

INDEX

A

Abbot, E., 45
Academic growth, and disciplinary literacy (DL), 164
Academic rigor in a thinking curriculum, 24–25, 28, 92
Accomplishment recognition, as principle of learning, 25
Accountable talk, xiii, 24–26, 28, 79, 90, 105, 108, 114, 124, 127, 206; change from IRF/IRE to, 26–27; as principle of learning, 25
Accountable talk moves, 96–98, 105, 219; table, 97
ACT, 135, 137
Active practice, 27, 190, 192–193
Adolescent literacy, 1; improving, 2–4
American Association for the Advancement of Science (AAAS), 64–65, 90, 93–94, 124
Anzaldúa, G., 129–132
Apodaca, R. E., xxi, 163, 169
Applebee, A. N., 18, 136
Arc of instruction, 145–146, 220
Arc of lessons, 81, 105; use of term, 96
Assessment, 25. *See also* Instruction and assessment; instruction-driven nature of, 31
Atwell, N., 144

B

Bain, R. B., 35
Ball, C. C., 21
Banilower, E., 88
Banks, J. A., 17
Bartholomae, D., 21, 139
Beck, I. L., 137
Bell, P., 107

Benchmarks for Science Literacy (American Association for the Advancement of Science), 94, 124

Biancarosa, C., 2, 20
Biancarosa, G., 2
Bickel, D. D., 194
Bill, V., 78
Bill, V. L., 11, xxi–xxii, 63, 139, 194
Billias, G. A., 36
Bintz, J., xxii–xxiii, 11, 87, 139
Boaler, J., 65
Bodnar, J., 41
Boix-Mansilla, V., 37
Boyer, P., 18
Brandt, B. L., 190
Bransford, J., 24
Brewer, W. F., 107
Brown, A. L., 24
Brown, J. S., 12, 27, 71, 72, 189
Bruner, J., 80, 192
BSCS, 108
Buckmaster, A., 190
Burge, B., 27
Bybee, R. W., 91

C

Carpenter, B., 139
Carpenter, B. D., 3
Catch-up literacy instruction in English language arts, approaches to, 6
Cazden, C., 136
Chapman, S., 72
Charles, R., 81
Cheung, A., 2
Chicago Museum of Science and Industry, 88

Childress, S., 186
 Chinn, C. A., 107
 Chrostowski, S. J., 7
 Classroom culture, socializing intelligence through, 31
 Classroom experience base, for disciplinary literacy (DL), 4–5
 Clear expectations, as principle of learning, 25
 Coach discussion cycle, 109
 Coaching, 26, 27, 191
 Coburn, C. E., 5, 88, 183
 Cocking, R., 24
 Cognitive prompts, 72–78
 Cohen, D. K., 138
 Cohen, K., 88
 Coherent curriculum, 13
College Knowledge: What It Really Takes for Students to Succeed and What We Can Do to Get Them Ready (Conley), 167
 College ready, defined, 164
 Collins, A., 12, 27, 71, 72, 189
 Committee on Science, Engineering, and Public Policy, 87, 92
 Conceptual navigation chart and graphic organizer, 221
 Conley, D. T., 164
 Content instruction, integrating literacy development and, 6–10
 Content knowledge, 64, 71, 165, 175; expanding the definition, 9–13; in science classrooms, 95, 98, 107; synchronizing within a discipline, 21
 Content teachers, engaging in literacy development, 1–13
 Core concepts, 30
 Correnti, R., 189
 Coustan, B., 45, 48–55, 55
 Couvares, F. G., 36
 Critical thinking, 65; and mathematics classroom, 23, 29
 Cultural myths, 37–39
 Cuoco, A., 65
 Curriculum: and academic rigor, 24–25, 28, 92; coherent, 13; and disciplinary content/habits of thinking, 13; focused, 13; and literacy learning, x

