, primary), 31, 74, 135, 136; as game element, 154, 160; as simulation element, 26, 29, 43, 81, 82, 103, 123; creating, 27, 31, 72, 84, 157, 208, 218, 242, 254–258, 273; definition of, 70–72; examples of 19–21, 77, 131, 156, 157, 276–277; researching 72–73, 214; role of in an educational simulation, xl, 70, 78, 79, 86, 89, 120, 152, 173, 215, 221, 270; supported by linear content, 89; thinking, 17, 18
 Context alignment, 84
 Control Data, 327, 329
 Convergence of systems, cyclical, and linear content, 77
 Copernicus, 272
 Corpath, 64–65, 68
 Corporate Adrenalin, 27
 CRMs (Customer relationship management systems) 55, 212, 286, 289, 290, 292, 295, 296, 298, 299
 Customer relationship management systems (CRMs) 55, 212, 286, 289, 290, 292, 295, 296, 298, 299
 Cross-functional training, 5, 27, 66, 208, 214
 Crowther, W., 327
 Cultural literacy, 178, 275
 Customizing simulations, 30, 213, 285, 292, 316–326; cost versus benefit, 260
 Cyclical content, (*see also* Interfaces): as game element, 87, 228; as simulation element, 81, 82, 84; creating, 75, 223–224, 258, 275–276; definition of, 73–76; examples of, 75, 77, 103, 131, 157, 200–201; researching 75, 76, 215, 273; role of in an educational simulation, xl, 70, 78, 79, 89, 120, 152, 156, 173, 221, 254, 255, 270
 Cycore, 54, 302

D

DarkBASIC, 156
 DataBeam, 329
 Day-to-day activities as input to interface, 141, 275–276
 Dean for America, 164–166
 Dean, Howard, 164–166

- Debriefings (*see also* After action reviews), xxxi, 26, 29, 65, 82, 90, 108, 117, 247–248, 336
- Defender*, 328
- Design document, 236–237; material for, 222–236
- Design Your Own Games and Activities: Thiagi's Templates for Performance Improvement* (Thiagarajan & Thiagarajan), 95
- Designing Games and Simulations* (Greenblat), 40
- Deus Ex*, 93, 342
- Development questions, 15, 30, 39, 55–56, 303, 326
- DialogCoach, 74
- Dialogue: Now You're Talking!*, 102
- Different lenses universal truth, 93
- Digital Equipment Corporation, 327
- Digital Game-Based Learning* (Prensky), 40
- Digital Mill (*see* Sawyer, B, *Virtual University*), 145, 187
- DigitalThink, 331
- Director, 325
- DirectX, 146, 147, 152, 176, 211, 298–300
- Discovery Channel, The, 150, 183
- Discrete interactions in interactive spreadsheets, 22–23
- Disney, 196
- Docent (*see also* SumTotal Systems), 331, 332, 333
- Donkey Kong*, 328
- Doom*, 330
- Doonesbury Election Game, The*, 145
- Dörner, D., 100
- Dragon's Lair*, 78, 329
- Dreamcast, 333
- Dreamworks Interactive, 144
- Dune II*, 330
- Dynamic skills, 60–65, 67, 70–71, 77, 109, 156–157, 180, 252–253, 273, 284
- ## E
- Education Arcade, The, 150
- Educational content, other, 286–287
- Edutainment, 148
- EGames Generator, 40, 301
- e-Learning content, types of, 284–285
- e-learningjobs.com, 38, 97
- Electronic Arts, 144, 145, 146, 329
- Elements, game, 5, 95, 143, 194, 242, 251; as one type of element, 80, 131–132, 160, 187, 229; 315; definition of, 85–86, 91, 270; examples of, 35, 38, 86–87, 92–94, 228, 261, 272; usage of, 88, 228, 257, 255–257, 262
- Elements, pedagogical; as one type of element, xxvi, xxxix, xl, 142, 152, 160, 192, 271; definition of, 88–89; examples of, 65, 89–90, 93, 94–95, 96, 103, 225–227; usage of, 90, 109, 230, 242, 246
- Elements, simulation; as one type of element, 80, 89, 90, 91, 95, 160, 229, 260; definition of, 81–82; examples of, 82–83, 92–93, 118, 131–132, 187, 189–191, 315; usage of, 83–84, 85, 88, 228, 257–258
- Embedded training, 129, 285, 289, 290, 319
- Emergency Room*, 144
- Emergent Environment, 160, 174, 221
- Encore Software, 144
- End-space, focus on the, 196
- Enlight Software (*see also* *Virtual University*), 144, 187
- Enspire Learning, 27, 245, 302, 313–314
- Enterprise resource planning systems (ERP), 212, 286, 289, 290, 292, 295, 296, 298, 299, 333
- Enterprise strategies, 274–276, 278, 283, 289, 290
- Entertainment Software Rating Board (ESRB), 330
- Epic Games, 156
- Equipment Simulations LLC., 45–49, 73
- ERP (enterprise resource planning systems), 212, 286, 289, 290, 292, 295, 296, 298, 299, 333
- e-SIM, 54, 302
- EULA (End-user licensing agreement), 333
- Europa Universalis*, 145
- EverQuest*, 135, 331
- Excel, 18, 28, 31, 222, 282
- Experience Point, 27, 302
- Experimental Aircraft Association (EAA), 181, 183
- Explore, then build, then expand universal truth, 93
- eXtensible Markup Language (XML), 238, 293, 295, 298, 299, 319
- ## F
- Falstein, N., 144
- Family Feud*, 34
- Fathom.com, 331, 333
- Feedback, simulation (*see also* AARs, Debriefings, Triggers), 82, 191, 220, 225, 232, 237, 238, 247–248; branching stories, 305, 306; interactive spreadsheet, 23–25, 245, 313–314, 323; people for, 226, 260, 262; virtual lab, 49; virtual product, 48
- Feminism, 273
- Fidelity, simulation, 26, 66, 68, 78, 104–105, 113, 128, 131, 227, 301; or ability to predict, xxxi, 65, 337; forsaking, 5, 49, 65, 84, 85, 128–129, 196, 248–251
- 1503 A.D. The New World*, 144
- Fifth Discipline, The* (Senge), 312
- First Flight—The Wright Experience Flight Simulator*, xxxv, 178–185
- First person shooters (FPS), 68, 142, 143, 151, 155, 330, 333; as game element, 34; as simulation element, 198, 200; definition of, 139–141
- Fisher, D., 112–116
- Flash MX for Interactive Simulation* (Kaye), 45, 56
- Flash, 28, 151, 163, 168, 169, 209, 211, 218, 292, 298, 317, 318, 326

