

Index

A

- AACTE. *See* American Association of Colleges for Teacher Education
- Acceptance of new technologies theory, 133
- Access to technology
 - colleges of education, 187-189
 - federal policy and research issues, 29, 31, 121-127
 - introduction, 90-91
 - issues, 18-21
 - state policies, 119-121
 - summary of key findings, 89-90
 - technologies currently owned and used by schools, 9-10, 91-118
- ACOT. *See* Apple Classroom of Tomorrow Teacher Development Center Project
- Administrative duties technology potential, 8, 12, 54
- Administrators' technology training, 153-154
- "The Adventures of Jasper Woodbury," 58-59, 201
- Alabama, technology training requirements, 138
- America Online
 - availability in schools, 10
 - communications potential for teachers, 60, 86, 110, 113
 - LabNet main screen, 118
- American Association of Colleges for Teacher Education, 171
- Appalachian project, 246
- Apple Classroom of Tomorrow Teacher Development Center Project, 29, 153-154
- Assessment of student learning and technology potential, 12, 19, 73-75
- Association for Teacher Education, 171
- AT&T Learning Circles, 60, 113, 117

B

- Bank Street College of Education, 237
- Bilingual Education Act, 35, 214, 216
- Boulder Valley Internet Project, 115
- Bureau of Educational Personnel Development, 242

C

- Cable television access and use, 10, 17, 89, 105-106
- California. *See also* University of Southern California
 - California Technology Project, 180
 - Educational Telecommunications Network, 44, 233
 - Los Angeles' Open Charter School, 69, 76
 - Los Angeles' satellite uplink facility, 233
 - Los Angeles teachers' continuing education, 16, 83
 - Monterey Model Technology Schools, 28, 148, 150, 151, 160, 163
 - San Diego school's "Microworlds" project, 68
 - Technology Awareness Days, 149
 - technology certification requirements, 175
 - WAN access, 113
- California State University, 180
- Camcorders, 39, 107
- Carnegie Forum
 - report on education and the economy, 170
 - Task Force on Teaching as a Profession, 171
- Case Western Reserve University, 116
- CD-ROM
 - current access and use, 1, 10, 11, 89, 90, 96, 97
 - history class use, 67
 - music instruction, 61
 - reference works, 59, 65
 - student-maintained records, 75
- Censorship versus students' right of access to information, 27-28, 46
- Center for Technology in Education
 - survey of accomplished computer-using teachers, 52-53
 - survey of current use of telecommunications by teachers, 55-56
- Certification for teaching
 - alternative certification programs, 173
 - Master Teacher requirements, 83, 143, 173, 178
 - state requirements, 172-173, 174-175

