

INDEX

- ABM. *See* Agent-based modeling (ABM)
- ACT, 52–53
 ACT CPS Game, 64–66
 CPS framework, 57–58
 holistic framework, 55–58
- Action phase
 leadership functions, 98, 99
 processes, 12, 244–245
- Action process(es), 33, 112, 128
 interpersonal and, 137
 phases, 41
- Acute stress, 159
- Adaptability, 162, 244, 248
 family, 174
 team, 8, 31
 over time, 43
- Adaptation, 32–33, 156, 313–314
 duration, 37–39
 and emergent states, 44–45
 frequency, 39–41
 and temporal considerations, 34–41
 adaptation duration, 37–39
 adaptation frequency, 39–41
 adaptation timing, 34–37
 timing, 34–37
 triggers, 31, 33
- Adaptive behavior, 219
- Adaptive performance
 outcomes, 36, 37, 39, 40–41
 success, 42–43
- Adjourning stage, team development model, 264
- Affect management, 12, 41, 110–111, 116
- Affective motives, 308, 310
- Affective trust, 127, 129, 143
- Affiliation, 237, 239, 241
- Agent-based modeling (ABM), 274, 282–283
- Alpha, 74
 bands, 86
 frequency oscillations, 82
 wave, 78
- American Psychological Association, 252
- Assessment
 of collaborative skills, 53
 designers, 55
 framework, 67
 tasks, 61
- Assessment and Teaching of 21st Century Skills (ATC21S), 51, 52–53
 approach, 62
 ATC21S CPS, 61–62
 framework, 56–57
- ATC21S. *See* Assessment and Teaching of 21st Century Skills (ATC21S)
- Behavior(s)
 collaboration, 61
 experimental analysis of, 171–174
 indicators, 56–57
- Big data, 275, 276
- Biopsychosocial “stress”, 158
- Bottom-up processes, 271, 273, 280

- Boundary enhancing and disruptive forces, 304, 305, 311, 313, 318, 319
- Boundary status and membership, component team, 296–297
- Boundary-enhancing forces, 308
- Broader linguistic profile, 237
- CBA. *See* Computer-based assessment (CBA)
- Change over time, 8, 96
 - leadership and team needs, 104 forming, 104–110
 - midpoint transitions, 118
 - norming, 111–114
 - performing, 114–118
 - storming, 110–111
 - See also* Team trust over time
- Chronic stress, 159, 161, 170
- CI. *See* Collaborative interactions (CI)
- Circadian misalignment, 160, 161
- “Circuit Runner” game, 65
- Circumplex model, 174, 175
- Coaching, 246
- Coding behavioral patterns, 62
- Cognitive
 - domain, 56–57
 - footprint, 232
 - motives, 309
 - process models, 55–56, 232
 - skills, 66–67
 - trust, 127, 129
- Cohesion, 113, 156, 162, 174, 232, 262
 - cohesive processes, 271
 - combining multilevel and temporal frameworks in context of, 269–271
 - conceptualizing, 262–263
 - different dimensions of cohesion at different points, 268–269
 - team development and, 264–266
- Collaboration, 54, 55–56, 67, 215, 247
 - behaviors, 61
 - effective, 64
 - integrative model of teamwork and, 245
 - processes over time, 55
 - productive, 59
 - strand, 58
 - team, 31
- Collaborative
 - data, 53
 - task, 54
 - Team Problem Model, 193
- Collaborative interactions (CI), 53, 66–67, 309
- Collaborative problem-solving (CPS), 52, 54, 191, 246–247
 - conceptual frameworks for CPS dynamics, 55–59, 60
 - data and log files, 53–55
 - data-mining approaches, 52–53
 - methodological advances for time-stamped CPS data, 59, 61–68
 - and MITM, 191–195
- Collective emotional intelligence, 13, 15–16
- Communication, 61, 167–169, 234, 246–247, 272
 - modalities, 299
 - networks, 299
- Component team(s), 291, 294–295, 299
 - goals, 290
 - interdependence, 319
 - numbers, 296–297
- Composite capability, 57–58
- Composition decisions, 17
- Compositional attributes, 295–296
 - influences of compositional attributes, 297
 - and temporality, 298