FlashMX, 325, 332
 Flight simulators (*see also First Flight—The Wright Experience Flight Simulator*), xl, 63, 64, 66, 76, 82, 125–133, 150–151, 152, 154, 208, 245, 252, 254, 327; in marketing, xxvi, 125
 FlightSafety Services Corporation, 126–128
 Focus groups, 89, 260
Football, 328
Forbes, 224
 Ford Foundation, 166
 Forgetting, minimizing, 248–249
 Forio (*see also Glass-Husain, W.*), 22, 23, 27, 31, 213, 239, 302, 312
 Forman, D., 38–39, 97–100
 Fox News, 162
 FPS (First person shooters), 68, 142, 143, 151, 155, 330, 333; as game element, 34; as simulation element, 198, 200; definition of, 139–141
 Frasca, G., 135, 164–165
 Frequently used skills vs. infrequently used skills, 249
 From learning about rules and systems to learning about exploiting rules and systems, 29
 Frost, R., 7
Full Spectrum Command, 202–204
Full Spectrum Warrior, xxxv, 153, 196, 198–201, 204, 333
 Fun: expectation of, 125, 149–151, 245; making education simulations more (*see also game elements*), 5, 32, 33–34, 37, 63, 85–86, 143, 169, 178, 228, 338

G

Game based models: and other genres, xxxix, xl, 4, 42, 59, 64, 185, 285; building 39–41, 146, 210, 219, 230, 252, 301, 316, 321, 324–325; choosing 37; defining, 5, 33–35, 63; examples, 34, 38, 41, 94, 120
 Game Boy, 135, 329
 Game craft, 196
 Game Creators Ltd., The, 156
 Game elements 5, 95, 143, 194, 242, 251; as one type of element, 80, 131–132, 160, 187, 229; 315; definition of, 85–86, 91, 270; examples of, 35, 38, 86–87, 92–94, 228, 261, 272; usage of, 88, 228, 257, 255–257, 262
 Game engines, 155–156, 159
 GameCube, 332
 gameLab, 168
 Games or simulations, 79–80
 Games2Train (*see also Prensky, M.*), 34, 40, 64, 252, 301
 Gameshow Pro Web, 40, 301
 GarageGames, 156
 Garcia, S., 115–117
 Gartner, xxxvi, 330, 331; analyst position at, 60, 177
 Gathering of Developers, 144, 145
Gazillionaire, 144
 Gee, J.P., 161

