

INDEX

- Abedi, J., 64
Abstraction in science, 20–21, 23–26
Abstract nouns in science, 23–24, 35
Academic texts, student problems in reading, 2
Achugar, M., 40
Addressee in cohesion analysis, 90–91
Adjectives: qualities in, 24; in science, 24, 29
Adolescents: reading problems of, 1–3; subject-specific reading skills in, 2
Advanced disciplinary knowledge, need for specialized language in, 4
Adverbs: circumstances in, 11; in science, 27
Aguirre-Muñoz, Z, 12
Ahlgren, A., 19
Algebra, solving word problems in, 67–75
Alvermann, D., 2
American Association for the Advancement of Science (AAAS), 19
Anton, H., 6
Baldwin, S., 40
Bean, T., 2, 40
Beck, I. L., 39
Beck, R. B., 4, 40
Being process: in history texts, 13, 46, 47, 54–55, 59; in literary texts, 94, 96–97; in mathematics, 70, 77, 81, 83
Berman, I., 2
Bernhard, J. Z., 65
Bernhardt, E., 19–20
Biancarosa, G., 2–3
Birdyshaw, D., 2
Black, L., 4
Boscardin, K., 12
Boswell, L., 67
Brozo, W., 8
Butt, D., 85
Carmine, D., 2
Carmine, L., 2
Cassels, J., 22
Cause and effect in history, 5, 13, 40
Chenhansa, S.I, 26
Christie, F., 4
Chronicling history text, 45–51; actions in, 45–50; author organization of sections in, 43–45; being process in, 46; clauses and themes in, 45; doing process in, 46, 48–49; perspective of author in, 50–51; processes and participant roles in, 46–47; saying process in, 46; sensing process in, 46
Circumstances: in adverbs, 11; in conjunctions, 11; in history, 43, 44; in prepositional phrases, 11, 44; in science, 27
Classification: in science, 22; in solving word problems, 66
Classroom, functional language analysis in, 104–114
Clause(s): as basic unit of organization, 11, 27; dependent, 91–92, 98; embedded, 27–28, 30; in history, 43, 44, 45; main, 91–92; non-embedded, 28; noun groups into, 27–30; in poems, 91–92; in science, 31–34; in sentences, 27; in word problems, 68–70, 76, 81
Clement, L. A., 65
Coffin, C., 39, 40, 63
Cohesion analysis, 87; word choice patterns in, 90–91
Colombi, M. C., 2
Conjunctions: circumstances in, 11; contrastive, 58; in word problems, 69–70
Content area reading: current approaches to, 8–9; embedding language analysis in, 17; instruction in, 9–10