- Computer-based assessment (CBA), 61, 65
- Computer-supported collaborative learning (CSCL), 55, 57
- Conceptual frameworks for CPS dynamics, 55–59, 60
- Conceptualization of team trust, 128
- Conflict, 136–137
 - management, 110, 249, 266
 - resolution, 249
- Conscientious individuals, 6
- Construction clarification, 30
- Content analysis, 235, 276
 - examining verbal content, 237, 238
 - LIWC program, 236
- Context, 7, 250
 - multilevel and temporal frameworks in context of cohesion, 269–271
 - role of, 223–224
- Contributor roles, 11
- Coordinated behavior, 249
- Coordination, 112, 171, 239, 241–242, 246–247, 318
 - behavioral, 191
 - of cognitive and social skills, 56
 - components, 250
 - criticality of, 309
 - effective, 112
 - team, 9
 - verbal and non-verbal acts of social, 76
- Cortisol, 158
- Countermeasure development, 156, 161, 170
- CPS. *See* Collaborative problem-solving (CPS)
- Creativity, 9, 211, 221–222
- Crew Resource Management (CRM), 220, 234
- Cross-boundary MTSs, 296–297
- Cross-cutting capabilities domain, 57–58
- Cross-lagged effects, 146, 147
- CSCL. *See* Computer-supported collaborative learning (CSCL)
- Culture, 210
 - influence on team dynamics, 210
 - context role, 223–224
 - cultural diversity benefits to teams, 221–222
 - culture in team development, 212–221
 - exploring cultural values beyond Hofstede's dimensions, 224
 - future research, 222–223
 - multicultural teams, 210–211
 - team types, 212
 - within selection and training systems, 224–225
- Data, 53
 - cubes, 74, 75, 86
 - methodological advances for time-stamped CPS data, 59, 61–68
 - outcome data, 54–55
 - process data, 53–54
- Data-mining
 - approaches, 52–53
 - technique, 63, 64–65
- Decision support system, 18
- Deep-level composition, 5, 15–16
 - effects, 5
 - factors or group-living habits, 164
 - variables, 16
- Delta, 74, 76
- Demographic
 - characteristics, 210, 295
 - variables, 5, 163
- Developmental attributes, 295–296, 300
 - influences of, 301
 - and temporality, 301–302

- See also* Compositional attributes;
Linkage attributes
- “Dialogue trees”, 54, 66
- Differential item functioning (DIF),
62
- Differential test functioning (DTF),
62
- Differentiation, 138–140, 304–305,
308, 318
degree of, 305
key factors of multiteam system,
306
skill, 223
social-psychological consequences,
305, 308
social-psychological consequences
of, 305, 308–309
from stress research, 38
structural feature, 304
- Dimensionality problem, 74
- Dimensions of cohesion, 263, 264,
265, 268, 279
- Disruptions over time, MTS
adaptation to changes and,
313–315
- Disruptive forces, 303, 305, 311, 313,
319
- Distinction of adaptation, 32
- Divergence index interpretation, 58
- Diverse teams, 10, 216, 221
abundance of culturally, 212, 217
teamwork, 220
- Diversity, 13–14, 210
- “Dominant rhythm”, 294–295, 312,
313, 319, 320
- “Downward spiral”, 16
- DTF. *See* Differential test
functioning (DTF)
- Duration, adaptation, 37–39
- Dynamic(s)
capturing MTS dynamics over
time, 316
longitudinal studies, 316–317
qualitative and quantitative
approaches, 317
social network analysis, 317
composition, 8–12
conceptual frameworks for CPS,
55–59, 60
environments, 292
model, 265–266
- Dynamism, 303, 304, 305
key factors of multiteam system
dynamism, 307
social-psychological consequences
of, 305, 308–309
- Educational assessments, 52, 65
- Educational technologies, 67
- Educational testing service (ETS),
52–53
CPS framework, 55–56, 57
ETS CPS science simulation,
63–64
framework, 57, 58
- Electroencephalography (EEG),
73–74, 78, 88
- Data Collection during
Healthcare Simulation
Training, 78
power, 74, 77, 78–79
source separation for map task
performance, 87
waves in neural systems, 78
- Emergence of team cohesion, 266,
282
- Emergency
response multiteam system, 289
response system, 293, 310
- Emergent properties over time, 5, 7,
12–16
- Emergent states, 33, 44–45, 132, 223,
279
dynamic, 143
shaping, 303