Gema-Lead360, 264–269
 General Electric, 327
 General Motors, 49–50
 Genesis, 329
 Genre resurgence, 154, 155
 Genres (*see Genres, computer game and Genres, educational*)
 Genres, computer game (*see also First person shooter, Management sims/god games, Massively multi-player online role-playing games, Real-time strategy, Role-playing games*), 137, 149, 152, 154, 221; for game-based educational models, 33–34, 228
 Genres, educational (*see also Branching stories, Interactive spreadsheets, Game-based models, Virtual products, Virtual labs, Next gen sims*), xxxix, xl, 3–6, 59, 63, 159, 169, 173, 177, 213, 216, 316, 324; mixing genres, 210
 gForce, 332
 Gitomer, 306
 Glass-Husain, W. (*see also Forio*), 213–214, 239
 Global Kids, 166–168
 Global Star Software, 145
 GM Certified Master Technician, 49–50
 Goel, R. (*see also Tata Interactive*), 25, 27–28, 85
Gone with the Wind (Mitchell), 178
 Google, 331, 333
 Gottlieb, H. (*see also You Don't Know Jack*), 36–37, 229
 Grand Theft Auto, 32
 Grant, D., 49–51
 Graphics engines, 155–156, 196
 Graphs, 5, 18, 21, 23, 24, 67, 272
 Gronstedt Group, 13, 302
Guns, Germs and Steel, 144
 “Gurus,” xxxv, e-learning xxvi; game, xxix, 161, 334

H

Hadley, J., 103–104, 216, 217, 256, 257
 Half-Baked Potatoes, 40, 303
Halo: Combat Evolved, 140, 144
 Hangman, 34
 Harvard, 328
 Health Media Lab, 145
Hearts of Iron, 143, 144
 Hertz, J. C., 3
 High Level Architectures (HLAs), 129
High Performance Systems, 72
 High turnover employees, training for, 4, 207
 Higinbotham, W., 327
 History Channel, The, 150
 Hofmann, J., 106–107
Hollywood Squares, 34
 Holmes, O.W., 178
 HT50 Ventilator, 46–47
 HTML (Hypertext Markup Language), 109, 163, 298, 299
Hungry Red Planet, 145
 Hypercards, 329

I

- “I Give Up” Button, 35–36
 IBM, 99, 175, 195, 295, 298, 299
 id, 330
 ILINC, 330
 Immersive role play, 97
 Improvisational techniques, 101
 Indeliq, 331, 332
 India, 333
 Infogames, 331
 Information Technology and Politics
 Award, 110
 Infrastructure, education, 285–286
 Instant Messenger, 294, 296, 299, 331
 Institute for Creative Technology, 196
Intelligence (Schank), 15
 Intellivision, 328
 Interactive spreadsheets: and other genres,
 xxxix, xl, 4, 33, 42, 59, 63, 64, 82, 252,
 285; building, 28–31, 72, 210, 214,
 217–218, 312–315, 316, 321, 323–324;
 choosing, 26–27, 208–209, 301–302;
 defining, 5, 18–25, 66–67; deploying, 250;
 examples, 141, 187
 Interfaces, 12, 14, 19, 36–37, 80, 86, 89,
 103–104, 114, 137, 150, 160, 164, 169,
 183, 212, 218, 221, 228–229, 231, 240,
 242, 246, 261, 319; as cyclical content,
 xxx, 5, 68, 73–76, 82, 131, 154, 157–158,
 173–174, 199–204, 223, 224, 243, 273,
 274–276, 301, 335–336
 Intermezzon, 27, 302
 Internet chat room, 90, 101, 109, 245, 288,
 291, 297
 Interview simulations (*see also* Branching
 stories), 12, 309–311
 Iowa State University, 112
 Iterations in simulation development, 60, 109,
 220, 254–258

J

- J2EE/EJB, 298, 299, 332
*Jack Principles of the Interactive Conversation
 Interface, The* (*see also* Gottlieb, H.),
 36–37, 229
 Jackson Hole Higher Education Group, 187
 Jacobson, T., 162–164
Jaws (Benchley), 178
 Jefferson, T., 270
 Jellyvision (*see also* *You Don't Know Jack*), 36
Jeopardy!, 32, 33, 34
 JHT Incorporated, 103, 217
 Joseph, B., 166–168
 JoWood Productions, 144
Joystick Nation, 3
 Jupiter, 156

K

- Kaon, 43, 54, 302
 Kapp, Karl (*see also* Bloomsburg University's
 Institute for Interactive Technologies),
 35, 38
 Kay, A., 272

