

## Index

- A&E Biography* (television program), 80  
 absinthe, 145  
 accountability  
   conflict with creativity, 45–50  
   lessened creativity and, 49, 357–358  
   lower test scores and, 49  
 Accreditation Board for Engineering and Technology (ABET), 212  
 action theory of creativity, 276  
 adaptation in brainstorming, 27  
 Adequate Yearly Progress (AYP), 255  
*agape* (love of God), 144  
 alphabet, 39  
 Alternative Uses Test, 121  
 AltSchool, 257–258  
 Amabile, Teresa, 33, 54, 88, 98, 170, 347–348  
*Amadeus* (movie), 80  
 ambiguity, tolerance for, 370  
 America Competes Act of 2007, 266  
 American Abstract Artists group, 142  
*American Idols* (television show), 155  
*America's Got Talent* (television show), 155  
 amphetamines, 145  
 analytical intelligence, 122  
 Archambault, Francis, 26  
 Aristotle, 149  
*Art and Cognition* (Efland), 275  
 Artist in the Schools program, 131  
 arts education, 18, 271–273  
 Arts Education Partnership, 273  
 Asperger's syndrome, 9  
 attitude towards creativity, 190–206  
   coursework difficulty and, 203–204  
   finding related belief and attitude change, 198  
   improving students' creativity/innovation and, 204–205  
   misconceptions and, 205  
   model of innovation enhancement and, 193–194  
   myths, 191–193  
   constraints hinder creativity, 202–203  
   creativity does not generalize, 200–201  
   creativity is a fuzzy, soft construct, 192, 201–202  
   creativity is a negative attribute, 191–192  
   creativity is enhanced within a group, 192, 202  
   people are born creative or uncreative, 191, 198–199  
 Aurora-r, 123–124  
 Australia, 17  
 Baer, John, 100  
 Barron, Frank, 141  
*The Bell Jar* (Plath), 362  
 Bergman, Ingrid, 147  
 Bethe, Hans, 146  
 “big four” core subjects, 3  
 Big-C (legendary) creativity, 71, 80–81, 112. *See also* little-c (everyday) creativity  
 Big-C exemplars, 80–81  
 Bill Moyers Creativity series, 156  
 Blake, William, 145  
 blind variation and selective retention model, 46  
 Bohr, Neil, 146  
 Boston Public School System, 253  
 brain  
   default mode network, 310–313  
   networks, 310  
 Brain and Education Movement, 229  
 brain-based schools, 229  
 brainstorming  
   in creative problem solving, 169  
   definition of, 27–28  
   in divergent thinking, 51–53  
   fluency and, 180  
   phases, 183  
   resisting premature closure with, 182–183  
 British General Medical Council, 214  
 “British school” vs. “Chinese school”  
   documentary, 86–87  
 Bruner, Jerome, 327

- Burnett, P.C., 122
- business education, 18
- C = O x TA notation of creativity, 70
- Callahan, Carolyn, 42
- Calliope (muse), 143
- Campbell, Donald, 46
- Camtasia Studio 8, 41
- Capote* (movie), 80
- career, 3
- Carnegie Commission, 3
- Carr, Emily, 146
- Carson, Rachel, 43
- Carver, George Washington, 43
- casting software, 41
- Categorize Ideas On Television activity, 179–180
- Central Park East (CPE) Schools, 253
- changing the subject, 3–5
- children's play, 31
- Chinese school system
  - vs. British school (documentary), 86–87
  - mathematics teaching, 88, 92
  - teacher training model, 100–101
- Chinese teachers, 69
- Christopher Newport University, 194, 195
- CIC (Connecticut Invention Convention), 6–11
- Clampitt, Amy, 152
- classical conditioning, 362
- classroom atmosphere, 32–36
  - creativity and cooperation in, 297–302
  - deferred judgment principle in, 33
  - fluency principle, 34
  - legitimization of laughter in, 33
  - mini-c creativity, 71
  - peer evaluation in, 36
  - rewarding desired types of responses in, 34
  - self-evaluation in, 33, 35–36
  - teaching and assessing creativity in, 120
- classroom creativity, 67–82
  - academic constraints and, 68–70
  - bending rules in, 113–114
  - cooperation and, 297–302
  - definition of creativity, 112–113
  - formal assessment, 121–122
  - Four-c Model of Creativity, 71
    - Big-C (legendary) creativity, 80–81, 112
    - little-c (everyday) creativity, 75–77, 112
    - mini-c creativity, 72–75
    - Pro-c creativity, 77–80
  - future of, 81–82
  - high-stakes assessments and, 114–115
  - importance of, 109–110
  - intelligence testing and, 122–125
  - keypoints in, 381–384
  - teacher perceptions of, 115–119
  - teaching and assessing, 119–121
- closure, in convergent thinking, 178–179
- Coalition of Essential Schools, 254
- co-construction
  - learning as, 278
  - values and, 289–290
- Cognitive Abilities Test (CogAT), 124
- cognitive apprenticeship, 91
- Coleridge, Samuel Taylor, 145
- collaboration, 375–376
- collaborative emergence, 275
- college, 3
- Coltrane, John, 71
- combination in brainstorming, 28
- Common Core State Standards, 45, 47, 121
- communicative technologies, 325
- community mentors, 14
- Compass Learning, 41
- competition, mild, 30–32
- complex creativity, 340–341
- Componential Framework of Creativity, 88
- Componential Model of Creativity, 75
- confluence, 361–362
- conformity, 358–359
- Confucius, 99–100
- Connecticut Common Core standards, 7
- Connecticut Invention Convention (CIC), 6–11
- Consensual Assessment Technique (CAT), 234
- constructive internal reflection, 316–317
- constructivist theory, 278–279
- content knowledge
  - acquisition of, 50–60
  - improving thinking with, 49
- content standards, 45–50
- convergent production, 23–24
- convergent thinking, 46, 164, 178–180. *See also*
  - divergent thinking
  - categorization of ideas on television, 179–180
  - closure, 178–179
  - outlining and, 179
  - role of the incomplete, 179
- conversation, 290
- Cookie Monster, 315
- cooperation
  - and creativity in classroom settings, 297–302
  - and creativity in school context, 293–297
  - principle of, 32
  - reflexivity in, 302
  - social interactions and, 290
- core attitudes, 137–143
  - group trust, 141–143
  - openness to experience, 137–139
  - risk-taking, 140–141