- of team psychological safety and transactive memory systems, 107
- Emotional functioning, 236
- Emotional instability, 166
- Empirical research, 5, 10, 16, 18, 40, 159, 211
- EMTs, 288
- Entropy, 74, 84, 86, 87
- Epinephrine, 158
- “Episodes”, 312
 - I-P-O, 101
 - performance, 12, 125, 143, 291, 312
- ESA. *See* European Space Agency (ESA)
- EST approach. *See* Event system theory approach (EST approach)
- Estrogen, 159
- ETS. *See* Educational testing service (ETS)
- European Space Agency (ESA), 166
- Evaluative scoring, 54
- Event system theory approach (EST approach), 31, 274, 280–281
- Evidence-centered approach, 55
- Existing teams, 17
- Externalized Cue-strategy
 - Associations, 193
- Externalized team knowledge, 191, 193
- Extreme weather phenomena, 158
- F3Cz dipole entropy, 87
- FAA. *See* Federal Aviation Administration (FAA)
- Familiarity, 10, 11, 221, 310
- Family Adaptability and Cohesion Scale (FACES), 174
- Family systems theory, 174–176
- Feature-oriented framework, 270
- Federal Aviation Administration (FAA), 234
- Fluidity
 - in membership, 10
 - of team membership, 11
- Formal coordination structure, 293–294
- Formal roles, 11
- Forming, 196
 - phase, 104–110
 - team development model forming stage, 264
- Frequency
 - adaptation, 39–41
 - bands, 74
- Function words. *See* Linguistic style words
- Function-word categories, 242
- Functional diversity, 297
- Gamma frequency oscillations, 82
- Gaussian distributions approach, 66
- General systems theory, 269
- Genesis and direction of
 - development, 300
- Geographic dispersion, 297
- GEQ. *See* Group Environment Questionnaire (GEQ)
- GES. *See* Group Environment Scale (GES)
- Global economy, 232
- Globalism, 289
- “Goldilocks” supposition, 38
- Google scholar, 262
- Group
 - identity, 214
 - pride, 263, 268
 - rhythms, 76
- Group cohesion, 162, 177
- Group communication, research on, 233–235
- Group Environment Questionnaire (GEQ), 263

- Group Environment Scale (GES), 172
- H-A design. *See* Human-agent design (H-A design)
- Halpin statistical framework, 58, 66–68
- Hawaii Space Exploration Analog and Simulation project (HI-SEAS project), 169
- “Hedonic tone”, 241
- HERA. *See* Human Exploration Research Analog (HERA)
- “Hex Code” task, 66
- HH. *See* High-high (HH)
- HI-SEAS project. *See* Hawaii Space Exploration Analog and Simulation project (HI-SEAS project)
- Hierarchical arrangement, 294, 299, 301
- High-high (HH), 14
- High-low (HL), 14
- Hofstede’s dimensions, exploring cultural values beyond, 224
- Holistic framework, 57–58
- Hormone oxytocin, 159, 160
- HPA. *See* Hypothalamic-pituitary-adrenal axis (HPA)
- HR. *See* Human resource (HR)
- Human Exploration Research Analog (HERA), 169
- Human factors issues, 234
- Human resource (HR), 147
- Human-agent design (H-A design), 65
- Human–human collaboration design, 61
- Hypothalamic-pituitary-adrenal axis (HPA), 158
- ICA. *See* Independent component analysis (ICA)
- ICE environments. *See* Isolated, confined, and extreme environments (ICE environments)
- IMO. *See* Input-mediator-outcome (IMO)
- IMO framework. *See* Input–Mediator–Output–Input framework (IMO framework)
- Independent component analysis (ICA), 87–88
- analysis of healthcare teams, 88
- Individual knowledge, 192, 216
- Individual problem-solving process, 55–56
- Individual response, 54
- Individual-based composition models, 6
- Individual-based models, 6
- Individual-level trust, 126, 127
- Industrial/Organizational (I/O), 162
- Ineffective collaborators, 64
- Information
- information/organization-centric approach, 77
 - roles, 11
 - science, 86
 - theory, 84
- Input interdependence, 292
- Input-mediator-outcome (IMO), 32
- Input-process-outcome relationships (I-P-O relationships), 101, 132, 293
- Input–Mediator–Output–Input framework (IMO framework), 131
- Intelligent tutoring systems (ITS), 68
- Interaction process analysis (IPA), 233
- Interdependence, 298–299
- shifts over time as moderating factor, 315–316
 - theory, 128
- Interdependent behavior, 249