D

Damon, H. C., 136
 David, J., 4, 24

David, J. L., 4, 179, 189
 Davis, E., 72
 Delpit, L., 17
 Deshler, D., 2
 Dewey, J., 18
 Dice, L., 21
 Dion, G., 2
 Disciplinary literacy (DL), 11–13, 15–31; *See also* Systemic practice of DL; and academic growth, 164; applying domain specificity to enhance learning, 18; breadth of tasks and texts, 19–20; classroom culture and socialization of intelligence, 31, 53–54; classroom experience base for, 4–5; coining of term, 11; defined, 11, 15, 132; design principles, 29, 163–164, 219; embedding, 163–196; in the English language arts (ELA) classroom, 129–161; foundational model, 22–23; foundational tool, 23–29; habits of thinking, 21–23; in the history classroom, 33–61; implementation of, 4; instruction and assessment, 54–59; investing in, 163–164; knowledge and thinking, 24, 34; knowledge communities, 17; knowledge domains, 3, 12, 17, 18, 29, 219; learning, 17–23; learning as apprenticeship, 34–44; learning on the diagonal, 22–23; lesson experiences, 19; in the mathematics classroom, 63–85; observation protocol, 215–217, 220; principles, applying to the study of history, 39–59; principles of learning (POLs), 23–29; school texts, 20–21; in the science classroom, 87–127; sustained implementation, 4–5; systemic practice, 167–196; teachers as mentors of apprentices, 44–53; tools, 219–222

Disciplinary Literacy Nested Instructional Tools (table), 184

District vision and organization, building, 167–171

Domain specificity to enhance learning, 18

Donahue, P., 2

Driver, R., 89, 107

Duguid, P., 12, 71

Durant, I., 171

Duschl, R. A., 107

E

Educational Services Incorporated, 98

Elian Gonzales account, 48–52

Elliott, D. L., 137

Elmore, R., 166, 186

Engle, R. A., 79

English, L. D., 80
English language arts (ELA) classroom, 129–161;
arc of instruction, 145–146, 220; classroom cul-
ture and socialization of intelligence, 156–157,
212; comprehension, 147–148; comprehen-
sion and sorting questions, 141; design features,
naming, 142–144; difficulty questions, 141; DL
design principles, 209–212; DL principles in
action, 155–159, 220; ELA study, encourag-
ing, 136–139; equity in reading and literature
study, 137; formative and summative assess-
ments, 141; gender readings, reflections on, 154;
gender study, 153–154; guiding questions, 141;
I-R-E (initiate-respond-evaluate) instruction,
136–137; identifying significance tasks, 141;
inquiry, 129–131, 144–154; inquiry case study,
145–155; inquiry learning, 133–136; instruc-
tion and assessment, 157–159, 213; instruc-
tion/methods of inquiry, incorporating in the
classroom, 138–139; interpretation, 148–151;
knowledge and thinking, 155, 209; learning as
apprenticeship, 155–156, 210; lesson and unit
design features, 140–142; lesson/unit design fea-
tures, 220; literary lens, using, 153–154; nominal
theme, 140; overarching questions, 141; peda-
gogical rituals and routines, 220; principals’
support, 159–160, 159–161; project, 139–144;
retrospective assignments, 141; rigorous texts,
138, 141; significant moments, 148; step-back
tasks, 141; teachers as mentors of apprentices,
156, 211; text selection, criteria of, 220; unit
architecture, 142–143, 220; writing tasks, 141;
written responses, creating, 151–153
Evidence-based explanations, writing, 221

F

Fair and credible evaluations, as principle of learn-
ing, 25
Farmer, J. A., 190
Farrar, E., 138
Fellows of the Institute for Learning, 23, 24, 92, 112,
185, 190
Fillmore, L. W., 16
Fishman, B. J., 189
Fitzsimmons, S., 20
Focused curriculum, 13
Frederiksen, J., 72

G

Gallaher, L. P., 189
Gallimore, R., 27
Gamoran, A., 18, 137
Ge, X., 72
Geisler, C., 20, 66
Gelman, S. A., 18
Gender readings, reflections on, 154
Gender study, 153–154
Gerstle, G., 41
Godley, A. J., 3
Goldenberg, E. P., 65
Goldman, P., 185
Gonzalez, E. J., 7
Goos, M., 17, 65
Graham, S., 2
Greene, D., 4, 189
Grigg, W., 2
Grob, G. N., 36
Groff, C., 2
Grossman, A., 186
Grossman, P., 138
Grossman, P. L., 17
Guided reflection, 27, 191, 194–195
Guiding questions, 141