- Kaye, J., 45–49, 46, 74, 214, 242
 Kellogg Creek Software, 145
 Kinesthetic engagement, 5, 42, 73, 131, 273
 Kirk, J., 36
 Knowledge/Simtrex, 13, 302
 Knowledge management, xxxviii, 66, 289,
 290, 295, 298, 299
 KnowledgePlanet, 331, 332
 KnowledgeSoft, 331
 KnowledgeUniverse, 331
 Kochersberger, K., 182–183
 Korris, J., 196–198, 200–203

L

- Langley Air Force Base, 180
 LavaMind, 144
 LeapFrog, 153
 Learn how to learn, 137
 Learning content management systems
 (LCMS), 285, 289, 290, 294, 331, 332
 Learning management systems (LMS), 14, 30,
 39, 55, 85, 107, 110, 289, 290, 294–297,
 301, 320, 331, 332
 Learning objectives versus satisfaction of
 students, 256
 Learning objects, 285, 317, 319–321,
 323–326
 LearningWare, 40, 301
Legsim, 108–110
Life's Little Instruction Book (Brown),
 269, 277
 Linden Lab, 333
 Linear content, 33, 64, 252, 283; as
 simulation element, 81, 82; contrast to
 other content types, 26, 60, 62, 123,
 176, 178, 180, 275, 312; creating, 223;
 definition of, 61, 76; examples of, 62, 63,
 65, 77, 156–157, 252, 273, 287, 293,
 324; researching, 77, 215; role of in an
 educational simulation, xl, 70, 78, 79, 89,
 120, 152, 160, 173, 221, 254, 255, 270;
 with game elements 5, 37, 85, 86
 Linear systems, 82
 Linear vs. dynamic skills, 157
Living Sea, The, 145
*Logic of Failure—Recognizing and Avoiding
 Error in Complex Situations, The*
 (Dörner), 100
Lotus 1–2–3, 18
 LucasArts Entertainment (*see also*
 LucasLearning), 144
 LucasLearning (*see also* Boston, J.), xxix,
 145, 334

M

- M.U.L.E. (Multiple-Use Labor Element), 329
 Macromedia (*see also* *Director, Flash,
 Shockwave*), 168, 211, 293, 295, 298,
 299, 317, 318, 325, 332
 Magazines as input to simulation design,
 224, 225
 Management by Experience, 27, 302
 Management sims/god games, 141

- Manuals: training 287, 289, 290; to support educational simulations, 230, 231, 242, 255
- Manufacturing Skill Standards Council (MSSC), 50–51
- Marketing mini-games, xl, 63, 162–170, 209
- Marxism, 273
- Massively multi-player online role-playing games (MMORPGs), 142, 331
- Massy, W. (*see also Virtual University*), 187, 191
- Matrix, The*, 129
- Mattel Electronics, 328
- Maxis, 329
- McKinsey ‘Seven-S’ Model, 97
- Medieval Total War*, 144
- Melton, W., 129–130, 195–196
- Messenger, 238, 294, 299, 331
- Michigan State University, 70, 104, 151
- Micromotives and Macrobehavior* (Schelling), 31
- Microsoft (*see also* DirectX, Excel, Messenger, PowerPoint, Xbox), 162, 176, 178, 183, 201, 213, 293–300, 317, 318, 331–333; Games, 85, 138, 140, 142, 144, 145, 147, 152, 153
- Microwave ovens as an example of technology, xxxiii
- Microworlds, 51–53, 210, 219, 230
- Midway, 328, 330
- MindLever, 332
- Mindscape, 145
- Minifie, J.R., 251
- MIT (Massachusetts Institute of Technology), 150, 197, 312, 327, 332; Games to Teach, 159, 271; MIT Press 25, 161, 240
- Mixed scales as a game element, 86
- Mixing genres, 210
- MMORPGs (Massively multi-player online role-playing games), 142, 331
- Mock congress, 65
- Modeling and Simulation: Linking Entertainment and Defense*, 196
- Mods, 135, 155, 156–159, 275
- Monopoly, 25
- Montessori, 149
- Moore, G., xxxvi
- Moot courts, 65
- Mortal Kombat*, 330
- Motivatism, 82
- Moulder, S., 85, 213
- Movies as linear content, 76
- MUDs (Multi-User Dungeons), 328
- Multi-player, 64, 68, 135, 142, 147, 149, 159, 252, 329, 331; asynchronous, 328; game-based 38, 39; interactive spreadsheets, 5, 67, 312; role plays, 95, 96, 103, 106–111
- Multiple choice, advantages of, 14
- Multi-User Dungeons (MUDs), 328
- Muscle memory (*see also* cyclical content)
- Myst*, 78, 330
- N**
- Namco, 328
- National Academy of Science, 196
- National Science Foundation, 327
- Natural break points in simulations, 14
- NCO (Non-commissioned officer) training, 68
- Needs analysis/assessment, 213–214, 221, 283, 289–291
- NETg, 332
- Neverwinter Nights*, 159
- New employee training, 13, 207, 302
- New Yorker, The*, 165
- Newport Medical Instruments, 46–48
- Next gen sims, xl, 69, 152, 171–177, 209, 221, 233, 285; and computer games, 159–161; presenting new type of content, 70, 77, 275–277
- NGRAIN, 66, 67
- Nichols, C., 127–129
- Nicklaus, J., 256
- NIIT, 333
- 1902 glider, 19, 180, 182
- 1903 Wright Flyer, 179, 182
- 1911 model B, 179, 182
- Nintendo Entertainment System (NES), 329
- Nintendo, 328, 332
- Ninth House, 331
- Noone, B., 36
- Noone, V., 36
- “Not getting” simulations, 104, 109, 117, 239, 258
- NOVA, 183
- NovaLogic, Inc., 140
- Nutting, 327
- Nvidia, 332
- NYU Online, 332
- O**
- O’Conner, C., 241
- OGRE (Object-Oriented Graphics Rendering Engine), 156
- Old Dominion University, 180
- Outputs, graphs, 23, 24, 247
- P**
- Pac-Man*, 328
- Pajitnov, A., 329
- Paradigm Learning, 315
- Paramount, 196
- PASCAL, 318
- Peck, R., 52
- Pedagogical elements as support systems beyond the simulation, 90
- Pedagogical elements in real life, 89
- Pedagogical elements; as one type of element, xxvi, xxxix, xl, 142, 152, 160, 192, 271; definition of, 88–89; examples of, 65, 89–90, 93, 94–95, 96, 103, 225–227; usage of, 90, 109, 230, 242, 246
- Peer3, 332
- Penn State’s School of Information Sciences and Technology, 158
- PeopleSoft, 295, 298, 299, 333
- PeopleSoft, 333
- Pepsi*, 169
- Periscope3, 54, 302
- Personal Action Plans, 287, 289, 290, 294
- Pharaoh*, 145
- Phillips, H., 37, 176
- Physicus*, 146

