
Index

- Ackerman, M., 231–232
- Actions, internalizing, 180
- Active Badge, system, 133
- Activities: Revue Electronique*, 280
- Activity, Consciousness and Personality* (Leontiev), 3
- Activity-based computing (ABC), 6, 104, 279
- Activity-centered design, 95–96
- Activity checklist, 96, 98, 269
design version, 274
evaluation version, 272
sample questions, 276
- Activity concept
agency, 32
asymmetry, 33
automatization, 63
basic notion, 31
development, 32
needs and motives, 59–61
origins, 55
psyche evolution, 51
subjective and objective, 31, 60
- Activity exchange, 111
- Activity-oriented design method (AODM), 101
- Activity spaces, 102, 104
- Activity theory
advanced issues, 135
agency, 239, 248
analytical tools, 96, 188
applications and systems, 104–108
asymmetry, 10
collective subject, 187
common sense, 262
communication, 185–188
community, 99, 267
competition, 185n
conceptual gap, 141–143
consciousness, 8
continuity and discontinuity, 173–178
cultural-historical psychology, 35, 39
design and evaluation, 96, 117
development, 11, 40, 71, 108, 254
diversity of tools, 102
doable problems, 155n
Engeström’s activity system model, 98–102, 142
environments vs. tools, 255–256
ethnomethodology, 86, 97
external behavior, 69
future prospects, 253
general methodology, 40
goals and engagement, 258
hierarchical structure, activities, actions and operations, 62, 64, 67
hierarchies vs. triangles, 141–143
historical overview, 73–77
individual and collective, 46, 188, 260
information technology, 3, 114
insights and principles, 65–72
intentionality, 10
interaction design, 11, 27, 73, 253
internal-external, 41–48

- Activity theory (cont.)
 international interest, 3
 linguistic gap, 138–141
 main ideas, 65
 means and ends, 98
 mediation, 41–46, 70–71, 230, 255
 mental processes, 69
 microlevel methods, 257
 microstructural analysis, 184
 motive vs. object, 143, 153
 multiple activities, 256
 needs and motives, 59–61, 165
 object concept, 31–32, 55, 61, 66, 137–150, 153, 156
 object-orientedness, 66–67, 137
 online resources, 279–282
 organizational forms, 175
 origins, 35
 polymotivated activities, 144
 principles, 9, 11, 66–72
 procedural representation, 257
 revising framework, 143–150
 Russian psychology, 35, 73, 138, 178
 self-reflexive, 13
 social nature of the human mind, 37, 65–66
 software design, 23
 subject concept, 31–32
 technology design, 264
 transparency concept, 79
 true motive, 144
 understanding collaboration, 85–95
 unity of consciousness and activity, 8, 36–37, 65–66
 variety of frameworks, 178–185
 workplace studies, 83–85
- Activity Theory Usability Lab, 279
- Actor-network theory
 agency, 237, 251
 distributed cognition, 201
 generalized symmetry, 201, 237n
 interaction design, 195, 199
- Affordance
 activity theory, 80
 operational, 81
- Agency, 243–248
 activity theory, 239, 248
 actor-network theory, 237, 251
 artifacts, 248
 asymmetry, 238
 biological needs, 242–243
 conditional, 248
 cultural needs, 242–243
 defining, 241
 delegated, 248
 human-machine, 243
 material and human, 239
 need-based, 247
 typology, 241, 243
- Andreeva, G., 187
- Animals, psychological functions, 54
- Anthropology, interaction design, 17
- Apple Data Detectors, system, 98
- Arievitch, I., 207
- Artifacts, 248–251
 actor-network theory, 249
 agency, 248
 creativity, 217
 cultural needs, 248
 mediating, 174
 programmable, 250
 Wartofsky's typology, 217
- Arvonen, T., 86, 100
- Asymmetry, 238–241
 actor-network theory, 238
 agency, 239
 human practice, 239
- Baerentsen, K., 81
- Bakhtin, M., 190
- Bannon, L., 74, 253
- Bardram, J., 88, 103
- Basov, M., 174–178
- Bateson, G., 71
- Bazerman, C., 220
- Beaudouin-Lafon, M., 83
- Béguin, P., 111, 220, 226–227
- Bellamy, R., 198
- Bellotti, V., 255
- Bernstein, N., 183
- Bødker, S., 71, 74, 76, 78

