Index

A

Abstract journals, 26, 30-32 Abstracts, 12, 206 chemical, 29-31 electronic, 32-33 information overload and, 172-173 typesizes for, 117 Académie royale de Peinture et de Sculpture, Académie royale des Sciences, 9 Académie royale des Inscriptions Belles-Lettres, 9 Academies ancient Greece, 3 definition, 9 usefulness of, 10 Access, problem of, 29 Acknowledgments, 175-176, 192-193 Aesthetics, category of knowledge, 57 Alpher, Ralph, 175 Amateurs, 26-29, 106, 156-157 American Chemical Society, 30 American Council of Learned Societies, 42-43, 76 American Institute of Physics, 127 Anatomy, 22-23 Annalen der Chemie und Pharmacie, 108 Archaeology, 72 Aristotle, 3 Articles, see Journal articles Arts, the, 41 Associations, 10 Astronomy, 71 Auden, W. H., 2 Author-publisher relationships, 167-168

Authors, 165; see also Multiauthors listing of, as screening mechanism, 173–174 referees and, 183–186 rejection of work by journals, 183–184

В.

Bacon, Francis, 2, 5, 102 Behaviorism, 46 Bethe, Hans, 175 Bias gender and, 189-190 nationality and, 190-191 referees and, 186-189 Bibliographical standardization, lack of, 29 Bibliometric maps, 65-66 Biochemistry, 44 Biology, 39-40 Book production, 3, 4, 69 Book reviews, 197-198 Books, see Scholarly books Botany, 71 Bourbaki, Nicolas, 107 Bradford, Samuel, 218 Bradford's law of scattering, 218-220 Brahe, Tycho, 4 British Academy, 41 British Medical Journal, 171, 183, 191 Browsing, 212-214, 232

c.

Cavendish, Henry, 81, 85 Cayley, Arthur, 88 CD-ROMs, 151–152, 157 Charles II, King (UK), 5 Chemical Abstracts, 30 Chemical Society (UK), 30 Chemistry, 10, 71 Chemists, 234-235 Citation decay curve, 221 Citation decay half-life, 221 Citation indexes, 64, 91 Citation studies, 61-65 Citations, 97, 102, 220-221 as quality of work indicators, 89-92 electronic publishing and, 202 improvements, in scholarly publications, 119 Oretega hypothesis and, 102-103 overlap, 63-64 ritual, 97 Civil engineering, 23 Classical journal articles, 222 Clinical psychology, 46-47 CNRS (publisher), 127 Co-citation studies, 64-65 Cold fusion, 77-78, 199 Collaboration, 107-111, 109-110 Commercial publishers, 126 Communality, 49-51 Communication, 3; see also Electronic communication formal, 7, 14-15, 115 impact of teamwork on, 108-109 informal, 7, 14, 115, 133-136, 141-142, 155 Newton's image of, 8-9 Communication channels, 34, 37, 115 Communication patterns, 141 Computer literacy, 74 Computer networks, 74, 111-113 Computers, 240 academic disciplines and, 75 dissemination problems, 37 historic use, by researchers, 75 information handling and, 32-37 research communication and, 33-34 usage by age, 112 Comte, Auguste, 59 Conceptual framework, 48 Conceptual knowledge, 58 Conferences, 137-139, 160, 163-164 Content analysis, 65 Convergers, 83-85 Conversation, 136 Copernicus, Nicolaus, 3 Copyrights, 176-177

Couriers, official, 4 Co-word analysis, 65 Credit, author, 12 Crick, Francis, 44, 107 Criticism, as form of research, 58

D _

Daly, R. A., 96 Darwin, Charles, 69 Data versus information, 36-37 Decline and Fall of the Roman Empire, (Gibbons) 43 De humani corporis fabrica (Vesalius), 3-4 De revolutionibus orbium coelestium (Copernicus), de Sallo, Denis, 6 **Developing countries** electronic mail, 235 libraries in, 226-227 networked communication and, 156 research and, 146 Diagrams, 116 Diffusion model of information transfer, 145 Digital publishing, see Electronic publishing Disciplines, academic, 75; see also Subjects, academic classification of, 40-41 development of, 39-43 science and, 52-56 Disinterestedness, 50 Dissertations, 162-163, 210 Divergers, 83-85 Doubling time measure, 18-19

Е_

Early English Text Society, 127 Economic and Social Research Council (UK), 42 Editorial assessment, 12 Editors, 68, 127–128 electronic publishing and, 202 journal, 178 scholarly, 178 selection of referees and, 181 Electronic books, 150, 233 Electronic bulletin boards, 75 Electronic bulletin boards, 75 Electronic communication, 114, 240–241 Electronic communication channels, 149–153