Pilot survivability in air-to-air combat: WW-II and Korea, 83
 Piloting a simulation, 239–240
 Placeware, 333
 Plateau, 332
 PLATO, 327, 329
 PlayStation (1 and 2), 135, 330, 331
 Polsani, P., 326
 Pong, 327
 Porter, M., 97
Postmortems from Game Developers: Insights from the Developers of Unreal Tournament, Black and White, Age of Empires, and Other Top-Selling Games (Grossman), 161
Power Politics III, 145
Power Politics, 145
 PowerPoint, 16, 39, 40, 48, 111, 292, 317, 318
 PowerSim, 27, 302
 Power-up pills universal truth, 92
 Prensky, M. (*see also* Games2Train), 40
Profitania, 144
 Programming languages, 155, 317–318
 PS2, 333
 Purdue Pharma, 91, 233, 309
 Pursel, B., 158

Q

Quality Media Resources, 100–102
 Quality, 175
 Queijo, T., 182
 Quest3D, 156
 QuickTime, 211, 298
 QuizGame Master, 41, 303

R

Races and chases universal truth, 92
 Radcliff, B. (*see also* CompeteNet), 310–311
 Ralston, J., 181–183
 Raytheon Professional Services (RPS), 49–50
 Real Learning, 13, 302
 Reality vs. simulations, 84
 Realtech VR, 156
 Real-time strategy (RTS) games 32, 64, 68, 138–139, 141, 143, 202, 330; *Age of Kings*, 145; *Age of Empires*, 144, 145, 161, 178; *Command and Conquer*, 68, 138; *Rise of Nations*, 86, 138, 145; *StarCraft*, 138; *WarCraft*, 68, 135, 138
 Research questions; cyclical content, 75, 76, 215, 273; linear content, 77, 215; systems content (*see also* Variables, primary), 72–73, 214
 Resources needed to create educational simulations, 210
 Results, simulation (*see also* Training results), 100, 109–110, 114–115, 182, 364–369
 Results, training, 264–269, 283–284
 Reusable learning objects (RLOs), 317–326
 Revolutions (*see also* MIT), 159, 271
Rise and Fall of the Roman Empire, The (Gibbon), 269, 277
Rise of Nations, The, 86, 138, 145
 Riverdeep, 332