- technology and, 175-176
 - Channel One project, 106
 - Children's Television Workshop, 245
 - Christa McAuliffe Fellowships, 216, 236
 - Cleveland FreeNet, 116
 - COEs. *See* Colleges of education
 - Colleges of education
 - barriers to technology use, 18, 187-191
 - case example for redefining preservice, 182-183
 - faculty and technology, 189-191
 - faculty as role models for teacher education students, 193-194
 - federal support for teacher education, 42-43, 241-242, 247, 250, 252
 - K-12 reforms and technology, 179-181
 - models of change, 191-206
 - number of, 166
 - technology preparation, 17-18, 184-185
 - Colorado
 - Boulder Valley Internet Project, 115
 - students' use of the Internet, 27
 - Columbia University, 233
 - Communication. *See also* Telecommunications
 - potential benefits of technology, 1, 8, 12, 50, 77-79
 - Communications Survey of Member Teachers of the National Education Association, 91
 - Community-based networks, 115-117
 - Community support for technology, 162-163
 - CompuServe, 10, 113, 117
 - Computer labs in schools, 90, 97, 98
 - Computer modification for special education students, 68
 - Computer networks. *See* The Internet; Local area networks; Wide area networks
 - Computer use
 - barriers to use by teachers, 19, 130-133
 - basic skills practice, 90, 103
 - changing views of best use, 104
 - current use by students, 101-102
 - current use by teachers, 102-105
 - instructional areas of use, 103-105
 - requirements for effective use, 20
 - teaching changes survey, 52-53
 - word processing, 90, 97, 104
 - Computers
 - computer age and power inventory, 89, 94-96
 - a computer for every teacher concept, 71, 72, 152-153
 - current access, 92-101
 - distribution, 98-101
 - number installed in schools, 1, 9, 89, 93
 - Computers in Education Study, 91, 94
 - Consortium for School Networking, 113
 - Copyright and intellectual property issues, 25-26, 44, 46
 - Corporation for Public Broadcasting, 38, 91, 105, 107
 - Costs of technology, 21-24, 123-125
 - Council of Chief State School Officers, 179
 - CPB. *See* Corporation for Public Broadcasting
 - CU-See Me software, 59
 - Curry School of Education
 - dean's role, 193
 - faculty as role models, 193-194
 - field experiences, 194-195
 - lessons learned, 195-196
 - technology training, 192-193
 - Virginia Public Education Network and, 17-18, 195
- D**
- Daily tasks of the teacher, potential benefits of technology, 8, 12, 13, 50, 54, 71-79
 - Delphi, 113
 - Department of Agriculture, 214, 218
 - Department of Commerce. *See also* Telecommunications and Information Infrastructure Assistance Program
 - Advanced Technologies Program, 38
 - educational networking programs, 208
 - federal policy levers, 38
 - key programs, 217
 - Public Telecommunications Facilities Program, 38
 - technology education programs, 214, 224
 - telecommunications infrastructure programs, 38, 232-233
 - Department of Defense, 40, 214, 218
 - Department of Education. *See also* Office of Educational Technology
 - additional sources of support, 218
 - cost estimate of technology, 21-23
 - data on teachers' weekly allocation of time, 71
 - Director for Educational Technology, 213
 - educational technology programs, 40, 46, 209, 214, 218, 244, 251
 - federal policy levers, 36-37
 - funding for teacher education materials, 201
 - key programs, 216-217
 - program coordination, 219, 220, 253
 - technology-related training programs, 39, 224-230
 - Department of Energy
 - Summer Teacher Enhancement workshops, 212, 236-237, 250, 251

technology-related programs, 40, 212, 214, 217, 219, 237, 238

Department of Health, Education, and Welfare, 245-246

Department of Health and Human Services, 214, 219

Department of Transportation, 214, 219

Desktop publishing, 90, 97

Dialog, 117

Digitizing cameras, 59

Direct broadcast, instructional use, 89

Discovery Channel, 106

Distance learning. *See also* Star Schools
 current access and use, 10, 90, 109-110
 Jason Project Curriculum, 236
 for student teachers, 186
 for students, 88
 for teachers, 16, 83
 telecommunications infrastructure, 232-233

District of Columbia, technology training requirements, 138

DOE. *See* Department of Energy

Dwight D. Eisenhower Professional Development program. *See* Eisenhower Professional Development program

E

E-mail. *See* Electronic mail

Earth Lab project, 232

EcoNet, 110

ED. *See* Department of Education

Edison Project School Design, 79

Education for Economic Security Act, 224

Education of the Handicapped Act, 243

Education Professions Development Act, 239, 241-242

Educational database access by telecommunications, 55

Educational Research Information Center, 55

Educational Technology Initiative, 136

Eisenhower Clearinghouse for Mathematics and Science Education, 77, 250

Eisenhower National Program, 215, 216, 236, 238

Eisenhower Professional Development program, 35, 42, 208, 209, 212, 215, 224-226, 235

Electronic mail
 availability in schools, 9-10
 classroom use, 90
 general population use, 4
 student-to-student, 57
 teacher-to-teacher, 57
 teachers' potential uses, 12, 78-79

Electronic searches
 CD-ROM reference works, 59

telecommunications use, 59

Elementary and Secondary Education Act
 amendments, 34-35
 Title I programs, 35, 214, 216, 227-228, 244-245
 Title II programs, 224-225. *See also* Eisenhower Professional Development program
 Title III programs, 6, 208, 212, 216, 220, 222-223, 244. *See also* Star Schools
 Title VI programs, 228-229

Emergency School Aid Act, 245

Environmental Protection Agency, 217

EPDA. *See* Education Professions Development Act

Equality of education, technology potential, 60

ERIC. *See* Educational Research Information Center

ESEA. *See* Elementary and Secondary Education Act

F

Facsimile machines
 in classrooms, 78
 in schools, 39, 90, 108

Family Education Rights and Privacy Act, 27

Fax machines. *See* Facsimile machines

Federal grant programs. *See specific programs by name*

Federal role in technology and teacher development
 background, 209, 212
 current support and commitment, 42, 212-220
 educational research and development, 39-41
 historical precedents for technology-related professional development, 32-33, 239-246
 introduction, 208-209
 key current programs for technology-related teacher development, 216-217
 key issues for future federal policies, 34, 47, 250-254
 leadership, 31-46, 220-224
 legislation, 36-38
 lessons from the past, 246-250
 magnification of impact of federal support, 239
 major technology-related training programs, 224-234
 past major federal programs, 210-211
 policy levers, 36-38
 summary of federal emphasis in technology-related training services and activities, 234-239
 summary of key findings, 207
 support for professional development, 2-3, 29, 42, 45, 235-238, 246-250