Electronic discussion groups, 75 Electronic information, forecasting usage, 153-154 Electronic journals, 35-36, 76, 231-233 archiving, 152 niches for, 151 quality control and, 77 refereeing, 77 Electronic library catalogs, 231 Electronic mail, 234 advantages of, 155-156 chemists and, 234-235 developing countries and, 235 mathematicians and, 235 physicists, 235 types of information and, 155 Electronic media, 240 Electronic networks, 75 Electronic publishing, 128 advantages of, 202-203 copyrights and, 177 journal editors and, 202 libraries and, 151-152 peer reviews and, 203-204 problems with, 150-153 quality control and, 203-204 text structure, 201-203 Electronic searching, 230-231 Electronic text design problems of, 155 structure, 201-203 Elsevier (publisher), 128, 149-150 E-mail, see Electronic mail Empirics, category of knowledge, 57 Engineering, 211 English, research strands in study of, 58 Engravers, 119 Ephemeral journal articles, 222 Eurojournals, 128 Exponential growth, 19

F _____

Falsibility criterion (Popper), 52–53 Faraday, M., 19 Formal communication, 7, 14–15, 115 Framework, of publications, 172 Fraud, 192 Friedrich, Carl J., 43 Fugger family, 4, 6

G ___

Gamow, George, 175 Garfield, Eugene, 91 Gatekeepers, 143–144 Gauss, Carl F., 81, 83 German scholarship, 59 Germany, 24–25 Gibbons, Edward, 43 Gothic typeface, 117 Graduate schools, formation of, 25 Graphics, 118 Gray literature, 164

н __

Half-lives, 221-222 Hard knowledge, 60-61 Harleian Society, 127 History, 44 Homans, George Caspar, 43 Human networks, 139-143 Humanistic articles, 13 abstracts and, 12 titles and, 11 Humanistic journals information growth in, 17 rejection rates, 68 Humanities, 17, 42 article rejection rates in, 184 computer usage in, 75 definition, 41 importance of books and, 74 reporting of research in mass media, 72 versus social sciences, 42-43 Huxley, T. H., 28, 82 Hypertext links, 201 Hypotheses, 52 Hypothetico-deductive approach, to scientific research, 52

Ι,

Immediacy effect, 61 Indexes, 29, 205–206 citation, 64, 91 scholarly book, 118 *Index Medicus*, 175 India, 129

260

Industrialization effect on specialization, 23-24 need for researchers, 25 Informal communication, 7, 14, 115, 133-136 and networked information, 155 barriers, 141-142 structures, 142-143 Information acquiring, 208-209 age distribution of, 220-224 appropriate, 207-208 conveying, 1, 116 electronic retrieval, 227-232 factors affecting extraction, 117-118 influences on, 2 organizing personal, 214-217 presented by speech, 133-135 quality control of, in electronic journals, 77 relevant, 207 requirements for, 209-211 retrieval, 205-207 versus data, 36-37 Information clubs, 236-237 Information explosion, 19 Information flows, 143-149 Information groups, 236-237 Information growth research and, 29-32 S-shaped curve, 31-32 Information overload, 112 electronic searches and, 230 methods for resolving, 172-173 Information technology (IT), 34, 37 academic disciplines and, 75 effect on information growth, 36 impact on research, 111-114 subject differences and, 74-78 Ingelfinger, Franz, 199 Ingelfinger rule, 199 Institute for Scientific Information, 64, 91 International Congress of Academies, 41 Internet, see Computer networks; Information technology (IT) Isolates, 144 Italics, 117

J ____

James, William, 46 Japan, 129 Jargon, 121 Journal articles author cooperation, 67-68 characteristics of, by subjects, 66-67 classical, 222 ephemeral, 222 parts of, 173 refereed, 12, 164 structure sequence, 118 writing time required, 161-162 Journal des Scavans (Journal des Savants), 6 Journal of the Geological Society (UK), 16 Journals, 12; see also Humanistic journals; Research journals; Scholarly journals; Scientific journals; Social science journals author considerations for selecting, 169-170 death rate of, 15 definition, 7, 164-165 funding, 68-69 information growth in, 16-17 internationalization of, 128 layout, 11-13 readership of, 165-166 rejection rates, 68 speed of publication, 69

к_

Keyword-in-context indexes, 207 Keyword searching, 32, 33 Keywords, 206–207, 228 Knowledge, 2 categorization of, 56–61 growth in conceptual, 58–59 hard versus soft, 60–61 Kuhn, Thomas, 52–56 KWIC indexes, see Keyword-in-context indexes

L __

Landau, Lev, 101, 102 Lavoisier, Antoine, 122 Law profession, 10 Laws, applicable to social sciences, 47 Laws of nature, 48 Learned societies, as publishers, 127 Lectures, 1 Left-justified, 117 Librarians, 208 Libraries, 241–242

