

# *Index*

- Abstraction, learning and, 17
- Accountability, 43–44, 81
- Allègre, Claude, 33–34
- American Educational Research Association, 92
- Assessment
- assessment triangle, 19
  - new learning theories and, 14, 18–21
  - procedural rationality and, 86–88
  - purpose of, 20
  - statistical methods and, 20
  - technology and, 21
- See also* Testing
- Asset specificity, 85
- Basketball, 28–29
- Baumol, William J., 9
- Behavioral economics, 6, 28, 78–79, 119n21
- Behaviorism, 10
- Berliner, David, 92–93
- Bernanke, Ben, 99n6
- Berra, Yogi, 81
- Black box
- of brain functioning, 10
  - of organizational decisionmaking, 77, 78
- Boorstin, Daniel, 33
- Bounded rationality
- acknowledgment of, 67–69
  - economics and, 23–26
  - tacit knowledge as, 81
  - and traveling-salesman problem, 5
- Brainerd, J. A., 11
- Bureaucracy in education, 34–38
- Bush, George H. W., 47
- Bush, George W., 56
- Castle, Mike, 55, 56
- Charter schools, 37
- Chess, 24–25
- Choice. *See* School choice
- Clinton, Bill, 46, 47
- Cognition, in elementary learning, 12–13
- Cognitive development, 15–16
- Cognitive revolution
- computer role in, 10–11
  - economics and, xi–xii
  - educational theory and, xi, 7
  - education policy and, x–xii, 6–7
  - emergence of, 9–11
  - successes of, 7
- Cognitive theory
- economics and, 76–79, 119n21
  - learning and, 101n2
  - principles of, 11–12
  - role of, in education, 62–63
- Cognitive therapy, 3
- Complexity
- and advance of science, 69
  - denial of, 67–68
  - difficulty of representing, 74
  - of education policy, 59, 71
  - of environment for decisionmaking, 24–25
- Compromise. *See* Mixed systems as

## *Moderating the Debate*

- American characteristic
- Computers
  - assessment innovations using, 21
  - cognitive scientists' interest in, 10
  - organizational choice and, 24
  - speed of, its effect on decisionmaking, 5
- Conant, James Bryant, 33
- Cremin, Lawrence, x, xi, 65
- Cuban, Larry, 65–66, 71
- Decisionmaking
  - complexity of environment for, 24–25, 31–32
  - computer speed and, 5
  - efforts and incentives, 27–29
  - human capital, 29–31
  - personal control in, 1–3
  - preventive maintenance, 26–27
  - real conditions for, 30
- Economics
  - behavioral, 6, 28, 78–79, 119n21
  - bounded rationality and, 23–26
  - cognitive models of, xi–xii, 6, 76–79, 119n21
  - exchange process in, 27–29
  - institutional, 22, 83–86
  - markets versus organizations in, 22–26
  - neoclassical, 10, 23–25, 29, 76–79, 83, 99n4, 119n21
- Educational outcomes, 59
- Educational Testing Service, 46
- Education and Learning to Think* (Resnick), 12
- Education policy
  - cognitive revolution ignored by, x–xii, 6–7
  - cognitive theory and, 14
  - complexity of, 59, 71
  - environmental complexities and, 31–32
  - ineffectiveness of traditional approaches to, 7
  - irrationality in, 66
  - openness and, 95–96
  - optimization in, 61–62, 79
  - political nature of, x
  - procedural rationality and, 38–39, 53, 59, 67, 72–75, 86–97, 115n3
  - process as important in, 67
  - and production theory, 76–83
  - research and, 54–55, 86–97
  - suggestions for conduct of, 94–96
  - unproductive cycles in, 65–69
  - See also* Reform
- Education research
  - limitations and boundaries of, 92–93
  - negativism in, 68–69, 88–90
  - precision of, 61–62
  - purposes of, 90–91
  - science and, 54–62, 113n40
  - suggestions for conduct of, 86–93
- Education system
  - bureaucracy in, 34–38
  - decentralized, 33–36, 46–52
  - French, 33–36
  - market aspects of, 36–37
  - public versus private, 35
  - rationality of, 37–38
  - Tocqueville on, 33
- Efficiency, 26, 77
- Effort, incentives and, 27–29
- ENIAC, 11
- Environment for decisionmaking
  - complexity of, 24–25
  - in education policy, 31–32
- Eurich, Nell P., 30
- Experimentation, 81
- Experts, learning process of, 16, 81
- Feasibility, computational, 5, 12, 69
- Federalism. *See* National standards