- self-discipline, 139–140
  - tolerance for ambiguity, 141
- Core Knowledge, 48
- Core Knowledge Foundation, 45
- Core Knowledge Sequence, 45, 47
- Council of Chief School Officers, 45
- Coursera, 41
- CPS. *See* Creative Problem Solving (CPS)
- Creating Innovators* (Wagner), 265
- Creating Systems that Work* report, 215
- creative abilities, 339
- creative characteristics, 164–165
- creative class, 155
- creative courage, 140
- Creative Idea Generator, 37
- creative integration, 78
- creative intelligence, 122
- creative intersection, 236–238
- creative micro-moments, 120
- Creative Problem Solving (CPS), 46, 50, 131
  - brainstorming in, 169
  - components of, 169
  - grid, 184
- creative process
  - core attitudes of, 137–143
    - group trust, 141–143
    - openness to experience, 137–139
    - risk-taking, 140–141
    - self-discipline, 139–140
    - tolerance for ambiguity, 141
  - general aspects of, 152–156
    - creativity as defined by community and culture, 155
    - creativity as process of life, 155–156
    - creativity rituals, 153–154
    - meditation, 154
    - need for solitude, 152–153
  - seven I's of, 143–152
    - imagery, 148
    - imagination, 148–149
    - improvisation, 151–152
    - incubation, 151
    - insight, 150–151
    - inspiration, 143–148
    - intuition, 149–150
- Creative Process, The* (Ghiselin), 132
- creative self-efficacy-identity-values triad, 348
- The Creative Spirit*, 156
- creative students
  - teacher misperceptions of, 68–69, 163–164
  - teachers' creativity and, 100
  - teachers' perceptions of, 115–119
- creative thinking, 185, 374
- creative types, 17
- creativity, 355–359
  - accountability and, 45–50
  - action theory of, 276
  - attitude towards, 190–206
  - C = O x TA notation of, 70
  - changing the subject, 3–5
  - conceptions of, 110–112
  - Connecticut Invention Convention, 10
  - as defined by community and culture, 155
  - definitions of, 110–112
  - enhancing, 50–60
  - ethics of, 288
  - “everyday”, 233–234
  - as a habit, 355–356
  - hypothetical curve of, 26
  - idealist theory of, 276
  - importance of, 359
  - “killers of”, 235–236
  - literature, 19
  - modeling, 185
  - myths of, 191–193
    - constraints hinder creativity, 202–203
    - creative does not generalize, 200–201
    - creative is enhanced within a group, 192, 202
    - creativity is a fuzzy, soft construct, 192, 201–202
    - creativity is a negative attribute, 191–192
    - limited time to be creative, 199–200
    - people are born creative or uncreative, 191
  - as process of life, 155–156
  - prosocial values and, 287–303
  - psychological self and, 313–320
  - questionnaire, 196
  - real-world, 233–234
  - rituals, 153–154
  - role in day-to-day curriculum, 71
  - roles of educational leader in, 12–15
  - school's impact on development of, 292
  - self-actualizing, 343
  - skills, 237
  - social processing and, 320
  - social psychology of, 229–232
  - teaching for, 355–376
  - types of, 339–340
    - complex, 340–341
    - identification of, 343–344
    - rebellious, 341–342
    - self-actualizing, 343
    - subordinate, 342–343
- Creativity Checklist, 122
- Creativity Compass program, 346–347
- creativity development, 23–43
  - basic principles, 23–25
  - basic principles and strategies, 26–28
  - classroom atmosphere in, 32–36