- BodyWise, fitness system, activity theory, 106
 Bolshevik Revolution, 36
 Bowers, J., 15
 Brint, S., 18
 Brown, J. S., 261
 Brown, S., 207
 Buddha, 9
 BUILD-IT system, 107
 Burke, K., 190
 Button, G., 21–22
- Card, S., 120
 Carmien, S., 264–267
 Carroll, J., 74, 267
 Cell phones, waste management, 13
 Center for Activity Theory and Developmental Work Research, 280
 Cerrato Pargman, T., 111
 Change laboratory, 109
 Children, learning behavior, 8
 Citizen panels, technology, 233
 Clark, A., 225
 Clot, Y., 220, 226–227
 Clusters of artifacts, 85
 Co-construction
 creativity, 224
 postcognitivist theory, 220
 Cognitive science
 activity checklist, 98
 activity theory, 8, 183
 interaction design, 15
 Cognitivist paradigm, 15–22
 Cole, M., 90–91
 Collaborative writing, 111
 Collective activity, 187, 260
 Collins, P., 100
 Communication, activity theory, 185–188
 Community, activity theory, 99, 267
 Competencies, functional organs, 64
 Computer gaming, fantasy play, 216
 Computer Support for Collaborative Learning (CSCL)
 activity theory, 89–96
 domain-centered, 94
 Fifth Dimension project, 90
 learner-centered, 94
 Computer-Supported Cooperative Work (CSCW)
 activity theory, 4, 75, 85
 distributed cognition, 195
 ethnomethodology, 86
 information systems, 113
 Consciousness
 activity theory, 8
 conscious and automatic processes, 68
 unity of consciousness and activity, 36
 Constructivism, Piaget's psychology, 38
 Constructivist learning environments, 102
Context and Consciousness: Activity Theory and Human–Computer Interaction (Nardi), 4
 Contextualization, downward and upward, 92
 Continuity and discontinuity, 173–178
 Conversation analysis, ethnomethodology, 18
 Cooper, G., 15
 Cooperation
 creativity, 222
 postcognitivist theory, 220
 Coordination
 creativity, 221
 distributed cognition, 221
 postcognitivist theory, 220
 Coordinator, system, 163
 Creativity
 activity vs. system, 226
 artifacts, 217
 co-construction, 224
 cooperation, 222
 coordination, 221
 defining, 214
 distributed cognition, 225
 interaction design, 208, 210
 phenomenology, 215

- Cultural-historical activity theory (CHAT), 36, 50
- Culture change, interaction design, 209
- Curation
 bidirectional, 166
 bottom-up criteria, 162
 clinical considerations, 162
 drug delivery, 162
 humanitarian view, 167
 intellectual property, 161
 market direction, 161
 profit motive, 161
 scientific interest, 159, 162, 166
 top-down criteria, 161
- Cyborg, 250
- Danish Board of Technology, 233
- Davydov, V., 181–182
- Deautomization, 63
- DeCortis, F., 230
- Dedicated project spaces, 120
- Designing Interaction: Psychology at the Human–Computer Interface* (Carroll), 74
- Direct manipulation, human–computer interface, 82
- Disneyland, 215n
- Distributed cognition
 coordination, 221
 creativity, 225
 culture role, 204n
 interaction design, 195, 202
 media definition, 202
 tool mediation, 203
- Division of labor, evolution of mind, 56–59
- Domain-centered design, 93–94
- Domain objects vs. interaction instruments, 83
- Double stimulation, psychological function, 44
- Dourish, P., 19, 21–22, 200
- Draper, S., 112
- Ducheneaut, N., 255
- Ecological psychology, 180
- Education
 information technology, 12
 interaction design, 27
 psychology, 181
 remediation, 92
- Emirbayer, M., 227
- Emotion, activity theory, 261
- Engeström, Y., 3, 30, 73, 91–92, 99, 108, 141, 143, 154, 158, 191, 219, 255, 260
- Environment
 activity checklist, 98
 activity theory, 175
 psyche evolution, 53
- Enyedy, N., 93
- Ergonomics, instrumental genesis, 110
- Essential generalizations, 181
- Ethnomethodology, interaction design, 16–22
- Fantasy play, computer gaming, 216
- Faust* (Goethe), 35
- Fichtner, B., 220
- Fifth Dimension project, 90, 282
- Fjeld, M., 107
- Folcher, V., 111
- Formative experiment, 41
- Foundations of General Psychology* (Rubinshtein), 178
- Fujimura, J., 155
- Functional organs, activity theory, 64, 249
- Galperin, P., 179–181
- Galperin’s theory, stage-by-stage formation of psychological functions, 179
- Games, interaction design, 27
- Garfinkel, H., 17, 20–21
- Gay, G., 228–230
- Geertz, C., 19
- Geisler, C., 230–231
- General Foundations of Pedology* (Basov), 174