- Internalized team knowledge, 192, 201
- International Space Station (ISS), 161, 168
- Interpersonal
attraction, 249
processes, 12–13, 33, 41, 101, 244–245
relations, 248–249
- Interteam processes, 313
- Intrateam
processes, 313
trust, 16
- I/O. *See* Industrial/Organizational (I/O)
- IPA. *See* Interaction process analysis (IPA)
- I-P-O relationships. *See* Input-process-outcome relationships (I-P-O relationships)
- IRT. *See* Item response theory (IRT)
- Isolated, confined, and extreme environments (ICE environments), 156–158
- factors and threats to team dynamics in, 165–169
- individual biological, neurobehavioral, and psychiatric factors contributing to, 158–162
- ISS. *See* International Space Station (ISS)
- “Item collaboration effect”, 64
- Item response map, 62
- Item response theory (IRT), 52–53, 59, 61
- Item writers, 54
- ITS. *See* Intelligent tutoring systems (ITS)
- Japanese Aerospace and Exploration Agency (JAXA), 166
- “Jigsaw” design, 61, 65
- Job Characteristics Model (JCM), 167
- Kinect for Windows, 54
- Knowledge, skills, abilities, and other characteristics (KSAOs), 5
- Knowledge, skills, and abilities (KSAs), 163, 224, 244
- Kullback-Leibler index, 58
- Language, 236
content and style, 237
dictionaries, 252
usage, 234, 236
- Language style matching (LSM), 242, 276
- Latent growth analysis, 147
- Latent semantic analysis (LSA), 236
- LDSE. *See* Long-duration space exploration (LDSE)
- LDSEMs. *See* Long duration space exploration missions (LDSEMs)
- Leader(ship)
and team management, 246
boundary spanning, 109
coaching types, 100
function, 101–104, 108, 109, 110, 111, 114, 117, 118
importance, 96
- Lexical analysis, 237, 239
- Lexical indicators of teamwork, 243
adaptability, 248
conflict resolution, 249
coordination, communication, and collaborative problem solving, 246–247
integrative model of teamwork and collaboration, 245
interpersonal relations and socioemotional support, 248–249

- leadership and team management, 246
 - mission analysis, planning, and strategizing, 247–248
 - performance monitoring and feedback, 246
 - team performance functions, 244
- Lexical profile, 232–233
- Linear progressive model, 196
- Linguistic Inquiry and Word Count program (LIWC program), 234, 236
- Linguistic style, 240
 - words, 240
- Linguistic style matching algorithm (LSM algorithm). *See* Language style matching (LSM)
- Linkage attributes, 295–296, 298
 - influences of, 299
 - and temporality, 299–300
 - See also* Developmental attributes
- Linkage constancy, 301
- LIWC program. *See* Linguistic Inquiry and Word Count program (LIWC program)
- LL. *See* Low-low (LL)
- Log files, 53–55, 61–62
 - outcome data, 54–55
 - process data, 53–54
- Long duration space exploration
 - missions (LDSEMs), 289
- Long-duration extreme environments,
 - team dynamics in, 156
 - dynamic relationship between task and social cohesion over time, 162–165
 - factors and threats to team dynamics, 165–169
 - future directions for research and practice, 169–177
 - ICE environments, 156–158
 - individual biological, neurobehavioral, and psychiatric factors contributing to, 158–162
- Long-duration space exploration (LDSE), 162
- Longitudinal studies, 316–317
- Low-low (LL), 14
- LSA. *See* Latent semantic analysis (LSA)
- LSM. *See* Language style matching (LSM)
- Luciano's framework, 295
- Macro cognition concept, 190
- Macro cognition in teams model (MITM), 191, 192, 195, 199
 - CPS and, 191–195
 - team development, 205–206
- MCC. *See* Mission Control Center (MCC)
- Mediators of team trust over time, 133
 - conflict, 136–137
 - effort, 137
 - monitoring, 137
 - perceived team effectiveness, 134–135
 - shared leadership, 135–136
 - team cohesion, 134
- Membership
 - change, 7, 8–9, 10, 11, 12, 17
 - constancy, 301
 - model divergence, 10
- Meso-theory linking multiteam
 - system structural features, 304
- Mesolevel framework, 303
 - MTS component teams operate in context, 311
 - MTS structural features, 303–305
 - MTS structure and temporality, 309–311