- creativity development (*cont.*)
  - getting started with, 28–30
  - infusion-based approach in, 36–40
  - principle of cooperation in, 32
  - principle of mild competition in, 30–32
  - self-evaluation in, 35–36
  - starting points, 23–25
- creativity dilemma, 162–163
- creativity enhancement model, 193–194
  - data sources, 196–197
    - creativity questionnaire, 196
    - document analysis, 196–197
    - group and individual interviews, 196
    - triangulation of, 197
  - evaluating application of, 195–197
  - two-step member checking process, 197
  - undergraduate coursework based on, 194–195
- creativity factors, 165
- creativity in mathematics teaching, 86–102
  - Chinese school system, 100–101
  - “Chinese school” vs. “British school” documentary, 86–87
  - domain relevant knowledge in, 89–92
  - expert teachers, 96
  - good teachers, 99–100
  - learning process, 92–97
  - multiple methods of problem-solving, 93–96
  - task motivation and, 97–98
  - theoretical framework of, 89
- creativity in schools, 17–19, 337–350
  - Creativity Compass program, 346–347
  - current trends in, 18–19
  - identification of student’s type of creativity, 343–344
  - practice of theory, 346–348
  - supporting student’s creativity, 344–346
  - typological approach to, 338–343
- creativity training, 28–30
  - phrases or expression to avoid in, 34–35
  - principle of mild competition in, 30–32
  - sample activity for, 29
  - self-evaluation in, 35
  - use of praise in, 30
- creativity-enhancing activities, 171–184
  - convergent thinking, 178–180
  - creative problem solving grid, 184
  - divergent thinking, 174–178
  - elaboration, 180
  - extrinsic motivation, 183–184
  - flexibility, 173
  - fluency, 180–182
  - intrinsic motivation, 183
  - originality, 172
  - resistance to premature closure, 182–183
  - risk taking, 174
  - tolerance of ambiguity, 182
- critical thinking, 185
- Croce-Collingwood theory, 276
- Csikszentmihalyi, Mihaly, 80, 170
- da Vinci, Leonardo, 109
- Dali, Salvador, 144
- daydreaming, 317–318
- de Bono, Edward, 169, 174
- de Kooning, Willem, 137
- de Mille, Agnes, 139
- default mode network, 310–313, 316
- deferred judgment, principle of
  - in brainstorming, 50, 52
  - classroom atmosphere and, 33
  - creative thinking and, 27
- Democratic Education in Practice: Inside the Mission Hill School* (Knoester), 254
- Dewey, John, 3, 272, 367
- dialogues, 302–303
- Dickenson, Emily, 71
- discounting principle, 238
- divergent production, 24
- divergent thinking, 174–178. *See also* convergent thinking
  - blind variation and selective retention model, 46
  - brainstorming and, 51–53
  - creativity and, 274
  - defined, 164
  - lateral thinking, 174–176
  - personal qualities, 176
  - provocations, 176
  - SCAMPER, 176
  - teaching, 50–54
- document analysis, 196–197
- domain skills, 237
- Dostoevsky, Fyodor, 145
- dreams, inspiration from, 147
- dreamstorming, 182
- drugs, inspiration through, 145–146
- Duckworth, Eleanor, 256
- Edison, Thomas, 43
- educational leaders, roles of, 12–15
- Efland, Arthur, 275
- Einstein, Albert, 141, 147
- Eisner, Elliot, 272
- elaboration, 164, 180
- empathy, 321–322
- Engineering Coalition of Schools for Excellence and Leadership (ECSEL), 215