- Contrastive conjunctions, 58
 Cox, B., 13
- Demonstratives: in literary texts, 90;
 in word problems, 70
 Density of scientific language, 20–21,
 27–30
 de Oliveira, L. C., 12, 40, 63
 Dependent clauses, 91–92, 98
 Description: in science, 22; in solving
 word problems, 66
 Deshler, D., 8
 DiGisi, L., 18
 Disciplinary knowledge, 1, 9, 39;
 advanced, 4
 Doing process: in history texts, 13,
 46, 47, 48–49, 55–56; chronicling,
 46, 48–49; explanation, 59; point
 of view, 55–56; in literary texts, 94,
 95–96
 Donahue, P., 2
- Effect. *See* Cause and effect
 Eggs, S., 10, 29, 32, 34
 Elementary schools: reading in, 3–4;
 scientific meanings in, 19
 Ellipsis in word problems, 69, 70, 76, 81
 Ellis, E., 8
 Embedded clauses, 27–28, 30, 92
 English language learners: math-
 ematics for, 64; reading skills of, 2
 Environmental texts, nominalization
 in, 25–26
 Everyday language: processes in, 24;
 technical meaning of words in, 22
 Experiential meaning: analysis of,
 14; defined, 11; exploring, 106; in
 history, 13, 40; language analysis
 of, 15; in literary texts, 87, 92,
 94–97; in science, 26; of technical
 words, 22
 Explanation history text, 58–61;
 actions going on in, 59–61; author
 organization of sections in, 58–59;
 being process in, 59; clauses and
 themes in, 59; doing process in, 59;
 nominalization in, 59–60; perspec-
 tive of author in, 61
- Fang, Z., 4, 12, 13, 34, 36, 127
 Figurative language, 85; alliteration
 in, 85; assonance, 85; metaphors in,
 34–35, 85; similes in, 85
 Fisher, D., 8
 Fitzsimmons, S., 2
 Focus, *however*, as signal of change
 in, 5, 58
 Frey, N., 8
 Frostrad, P., 64
 Fuller, J., 88
 Functional language analysis: as
 alternative to key words approach,
 65; for assessment purposes, 112;
 basis of, 10–11; benefits of, 3,
 8–9; in the classroom, 104–114; for
 curricular purposes, 112; defined,
 1; guide to, 115–118; in history,
 40–43, 63; in informing writing
 instruction, 112–113; in literary
 texts, 101–103; of literature, 85–86;
 as metalanguage, 12; in science, 20,
 38; uses of, 12; in word problems,
 83
- Geometry, solving word problems in,
 67, 75–81
 Global moves, 89–90
 Grammar, 87; exploring patterns in,
 100–101; relating functional, to
 traditional, 108; of science, 20–38;
 seeing meaning in, 105–109
 Grammatical circumstances in
 history texts, 44
 Grammatical participants in history,
 46
 Grammatical resources, uses of,
 15–16
 Graphology, 87; patterns in, 88–90,
 100
 Greenleaf, C. L., 2
 Greer, S, 12
 Grigg, W., 2
 Guzzetti, B., 18
- Halliday, M. A. K., 4, 11, 15, 18, 19, 27,
 31, 85, 104
 Hamann, E. T., 3

- Hammond, J., 12
Hand, B., 20
Hasan, R., 84, 85, 87, 101
Heggberget, M., 64
Heller, R., 2
Hewitt, P. G., 25, 30
History texts, 39–63; abstract nature of, 39; attribution of agency and cause in interpretation of, 5; cause/effect in, 5, 13, 40; challenges for students in, 13–14;
 chronicling: actions going on in, 45–50; author organization of sections in, 43–45; being process in, 46; clauses and themes in, 45; doing process in, 46, 48–49; noun groups in, 50–51; perspective of author in, 50–51; processes and participant roles in, 46–47; saying process in, 46; sensing process in, 46;
 circumstances in, 43, 44; clauses in, 43, 45; compare/contrast in, 40; density of, 39; difficulty in reading, 39; experiential meaning in, 40;
 explanation: 58–61; actions going on in, 59–61; author organization of sections in, 58–59; being process in, 59; clauses and themes in, 59; doing process in, 59; nominalization in, 59–60; perspective of author in, 61;
 functional language analysis of, 40–43, 63; grammatical circumstances in, 44; grammatical participants in, 44; interpersonal meaning in, 40; interpretation and reasoning in, 39–63; listing in; participants in, 43, 44;
 point of view: actions going on in, 52–57; author organization of sections in, 52, 53; being process in, 52, 54–55, 57; causes and themes in, 53; doing process in, 54–55; messages /phenomena in, 53–54; perspective of author in, 57–58; sayers/thinkers and their messages/phenomena in, 54; saying process in, 52, 53, 56, 57; sensing process in, 52, 53, 57;
 prepositional phrases in, 44; problem/solution in, 40; process types in, 43; sentences in, 5; sequence in, 40; text structure in, 40; textual meaning in, 40; themes in, 43, 45; working with students with, 61–63
However, as signal of change in focus, 5, 58
Huang, J., 14, 64, 127–128
Hynd, C., 18