- social-psychological consequences
 - of differentiation and dynamism, 305, 308–309
- Midpoint transitions, 118
- Mission analysis, planning, and strategizing, 247–248
- Mission Control Center (MCC), 168
- MITM. *See* Macro cognition in teams model (MITM)
- Moderators of team trust over time, 133, 137
 - differentiation, 138–140
 - task interdependence, 138
 - virtuality, 138
- Monitoring, 117, 137
 - mutual, 115
 - performance, 204–205, 246
 - system, 244
 - team, 112, 115, 144
- Motivation to lead (MTL), 14–15
- MTM. *See* Multiple team membership (MTM)
- MTS. *See* Multiteam system (MTS)
- Multicultural teams, 210
- Multidimensional approach, 304
- Multidisciplinary integration, 170
- Multilevel framework in context of cohesion, 269–271
- Multilevel theory, 269
- Multiple member replacement, 17
- Multiple team membership (MTM), 11
- Multiteam system (MTS), 167–169, 270, 289
 - adaptation in, 311–316
 - capturing MTS dynamics over time, 316–317
 - defining and distinguishing, 290–292
 - emergency response multiteam system, 289
 - future research avenues, 318–319
 - MTS context, 303–311
 - MTS structure and temporality, 295–303
 - practical recommendations, 317–318
 - temporality as influencing consideration for, 292–295
- Mutual attention, 250
- Mutual monitoring, 115
- National Space and Biomedical Research Institute, 239
- Natural language processing (NLP), 64
- NdO*. *See* Neurodynamic organization (*NdO*)
- Neural, cognitive, and behavioral rhythms, 73
- Neurodynamic(s)
 - data, 74
 - data cubes, 75
 - principles, 77
 - symbol maps, 82
 - team neurodynamic modeling, 77
 - composition of neurodynamic symbol, 79
 - EEG data collection during healthcare simulation training, 78
 - EEG source separation for map task performance, 87
 - fitting team members, 77
 - ICA analysis of healthcare teams, 88
 - neurodynamic symbol
 - expressions of healthcare team, 80
 - NS* visualizations, 82
 - redundancy of neurodynamic information, 86
 - Shannon information or entropy, 84–85
 - task segments, 79–80
 - transition map, 82–83

- team neurodynamics, 73
- of teams, 73
- theme, 77
- Neurodynamic organization (*NdO*), 85, 86
 - in alpha and beta regions, 75
- Neurodynamic state space (*NSS*), 78
- Neurodynamic symbol (*NS*), 78, 79, 81
 - expressions, 80
 - symbol expression, 82–83
 - visualizations, 82
- Neurodynamic Symbol Expressions of Healthcare Team, 80
- Neuroticism, 166
- NLP. *See* Natural language processing (NLP)
- Non-cognitive skills, 66–67
- Nonlinear mixed-effects modeling, 174
- Norming, 196
 - phase, 111–114
 - stage, team development model, 264
- NS. See* Neurodynamic symbol (*NS*)
- NSS. See* Neurodynamic state space (*NSS*)
- OB. *See* Organizational Behavior (OB)
- OECD team, 61
- Operationalizations, 6, 21
- Organizational Behavior (OB), 162
 - management, 173
- Organizational/organizations, 9–10, 43, 291
 - change and events, 273–274
 - diversity, 296–297
 - interventions, 18–19
 - neuroscience, 171
 - outcomes, 271
 - resource reallocation, 272
 - science approach, 176
 - teams, 18, 30
 - time-based recommendations for, 42–44
- Output interdependence, 292–293
- Over time, 52, 166
- Pattern Recognition, 193
- Perceived team effectiveness, 134–135
- Performance, 196
 - episodes, 12, 14, 125, 132, 144, 147, 291, 293, 299–300, 312
 - phase, 114–118
 - stage, team development model, 264
- Personnel model with teamwork considerations, 6
- Personnel-position fit model, 6
- PISA. *See* Programme for International Student Assessment (PISA)
- PISA 2015 Collaborative Problem-Solving Assessment Framework, 56
- 2PL/GPCM. *See* Two-parameter logistic model/generalized partial-credit model (2PL/GPCM)
- Plan execution, 248
- Plan formulation, 248
- Point process models, 68
- Positivity components, 250
- Post-trust level, 141
- Potential lexical measures, 246, 248, 249
- Power distribution, 299
- Preemptive conflict management, 110, 115–116
- Primary leadership functions
 - forming phase, 108
 - norming phase, 113
 - performing phase, 116