- Genre tracing, activity theory, 112
- Gestalt psychology, 37
- Gherardi, S., 198
- Gibson, J. J., 80, 180
- Gifford, B., 93
- Glaser, D., 238–240
- GOMS models, 7
- Goodwin, C., 20
- Grudin, J., 267
- Halloran, J., 18, 102
- Halverson, C., 231–232
- Hamlet*, 154
- Hedestig, U., 92, 228
- Heidegger, M., 201
- Hembrooke, H., 228–230
- Henderson, A., 120
- Higher psychological functions,
mediation and internalization, 41–48
- Hollan, J., 202, 205
- Housekeeping* (Robinson), 247
- Human–computer interaction (HCI).
See also Interaction design
activity theory, 4, 15, 34, 74, 85, 114
affordance concept, 80
applications and systems, 104
cognitivist paradigm, 15–22
direct manipulation, 82
distributed cognition, 195
early research, 5
East–West conferences, 75
extending scope, 77–79
first-wave HCI, 15, 33, 74
reframing, 77–83
rethinking concepts, 79–83
second-wave HCI, 15, 74
technology role, 78
transparency, 79
user system, 35
- Human mind
activity theory, 51
cultural impact, 39, 56
development, 51, 56
division of labor, 57
internalization–externalization, 68
social nature, 37, 46
tools and language, 56
- Hutchins, E., 202, 204–205, 220–221, 223–224, 226
- Hybrid theoretical frameworks,
interaction design, 110–113
- Hyysalo, S., 155, 258
- Ilyenkov, E., 227
- Individual activities, 260
- Industrial design, activity theory, 106
- Informatics, 5, 113
- Information systems
activity theory, 114
interaction design, 113
objects and spaces, 84, 121
research, 113–115
- Information technology
activity theory, 3
applications as environments, 117
design and implementation, 106–108
education, 12
Finnish hospital, 108
long-term impact, 12
organizational prototyping, 103
- Innovations, activity systems, 109
- Instrumental act, mediation, 42
- Instrumental genesis, activity theory, 110
- Instrumental interaction, 83
- Intellectual property, curation process, 161
- Intentionality
activity theory, 10
actor-network theory, 199
- Interaction design. *See also* Human–computer interaction
activity theory, 73, 253
analytical tools, 96–103
antitheory problems, 18
applications and systems, 104–108
challenges, 24–28
characterizing people, 199–208