H

Habits of thinking, 21–23, 30; mathematical, 69;
synchronizing within a discipline, 21
Hall, M. W., 11, 23, 24, 71, 89, 92, 138, 139, 167, 190
Handlin, O., 41
Heath, S. B., 17
Henningsen, M. A., 7, 66, 81
Hess, F. M., 8
Hiebert, J., 64
High school biology class: charts, 112, 115, 117, 121;
coach discussion cycle, 109; cognitively wrestling
to advance understanding, 112–114; DL science
classroom, 107–122; knowledge and thinking,
building through explanations, 115–123; plan-
ning/reflecting on the lesson, 109–110; student
draft explanations (table), 116; student final
explanations for claim and reasoning (table),
118–120; teaching from the planning, 111–112
Hirschfeld, L. A., 18
Historians: conversations with each other, 36; role
of, 35–36; thinking as, 34–39
Historical narratives, 35

History classroom, 33–61; analyzing the architecture of a lesson, 222; classroom culture and intelligence, 53–54, 199; cultural myths, 37–39; defining rigor in, 222; designing a unit of study for, 41–42; DL design principles, 197–199, 222; Elian Gonzales account, 48–52; historian, role of, 35–36; immigration, teaching of, 42–44; instruction and assessment, 54–59, 199; knowledge and thinking, 34, 197; learning as apprenticeship, 34–44, 198; planning/facilitating high-quality professional development, 222; teachers as mentors of apprentices, 44–53, 198; unit of instruction, thinking through, 222; unit planning guide, 222

Holt, T., 35

Holum, A., 72

How People Learn: Brain, Mind, Experience and School (National Research Council), 89–90, 124

How Students Learn: Science in the Classroom (National Research Council), 89–90

Hughes, E. K., 78, 183

Humphreys, C., 65

I

Initiate-respond-feedback (IRF), 26

Inquiry and the National Science Education Standards (National Research Council), 94–95

Institute for Learning (Learning at the Univ. of Pittsburgh Learning Research and Development), 15, 185; action protocol for studying student work samples, 220; principles of learning, 23–29

Instruction and assessment, 29, 31, 54–59; English language arts (ELA) classroom, 157–159, 213; history classroom, 54–59, 199; mathematics classroom, 203; science classroom, 208

Instructional quality, new disciplinary literacy vision of (table), 12

Integrating literacy and content: in the classroom (table), 10; in core subjects, 9

Intelligence, and classroom culture, 53–54

I-R-E (initiate-respond-evaluate) instruction, 26, 136–137

J

Jamar, I., xxiii, 63

Jiménez-Aleixandre, M. P., 107

Johnson, S. M., 11

Johnston, J., 185

Jordan, D. L., xxiii–xxiv, 87

K

Kachur, R., 137

Kardos, S. M., 11

Kauffman, D., 11

Kernel routine, use of term, 184

Kilpatrick, J., 65

Knowledge and thinking: English language arts (ELA) classroom, 155, 209; high school biology class, 115–123; history classroom, 34, 197; mathematics classroom, 200; science classroom, 204

Knowledge domains, 3, 12, 17, 18, 29, 219

Kotter, J. P., 171

Krajcik, J., 106, 107, 122

Kuhn, D., 107

Kuhn, L., 106

L

Lake, C., 2

Land, S., 72

Landes, N. M., xxiv, 87

Langer, J. A., 6, 18

Lave, J., 27

Leadership domains for DL implementation, timetable for progression of, 182

Leahy, S., 72

Learning as apprenticeship, 27–28, 34–44; cognitive prompts, 72–78; phases of a lesson, 78–80; as principle of learning, 26–28, 30; sequencing lessons in a unit, 80–81