- storming phase, 111
- Problem solving, 58, 117
 - process, 56
- Process data, 53–54, 61–62
- Process interdependence, 292
- Productive capacity, 9
- Productive collaboration, 59
- Programme for International Student Assessment (PISA), 52–53, 58
 - framework, 56
 - PISA CPS, 59, 61
- Proportional membership, 297
- Psychoactive androgen, 159
- Psychometric approach, 59–60
- Psychometric theory, 67
- Psychometric tools, 172
- Punctuated equilibrium model, 103

- Qualitative approaches, 316, 317, 320
- Quantitative approaches, 317

- Radiation therapy team, 35–36
- Rasch model, 62
- Rasch/partial-credit model (Rasch/PCM), 61
- Reactive conflict management, 110, 115–116
- Reciprocal trust, 126
- Reconfiguration, 17
- Relative contribution models, 6, 11
- Research teams, 55
- Role compilation, 203–204, 217–218, 265

- Salient temporal context, 12
- Science simulation task
 - CPS, 54
 - ETS CPS science simulation, 63–64
- Score change, 64
- Self-managing teams, 7, 108, 109, 136, 144
- Self-regulation, 136, 144, 203, 218
- Self-report measures, 266–268
- SEM. *See* Structural equation models (SEM)
- Semantic approach, 236
- Shannon information or entropy, 84, 85
- Shared beliefs, 249
- Shared leadership, 7, 96, 117–118, 135–136, 145–146
- Shared mental model, 33, 43, 44, 176, 192–193, 201, 298, 301, 302, 314, 318
- Simulation-based task, 63
- Single member replacement, 17
- Single-team formation decisions, 17
- Situational assessment, 248
- Skill differentiation, 223
- SNA. *See* Social network analysis (SNA)
- Social climate, 241
- Social cognitive approach, 308
- Social cohesion, 263–264, 268
- Social coordination, 76
- Social domain, 56–57
- Social exchange theory, 126
- Social functioning, 236
- Social impairment, 240
 - dimension, 239–240
- Social interaction, 55–56
- Social network analysis (SNA), 146, 274, 277–278, 317
- Social-psychological consequences of differentiation and dynamism, 305, 308
 - affective motives, 308
 - belonging needs, 308
 - cognitive motives, 309
- Socioemotional
 - function, 242
 - support, 248–249
- Sociometric badges, 275
- Software development team, 34, 37–39

- Space exploration, 168
- Space flight corpus, 251
- Spatial redundancy, 86–87
- Speech
 - content, 239–240
 - style, 239–240
- Staffing, 4
 - programs, 318
 - team, 17–18
- Stakeholders, 109
- Standard K-means analysis, 66
- Statistical analysis technique, 63
- Status disagreements, 10
- Stochastic processes theory, 67
- Storming, 196
 - phase, 110–111
 - stage, team development model, 264
- Streamlined illustration, 288–289
- STRESSnet, 239
- Structural equation models (SEM), 147
- Structural features, MTS, 303
 - differentiation, 304–305, 306
 - dynamism, 305, 307
- Support facet, 242
- Surface-level
 - composition, 5, 16
 - diversity, 5–6, 214
- “Swift cohesion”, 279
- Symbol space, 79
- Symmetry facet, 242–243
- Systematic Multiple Level
 - Observation of Groups (SYMLOG), 233
- Systems monitoring, 112, 115
- Task
 - cohesion, 263–264, 272
 - compilation, 215–217, 265
 - conflict, 219
 - disruptions, 32
 - forces, 291–292
 - interdependence, 138
 - Orientation dimension, 233–234
 - task-based adaptation trigger, 31–33, 36–37, 39–41, 42
 - task-based triggers, 35–36
 - task-related roles, 11
 - work, 197
- Taskwork
 - behaviors, 244
 - skills, 100–101
- Taxonomy, 265–266, 268–269
- TBL. *See* Team-Based Learning (TBL)
- Team adaptation, 30, 31
 - adaptation, 32–33
 - and temporal considerations, 34–41
 - framework, 31
 - functions, 244
 - future research
 - adaptation and emergent states, 44–45
 - time-based opportunities for researchers, 41–42
 - time-based recommendations for organizations, 42–44
 - literature, 43
 - nomological network, 33
 - team adaptive outcomes, 31
- Team cohesion over time
 - challenges in examining cohesion over time, 266
 - combining multilevel and temporal frameworks in context of cohesion, 269–271
 - conceptualizing cohesion, 262–263
 - dimensions of cohesion at different points, 268–269
 - organizational change and events, 273–274
 - self-report measures, 266–268
 - team development and cohesion, 264–266