Imperative mood, 68, 94
International Reading Association (IRA), 2, 3
Interpersonal meanings: defined, 11; exploring, 106; in history, 13, 40; language analysis of, 15; in literary texts, 87, 92, 93–94; in science, 26
Interpretation in history, 39–63
Interrogative mood, 68, 94
Ivey, G., 8

Jakobson, R., 85
Johnstone, A., 22
Jones, L., 19

Kamil, M., 19–20
Kanold, T., 67
Kesidou, S., 19
Key words approach: functional language analysis as alternative to, 65; in mathematics, 64–65
Kintsch, W., 64, 66
Knowledge: content, 35; disciplinary, 1, 4, 9; linguistic, 35, 83; widening of specialized and commonsense, 19
Krieger, L.S., 4

Lager, C. A., 64
Lamme, L., 36

- Language: density of scientific, 20–21, 27–30; figurative, 34–35, 85; in language arts, 14; in mathematics, 14; in science, 36–38; in secondary content areas, 1–17; specialized, 3–9; three-dimensional focus on, 11–12
- Language analysis: embedding in content area reading, 17; of experiential meaning, 15; of interpersonal meaning, 15; of textual meaning, 15
- Language arts: importance of language in, 14; texts and text types in, 15
- Language arts teachers, responsibilities of, 84–85
- Language patterns: in literary texts, 7–9; in mathematics, 6–7; in science, 5, 18–19, 37
- Larson, R., 67
- Leech, G., 7
- Leinhardt, G., 63
- Lemke, J., 38, 64
- Lenz, B., 8
- Lexical chains, 106
- Lexical density, 27, 28
- Linguistic knowledge, 35; in science, 35; in solving word problems, 83
- Listing in history, 40
- Literacy coaches, standards for secondary, 3
- Literary criticism, 85
- Literary texts, 84–103. *See also* Poems; being process in, 94, 96–97; doing process in, 94, 95–96; experiential meanings in, 87, 92, 94–97; graphology and sound patterns in, 100; interpersonal meanings in, 87, 92, 93–94; language patterns in, 7–9; patterns of meaning in, 101, 103; sensing process in, 94, 96; study of, 84; textual meanings in, 87, 92, 97–98; words and grammar in, 100–101
- Literature, functional language analysis of, 85–86
- Lock, G., 10
- Lord, C., 64
- Lukin, A., 14–15, 85, 86
- Macken-Horarik, M., 12
- Martin, J. R., 18, 19, 40
- Mathematical concepts in problem solving, 70–72, 73
- Mathematics. *See also* Word problems: for English language learners, 64; functional language analysis in, 65; importance of language in, 14; indication of concepts in information in, 77; key words approach in, 64–65; language patterns in, 6–7; proving claims in, 80; solving word problems in, 64–83
- Mathiessen, C., 11, 31
- McKenna, B., 12
- McKeown, M. G., 39
- Meaning, seeing, in grammar, 105–109
- Meltzer, J., 3
- Metalanguage, 15–16, 106, 111; functional language analysis as, 12
- Metaphors: in poetry, 85; in science, 34–35
- Miller, G., 28
- Modality, 11, 94; role of, 15
- Modal verbs, 68, 94
- Mohan, B., 12, 66
- Mood system in English, 11, 67–68
- Moore, D., 2
- Mukarovsky, J., 85
- Naming words in science, 21–22
- National Council of Teachers of English (NCTE), 2, 3
- National Research Council, 19
- Naylor, P.C., 4
- Nominalization, 70; in environmental texts, 25–27; in explanation history text, 59–60; in formation of a cohesive text, 13; as grammatical resource, 26; loss of information in, 25; multiple, 24; in science, 23–24, 33–35
- Normandia, B, R, 14, 64, 128
- Norris, S., 20