Learning as apprenticeship for educators, 191–195; active practice, 192–193; coaching, 193–194; guided reflection, 194–195; modeling and observation, 191–192

Learning as apprenticeship for students: active practice, 190; coaching, 191; guided reflection, 191; modeling and observation, 190; scaffolding, 190

Learning on the diagonal, 22–23, 219

Learning self-management, 93; as principle of learning, 26

Learning Walk tool, xxi, 172, 185–186, 215

Lee, C. D., 7

Leinhardt, G., 9, 17, 21, 34–35, 37, 64
Leonardo, Z., 17
Lessons: phases of, 78–80; sequencing in a unit, 72, 80–81
Levine, L. W., 42
Lin, W., 4, 179
Linn, M., 107
Literacy: and content knowledge, 16; defined, 15, 17; sociocultural perspective on, 16–17
Literacy development: adolescent literacy, improving, 2–4; classroom experience base for disciplinary literacy, 4–5; content knowledge, expanding the definition of, 9–13; engaging content teachers in, 1–13; integrating content instruction and, 6–10; literacy interventions, limits of, 5–6; new disciplinary literacy vision of instructional quality (table), 12
Literacy interventions, limits of, 5–6
Literary lens, using, 153–154
Liu, E., 11
Lizotte, D. J., 107, 122
Lyon, C., 72

M

Mark, J., 65
Marshall, J. D., 136
Martin, M. O., 7
Marx, R. W., 107, 122
Mathematics classroom, 7, 63–85; arcs of related high-level tasks, organizing a curriculum around, 81; classroom culture and socialization of intelligence, 93, 202; construction of rules/procedures, 82; direct teaching of content, 65–66; DL design principles, 200–203, 221; explore phase of a lesson, 78–79; formative assessment, 72; instruction and assessment, 203; knowledge and thinking, 200; learning as apprenticeship, 93, 201; learning development, 80; lesson planning, 83; lesson protocol, thinking through, 221; maintenance and decline of high-level demands, factors associated with, 221; math task analysis guide, 221; mathematical habits of thinking, 65, 69; mathematics tasks framework, 221; principals' support for teaching and learning DL mathematics, 81–84; setup phase of a lesson, 78; share-and-discuss phase of a lesson, 78–80; tasks, 66–67; teachers as mentors of apprentices, 201–202
Mayher, J. S., 138

McConachie, S., 11, 139, 143, 195
McConachie, S. M., xix–xx, 1, 129, 143, 163
McKeown, M. G., 137
McLaughlin, M. W., 167
McNeill, K. L., 106, 107, 122
Mehan, H., 79, 136
Meister, C., 72
Members of the LIFE Diversity Consensus Panel, 17, 20
Mentoring, 26; teachers as mentors of apprentices, 30
Metacognition, 91
Michaels, S., 24, 71, 89
Micheaux, D., 185
Mihalakis, V., 129, 139, 143, 195
Modeling and observation, 27, 190
Moffett, J., 28, 136
Moje, E. B., 2, 18
Morris, K., 2, 18
Morrison, J., 50
Mullis, I.V.S., 7
Multiple representations, as mathematical habit of thinking, 69–70

N

Nair, M., 2
Nation at Risk: An Imperative for Educational Reform, A (National Commission on Excellence in Education), 88
National Assessment of Educational Progress (NAEP), 2
National Center for Education Statistics, 64, 66
National Center on Education and the Economy, 8
National Commission on Excellence in Education, 88
National Council of Teachers of Mathematics, xxii, 67; *Illuminations* Web pages, 66
National Research Council, 8, 88, 89
National Science Education Standards (NSES) (National Research Council), 94, 124
National Standards for School Mathematics, 7
Nelson-LeGall, S., 27
Nested instructional tools, 183–184
Nested learning communities, 167–168
Newman, S. E., 27, 189
Newton, P., 107
Nystrand, M., 17, 18, 137