- temporal approach to studying
 - cohesion, 274–282
 - within-team events, 271–272
- Team composition, 4–7, 12–16
 - algorithms, 18
 - information, 18–19
 - managing teams of varying compositions, 18–20
 - research, 9
 - team processes, and emergent properties over time, 12–16
 - and team staffing, 17–18
 - and temporal context, 7–12
- Team composition over time
 - effectiveness of, 4
 - management, 16
 - management teams of varying compositions, 18–20
 - team composition and team staffing, 17–18
- Team development, 34, 101–104, 279
 - and cohesion, 264–266
 - culture in, 212
 - maintaining teamwork, 220–221
 - role compilation, 217–218
 - task compilation, 215–217
 - team compilation, 218–220
 - team formation, 213–215
 - team settings, 212–213
 - model, 36, 104, 196
- Team dynamics, 96, 232
 - affiliation, 241
 - content analysis, 235–237, 238
 - coordination, 241–242
 - culture influence on, 210
 - context role, 223–224
 - cultural diversity benefits to teams, 221–222
 - culture in team development, 212–221
 - culture within selection and training systems, 224–225
 - exploring cultural values
 - beyond Hofstede's dimensions, 224
 - future research, 222–223
 - multicultural teams, 210–211
 - team types, 212
 - development of language
 - dictionaries, 251–252
 - illustrative example, 239
 - lexical analysis and, 237, 239
 - lexical indicators of teamwork, 243–249
 - limitations and challenges, 250–251
 - research on group communication, 233–235
 - social climate, 241
 - support, 242
 - symmetry, 242–243
 - team perspective, 240–241
- Team dynamics in long-duration
 - extreme environments, 156
- dynamic relationship between task and social cohesion over time, 162–165
- factors and threats to team dynamics, 165
 - autonomy, communication, and multiteam systems, 167–169
 - selection, 165–166
 - team composition, 166–167
- future directions for research and practice, 169
 - biological variables, 170–171
 - experimental analysis of behavior, 171–174
 - family systems theory, 174–177
 - multidisciplinary integration and countermeasure development, 170
 - temporal dynamics, 169–170
- ICE environments, 156–158

- individual biological,
 - neurobehavioral, and
 - psychiatric factors
 - contributing to, 158–162
- Team Evolution and Maturation framework (TEAM framework), 197
- Team mental models (TMM), 14
- Team neurodynamic(s), 73
 - modeling, 77
 - composition of neurodynamic symbol, 79
 - EEG data collection during healthcare simulation training, 78
 - EEG source separation for map task performance, 87
 - fitting team members, 77
 - ICA analysis of healthcare teams, 88
 - neurodynamic symbol
 - expressions of healthcare team, 80
 - NS visualizations, 82
 - redundancy of neurodynamic information, 86
 - Shannon information or entropy, 84–85
 - task segments, 79–80
 - transition map, 82–83
- Team problem-solving
 - development model, 199
 - propositions for changes in CPS, 202
 - role compilation, 203–204
 - sets of propositions, 199
 - task compilation, 203, 204–205
 - task-related experience, 200–201
 - team formation, 201–203
 - outcomes, 193
- Team trust over time, 128–131
 - future research, 143
 - methodological considerations, 146–147
 - team conflict, 144–145
 - team monitoring, 144
 - theoretical considerations, 143–144
 - trust violation and repair in teams, 145–146
- mediators and moderators of, 133–140
- recommendations for practice, 147–149
- temporal model of team trust development, 131–133
- trust violation and repair in teams, 140–143
 - See also* Change over time
- Team-Based Learning (TBL), 129
- Team(s), 11–12, 13–15, 16–17, 190, 210, 291
 - adaptation trigger, 31–32, 33, 37, 39, 41
 - assembly research, 18
 - cognition, 216
 - cohesion, 15–16, 134, 165, 262
 - communications, 239
 - compilation, 198, 203, 204–205, 218–220
 - composition models, 6–7
 - conflict, 144–145
 - consensus, 193
 - context, 240
 - cultural diversity benefits to, 221–222
 - cycle, 12
 - diversity, 7–8
 - effectiveness models, 4
 - efficacy, 15
 - formation, 18, 201–203, 213–215
 - phase, 265
 - function, 232
 - goal-setting process, 109
 - knowledge, 192