Fellowships and scholarships, 212, 241-242

FERPA. *See* Family Education Rights and Privacy Act

FIE. *See* Fund for Innovation in Education

Florida. *See also* University of Central Florida

- FIRN network, 114, 176
 - implementation process, 163
 - internal networks in schools, 78
 - model technology school, 146
 - preservice technology training, 180
 - School Year 2000 Initiative, 74
 - technology certification requirements, 176
 - technology training policy, 28, 137
- Florida State University Center for Educational Technology, 74
- FreeNets, 116
- Fund for Innovation in Education, 215
- Fund for the Improvement of Post-Secondary Education, 42, 201, 236

- G**
- Geological Information Service database, 237
- George Washington University, cable television teacher education program, 17
- Georgia
 - ClassConnect project, 88
 - telecommunications for schools, 44
- Gifted and Talented Education program. *See* Javits Gifted and Talented Education program
- Global Exchange project, 66
- Global information infrastructure, 43-46
- Global Laboratory Project, 61, 62-64, 113, 232
- Global Schoolhouse project, 59
- GLOBE Program, 219
- Goals 2000: Educate America Act, 3, 6, 31, 32-33, 119, 208, 209, 216, 220, 221, 253
- Goals articulation, 142

- H**
- Hawaii's Global Lab participation, 62
- Higher Education Act, 212, 241
- Holmes Group, 171
- HyperCard software
 - Lifestyle Change Project, 153
 - "Microworlds" projects, 68
 - music instruction, 61
 - programming, 70
 - social studies class, 65
 - in teacher education, 202
- Hypermedia software, 107. *See also* HyperCard software

- I**
- IBM's Teacher Preparation with Technology Grant Program, 188-189, 193
- Idaho, technology certification requirements, 176
- IDEA. *See* Individuals with Disabilities Education Act
- IEA. *See* International Association for the Evaluation of Educational Achievement
- Implementation
 - case examples, 28-29
 - a computer for every teacher, 152-153
 - conclusions, 163
 - establishing technology resource centers, 154-155
 - lessons, 30
 - model technology schools, 148-151
 - overview, 144-145
 - technology resource personnel, 146-148
 - training administrators, 153-154
 - training the trainers, 145-146
- Implementation issues
 - access, 155
 - case example, 156-157
 - human resources, 158-159
 - instructional vision, 158
 - sustainability, 158
- Improving America's Schools Act, 3, 6, 34-35, 209, 219, 220, 223, 224
- Indiana
 - "A Computer for Every Teacher" project, 29, 71, 72, 152
 - Ideanet, 114
 - Intelnet, 114
 - Principals' Technology Leadership Training Program, 154
 - productivity software, 75
- Individualized student learning, 66-69
- Individuals with Disabilities Education Act, 35, 214, 216, 218, 229-230, 243
- Information services. *See* Online services
- Inservice training. *See also* Professional development
 - administrative and community support, 162-163
 - availability, 1-2, 41-43, 135-137
 - barriers to technology use, 19, 130-133
 - federal funding for librarians, 241
 - federal role, 45, 208, 209
 - hands-on training, 159
 - incentives, 162
 - introduction, 130
 - nature of training, 137-138
 - onsite support and assistance, 25, 139-141
 - potential applications, 8, 12, 16, 79-81, 134-135
 - redefining, 159, 161
 - state requirements and resources, 138
 - summary of findings, 129-130
 - systemic factors influencing technology use, 141-144
 - technical and pedagogical assistance, 161-162
 - time requirements, 19, 24-25, 41, 131, 137