Rocks-paper-scissors universal truth, 92
 Rocky road of technology, xxxiii–xxxix, 209
 Roggenkamp, D., 52–53
 ROI, 99
 Role-playing games (RPGs), 135, 141–142; massively multiplayer online, 142, 331; *Revolution* 159, 271
 Role-playing variables to impact customization; 229
 Role-plays, 96–117, 166; as inputs, 100–102; multi-day, 97–100; sales, 96; online multiplayer, 108–117; through virtual classrooms, 106–107
Roller Coaster Tycoon, 68, 86, 141, 144, 331
 Rorschach, 123
 Rosell, R., 100–102
 Ross, D., 256
 RPGs (Role-playing games), 135, 141–142; massively multiplayer online, 142, 331; *Revolution* 159, 271
 RTS (Real-time strategy) games 32, 64, 68, 138–139, 141, 143, 202, 330; *Age of Kings*, 145; *Age of Empires*, 144, 145, 161, 178; *Command and Conquer*, 68, 138; *Rise of Nations*, 86, 138, 145; *StarCraft*, 138; *WarCraft*, 68, 135, 138
Rules of Play: Game Design Fundamentals (Salen and Zimmerman), 161
Rules, xxvii, 34, 163, 164, 236, 267, 318; and processes, xxxviii, 29, 37, 52, 77, 85, 88, 96, 104, 109–110, 121, 157, 336; experience built on rules, xxx, xxxi, 70, 136, 217, 340
 Russell, S., 327

S

Saba, 331, 332
 SABRE reservation system, 97
 Sakey, M., 33, 34, 38, 308,
 Sales process, 100, 173, 177, 240
 Sales training, 282, 302; branching stories, 4, 8, 12, 13, 208, 260, 306, 309–311; game elements for 87; interactive spreadsheets, 27, 313; live, 69, 97–100; virtual classroom, 106–107; virtual experience space, 110–117, 208; virtual product, 6, 42, 48, 213
 Salience at the intersection of game and pedagogy, 95
 Sandbox mode, 187
 SARS, 52, 53
 Sawyer, B., 88, 170, 187–194, 228, 229
Scenariation, 16
 Schank, R., 15
 Schnell, D., 43–44
School Tycoon, 145
 Schuller, C., 144, 153
 SCORM (Shareable Content Object Reference Model), 153, 295, 298, 299
 Search tools, 285, 289, 290, 297
 Second Life, 333
 SEGA, 329, 333
 Self-improvement, 273–276
 Senge, P., 312