- resources, 193
- similarity, 193
- leadership, 97–100
 - action phase leadership functions, 99
 - functions over time, 105–106
 - meeting team needs, 100–101
 - needs change over time, 104–118
 - team development, 101–104
 - transition phase leadership functions, 98
- learning, 248
- maintenance, 245
- members, 8, 10, 281
 - behaviors, 242
 - familiarity, 10
 - satisfaction, 135
- monitoring, 144
 - and backup, 112, 115
- motivational functions, 244
- need, 97, 100–101
- organizational functions, 244
- orientation functions, 244
- perspective, 240–241
- potency, 116
- processes, 12–16, 102
 - framework, 32–33
- profile models, 6
- psychological safety, 107
- staffing, 17–18
- task management, 245
- team-level outcome data, 54
- team-level response, 54
- “teaming” policy, 18
- temporal model of team trust development, 131–133
- trigger, 41
- trust, 124, 125, 126–128
 - violation and repair in, 140–143
- types of, 212
- See also* Multiteam system (MTS)
- Teamwork, 66–67
 - lexical indicators of, 243–249
 - processes, 293–294
 - skills, 100–101
 - time for, 4
- Temporal approach to studying cohesion, 274
 - ABM, 281–282
 - adopting EST framework, 279–281
 - SNA, 277–278
 - swift cohesion, 278–279
 - unobtrusive/indirect measures, 274–277
- Temporal considerations
 - adaptation and, 34
 - duration, 37–39
 - frequency, 39–41
 - timing, 34–37
- Temporal context, 7–8
 - dynamic composition, 8–12
- Temporal dynamics, 169–170
- Temporal factors, 42–44
- Temporal frameworks, 271
 - in context of cohesion, 269–271
- Temporal orientation, 297
- Temporal phase
 - forming, 107
 - norming, 112
 - performing, 114–115
 - storming, 110
- Temporal rhythm, 313
- Temporal stability, 223
- Temporal terms, 248
- Temporality
 - as influencing consideration for MTSs, 292–295
- MTS structure and, 295
 - compositional attributes, 296–298
 - developmental attributes, 300–302
 - linkage attributes, 298–300
 - typology identifies features, 302–303

- MTS structure and, 309–311
- Temporally rooted approach, 311
 - interdependence shifts over time as
 - moderating factor, 315–316
 - MTS adaptation to changes and disruptions over time, 313–315
 - temporally based framework of
 - MTS dynamics and adaptation, 312
- Temporary shifts in membership, 10
- Testosterone, 159
- Thematic approaches, 236
- Theory of self-management, 117–118
- Theta, 74
- Threatening, 159
- Three-element vectors, 78
- Time-based opportunities for
 - researchers, 41–42
- Time-based recommendations for
 - organizations, 42–44
- Time-stamped CPS data,
 - methodological advances for
 - ACT CPS Game, 64–66
 - ATC21S CPS, 61–62
 - ETS CPS Science Simulation, 63–64
 - PISA CPS, 59, 61
 - Von Davier and Halpin, 66–68
- TMM. *See* Team mental models (TMM)
- TMS. *See* Transactive memory systems (TMS)
- Tolerable stress, 159
- Top-down processes, 271, 273, 280, 303
- Training systems, culture within, 224–225
- Transactive memory systems (TMS), 14, 108, 112–113
- Transition
 - maps, 84
 - phase, 265–266
 - leadership functions, 98
 - processes, 244–245
 - processes, 13, 33
 - phases, 41
- Trend Analysis, 193
- Trust, 308
 - benefits, 129–130
 - development and maturation, 124–125
 - violation and repair in teams, 140–143, 145–146
- Tuckman's model, 103, 104, 196
- Two-parameter logistic model/
 - generalized partial-credit model (2PL/GPCM), 61
- Uncertainty resolution, 193
- Unobtrusive measurement, 232
- Unobtrusive/indirect measures, 274–277
- Validation efforts, 252
- Verbal communications, 232–233, 235
- Verbal content, 237, 238
- Verbal coordination, 242
- “Vicious spirals”, 40
- Virtual teams, 129, 212–213, 297
- Virtuality, 138
- “Virtuous spirals”, 40, 43
- von Davier's and Halpin's statistical
 - framework, 58–59, 66–68
- Within and between-team processes, 296, 302
- Workforce, 210
- Wright Map distribution, 62