- Instruction with the aid of technology in the classroom
 development of new forms, 61-65
 effectiveness assessment, 14, 19, 20, 126-127, 142-144, 249-250
 individualized student learning, 66-69
 methods of teaching with and about technology, 185-186
 motivating learners, 65-66
 potential benefits of technology, 8, 12, 57-71
 redefining teachers' roles, 69-70
- INTASC. *See* Interstate New Teachers Assessment and Support Consortium
- Integrated Services Digital Network, 110
- Integration of technology into the curriculum, 2, 130, 134, 142-144, 158, 189, 234-237
- Interactive compressed video, 196-197
- International Association for the Evaluation of Educational Attainment
 study, 91, 94, 102, 103, 109, 117
- International Poetry Guild, 60-61
- International Society for Technology in Education
 accreditation guidelines, 176, 177, 179
- Internet
 access by schools, 1, 9-10, 110
 description, 112
 Edison Project School Design, 79
 equality of education potential, 60
 student use and limitations, 27-28
 weather data, 66
- Interstate New Teachers Assessment and Support Consortium, 179
- Investing in technology. *See also* Costs
 human resources issues, 158-159
 instructional vision, 158
 key issues, 155, 158
 sustainability, 158
- Iowa. *See also* University of Northern Iowa
 electronic music keyboards project, 236
 Iowa Communications Network, 198
 network courses for teachers, 16
- Iowa Test of Basic Skills, 143
- ISDN. *See* Integrated Services Digital Network
- ISTE. *See* International Society for Technology in Education
- J**
- Javits Gifted and Talented Education program, 235, 236
- K**
- K-III Communications Channel One project, 106
- Kansas, technology certification requirements, 175
- Kentucky
 history class project, 67
 Jefferson County technology resource personnel, 147, 149
 master plan for education technology, 123
 multimedia lessons, 64-65, 236
 New Kid in School Project, 145-146
 teacher's use of online services, 86
- Kid Link, 60
- Kids as Global Scientists, 61
- Kids Network. *See* National Geographic Society's Kids Network
- L**
- LAN-Internet with video, 111, 113-114
- LAN-Internet without video, 110-111
- LANs. *See* Local area networks
- Laptop computers, 97
- Learning Channel, 106
- Legislation. *See also specific legislation by name*
 major federal legislation for enhancing technology and professional development, 36-38
- Lesson planning
 teachers' time, 41, 71
 technology role, 54, 75-77, 235
- Libraries. *See also* School media centers
 electronic catalog searches, 59, 76
 federal support programs, 223
 personnel training in the technologies, 241
- Library Personnel Development program, 216
- "Listservs," 60
- Local area networks
 case examples, 78-79
 current access and use, 9-10, 55, 89, 96
 description, 112
 percent of schools restricting LANs to one room, 55
- Location of technology equipment within schools, 20, 90, 97-98
- Louisiana
 Summer Teacher Enhancement Program, 237
 technology resource center, 154
- M**
- Maine, policy on technology access and use, 119
- Maryland
 interactive computer and video system for teachers, 228-229
 Montgomery County social studies class, 64, 65
- Master Teacher certification requirements, 83, 143, 173, 178
- Mathematics instruction
 Algebra Tutor, 68
 computer applications, 16, 90, 97
 electronic catalog of instructional plans, 77