## Index

- Formal reasoning, pros and cons of, 1–6  
France, 33–36, 105n38  
Free throws, 28–29  
Friedman, Milton, 106n42
- Gardner, Howard, 10, 12  
Goals 2000, 47  
Goal-setting, 66, 68  
Gold-standard argument, 60–61, 95  
Goodling, William, 48  
Greenspan, Alan, 100n6
- Hakuta, Kenji, 57  
Higher-order skills, as misnomer, 13  
Hirschman, Albert, 68, 88, 89–90, 116n8  
History, learning/teaching of, 17  
Hixon Symposium (1948), 11  
Holland, Paul, 49, 51, 61  
House, Ernest, 84–85  
Howe, Samuel Gridley, 41  
Human capital, 29–31, 105n38
- Ibsen, Henrik, 65  
Idiosyncrasy, 82, 83  
Incentives  
    effort and, 27–29  
    of testing, 43  
Industry, preventive maintenance in,  
    26–27  
Institutional economics, 22, 83–86  
Intuition, 1–3, 6  
Invisible hand, 107n3
- James, William, 100n9  
Journalists, 86
- Keppel, Francis, 111n25  
Klahr, David, 73–74
- Lagemann, Ellen, xi, 10, 62  
Lashley, Karl, 11
- Learning, 12–21  
    assessment and, 14, 18–21  
    cognitive psychology and, 101n2  
    history, 17  
    initial, 16–17  
    mathematics, 17–18  
    as problem solving, 10  
    process of, 15–18  
    science, 18  
    teaching of skills for, 13–14  
    transfer of, 16–17  
    with understanding, 16  
Linking, of test scores, 48–52, 87
- MANIAC, 11  
Mann, Horace, 41  
Markets, organizations versus, 22–26, 34,  
    36–37, 83–84  
Mathematics, learning/teaching of, 17–18  
Menand, Louis, 100n9  
Middle-ground solutions. *See* Mixed  
    systems  
Miller, George, 11  
Mixed systems as American characteristic,  
    x  
    centralized/local school administration,  
    36, 46–52  
    education, 35, 70  
    school choice, 37  
    scientifically based education research,  
    57  
Mosteller, Frederick, 51  
Murnane, Richard, 80–82, 84
- NAEP. *See* National Assessment of  
    Educational Progress  
National Academy of Sciences, 33, 57  
National Assessment of Educational  
    Progress (NAEP), 40, 49, 59,  
    109n14, 110n18, 111n25  
National Governors' Association, 47