## Index

389

- engineering education, 18  
   creativity in, 212–225  
     need for, 213–215  
     overview, 212–213  
   i-shaped graduates, 215–216  
   problems in, 218–220  
     causes of, 217–220  
     fixing with creativity, 222–224  
     lack of knowledge, 218  
     manifestation in practice, 220–221  
     over-specialization, 217  
     pseudo-expertise, 217  
   reductionism in, 218–219  
 English, 3  
 Enrichment Triad Model, 119  
 ensemble performance, 278  
 environment, 361, 373–376  
 Erato (muse), 144  
 Erdős, Paul, 149  
 Ericsson, K. Anders, 320  
*eros* (sexual love), 144  
 essay tests, 357  
 ethics of creativity, 288  
 Euterpe (muse), 143  
 Evaluation of Potential for Creativity (EPoC), 121  
 excursion technique, 172  
*Explaining Creativity* (Beghetto), 276–277  
 extrinsic motivation, 33, 54–58, 164, 183–184. *See also* intrinsic motivation
- FairTest, 241  
 fantasy baseball cards, 39  
 feedback, 55  
 Fermi, Enrico, 146  
 Feynman, Richard, 146  
 fiction writers, 277–278  
*filios* (brotherly love), 144  
*Five Minds for the Future* (Gardner), 272  
 “Five Traits of Thinking” model, 90  
 Flanagan, J.C., 121  
 flat profile, 345  
 flexibility, 164, 173  
 floodlight mind, 24  
 fluency, 26, 180–182  
 fluency principle, 34  
 fluent thinker, 122  
 formative years, 12  
 Four P model, 119  
 Four-c Model of Creativity, 71. *See also*  
   classroom creativity  
   Big-C (legendary) creativity, 80–81, 112  
   little-c (everyday) creativity, 75–77, 112, 121  
   mini-c creativity, 72–75  
   Pro-c creativity, 77–80
- Frames of Mind* (Gardner), 272  
 Freud, Sigmund, 147  
 Friedman, Tom, 265, 279  
 Future Problem-Solving, 131, 167–169  
 future-oriented thinking, 313–315
- game face, 144  
 games, 30  
 Gandhi, Mahatma, 25  
 Garcia, John, 362  
 Gardner, Howard, 39, 171, 272  
 GBI. *See* Good Bad Interesting (GBI) exercise  
 Genera Many Ideas technique, 180–181  
 general pedagogical knowledge (GPK), 90  
 Geography, 38  
 Ghiselin, Brewster, 132  
 gift of observation, 137  
 Ginsberg, Allen, 145  
 Good Bad Interesting (GBI) exercise, 173  
 Good Player Award, 230  
 GoQuest, 41–42  
 Gorky, Arshile, 137, 153  
 Graduate Careers Australia, 214  
*Graduate Outlook Survey*, 214  
 Graham, Martha, 152  
 Graves, Morris, 154  
 Greene, David, 230  
 Grigorenko, Elena, 76  
 group activities, 32  
 group genius, 142  
 group interviews, 196  
 Group of Seven, 146  
 group trust, 141–143  
 guided imagery, 148  
 Guilford, J.P., 46, 109, 121, 273, 355
- habit of creativity, 355  
 Hagopian, Jesse, 241  
 Harris, Lawren, 146  
 Hetland, Lois, 273  
 Heuristic Diagnostic Creative Intervention, 165  
 Hierarchy of Human Needs, 170–171  
 high-stakes assessments, 114–115  
 hiring process, 13  
 Hopper, Edward, 152  
 Huxley, Aldous, 145
- IBM, 162–163  
 idealist theory of creativity, 276  
 ideas  
   avoiding ownership of, 50  
   encouraging wild, 50  
   hitchhiking on other, 50  
 imagery, 148  
 imagination, 148–149

- immunization studies, 241–245
- improvisation, 151–152, 277
- incubation, 151
- Incubation Model of Teaching and Learning (TIM), 167–169
- independence, 339
- Indiana University, 194, 195
- informational blotters, 47
- infusion-based approach, 36–40. *See also* creativity development
  - Creative Idea Generator, 37
  - described, 36
  - developing own activities in, 36–40
  - objectives, 37
  - using technology in, 40–42
- Ingenuity Test, 121
- Innovation in the Knowledge Economy: Implications for Education and Learning*, 266
- insight, 150–151
- inspiration, 143–148. *See also* seven I's of creative process
  - of the dark side, 148
  - from dreams, 147
  - of the “I’ll show you” (personal), 148
  - of love, 143–144
  - of nature, 145
  - of novel surroundings (travel), 147–148
  - by other’s creativity, 146–147
  - through substances, 145–146
- Institute of Personality Assessment and Research, 140, 141
- instructionism, 268–269
- intellectual abilities, 360
- intelligence
  - analytical, 122
  - artistically rooted forms of, 272
  - creative, 122
  - multiple, 39, 171, 229
  - practical, 122
  - triarchic theory of, 122, 170
- intergroup competition, 31–32
- International Association for Evaluation of Educational Achievement (IEA) Studies, 87
- Internet, 40, 41
- interviews, 196
- intrinsic motivation, 54–58, 183. *See also* extrinsic motivation
  - in classroom, 227–258
  - classroom reform for, 245–246
  - creative intersection, 236–238
  - factors of, 33
  - immunization studies, 241–245
  - for long-lasting learning, 249–251
  - open classroom approach and, 246–249
  - open education approach and, 256–258
  - in Reisman Diagnostic Creativity Assessment, 164
  - teachers’ role in, 252–256
  - in typical American classroom, 238–241
- Intrinsic Motivation Principle of Creativity, 227
- overview, 236
- intuition, 149–150
- Invented Worlds: The Psychology of the Arts* (Winner), 275
- Invention Convention, 6–11
- Invention Log, 7, 8
- investment theory of creativity, 359–364
  - confluence in, 361–362
  - definition of, 359–360
  - environment in, 361
  - intellectual abilities in, 360
  - knowledge in, 360–361
  - little-c (everyday) creativity and, 75
  - motivation in, 361
  - overview, 123
  - personality in, 361
  - research supporting, 362–364
  - thinking styles in, 361
- IQ test, 18
- i-shaped engineering graduates, 215–216. *See also* engineering education
- Jackson, A.Y., 146
- Janusian process, 141
- Judging Circles, 10
- Jung, Carl, 147
- Juno software, 41
- Kerouac, Jack, 145
- Khan Academy, 41
- kindergartens, 256
- King, Martin Luther, Jr., 71
- knowledge
  - content, 49, 50–60
  - domain relevant, 89–92
  - general pedagogical, 90
  - in investment theory of creativity, 360–361
  - pedagogical content, 90
  - situated view of, 269
  - subject matter, 90
  - in teaching for creativity, 368
- lateral thinking, 169, 174–176
- Leal, Gabriel, 73
- learner-centered learning. *See* student-centered learning
- learning
  - as co-construction, 278