- federally funded teacher training, 209, 214
 - Mathline for teachers' professional development, 16, 84-85
 - Star Schools telecourse for teachers, 236
 - technology potential, 58-59, 61
 - telecommunications demonstration project, 223
 - video support, 58-59, 201
 - Media centers. *See* School media centers
 - Meetings
 - meeting scheduling study, 77-78
 - time savings by effective use of technology, 71
 - video network, 16
 - Michigan
 - school media specialist role, 236
 - technology certification requirements, 175
 - Weather Underground project, 61
 - Middlebury College, 87
 - MIDI. *See* Musical instrument digital interface
 - Minnesota's math and science studies using technology, 237
 - Minority students' technology access and use, 99-100
 - Minority teacher recruitment programs, 212
 - Mississippi
 - professional development, 81
 - technology training requirements, 138
 - Model technology schools, 145, 148-151
 - Modem access and use, 9, 89, 108-109, 110
 - Montana
 - METNET network, 114, 138, 233
 - technology training requirements, 138
 - telephones in classrooms project, 78
 - Monterey Model Technology Schools, 148, 150, 151, 160, 163
 - Motivating effects of technology, 14, 50, 65-66
 - Multimedia
 - current access and use, 92
 - lesson development by teachers, 64-65, 159, 235, 236
 - reports by students, 11, 64
 - Music, technology potential, 61, 236
 - Musical instrument digital interface, 61
- N**
- NASA. *See* National Aeronautics and Space Administration
 - NASDTEC. *See* National Association of State Directors of Teacher Education and Certification
 - A Nation at Risk*, 170
 - A Nation Prepared: Teachers for the 21st Century*, 171
 - National Aeronautics and Space Administration
 - Aerospace Education program, 212
 - Spacelink, 113
 - technology-related programs, 214, 218
 - National Association of State Directors of Teacher Education and Certification, 178, 179
 - National Board for Professional Teaching Standards, 83, 143, 170, 173, 178
 - National Center on Educational Materials and Media for the Handicapped, 245
 - National Clearinghouse for Mathematics and Science Education, 225
 - National Commission on Teaching and America's Future, 170, 173, 177-178
 - National Commission on Time and Learning, 81, 131
 - National Council for the Accreditation of Teacher Education, 170, 173, 176, 179
 - National Council of Teachers of Mathematics, 58, 84, 232
 - National Defense Education Act, 209, 240-241
 - National Diffusion Network, 230
 - National Education Association communications survey, 91, 117
 - National Education Goals, 42
 - National Education Standards and Improvement Council, 33-34
 - National Endowment for Children's Educational Television, 217, 234
 - National Endowment for the Arts, 214, 219, 234
 - National Endowment for the Humanities, 214, 219
 - National Geographic Society's Kids Network, 41, 61, 69, 117
 - National Information Infrastructure, 208, 223-224, 232-233
 - National Science Foundation
 - Applications of Advanced Technologies program, 38, 231-232
 - Collaboratives for Excellence in Teacher Preparation, 231
 - educational networking programs, 41, 208
 - educational technology development, 243-245
 - funding for teacher education, 193, 201
 - funding for technology applications, 40, 61
 - Global Laboratory Project, 61, 62-64, 232
 - key programs, 217, 218
 - networking infrastructure for education project, 38, 232
 - Teacher Enhancement program, 29, 38, 212, 217, 230-231, 237, 238
 - teacher preparation, 38
 - teacher institutes, 209, 240
 - technology-related training programs, 224
 - National Science Teachers Association, 232
 - National Study of School Uses of Television and Video, 91
 - National Teacher Corps. *See* Teacher Corps program

- National Technical Information Administration, 40
 National Technology Plan, 31-32, 222
 National Telecommunications and Information Administration, 232
 National Writing Project, 218, 234
 NBPTS. *See* National Board for Professional Teaching Standards
 NCATE. *See* National Council for the Accreditation of Teacher Education
 NCTM. *See* National Council of Teachers of Mathematics
 NDEA. *See* National Defense Education Act
 NDN. *See* National Diffusion Network
 NEA. *See* National Education Association
 NESIC. *See* National Education Standards and Improvement Council
 New Hampshire, student-computer ratio, 99
 New Jersey
 NJLink network, 114-115, 232
 state planning for technology, 156-157
 technology certification requirements, 175
 New teacher preparation. *See* Preservice training
 New York
 Harlem Economic Empowerment Zone, 233
 master plan for education technology, 123-125
 meeting scheduling study, 77-78
 teacher certification, 173
 teachers' professional development, 84
 NII. *See* National Information Infrastructure
 Normal schools, 168
 North Carolina's policy on access and use, 120
 NSF. *See* National Science Foundation
- O**
 Office of Educational Research and Improvement, 213
 Office of Educational Technology, 31, 35, 207
 Oklahoma
 SpecialNet network, 114
 teacher certification, 173
 Online services
 current access and use, 4, 92
 description, 112
 for professional development, 86
 Onsite technology support and assistance
 availability, 140-141
 for instructional television and video, 141
 teachers' perceptions, 139-140
- P**
 Paul Douglas teacher scholarships, 212
 PBS. *See* Public Broadcasting System
 Peabody Integrated Media Approach, 17, 202, 205
 Perkins Loan Cancellations, 212
 Perkins Vocational Education Basic Grants program, 215, 218
 Policy issues, 29-47, 121-127
 Potential benefits of technology for teachers
 conclusion, 88
 daily tasks, 8, 12, 13, 71-79
 instruction enhancement, 8, 12, 57-71
 introduction, 50-54
 job of the teacher, 12, 54-57
 professional development, 8, 12, 79-88
Power On! New Tools for Teaching and Learning, 5, 215
Precollege Teacher Development in Science Program, 244-245
 Preservice training. *See also* Colleges of education
 accreditation of colleges of education, 176-179
 certification and licensure, 172-173
 current challenges, 2, 41-43, 45, 169
 federal funding for librarians, 241
 history, 167-169
 introduction, 166-167
 K-12 reforms, 179-181
 models for teacher education, 191
 preparing new teachers with technology, 17-18
 reform in teacher education, 169-181
 state requirements for entrance to teacher education programs, 174-175
 summary of key findings, 165-166
 technology and certification, 175-176
 technology in teacher education, 2, 12, 181-191
 technology integration into teacher preparation in federally funded projects, 236-237
 Principals
 role of in promoting school technology, 162
 technology training for, 153-154
 Printers
 dot-matrix, 97
 laser, 90, 96, 97
 Privacy of student records, 26-27, 44, 46
 Private sector programs, 40-41, 43
 Prodigy, 10, 86, 113, 117
 Productivity enhancement
 software case example, 74-75
 technology potential, 8, 12, 57, 71, 72
 Professional development. *See also* Continuing education
 collegial exchange, 55, 85-88
 followup strategies in federally supported programs, 238
 historical precedents, 239-246
 key issues for future federal policies, 250-254
 lessons from past and present federal efforts, 246-250
 roles for technology in federally funded projects, 235, 236-237