Index

electronic journals and, 151–152 functions of, 130–133 growth of book holdings, 17 importance of, as buyers, 129–130 researcher's view of, 233 university, 226 virtual, 233 Library catalogs, electronic, 231 Library catalogs, electronic, 231 Library growth, 19 Listeners, 1 Literature usage, implications, 224–227 Lotka's law, 87–88, 121

М_

MacKendrick, Paul L., 43 Magazines, 7, 148 Manuscripts journal procedures, 178 resubmitted, 191-192 Maps, knowledge, 64-65 Market penetration, 165 Mass media, 28-29 as sources of research information, 237-238 mention of research, 70 reporting of social sciences and humanities research in. 72 reporting priorities, 72-73 researchers and, 147-148 research reports in, 199-200 Mass media, selection process, 148-149 Mathematical Principles of Natural Philosophy (Newton), 39 Mathematicians, 235 Matthew effect, 102 McClintock, Barbara, 98 Medical journals, 18 Medicine profession, 10 Meeting rooms, electronic, 236-237 Mendel, Gregor, 98 Mersenne, Marin, 6 Merton, Robert, 49, 50, 59 Methods section, of journal articles, 173 Microcomputers, see Computers Models, scientific knowledge, 52-56 Modern Language Association of America, 42, 189 Monographs, 118, 150, 164, 232 Mott, Sir Nevill, 100 Multiauthors, 176; see also Authors

articles, 12 determining list order, 174–175 publications, 109–110 Multimedia developments, 240–241

N _

Natural philosophy, 39-40 Nature, 63, 189 Navigation, through text, 118-119 Networked communication amateurs and, 156-157 developing countries and, 156 Networks, 238 electronic, 153-157 human, 139-143 New England Journal of Medicine, 176, 199, 237 News. 4 Newsletters, 4-5 Newspapers, 4, 28, 70-71, 148 Newton, Isaac, 8-9, 39 New York Times, 237 New York Times Book Review, 198, 237 Normal science, 52 Norms, social, 49-50 Noun clusters, 122 Nouns, forming new, 121-122 Nuclear Physics Electronic, 149

0_

Oldenburg, Henry, 5–6 On-line information, 157 On-line journals, 231–232 On-line searches, 230–231 Online Public Access Catalogues (OPACs), 227 Oral communication, 133–136, 211; see also Speech Organized skepticism, 50, 77 Origin of Species (Darwin), 69 Originality, 51 Ortega hypothesis, 102 Ortega y Gasset, José, 102–103 Oxford University Press, 4, 129

Paper, 117–118 Paradigm, 52, 56 Patents, 223–224

P ___

262

Peer review system bias, 186 books versus journals, 197-198 criticisms of, 185 effectiveness, 185-186 electronic publishing and, 203-204 Pergamon (publisher), 128 Periodicals, 8 Philosophical Magazine, 8 Philosophical Transactions (Phil. Trans.), 6, 9, 15, 20.21 Philosophy; see also Natural philosophy Physical sciences, 39-40 Physicists, 235 Physics Abstracts (UK), 30 Physiology, 22-23 Pictures, 116 Plagiarism, 193 Popper, Karl, 52-53 Postal systems, 4 Precision ratios, 228 Presentations, oral, 159 Price, Derek, 61 Price's index, 61, 62-63 Print media, 240 Proceedings, 7 Productivity, research, 85-89 Professional societies, 10, 127 Professionals, definition, 26-29 Professorial chairs, 22-25 Psychological Review, 46 Psychology, development of, 46-47 Publication patterns, types of, 160-161 Publication speed, 166-167 Publications, writing for, 170-172 Publishers main activities of, 125-126 personnel for, 127-128 types of, 126-127

R _

Radio, 148–149 Ranganathan, Shiyali, 56 Readership, 70 Reading, 133, 213–214 background of researchers and, 122–123 definition, 123–124 designing for, 116–120

process, 124-125 techniques, 123 Reading formulae, 120-121 Recall ratios, 228 Referativnii Zhurnal (USSR), 30 Referees, 68; see also reviewers article acceptance criteria, 180-181 authors and, 183-186 bias of, 186-189 instructions, 180 possible recommendations by, 182-183 selection criteria for, 179-180 taking ideas from articles, 193 Reference interviews, 208 References, article, 12-13 Rejection rates, 68-69, 183-184, 195-196 Reports, 162, 163 Research accumulation, 13-18 curiosity-oriented, 211 early communication, 3 mission-oriented, 210-211 professionalization of, 24-26 quantity versus quality studies, 92-93 women in, 103-105 Research communication, 2, 239 computers and, 33-34 effect of history on, 10-11 problem defining, in humanities, 42 Research community increasing size, 14 information growth and, 19-20 information overload defense mechanism, 19-20 needs, 1 Research fronts, 61-62, 77 Research information, 1 accumulation, 13-18 growth rate, 18 Research journals, 4 definition, 15 in seventeenth-century London, 5-6 Research productivity, 85-89 Research reporting code of ethics, 193-194 Research supervision, 21-22 Research training systems, 24-25 Researchers, 239-240 age and productivity, 98-101 amateur, 106 collaboration and, 107-111