- Noun groups: in history texts, 50–51; packing into clauses, 27–31; packing of information in, 5–6; participants in, 11; in science texts, 23–38; in word problem solving, 6
- Nouns: defined, 23; in science, 23–24, 29; things or entities in, 24
- Odoroff, E., 63
- O'Halloran, K., 76
- Osborne, J., 18, 19, 38
- Oteiza, T., 40
- O'Toole, L. M., 85
- Participants: construction of, in noun groups, 11; in history, 43, 44; in science, 27
- Performance-based activities, emphasis on, in science, 19–20
- Perie, M., 2
- Phillips, I., 20
- Poems. *See also* Literary texts: addressee in, 90–91; analysis of, 15, 87–99; antonyms in, 90; clauses in, 91–92, 97, 98; cohesion analysis of, 87, 90–91; diction in, 86; experiential meanings in, 87, 92, 94–97; functional language analysis in, 85–86; gender in analyzing, 87–88; global moves in, 89; grammar in, 87, 93–94; graphology in, 87, 88–90; interpersonal meaning in, 87, 92, 93–94; motifs in, 90; poetic devices in, 85; punctuation marks in, 89; rhyme scheme in, 88, 89, 90; rhythm in, 88; semantic chains in, 91; sound systems in, 87, 88–90; speaker in, 90–91; synonyms in, 90; textual meanings in, 87, 92, 97–98; tone in, 86; word choice in, 87, 90–91
- Poetic devices, 85
- Point of view history text, 51–58; actions going on in, 52–57; author organization in, 52, 53; being process in, 52, 54–55, 56, 57; causes and themes in, 53; doing process in, 55–56; language in recognizing, 5; messages / phenomena in, 53–54; perspective of author in, 57–58; sayers / thinkers and their messages / phenomena in, 54; saying process in, 52, 53, 56, 57; sensing process in, 52, 53, 57
- Polya, George, 67
- Post-modifiers in science, 29, 35–36
- Prain, V., 20
- Pre-modifiers in science, 35–36
- Prepositional phrases: circumstances in, 11, 44; in science, 27, 29
- Pringle, R., 36
- Processes: in history, 43, 46; in primary source document, 56; in science, 27; in verb groups, 11; verbs in, 11, 24
- Process words in science, 22, 27
- Pronouns: in literary texts, 90; in science, 29, 34; in word problems, 70
- Readence, J., 40
- Reading in secondary content areas, 1–17
- Reading instruction, content area teachers and, 9–10
- Reading proficiency, development of, 9–10
- Reading skills, discipline-specific, 3
- Reasoning in history, 39–63
- Relevant information, provision of, in text, 68–70, 76–77
- Rheme. *See* Theme/Rheme structuring
- Rhyme scheme, 89
- Roseman, J., 19
- Rutherford, J., 19
- Rycik, A., 2
- St. Vincent Millay, Edna, 85–86; analysis of poem of, 87–99
- Säljö, R., 64
- Saumell, L., 18
- Saying process: in history, 13, 46, 47, 53; in literary texts, 94
- Schleppegrell, M. J., 2, 4, 10, 12, 13, 26, 34, 40, 127
- Schumm, J. S., 18