technology potential, 8, 12, 13, 50, 54, 56-57, 71, 72, 79-88
 using distance learning, 83, 110
 Professional development schools, 171
 Public Broadcasting System, 106
 Mathline project, 16, 84-85
 teachers' professional development, 84-85
 Public Telecommunications Facilities Program, 215, 217, 232

R

Rand Change Agent study, 249
 Recordkeeping, potential benefits of technology, 12, 50, 54, 71, 73
 Research skills enhancement, technology potential, 12, 59-61

S

Satellite connections
 current access and use, 10, 105-106
 instructional use, 11, 89
 Scanning devices, 59, 68
 Scholarships and fellowships, 212
 Scholastic Network, 86
 School district networks, 115
 School media centers, 20, 75-77
 Science projects, 61, 62-64. *See also* Weather projects
 Secretary's Commission on Achieving Necessary Skills, 4
 Smithsonian Institution, 214
 Software Publishers Association, 41
 Special education
 federal programs, 29, 214, 216, 242-246
 goals, 249
 network, 114
 technology potential, 11, 17, 67-68
 Special Educational Instructional Materials Centers, 243
 Star Schools, 31, 39, 212, 215, 216-217, 223, 226-227, 236
 State-level networks, 110, 114-115, 232
 States
 certification requirements for teachers, 172
 planning example for technology, 156-157
 policies on access and use, 119-121
 requirements for entrance to teacher education programs, 174-175
 technology training requirements for teachers, 175-176
 Stephen F. Austin University, 182
 Student-centered instruction, 1, 12, 13, 49, 132
 Student computer competency requirements, 119

Student motivation as potential benefit of technology, 8, 50, 65-66
 Student teachers
 benefits of electronic mail/conferencing system, 199
 distance-learning course, 186
 technology and, 186-187
 Student-technology ratios, 90, 98-101
 Study methodology of potential benefits of technology for teachers, 51-54
 Substitute teachers, 28, 160
 Summer Teacher Enhancement workshops, 212, 236-237
 SuperSubs, 28, 160

T

Teacher-centered instruction, 1, 49
 Teacher Corps program, 42, 208, 242, 249
 Teacher education. *See* Inservice training; Preservice training
 Teachers. *See also* Student teachers; Substitute teachers
 current computer access and use, 102-104
 distance-learning programs for, 110
 factors affecting the demand for new teachers, 166-167
 redefinition of role as facilitator, 69-70
 timeline of changes in prevailing wisdom of "experts" about how teachers should use computers in schools, 104
 training. *See* Inservice training; Preservice training
 Technology certification requirements, 175-176
 Technology for Education Act, 35, 36, 40, 220-223
 Technology resource centers, 154-155
 Technology resources
 costs, 21-23
 current availability in schools, 1, 9-10, 91-118
 goals and rationale for use, 24-25
 Telecommunications. *See also* The Internet
 access and use data, 9-10, 91, 117
 access to information resources via, 25-26, 59-61, 76
 barriers to use by teachers, 19, 20, 56
 capability, 90
 cost estimates, 21-23
 current use by teachers, 55-56, 76, 78
 legislation, 223-224
 potential benefits, 1
 software, 117-118
 terms and concepts, 112-113
 use for student learning, 55-56, 60
 Telecommunications and Information Infrastructure Assistance Program, 232-233