- rote memorization in, 49
- standard model of, 268–269
- student-centered, 58–60
- teacher-centered, 58–60
- learning for creativity, 265–282
  - arts education, 271–273
  - constructivist theory, 278–279
  - creativity education, 273–275
  - in groups, 275–279
  - overview, 265–266
  - recommendations for, 279–281
  - schools as institutions, 266–267
  - transforming schools in, 267–271
- learning games, 30
- Lepper, Mark, 230
- Li Po (Chinese Zen poet), 145
- Lisner, Arthur, 146
- little-c (everyday) creativity, 71, 75–77, 112, 121.
  - See also* Big-C (legendary) creativity
- little-c expectations, 76–77
- logic, 185
- longitudinal coherence, 96–97
- love, inspiration of, 143–144
- Lubart, Todd, 123, 359
- Magic Market Study, 232, 238
- magnification in brainstorming, 28
- making marks, 140
- Manhattan Project, 146
- Marland Report of 1972, 131
- Maslow, Abraham, 170–171
- Massachusetts Comprehensive Assessment System (MCAS), 254
- Massive Open Online Courses, 41
- mathematics teaching
  - American method of, 92
  - Chinese method of, 88, 92, 100–101
  - as core subject, 3
  - domain relevant knowledge in, 89–92
  - expert teachers, 96
  - good teachers and, 99–100
  - learning gap, 90
  - learning process, 92–97
  - longitudinal coherence, 96–97
  - multiple methods of problem-solving, 93–96
  - Pro- c creativity in, 79
  - task motivation and, 97–98
  - teaching gap, 90
  - Teaching-Regulated Ability model, 90–91
  - theoretical framework of, 89
- Maugham, W. Somerset, 23
- MBTI. *See* Myers-Briggs Type Indicator (MBTI)
- MCAS. *See* Massachusetts Comprehensive Assessment System (MCAS)
- McCartney, Paul, 320
- McClure, Michael, 145
- McKinnon, Donald, 355
- medical education, 214
- meditation
  - in creative process, 154
  - day, 143
  - field trip, 145, 153
  - raisin, 139
- Mednick, S.A., 121
- Meeker, Maru, 131
- Meier, Deborah, 253, 254, 255
- Melpomene (muse), 143
- mescaline, 145
- Michaelangelo, 109
- mild competition, 30–32
- mind wandering, 318–320
- mindstorming, 181–182
- mini-c creativity, 72–75
- mini-c insights, 74–75
- minification in brainstorming, 28
- Minnesota Test of Creative Thinking, 42
- Miró, Joan, 147
- Mischel, Walter, 315
- mistakes, allowing, 375
- model lesson, 100–101
- modification in brainstorming, 28
- Montessori, Maria, 71
- moral and values development, 292–293, 295–296
- moral subjects, 295–296
- Morrison, Toni, 362
- motivation, 33
  - creativity and, 347–348
  - creativity in mathematics teaching and, 97–98
  - discounting principle, 238
  - extrinsic, 54–58
  - intrinsic, 54–58
  - in investment theory of creativity, 361
  - “killers of”, 235–236
  - overjustification hypothesis, 238
  - social psychology of creativity and, 229–232
- motivation synergy theory, 347–348
- motivational theory, 12–13
- Mullis, Kary, 151
- multiculturalism, 322–323
- multiple intelligences, 39, 171, 229
- Munch, Edward, 362
- muse, inspiration by, 143–144
- My Life School, 13
- Myers-Briggs Type Indicator (MBTI), 149
- myths of creativity, 191–193
  - constraints hinder creativity, 202–203
  - creative does not generalize, 200–201
  - creative is enhanced within a group, 192, 202