- Serious Play: How the World's Best Companies Simulate to Innovate* (Schrage), 31
- Shockwave, 163, 325
- Sid Meier's Alpha Centauri*, 145
- Sid Meier's Civilization III*, 144, 150
- Sid Meier's Civilization*, 141, 145
- Sid Meier's Gettysburg*, 144
- Sierra, 144, 145
- SimCity* (see also Wright, W.), 145, 146, 186, 276, 329, 330, 337, 341)
- SimEarth* (see also Wright, W.), 186, 187, 338
- SimHealth*, 330
- Sims, The* (see also Wright, W.), xxxii, 64, 68, 94, 146, 152, 153, 252, 276, 342
- Simtrex/Knowlagent, 13, 302
- Simulation case studies: Air Force pilots, 127–130; *First Flight—The Wright Experience Flight Simulator*, 178–185; *Full Spectrum Command*, 202–203; *Full Spectrum Warrior*, 198–201; Global Kids, 166–168; *Legsim*, 108–110; Newport Medical Instruments, 46–48; *Strategic Account Management*, 97–100; Ulysses Learning 259–263; *Virtual Leader* (see also *Simulations and the Future of Learning* (Aldrich)), 264–269, *Virtual University*, 186–194
- Simulation elements; as one type of element, 80, 89, 90, 91, 95, 160, 229, 260; definition of, 81–82; examples of, 82–83, 92–93, 118, 131–132, 187, 189–191, 315; usage of, 83–84, 85, 88, 228, 257–258
- Simulation fidelity, 26, 66, 68, 78, 104–105, 113, 128, 131, 227, 301; and ability to predict, xxxi, 65, 337; forsaking, 5, 49, 65, 84, 85, 128–129, 196, 248–251
- Simulations and the Future of Learning (Aldrich), xxv, xxvi, 240
- Simulations as inputs, 100–102
- SimuLearn* (see also *Virtual Leader*), xviii, 64, 252, 302, 333; deployment examples from 244, 246, 247, 264–265, 267, 284; design examples from, 75, 224–227, 231–232, 234
- Simulis, 54, 302
- SkillSoft* (see also *SmartForce*), 333
- Skunk works, 62, 77, 157, 288, 289, 290, 296
- Slates, 217–220, 230, 232, 237–253, 260–261
- SmartForce*, 329, 331, 332, 333
- Snow Crash* (Stephenson), 330
- Socratic, 123
- Solitaire, 5, 33, 35, 63, 64, 135, 252
- Sony (see also *Playstation*), 162, 330, 331
- Sources of training initiatives, 207–210, 281–282
- Soviet Union, 197
- Space Invaders*, 328
- Spector, W. xxix–xxx, 334–342
- Spectrum Interactive, 97, 99
- Splinter Cell*, 93
- SQL, 109, 295, 298, 299
- Squeak, 272
- Squire, K., 149–150, 159
- Stahl, J. (see also *Purdue Pharma*), 309
- Stand-alone versus instructor-supported, 60–63
- Stanford University, 164, 187
- Star Wars—Knights of the Old Republic*, 141
- Star Wars: The Gungan Frontier*, 145
- StarCraft*, 138;
- Start easy, get harder universal truth, 93
- STELLA software, 71–72
- Stephenson, N., 330
- Stories at the intersection of game and pedagogy, 94
- Strategic Account Management*, 97–100
- Strategy First, 144, 145
- Street Fighter II*, 329
- Strike Fighters: Project 1*, 181
- Stronghold: Crusader*, 145
- Students: actions in a simulation (see also *Interfaces*), 4, 5, 8, 26, 33, 35, 63, 66–67, 96, 103, 108–117, 127, 173, 218–220, 227, 230–232, 241–253; actions after a simulation, 109–110, 114–115, 183; and linear versus dynamic content, 61–62; as inputs to the simulation creation process, 27, 80, 84, 89, 189, 256–258; changes in, over the years, xxix, 166–167; creating simulations, 166–168, 271; emotions while engaging simulations, 9, 14, 29, 37, 89, 94, 102, 114–115, 177, 183, 241–253, 256–257, 261–262; critical skills for, 209–210, 271–277; high potential, 5, 27, 208; swarming on interests, 150; unmotivated, 12, 27, 150, 185, 207; with teachers 29, 31, 131, 186, 192–194, 227
- Substance, Structure, Style and the Principles of Screenwriting* (McKee), 95
- SumTotal Systems, 333
- Super Mario Brothers*, 329
- Superdudes.net, 162–163
- Synchronous Trainer's Survival Guide, The* (Hofmann), 106
- Systems Content (see also *Variables*, primary), 31, 74, 135, 136; as game element, 154, 160; as simulation element, 26, 29, 43, 81, 82, 103, 123; creating, 27, 31, 72, 84, 157, 208, 218, 242, 254–258, 273; definition of, 70–72; examples of 19–21, 77, 131, 156, 157, 276–277; researching 72–73, 214; role of in an educational simulation, xl, 70, 78, 79, 86, 89, 120, 152, 173, 215, 221, 270; supported by linear content, 89; thinking, 17, 18;

T

- Taito, 328
- Tamagotchi, 331
- Tata Interactive (see also *Goel, R.*), 24, 25, 27–28, 85, 217–218, 302
- Teamscape, 333
- Technology adoption curve, xxxvi
- Technology Profiles, end-user, 211
- Tell Me a Story: Narrative and Intelligence* (Shank), 15
- Tetris*, 147, 329
- Texas State University—San Marcos, 251
- Thalheimer, W., 84, 245, 248

There.com, 333
 Thiagarajan, S., 85, 88, 95, 119–124, 150
 Thiagi (*see* Thiagarajan, S.)
 Thiault, P.H., 236, 238, 239, 240
 Third Wire Productions, 181
 Thomson, 332
 Toolkits, 35, 155, 210, 317–326
 Tools For Education, Inc., 44
 Torque Game Engine, 156
 Touchdown Entertainment, Inc., 156
 TRADOC, 129–130, 195–196
 Tragedy of the commons universal truth, 120
Training & Development magazine, xxv
 Training Media Review, xxv, 102, 333
 Training processes, 222–251, 282–283
 Training results, 264–269, 283–284
 3D graphics cards, 78, 176, 211, 332
 3D objects, 156, 319
 3D rendered graphics, 211
 3D tools, 156
 3D virtual environments, 160, 173–174, 221, 274, 330
 3DO Company, The, 144
 Trigger learning in the real world, designing simulations to, 84, 90
 Triggers, simulation, 24–25, 76, 111, 222–223, 238, 323–324; two dimension, 312
Trivial Pursuit, 35
Tropico, 144
 Trubshaw, R., 328
 TrueVision3D, 156
 TSK 2, 163
 Turn-based progression, 5, 28, 67, 102