Index

communication networks and, 145-146 conference attendance and, 137-139 in developing countries, 104-106 effect of electronic communication on, 240 information growth and, 29-32 mass media and, 28-29, 106-107 motivations, 79-82 productivity, 85-89 prominent, 93-98 psychological requirements, 82-85 publishing considerations, 168-170 quality of work indicators, 89-93 quantity of work indicators, 85-89 reading and, 122-123 restriction of communication channels. 146-147 satisfaction with library resources, 225-229 views on peers, 101-103 wants and needs, 208 women, 103-105 Resubmissions, 191-192 Retrieval systems, 228 Review of American Chemical Research, 30 Reviewers, 196-197 Revolutions, scientific, 52 Rewriting, 160 Ritual citation, 97 Royal Society, 5, 41, 107 Rutherford, Ernest, 40

s _

Salam, Abdus, 105 Salami publishing, 169 Scattered information, 217-219 Scholarly books, 17 English-language, 128 humanities and, 74 quality control of, 194-195 sciences and, 74 speed of publication, 166 Scholarly journals, 7-8; see also Research journals; Scientific journals Scholarly publications structure, 119 Scholarly publishing in non-English speaking countries, 129 internationalization of, 128 rejection rates, 195-196 Schools, specialization in, 23-24 Schwinger, Julian S., 85

Science, 165 Sciences article rejection rates in, 68, 184 books and, 74 conceptual basis in, 48-51 definition, 40-41 effect of beliefs on communication of, 49 history of, 44 multiauthor publications in, 109-111 other disciplines and, 52-56 reporting of research in mass media, 71-72 Scientific American, 237 Scientific articles abstracts and, 12 references in, 12-13 titles in. 11-12 Scientific information, 62 Scientific journals information growth in, 17 payments by authors, 67 Scientific method, 48 Scientific research, 52 Selection process, of mass media, 148-149 Seminars, 160 Sentences, length of, 120-121 Serial presentations, 148 Shannon, Claude E., 145 Skinner, Burrhus F., 47 Social norms, 49-50 Social science information, 62 Social science journals, 68 Social sciences applicable laws in, 47 article rejection rates in, 184 definition, 42 multiauthor publications in, 109-111 reporting of research in mass media, 72 versus humanities, 42-43 Societies definition, 9 role of, 8-11 Sociology, 59-60 Soft knowledge, 60-61 Space science, 71 Specialisms, 43-44 appearance of, and university chairs, 45-46 electronic publishing and, 151 Specialization effect of industrialization, 23-24 growth of, 20-21

Specialization (continued) research and, 21-24 Speech, 115, 148, 211; see also Oral communication problems of, as communication channel, 133-134 S-shaped information growth curve, 31-32 STM (scientific, technical, medical) publishing, 128 Subjects, academic, 39; see also Disciplines, academic communication differences, 66-69 development, 43-48 examining differences, 61-66 Subscription agents, 241 Supervision, research, 21-22 Symbolics, category of knowledge, 57 Symposium, 3

т ____

Tables, 118 Tabular material, 116 Teamwork, 108-109, 175 Technological change, 1 Telephone conversation, 136 Television, 28 Text electronic versus printed, 154-155 navigating through, 118-119 readability, 120-122 reading, 116 Theory, significance of, in research, 58-59 Theses, 162-163 Titles article, 11 growing complexity of, 172 Transactions, 7 Trevor-Roper, Hugh R., 43

Typefaces, 117 Typesizes, 117

U _____

United Kingdom, 24–25 United States, 24–25 Universalism, 49, 51 University chairs, appearance of specialisms and, 45–46 University presses, 126–127

v _

Vesalius, 3–4 Vetting journal articles, 178 scholarly books, 195 Virtual libraries, 233, 234 Vision (sense), 115 Visual aids, 133

w.

Watson, James, 107 Watson, John, 46 Winthrop, John, 5 Women bias and, 189–190 in research, 103–105 Writing, 161–162, 170–172

z ____

Zeitschrift, 8 Zietung, 8 Zipf, George, 121 Zipf's law, 121 Zoology, 71