- myths of creativity (*cont.*)  
     creativity is a fuzzy, soft construct, 192, 201–202  
     creativity is a negative attribute, 191–192  
     limited time to be creative, 199–200  
     people are born creative or uncreative, 191
- NAEG Senior Scholar Series, 245–246
- Namagiri (Indian goddess), 147
- National Endowment for the Arts, 131
- National Governors Association, 45
- National Science Foundation (NSF), 215
- nature, inspiration of, 145
- negative transfer, 91
- NEO- PI-R, 137
- new assessments, 172
- New Jersey Core Curriculum Content Standards, 53, 54
- Newton, Isaac, 320
- Next Generation Science Standard, 7
- Night of The Notables showcase event, 40
- Nisbett, Richard, 230
- No Child Left Behind Act of 2001, 45, 68, 110, 265, 267
- novelty, 14
- obstacles, identifying and surmounting, 368–369
- Odyssey of the Mind, 50, 131
- Olympics of the Mind, 50
- Omega Institute, 156
- online course, 41
- Open Center, 156
- open classroom approach, 246–249
- Open Classroom Reader*, *The* (Silberman), 247
- Open Courseware program, 41
- open education approach, 256–258
- open-ended activities, 37
- openness to experience, 137–139, 339
- opium, 145
- Oppenheimer, J. Robert, 146, 150
- Organization for Economic Cooperation and Development (OECD) Studies, 87
- organizational creativity, 15
- original thinker, 122
- originality, 164, 172
- Osborn, Alex, 169
- outlining, 179
- overjustification hypothesis, 238
- over-specialization, 217
- Page after Page* (Sellers), 176
- painters, 277–278
- Partnership for Assessment of Readiness for College and Careers (PARCC), 255
- patrios* (love of country or tribe), 144
- pedagogical content knowledge (PCK), 90
- peer evaluation, 36
- perseverance, 347–348
- personal qualities, 176
- personality, 361
- perspective taking, 321–322
- peyote mushroom, 145
- Physics, 40
- Picasso, Pablo, 144, 147
- Picture-Taking Study, 232–233
- piggybacking, 32
- Pink, Dan, 265, 279
- PISA. *See* Programme for International Students Assessment (PISA)
- Plath, Sylvia, 362
- play training, 30
- playful associations, 290
- Playlist, 258
- Poe, Edgar Allan, 145
- Pollack* (movie), 80
- Polyhymnia (muse), 143
- positive constructive daydreaming, 317–318
- practical intelligence, 122
- principals, 12
- problems, redefining, 365–366
- problem-solution-problem-solution cycle, 212
- Pro-c creativity, 77–80
- Pro-c professionals, 79
- Proctor, R.M.J., 122
- Professional Development sessions, 7
- Programme for International Students Assessment (PISA), 86, 87
- Propulsion Theory of Creative Contributions, 78
- prosocial values and creativity, 287–303  
     bridging through sociability, 290–291  
     in classroom settings, 297–302  
     co-constructive nature of, 289–290  
     dialogues in, 302–303  
     overview, 287  
     rapprochement between, 289  
     reasons for, 287–289  
     reflexivity in, 302  
     in school context, 293–297
- prototypes, 7
- provocations, 176
- pseudo-expertise, 217
- psychological self and creativity, 313–320  
     constructive internal reflection, 316–317  
     future-oriented thinking, 313–315  
     mind wandering, 318–320
- psychology, 18
- Pyramid of Talent Development, 135–137, 155
- RAE. *See* Royal Academy of Engineering (RAE)
- raisin meditation, 139



## Index

393

- Ramanujan, Srinivasa, 147  
 reality shows, 155  
 rearrangement in brainstorming, 28  
 rebellious creativity, 341–342  
 reductionism, 218–219  
 reflection, 174  
 reflexivity, 302  
 reinitiation, 78  
 Reisman Diagnostic Creativity Assessment (RDCA), 164–165  
 Remote Associates Test, 121  
 Renzulli, J.S., 119  
 replication, 78, 213  
 resistance to premature closure, 164, 182–183  
 reversibility in brainstorming, 28  
 rewards  
   for creativity, 374–375  
   effects of, 54–56  
 right-brain thinking, 133  
 risk taking, 140–141, 164, 174, 369–370  
 rituals, creativity, 153–154  
 Rogers, Carl, 32, 171  
 role of the incomplete, 179  
 role play, 174  
 rote memorization, 49, 270  
 Roth, Gabrielle, 152  
 Rothenberg, Albert, 141  
 Rothko, Mark, 141  
 rounding up/down, 97–98  
 Royal Academy of Engineering (RAE), 215  
  