Telephones in classrooms, 1, 9, 39, 77, 90, 108
 Television for instructional use, 1, 10, 39, 89, 107, 217, 233-234, 242, 245
 Telstar 401 satellite, 84
 TENET. *See* The Texas Education Network
 TERC, 41, 62, 113, 117. *See also* Global Laboratory Project LabNet workshop, 143
 Texas. *See also* University of Houston
 Global Lab participation, 62
 One Computer Classroom program, 229
 preservice training, 182-183
 technology certification requirements, 175
 technology resource centers, 154
 technology training policy, 137, 180
 technology training requirements, 138
 TENET, 29, 86, 110-111, 114, 116
 Texas Education Agency, 42
 The Texas Education Network, 29, 86, 110-111, 114, 116
 Textbrowser software, 68
 TIIAP. *See* Telecommunications and Information Infrastructure Assistance Program
Tomorrow's Teachers, 171
 Training. *See* Inservice training; Preservice training
 Two-way communication equipment. *See also* Distance learning; Facsimile machines; The Internet; Local area networks; Modem access and use; On-line services; Telecommunications; Telephones in classrooms; Wide area networks
 current access and use, 9, 108-118
 importance, 122, 125
 Tycho™ Teacher Information Manager, 74-75

U

University of Central Florida, 180
 University of Houston, 181
 University of Kentucky, 246
 University of Northern Iowa
 Iowa Communications Network and, 198
 technology and student teaching, 18, 198-200
 University of South Carolina, 17
 University of Southern California, 184
 University of Utah, 181
 University of Virginia
 PEN collaboration, 180, 195
 School of Education, 192-196. *See also* Curry School of Education
 University of Washington, 180-181
 University of Wyoming
 interactive compressed video, 196-197
 laboratory schools, 197-198
 lessons learned, 198
 model schools, 197
 teacher education in technology programs, 196

Utah

access and use policy, 119
 "Lifestyle Change" Project, 152-153
 technology training policy, 136

V

Vanderbilt University
 Cognition and Technology Group, 58
 constructivist learning base and technology, 201-202
 Peabody Integrated Media Approach, 17, 202, 205
 teacher education program, 200-201
 virtual professional development, 202-204
 VCRs. *See* Videocassette recorders
 Vermont
 BreadNet, 87
 first documented school for teacher training, 168
 policy on access and use, 120
 technology training requirements, 138
 Video-based instructional materials, 10, 58-59
 Video cameras, 10, 57
 Video conferencing, 59, 110
 Video equipment. *See also* Television for instructional use; Videocassette recorders
 current access and use, 10, 105, 107-108
 distribution patterns among schools, 99
 installed base of computer and video technologies in typical schools in 1991-92, 93
 instructional use, 89-90, 107-108
 Videocassette recorders
 availability in schools, 1, 10, 39, 57
 instructional use, 89
 teacher-VCR ratio, 105
 Videodiscs
 current access and use, 10, 89, 90, 92, 105, 106-107
 potential for instructional use, 58, 64-65, 159
 in teacher education, 202
 Videotaped programming
 instructional use, 89
 Virginia, PEN network, 77, 86, 114, 180, 195. *See also* University of Virginia
 Vocational Education Basic Grant program, 29
 Voice mail, 1, 8, 39, 78, 159

W

WANs. *See* Wide area networks
 Washington. *See also* University of Washington
 Bellevue's Integrated Technology Classrooms, 150
 Belnet, 86-87

- Olympia school district, 70
- technology certification requirements, 175
- technology training policy, 137
- Weather projects
 - Global Exchange project, 66
 - Kids as Global Scientists project, 61
 - technology potential, 11, 59
 - Weather Underground study project, 61
- Weather Underground study project, 61
- White House Office of Science and Technology
 - Committee for Education and Training, 213
- Whittle Communications' Channel One project, 106
- Wide area networks
 - availability in schools, 9-10, 79, 110
 - description, 112
- Wisconsin's technology certification requirements, 176
- Workplace technology competencies, 11, 50
- Workshops, 159
- World Wide Web, 110, 111, 118
- Wyoming. *See also* University of Wyoming
 - compressed video network, 16
 - student-computer ratio, 99
 - technology certification requirements, 175