- Interaction design (cont.)
 cognitive theory, 15, 24
 collaboration, understanding, 85–95
 community resource, 267
 defining, 4
 ethnomethodology, 15, 24
 evaluation, 96–103
 expanding scope, 25
 guidelines, 176
 historical overview, 73–77
 holistic view, 253
 hybrid frameworks, 110–113
 implications, 33
 information systems, 113–115
 need for theory, 22–24
 postcognitivist theory, 195
 procedural representations, 257
 recent trends, 25
 theory, 193
 workplace studies, 83, 108
- Interaction Design Center (Ireland), 281
- Interaction histories, human–computer interaction, 123
- Internalization, Russian psychology, 43
- International Society for Cultural and Activity Research (ISCAR), 281
- Interpsychological functions, 47, 70
- Intrapsychological functions, 47, 70
- Invisible Computer, The: Why Good Products Can Fail* (Norman), 104
- James, W., 71
- Jonassen, D., 102
- Jones, M., 204
- Journal of Computer-Supported Cooperative Work*, 282
- Kaptelinin, V., 92, 98, 218, 228
- Kimura, system, 133
- Kirsh, D., 18, 198
- Köhler, W., 53
- Koschmann, T., 89
- Kuutti, K., 86, 100, 114
- Laboratory of Comparative Human Cognition (LCHC), 282
- Lave, J., 210
- Learning. *See also* Education
 activity checklist, 98
 activity theory, 8
 computer-mediated, 93
- Learning-centered design, 93–94
- Leontiev, A., 3, 29–31, 38–51, 58, 70, 137, 139–150, 155, 157, 163, 165, 173, 179, 183, 185–187, 189, 196, 206, 208, 212, 228, 247, 250, 255, 261–262
- Leontiev, D., 148
- Lifestreams, system, 122
- Linguistic gap, activity theory, 138–141
- Lomov, B., 185–187, 189
- Löwgren, J., 4–5
- Luria, A., 206
- Lynch, M., 17, 20–21
- Macaulay, C., 98
- Machine intelligence, 203n
- Magic Touch, system, 133
- MAPS-Lifeline, system, 264–266
- Marxist philosophy, Russian psychology, 37
- Massively multiplayer online games (MMOGs), 27, 216
- Mediation. *See also* Tool mediation
 activity theory, 70, 190
 higher psychological functions, 41–48
- Memory, task performance, 45
- Mental processes vs. external behavior, 69
- Metafunctional competencies, functional organs, 218
- Metropolis* (film), 250
- Middleton, D., 207
- Miettinen, R., 13, 23, 109, 155, 167, 200, 202, 218–219, 235
- Mische, A., 227
- Mind. *See* Human mind

- Mind, Culture, and Activity: An International Journal*, 282
- Mind–body dualism, 196
- Moscow School of Psychology, 179, 184
- Motives
 linkages, 169
 vs. objects, 157
 psychological theory, 155n
- Multiple activities, office work, 256
- Mwanza, D., 101
- Nanotechnology, 26
- Nardi, B., 23, 76, 88, 98
- Natural psychological functions,
 mediation and internalization, 41–48
- Neuroscience, 197
- Nicolini, D., 198
- Norman, D., 104, 112, 213
- Objects
 activity theory, 66
 constructing, 153, 156
 instantiating, 153
 vs. motives, 157
 orientedness, 66
 power and passion, 153
- Organizational prototyping, 103
- Orienting basis of activity, Galperin's theory, 179
- Paradox of technomethodology, 21
- Pedology, defining, 174n
- Personal information management (PIM), 120
- Petrovsky, A., 187
- Phenomenology
 creativity, 215
 intentionality, 200
 interaction design, 195
 tool mediation, 200
- Physics, Gestalt psychology, 38
- Piaget, J., 38
- Pickering, A., 237–240
- Plans and Situated Actions* (Suchman), 16
- Plath, S., 213
- Pogo, environment for children, 230
- Postcognitivist theories. *See also*
 Activity theory; Actor-network theory; Distributed cognition; Phenomenology
 individual and world, 205–208
 interaction design, 195
 sorting out, 198–208
- Presto, system, 122
- Primary artifacts, Wartofsky's typology, 217
- Problems of the Development of Mind* (Leontiev), 51, 139
- Project contexts, automatic switching, 132
- Prototyping, information technology, 103
- Psyche evolution
 activity concept, 51, 55
 animals, 54
 biological view, 52–55
- Psychological functions, development stages, 54
- Psychological tools, 42
- Psychology
 defining tools, 42n
 Marxism, 281
- Rabardel, P., 110
- Radzikhovskiy, L., 188–191
- Rae, J., 237
- Raeithel, A., 199, 221
- Redmiles, D., 100
- Reflexivity
 consciousness, 228
 distributed cognition, 231
 interaction design, 208, 228
- Resistance, interaction design, 208, 232
- Responsiveness, evolution of mind, 53. *See also* Sensitivity, evolution of mind