 Sarason, Seymour, 240  
 Sawyer, R.K., 275  
 SCAMPER, 176  
 schools, 229  
   brain-based, 229  
   as bureaucratic institutions, 266–267  
   Chinese school system  
     vs. British school (documentary), 86–87  
     mathematics teaching, 88, 92  
     teacher training model, 100–101  
   impact on development of creativity, 292  
   as privileged space for human development, 292  
   promotion of ethics and moral development, 292–293  
   as socio-cultural systems, 291–293  
   standard education system, 7  
   standard model of learning, 268–269  
 Schuh, K.L., 58  
 science, 3  
 science teachers, 79  
 Screenflow Software, 41  
 self-actualizing creativity, 343  
 self-assessment, 174  
  
 self-discipline, 139–140  
 self-efficacy, 371  
 self-evaluation, 35  
 self-gratification, delaying, 372  
 Sellers, Heather, 176  
 Sesame Street, 315  
 seven I's of creative process, 143–152  
   imagery, 148  
   imagination, 148–149  
   improvisation, 151  
   incubation, 151  
   insight, 150–151  
   inspiration, 143–148  
     from dreams, 147  
     of love, 143–144  
     of nature, 145  
     of novel surroundings (travel), 147–148  
     by other's creativity, 146–147  
     through substances, 145–146  
   intuition, 149–150  
 Silberman, C.E., 247  
 Simmel, G., 290  
 simulations, 30  
 Singer, Jerome L., 317  
*Six Thinking Hats* framework, 169  
 Sizer, Theodore, 254  
 skills acquisition, 50–60  
   divergent thinking, teaching, 50–54  
   intrinsic and extrinsic motivation, 54–58  
 Smith, David, 147  
 SMK. *See* subject matter knowledge (SMK)  
 Snyder, Gary, 154  
*So You Think You Can Dance* (television show), 155  
 sociability, 290–291  
 social imagination, 325–326  
 social media, 326  
 social processing and creativity, 320  
   empathy, 321–322  
   multiculturalism, 322–323  
   perspective taking, 321–322  
   understanding social world, 320–321  
 social psychology of creativity, 229–232  
 social studies, 3  
 social world, understanding, 320–321  
 social-emotional imagination, 308–328  
   creativity in schools and, 327–328  
   default mode network as neural engine of, 310–313  
   definition of, 308  
   harnessing power of, 323–327  
   mind wandering, 318–320  
   overview, 308–309  
   psychological self and creativity, 313–320  
     constructive internal reflection, 316–317

- social-emotional imagination (*cont.*)  
     future-oriented thinking, 313–315  
     positive constructive daydreaming, 317–318  
 recommendations for  
     communicative technologies, 325  
     encouraging strategic internal reflection, 324–325  
     imagining pathways to goals, 325  
     informed choices about curricular content, 326  
     meta-awareness, 325  
     moving between task-oriented focus and meaning making, 324  
     scheduling time for reflection, 323–324  
     social imagination, 325–326  
     social media, 325–326  
     using stories to build personal narratives, 326  
 social processing and creativity, 320  
     empathy, 321–322  
     multiculturalism, 322–323  
     perspective taking, 321–322  
     understanding social world, 320–321  
     two brain networks and, 310  
 software, casting, 41  
 solitude, 152–153  
 spotlight mind, 24  
 standard education system, 7  
 standardized testing, 114–115, 356–357  
 Sternberg, Robert, 122, 170  
*storge* (love of family), 144  
 Stravinsky, Igor, 137  
 Strouger, Neil, 86  
 Structure of the Intellect Model, 46, 131  
 student-centered learning, 58–60  
 subject, changing, 3–5  
 subject matter knowledge (SMK), 90  
 subordinate creativity, 342–343  
 substitution in brainstorming, 28  
 successful intelligence theory, 122  
 “Sun of Community and Culture”, 142, 155  
 Synectics, 50  
 Systems Model, 80  
  