U

U.S. Army Tank Corps, 328
 U.S. Navy, 327
 UARCs (University Affiliated Research Centers), 197
 Ultima Online, 331
 Ulysses Learning, 13, 259–263, 302
 Universal truths (*read also* *Plato's Republic*), 91–94, 95, 120–122, 135, 255
 University Affiliated Research Centers (UARCs), 197
 University of Illinois, 327
 University of Phoenix, 24, 27, 85, 328
 University of Southern California, 197
 University of Virginia's Darden School, 304
 University of Washington (*see also* Wilkerson, J. and *Legsim*), 108
 University of Wisconsin-Madison, 149
 Unreal Engine 3 and Unreal Engine 2, 156

V

V3X, 156
 Valve Source engine, 156
 Valve, 156
 Variables, primary (for systems content), 70, 187–189, 214, 222, 226, 231, 238, 240, 276, 324, 324
Vet Emergency, 144

Viacom, 196
 Video as a medium, 8, 12, 14, 15, 24–25, 98, 101–102, 111, 153, 217, 223, 226, 235, 237, 254, 319, 322, 323, 325; user profile to consider video, 211; not using video, 151
 Video games (*used interchangeably with* computer games)
 Video games, off-the-shelf, for classroom use: deployment of, 241–253; selection of topic of, 143–146;
 Viewpoints Research Institute, 272
 Virtools, 156
 Virtual classrooms, 106–108, 232, 242, 285, 289, 290, 291, 292, 293, 294, 295, 297–299, 330
 Virtual experience space, 106, 110–117, 208, 210
 Virtual labs: and other genres, xxxix, xl, 4, 49, 59, 63, 64, 83; building 55–56, 210, 213–214, 219, 230, 242, 244, 252, 301–302; 316; 321, 325; choosing 54, 208, 210; defining, 5–6, 42–46, 55, 65; examples of 43–48, 73
 Virtual Leader, xxv, 145, 258, 333; as an example of cyclical content, 75; business impact of, 264, 266–269; deploying, 68, 251, 258, 265–266; designing, 236, 238;
Virtual Learning: A Revolutionary Approach to Building a Highly Skilled Workforce (Schank), 15
 Virtual products: and other genres, xxxix, xl, 4, 59, 63–65, 73, 82, 252, 285, 316; building 55–56, 210, 219, 230, 321, 325–326; choosing, 49, 54, 208; defining, 5, 42–46, 67; examples, 43–48, 51–53
 Virtual reality, 84, 211
Virtual University, xxxv, 145, 186–194
VisiCalc, 18
 Visual Basic, 28, 317, 318
 Visual Purple, 13, 64, 252, 302
 VITAL 9 visual system, 128
 Viva Media, 145
 VSTEP Virtual Training, 238–239, 302

W

Wantagh, Inc., 49
 War games: military, 66; computer games, 143
WarCraft, 68, 135, 138
 Warner Communications, 327
 Warner Development, 13, 302
 WBT Systems, 331
 Web as our default genre, 320, 321
 West Point, 200
 Western Carolina University (*see also* Kirk, J.), 36
 Westwood, 330
 Whack-a-mole universal truth, 92
 Wharton, 328
What Video Games Have to Teach Us About Learning and Literacy (Gee), 161
 Whatley, D., 150–151, 254
Wheel of Fortune, 5, 32, 33, 34, 63, 64, 252
Who Wants to Be a Millionaire, 34

Wilkerson, J., 108–110
 WILL Interactive, 11, 13, 64, 234, 252,
 302, 307
 Williams, 328
Wired Magazine, 166
Wolfenstein 3D, 330
 Word jumble, 34, 36, 94
 Workflow modeling; 65, 65, 252
 Workflow of the User Experience, 235
 Workshops by Thiagi, 85
 World Bank, 175
World of WarCraft, 135
 Wright Experience, The (*see also*), 183
 Wright, S., 79
 Wright, W. (*see also Sims, The, SimCity, SimEarth*), xxix–xxxii, 152, 161, 276,
 334–342
Wuthering Heights (Bronte), 178

X

Xbox, 37, 135, 176, 236, 332, 333; as an
 educational simulation platform, 153,
 198, 201, 202
 Xerox, 99, 175
 XML (eXtensible Markup Language), 238,
 293, 295, 298, 299, 319

Y

You Don't Know Jack (*see also* Gottlieb, H.),
 36, 229

Z

Zapitalism, 144
 Zero-sum universal truth, 120
Zoo Tycoon, 142, 144, 145
Zork, 328