- Rizzo, A., 230
 RoamWare, system, 133
 Robinson, M., 247
 Robotics, 26
 Rogers, Y., 102
 Rohrer-Murphy, L., 102
 ROOMS, system, 120–121
 Rorty, R., 24
 Rose, J., 204
 Roth, W.-M., 3
 Rubinshtein, S., 178–179
 Russian psychology
 activity theory, 35, 73, 138, 178
 developmental research, 40
 formative experiments, 39
 general methodology, 40
 individual boundaries, 50
 internal and external, 41–48
 molar analysis, 39
- Saari, E., 155
 Sachs, P., 86–87, 198
 Sacks, H., 17, 20, 22
 Sandberg, J., 206
 Saudelli, B., 230
 Scaife, M., 102
Scandinavian Journal of Information Systems, 77
 School children, 230
Science, 241
 Sclove, R., 233
 Scribner, S., 198
 Secondary artifacts, Wartofsky's typology, 217–218
 Semiotic activity, 190
 Sensitivity, evolution of mind, 53. *See also* Responsiveness, evolution of mind
 Shneiderman, B., 28, 82
 Short message service (SMS), 100
 Shukla, S., 100
 Simon, H., 7
 Situated action, ethnomethodology, 19
 Social change, tertiary artifacts, 219
 Social distribution, human mind, 46
 Society, technology, 261
 Sociobiology, 197
 Sociology, ethnomethodology, 17
 Software design, activity theory, 23
 Spinuzzi, C., 112, 222, 225
 Stetsenko, A., 207, 260
 Stolterman, E., 4–5
 Subjective experiences, activity theory, 178
 Suchman, L., 16–17, 20, 87
 Suprasituational activities, learning environments, 92
 Sutter, B., 157
 Swiss Federal Institute of Technology (Zurich), 107
 Symmetrical vocabularies, 235n
 Systemic Structural Theory of Activity (SSTA), 280
- Task(s), human–computer interaction, 34
 Task-related competencies, functional organs, 64
 Technical tools, 42
 Technology. *See also* Information technology
 interaction design, 196
 resistance, 232
 society, 261
 Tertiary artifacts, Wartofsky's typology, 219
 Terveen, L., 23
Thought and Language (Vygotsky), 200
 Tool mediation
 activity checklist, 270
 activity theory, 196, 200, 255
 functional organs, 64
 Tool-related competencies, functional organs, 64
 Tools and concepts, evolution of mind, 57
 Transparency, activity theory, 79
 Trettvik, J., 81
 Trouble ticketing system (TTS), 87
 Truex, D., 204

- Turner, P., 100
 Turner, S., 100
- User actions, higher-level, 119–123
 User-centered design, 112
 User-Monitoring Environments for
 Activities (UMEA), system
 activity theory, 108, 117, 124
 automatic ranking, 132
 background resources, 132
 expected benefits, 131
 future prospects, 131
 interaction histories, 123–131
 motivation, 123
 project contexts, 123–131
 system overview, 126–129
 use scenario, 129
 window displays, 127
- Vitousek, P., 241
 Vygotsky, L., 3, 38, 173, 200
 Vygotsky's cultural-historical
 psychology, 30, 35, 50
- Warhol, A., 213n
 Wartofsky, M., 71, 206, 217
*Waste in the Wireless World: The
 Challenges of Cell Phones*
 (Fishbein), 13
 Weight Watchers Program, creativity,
 210
 Wertsch, J., 3, 65, 188, 190–191, 232
 Whittaker, S., 32
 Wielinga, R., 206
 Wikipedia, 282
 Windows, icons, menus and pointing
 (WIMP), 82
 Winner, L., 233
 Winograd, T., 5
 Wiredu, G., 114
 Wireless computers, social practices, 96
 Work
 activity theory, 88
 changing nature of, 26
 ethnomethodology, 87
 explicit vs. tacit, 86
- Workplace studies
 common problems, 84
 interaction design, 83
 physical-virtual environments, 85
- Zinchenko, V., 184, 209
 Zone of proximal development, 48,
 211