 TAC. *See* typological approach to creativity (TAC)  
 tall-poppy phenomenon, 358  
*Tar Baby* (Morrison), 362  
 task motivation, 97–98, 237  
 TCQ. *See* Types of Creativity Questionnaire (TCQ)  
 teacher-centered learning, 58–60  
 teachers, 12, 18  
     Chinese, 69  
     encouraging creative thinking in classrooms, 24–25  
     math, 96, 99–100  
     misperceptions of creative students, 163–164  
     perception of creativity, 115–119  
     science, 79  
     strategies for creative collaboration, 299–301  
     Turkish, 69  
     views on creativity, 68–70  
 teaching artist, 131  
 teaching for creativity, 355–376  
     allowing mistakes in, 375  
     allowing students to think creatively in, 374  
     building students’ self-efficacy in, 371  
     conformity and, 358–359  
     conventional educational practices and, 356  
     creative collaboration in, 375–376  
     cross-fertilization of thinking in, 373–374  
     delaying self-gratification, 372  
     developing creativity in students, 364–365  
     environment for, 373–376  
     essay tests in, 357  
     ethics use of creativity in, 373  
     helping students find what they love to do in, 371  
     idea generation in, 367–368  
     identifying and surmounting obstacles in, 368–369  
     imagining things from other viewpoints in, 376  
     instructing and assessing for creativity in, 374  
     knowledge in, 368  
     person-environment fit in, 376  
     questioning and analyzing assumptions in, 366–367  
     redefining problems in, 365–366  
     rewarding creativity in, 374–375  
     risk-taking in, 369–370  
     role modeling in, 373  
     selling creative ideas in, 367  
     standardized tests and, 356–357  
     taking responsibility for successes and failures in, 375  
     tolerance for ambiguity in, 370  
*Teaching for Creativity in the Common Core Classroom*, 384  
 Teaching-Regulated Ability (TRA), 90–91, 103  
 team collaboration, 32  
 ten-year rule, 49  
 Terspichore (muse), 143  
 Tesla, Nikola, 140, 149  
 Test for Creative Thinking – Drawing Production, 338  
 Thalia (muse), 143

## Index

395

- The Culture of School and the Problem of Change* (Sarason), 240  
 “The Princess and the Pea”, 140  
 theorists, 165–171  
 thinking  
   creative, 185, 374  
   cross-fertilization of, 373–374  
   divergent. *See* divergent thinking  
   future-oriented, 313–315  
   lateral, 169, 174–176  
   outside the box, 174–176  
   right-brain, 133  
   styles, 361  
 Third International Mathematics and Science Study (TIMSS), 87  
 Thomson, Tom, 146  
 thoughtlogs, 145–146, 153  
 3 Es – Enjoyment, Engagement, and Enthusiasm For Learning, 36  
 TIM. *See* Incubation Model of Teaching and Learning (TIM)  
 tolerance for ambiguity, 141, 164, 182  
 Torrance, Ellis Paul, 109, 167–169, 274, 355  
 Torrance Incubation Model of Teaching, 119  
 Torrance Tests of Creative Thinking (TTCT), 42, 46, 121, 167–169, 233, 274, 280  
 TRA. *See* Teaching-Regulated Ability (TRA)  
 training, creativity, 28–30  
   phrases or expression to avoid in, 34–35  
   principle of mild competition in, 30–32  
   sample activity for, 29  
   self-evaluation in, 35  
   use of praise in, 30  
 transmission and acquisition model of schooling, 269  
 travel, 147–148  
 Treffinger, D.J., 120  
 triarchic theory of intelligence, 122, 170  
 T-shaped professionals, 216  
 TTCT. *See* Torrance Tests of Creative Thinking (TTCT)  
 Turkish teachers, 69  
 twenty-first century skills, 110  
 Types of Creativity Observation Scale, 344  
 Types of Creativity Questionnaire (TCQ), 344  
 typological approach to creativity (TAC), 338–343  
   complex creativity, 340–341  
   focus of, 339  
   identification of student’s type of creativity, 343–344  
   overview, 340  
   rebellious creativity, 341–342  
   self-actualizing creativity, 343  
   subordinate creativity, 342–343  
   supporting student’s creativity in, 344–346  
 University of California at Davis, 73  
 University of Connecticut, 7, 41  
 utility, 14  
 values, and creativity, 287–289  
 Van Gogh, Vincent, 139  
 Varley, F.H., 146  
*The Voice* (television show), 155  
 Wagner, Tony, 265  
 Waldorf schools, 272  
 walking encyclopedias, 359  
 Wallas, Graham, 151, 169–170  
 Watts, Alan (philosopher), 24  
 “Who Am I” guessing game, 40  
*A Whole New Mind* (Pink), 265  
 Winner, Ellen, 273, 275  
 Winnicott, Donald, 291  
 Winslow, Leon, 272  
*The World is Flat* (Friedman), 265  
 Yeats, William Butler, 152  
 “Yesterday” (song), 320  
 Zeigarnik, Bluma, 179  
 Zeigarnik effect, 179  
 Zen sketching, 150