O

- O'Brien, D., 2
Observation: classroom observation, 216; conducting, 216–217; features, 215; postobservation feedback meeting, 217; preobservation meeting, 216; preparing for, 216; protocol, 215–217, 220; purpose of, 215; reflecting on the process, 217
O'Connor, M. C., 24, 71, 89
Organizing for effort, as principle of learning, 25
Osborne, J., 107
Overarching questions, 141
Overby, M., 2, 18

P

- Palinscar, A., 2
Parshall, C., 139
Pasley, J., 88
Payne, C., 38
Pellegrino, J. W., 64
Penuel, W. R., 189
Perin, D., 2, 67
Perlman, C. L., 138
Peske, H. G., 11
Petrarca, D., 55, 58
Petrosky, A., 7, 139, 143, 195
Petrosky, A. R., xx, 1, 129, 139, 143
Physics classroom, snapshot of, 88–89
Plasse, L., 139
POLs, *See* Principles of learning (POLs)
Pontecorvo, C., 27
Popkewitz, T., 142
Postman, N., 136
Powell, A. G., 138
Prendergast, C., 137
Preparation for the workforce in a global economy, 164–165
Primary Source Analysis Tool for Providence Public Schools, 46–47
Principals' instructional leadership, actions supporting, 181
Principles of learning (POLs), 23–29, 219; academic rigor in a thinking curriculum, 25; accountable talk, 25; clear expectations, 25; fair and credible evaluations, 25; learning as apprenticeship, 26–28, 30; organizing for effort, 25; overview statements, 25–26; recognition of accomplishment, 25; self-management of learning, 26; socializing intelligence, 25–26, 28

- Professional learning, developing, 189–195
Professional learning communities (PLCs), 5, 178–179; handbook, 219
Purves, A. C., 138

R

- Ravi, A. K., xxv, 11, 139
Reading Between the Lines: What the ACT Reveals About College Readiness in Reading (ACT), 137–138
Recognition of accomplishment, as principle of learning, 25
Rehumanizing autonomous text, defined, 20
Reiser, B., 106
Reiser, B. J., 107
Resnick, D. P., 17
Resnick, L., 139
Resnick, L. B., 11, 17, 23, 24, 27, 71, 89, 92, 167, 184, 190
Rhoton, J., 87
Rigorous texts, 138, 141
Rodríguez, A. B., 107
Rogoff, B., 72
Rosenshine, B., 72
Rushworth, P., 89
Russell, J. L., 88

S

- Sadler, P. M., 89
Saljo, R., 27
Sandoval, W. A., 107
Saxton, M., 36
Scaffolding, 27, 71–72, 190
Scarcella, R., 17
Schlepppegrell, M. J., 2
Schlesinger, B., 65
Schneps, M. H., 89
Scholes, R., 138
School organization, building for DL, 173–178
School texts, 20–21
Schunk, D. H., 72
Schwab, J. J., 17
Science classroom, 87–127, *See also* High school biology class; Seventh-grade life science classroom; accountable talk moves (table), 96–97; achieving DL science, 126–127; and administrators, 124–126; assessment, 105–106; classroom culture and socialization of intelligence, 107,