## *Moderating the Debate*

- National Institute of Child Health and Human Development, 56
- National Research Council (NRC), 15–21, 49, 51, 56–59, 61, 113n35
- National standards, 46–52, 72–75, 85
- A Nation at Risk*, ix, 67, 75
- Neisser, Ulric, 11
- Nelson, Richard, 80–82, 84
- Neoclassical economics, 10, 23–25, 29, 76–79, 83, 119n21
- Newell, Alan, 11
- No Child Left Behind Act (2001), ix, 37, 54, 55, 87–88
- Office of Education Research and Improvement (OERI), 55, 57
- Opportunism, 84
- Optimization
- drawbacks of seeking, 5, 61–62, 73–75, 79
  - in education policy, 61–62, 79, 82, 86–88
  - as goal, 5
  - satisficing versus, 6, 38
- Organizations
- computers and, 24
  - markets versus, 21–26, 34, 36–37, 83–84
  - in neoclassical versus cognitive economic theory, 76–79
  - value of, 83–84
- Outcomes, educational, 59
- Performance, incentives and, 27–29
- Physics envy, 62
- PISA. *See* Program for International Student Assessment
- Polanyi, Michael, 80–81
- Politics
- education and, x
  - science and, 54–56, 122n43
  - testing and, 46–52
- Popular Education and Its Discontents* (Cremin), x
- Positivism, 10
- Poverty, 92–93
- Pragmatism, 100n9
- See also* Mixed systems
- Preventive maintenance, 26–27
- Private schools, 35, 37
- Problem solving, cognitive science and, 11, 12, 101n2
- Procedural rationality
- definition of, xii, 69
  - education policy based on, 38–39, 53, 59, 67, 72–75, 86–97, 115n3
  - optimization versus, 6, 38
  - philosophical definition of, 70
  - in scientific inquiry, 53–54
  - standards and, 72–75
  - testing and, 42, 45–52
- Process
- in education policy, 67, 82
  - in scientific inquiry, 59
- Production theory of education, 76–83
- Program for International Student Assessment (PISA), 40, 109n14
- Public schools. *See* Education system
- Qualitative research, 55, 57
- Radomized controlled experimentation, 60–62
- Rationality. *See* Bounded rationality; Procedural rationality
- Rawls, John, 70
- Reading Excellence Act (1999), 55
- Reasonableness. *See* Procedural rationality
- Reform
- cognitive bounds and, 32
  - exaggerated calls for, ix–x, 39–40, 68, 75, 94

## Index

- moderation in, 65–66
- Replicability of results, 82
- Resnick, Lauren, 12–14
- Resources, student achievement affected by, 80
- Revealed preference theory, 108n8
- Satisficing
  - definition of, 38, 106n42
  - in economics, 76–79, 106n42
  - goal articulation in, 40
  - in scientific inquiry, 56
- School boards, 33, 36
- School choice, 37
- Science, learning/teaching of, 18
- Scientifically based research, 54–62, 113n40
- Scientific inquiry, 52–63
  - complexity and bounded rationality as aids in, 69
  - nature of, 57–59, 69, 113n36
  - politics and, 54–56, 122n43
  - procedural rationality and, 53–54
  - satisficing in, 56
- Shavelson, Richard, 58
- Simon, Herbert, xii, 5–7, 10, 11, 23, 24, 69, 76, 101n2, 106n42, 113n36
- Skepticism, 68–69, 95
- Smith, Adam, 107n3
- Socioeconomic status, 92–93
- Standardized tests, 20, 44
  - See also* Testing
- Standards. *See* National standards
- State role in education, 46–52
- Statistics, assessment and, 20
- Tacit knowledge, 80–81, 84
- Tennessee STAR experiment, 60
- Testing
  - and accountability, 43–44
  - cross-test comparison, 48–52
  - economics and, 43
  - historical use of, 40–41
  - incentives of, 43
  - politics and, 46–52
  - precision of, 44–45
  - principles underlying, 41
  - procedural rationality and, 42, 45–52
  - purposes of, 43–44, 51, 110n18
  - See also* Assessment
- Thermostat analogy, 71–72
- Think tanks, 86
- Thorndike, Edward, 13
- TIMSS. *See* Trends in International Mathematics and Science Study
- Tocqueville, Alexis de, 33
- Training of employees, 29–31
- Transaction costs, 23
- Traveling-salesman problem (TSP), 4–6
- Trends in International Mathematics and Science Study (TIMSS), 40, 109n14
- Tyack, David, 65–66, 71
- Understanding, learning with, 16
- Von Neumann, John, 11
- Wall Street Journal*, 72–74
- Wiener, Norbert, 11
- Williamson, Oliver, 21–25, 30, 83–85
- Yiddish folktale, 1