- Science education: goals of, 38;
reform initiatives in, 19
- Science texts, 18–38; abstractions in, 20–21, 23–24; abstract nouns in, 23–24, 35; adjectives in, 29; adverbs in, 27; circumstances in, 27; classifying words in, 21–22; content knowledge in, 35; describing words in, 21–22; experimental meaning in, 26; flow of clauses in, 31–34; functional language analysis in, 20, 38; grammar of, 20–38; interpersonal meaning in, 26; language in, 5, 18–19, 36–38, 37; linguistic knowledge in, 35; metaphors in, 34–35; naming words in, 21–22; nominalization in, 23–24, 35; noun groups in, 12–13, 35–36; nouns in, 29; numbers in, 29; participants in, 27; performance-based activities in, 19–20; post-modifiers in, 35–36; practical reasons for analyzing, 18; pre-modifiers in, 35–36; prepositional phrases in, 27, 29; process words in, 21–22, 27; pronouns in, 29, 34; technicality and abstraction of, 13; technicality and reasoning in, 18–38; technical vocabulary in, 20; textual meaning in, 26, 31–33; thematic progression in, 31–34, 36; Theme/Rheme structure in, 31–34, 36; verbs in, 27; zig-zagging pattern of development in, 32–34, 36
- Sciencing cycle, 19
- Scientific language: as abstract, 19–21, 23–26; density of, 20–21, 27–30; evolution of, 19; as technical, 21–22; tight-knit structure of, 20–21, 31–34
- Scientific meanings: in elementary schools, 19; in secondary schools, 19
- Scientific terminology, focus of instruction on, 19
- Scientific theory, 20; construction of, 36–38
- Secondary schools: challenges for teachers in, 1–3; difficulties of science texts for students in, 18; functional linguists on textbooks in, 40; language and reading in, 1–17, 105–106; scientific meanings in, 19; specialized language in, 3–9; textbooks as resource in, 39
- Semantic chains, 91
- Sensing process: in history text, 13, 46, 47, 53; chronicling, 46; in literary texts, 94, 96
- Sentences: clauses in, 27; in history texts, 5
- Sequence: in history, 40; in solving word problems, 66
- Serra, M., 67
- Sevik, N., 64
- Shabakam, D. I., 4
- Short, D., 2
- Short, M., 7
- Skeels, S., 18
- Slater, T., 12
- Snow, C., 2–3
- Solution, evaluation and verification of, in problem solving, 74–75, 78–81
- Sonnets, 85, 88; graphological and sound patterns of, 89–90; rhetorical organization of, 89–90
- Sound patterning, 90, 100
- Sound systems, 87; patterns in, 88–90
- Specialized language, 6; in the secondary school, 3–9
- Stainton, C., 63
- Stiff, L., 67
- Systemic functional linguistics (SFL), language in, 10–11
- Taylor, S., 12
- Technicality: as feature in scientific texts, 20–21; in science, 18–38
- Technical vocabulary: challenge of, 4–5; in science, 20; types of, 21–22
- Textual meaning: defined, 11; exploring, 106; in history, 40; language analysis of, 15; in literary

- texts, 87, 92, 97–98; in science, 26, 31–32
- Thematic progression, in science, 31–34
- Theme: in history, 43, 45; in poetry, 98
- Theme/Rheme structuring, 11; analysis of, 13; in science, 31–34, 36
- Thompson, G., 10
- Three-dimensional focus on language, 11–12
- Tight-knit structure of scientific language, 21, 31–34
- Time-cause relationships in history, 13–14
- Tynanov, J., 85
- Unsworth, L., 8
- Vacca, J., 8, 40
- Vacca, R., 8, 40
- Vande Kopple, W. J., 29
- Van de Walle, J. A., 65
- Vaughn, S., 18
- Veel, R., 19, 27
- Verbs: modal, 68, 94; processes in, 11, 24; in science, 27
- Virji, S. M., 63
- Walker, R., 21
- Wellington, J., 18, 19, 38
- Willett, J., 18
- Williams, W., 18
- Word(s): content, in science, 35; technical, 22
- Word choice: cohesion analysis of patterns in, 90–91; exploring patterns in, 100–101; in literary texts, 87
- Word problems. *See also* Mathematics: addition in solving, 65; clauses in, 68–70; comprehending and solving in mathematics, 64–83; ellipsis in, 69, 70, 71, 81; evaluation and verification of solution in, 74–75, 78–81; functional language analysis in solving, 83; guide to solving, 66–67; knowledge structures in solving, 66–67; language in solving, 6; linguistic knowledge in solving, 83; mathematical concepts in solving, 70–72, 73; mathematical expressions in solving, 6; mathematical knowledge in solving, 83; presentation of, in multisemiotic configuration, 66; solving in algebra, 67–75; solving in geometry, 75–81; subtraction in solving, 65; symbolism in solving, 6; text of, 8
- Writing instruction: establishing concrete criteria in, 113; functional language analysis in informing, 112–113
- Wyndham, J., 64
- Zambo, R., 65
- Zig-zagging pattern of development, in science, 32–34, 36