- 207; conceptual framework, 91; conceptual navigation chart and graphic organizer, 221; and connection of science concepts/nature of science to students' lives, 87; deep foundation of usable knowledge, 91; DL design principles, 204–208, 221; DL science and the nature of science, 92–95; and everyday experiences, 90–91; evidence-based explanations, writing, 221; features of classroom inquiry in science, 94–95; features of science, 94; gains in achievement, 88; high school biology class, 107–122; how students learn science, research on, 89–90; instruction and assessment, 208; knowledge and thinking, 204; learning as apprenticeship, 205; learning science as a process of inquiry, 91; lesson protocol, thinking through, 221; metacognition, 91; national standards in science, 94; ongoing informal assessment during instruction, 106; path to DL science, 123–127; physics classroom, snapshot of, 88–89; planning and facilitating high-quality professional development, 221; principles of learning (POLs), 92–94; science inquiry, 93–94; scientific explanations, role of, 106–107; scientific inquiry, 95–96; scientifically literate students, 88; seventh-grade life science classroom, 96–105; student pre-conceptions about how the world works, 90; teachers as mentors of apprentices, 206; testing of assumptions, 92; vision, developing, 88–89
- Science for All Americans* (American Association for the Advancement of Science), 93–94
- Seitz, A., 139
- Self-management of learning, as principle of learning, 26
- Setup phase of a lesson, 78
- Seventh-grade life science classroom: accountable talk moves, 96–105; collecting/recording data, 103; data analysis (session 3), 103–104; data tables, creating, 101–102; lesson, reflecting on, 104–105; scientific investigation, designing (session 2), 101–103; scientifically oriented question, developing (session 1), 98–101; student learning, reflecting on, 104–105. *See also* Science classroom
- Shanahan, C., 2
- Shanahan, T., 2
- Shane, P., 87
- Share-and-discuss phase of a lesson, 78–80
- Shepard, L. A., 72
- Short, D. J., 20
- Silver, E. A., 7, 65
- Silver, E. A., 66
- Simon, H. S., 139
- Slavin, R. E., 2
- Smagorinsky, P., 192
- Smith, M. S., 7, 66, 78, 183, 221
- Snow, C. E., 2, 16, 20
- Social studies classroom: analyzing the architecture of a lesson, 222. *See also* History classroom; defining rigor in, 222; DL design principles, 197–199, 222; planning/facilitating high-quality professional development, 222; unit of instruction, thinking through, 222; unit planning guide, 222
- Socializing intelligence, 31; English language arts (ELA) classroom, 156–157, 212; history classroom, 53–54, 199; mathematics classroom, 202; as principle of learning, 25–26, 28; science classroom, 107, 207
- Sosniak, L. A., 138
- Soto, G., 144
- Sourcing heuristic, 35
- Spiegel, S. A., xxv–xxvi, 87
- Spillane, J., 184
- Squires, A., 89
- Staub, F. C., 194
- Stein, M. K., 7, 66, 79, 221
- Stewart, R. A., 2
- Stigler, J. W., 64
- Stodolsky, S. S., 17
- Stouch, C., 193
- Strong early reading skills, and later more complex skills, 2
- Stylianides, G. J., 65
- Sustained implementation, 4–5
- Systemic practice of DL, 167–196; cognitive apprenticeship, 189–190; district vision and organization, building, 167–171; DL systemic leadership in action, 171–173; learning as apprenticeship for students, 190–191; observation and feedback routine, 184–188; preparation stage of DL implementation, 178–179; principals' instructional leadership, actions supporting, 181; professional learning, developing, 189–195; school organization, building for DL, 173–178; sustaining DL in schools and classrooms, tools for, 183–184; teacher professional learning communities and

observations, scheduling, 181–183; understanding/implementing, 178–184

T

Takaki, R., 42
Talbert, J., 4, 24
Talbert, J. E., 167, 179, 189
Taylor, J. A., xxvi, 87
Tasks and texts, breadth of, 19–20
Teacher professional learning communities and
 observations, scheduling, 181–183
Teachers as mentors of apprentices, 30
Teaching on the diagonal, 22–23, 219
Tharp, R. G., 27
Thompson, C., 138
Thompson, M., 72
Tinkering, as mathematical habit of thinking, 69–70
Tysvaer, N., 2, 18

U

Unit planning guide, history classroom, 222

V

Vacca, J. L., 2
Vacca, R. T., 2
van Oers, B., 64
Vygotsky, L. S., 80

W

Warren, E., 80
Weiss, I., 88
Wells, G., 136
Wenger, E., 167, 179
Wenger, F., 27
Werner, C. A., 3
West, L., 194
White, B., 72
William, D., 72
Willingham, D. T., 24, 65
Wineburg, S., 27, 35
Wood-Robinson, V., 89
Woodward, A., 137
Working on the diagonal, use of term, 66, 67–71
Workshop/studio approach to English language arts
 literacy development, 6
Writing tasks, 141
Written responses, creating, 151–153

Y

Yamaguchi, R., 189
Young, K. M., 21, 34–35

Z

Zabusky, C. F., 50
Zimmerman, B. J., 72