

## Author index

---

- Ackerman, B. P., 271, 316  
 Ackerman, P. L., 82, 89  
 Ackermann-Valladao, E., 114  
 Adams, C., 211, 215, 372  
 Ajuriaguerra, J. de, 142  
 Albert, M. S., 313  
 Albertson, S. A., 307, 309  
 Allen, L., 31  
 Aman, C. J., 294  
 Ames, L. B., 31  
 Ammon, P., 186  
 Anastasi, A., 18, 20, 26, 31  
 Anderson, J. R., 230, 241, 252, 306, 312, 319  
 Anderson, J. W., 271  
 Anderson, L. D., 32  
 Anderson, R. G., 30  
 Angelergues, R., 142  
 Angell, J. R., 352  
 Arenberg, D., 270, 304  
 Arlin, P. K., 212  
 Armon, C., 206, 213, 219, 220  
 Arns, F. J., 337  
 Ashcraft, M. H., 231, 234, 238, 240, 251, 256  
 Atkin, R., 67  
 Attanucci, J., 131  
 Attewell, P., 142
- Babcock, R. L., 273, 301  
 Backman, L., 359, 362, 364, 374  
 Baer, D. M., 7, 279, 280, 287, 295  
 Baillargeon, R., 110, 118, 120, 121  
 Bakhtin, M. M., 346  
 Baldwin, J. M., 162, 163, 209, 352  
 Bales, R. F., 368  
 Balinsky, B., 35, 37  
 Balota, D. A., 266  
 Baltes, M. M., 359  
 Baltes, P. B., 10, 78, 89, 90, 157, 221, 222, 310, 315, 317, 320, 322, 351, 353, 354, 356, 358–363, 369, 372, 374, 375  
 Banks, M. S., 251  
 Barclay, C. R., 331  
 Barrett, T. R., 31  
 Bartlett, F. C., 282, 332, 369  
 Basseches, M. A., 208
- Bassock, M., 294, 296, 308  
 Bauer, J., 291  
 Bayley, N., 31, 32, 36, 78  
 Beeson, M. F., 59  
 Behrend, S., 332  
 Beilin, H., 100, 118, 165, 282  
 Belenky, M. F., 205  
 Bell, R. Q., 73  
 Benack, S., 208  
 Benbow, C. P., 69, 70  
 Bentley, A. M., 185  
 Berg, C. A., 2, 10, 269, 353  
 Bergeron, J., 142  
 Bernstein, M., 2  
 Bernstein, R. J., 102  
 Berry, J. W., 328  
 Bertenthal, B., 295  
 Berzonsky, M., 288  
 Besner, D., 314  
 Bever, T. G., 281, 292  
 Bickhard, M. H., 102  
 Bidell, T. R., 5, 12, 113, 117, 123, 131, 134  
 Bielby, D. D. V., 152  
 Bieman-Copland, S., 7, 8, 12, 352  
 Biggs, J., 166, 169  
 Bijou, S. W., 7, 280, 287  
 Binet, A., 4, 20  
 Birch, L. L., 253  
 Birren, J. E., 37, 62, 264, 312  
 Bisanz, G. L., 251, 256  
 Bisanz, J., 7, 229, 232, 234, 240, 242, 249, 251, 253, 255, 256  
 Bjork, R. J., 309  
 Blackburn, J. A., 5, 13, 142, 151, 156  
 Blanchard-Fields, F., 211, 220  
 Blonsii, P. P., 330  
 Bloom, B. S., 17  
 Bluff, K., 250  
 Bobbit, B. L., 240  
 Bock, R. D., 61, 67  
 Body, B., 170, 184  
 Boehme, M., 142  
 Boles, D. B., 70  
 Bolles, R. C., 292  
 Bondareff, W., 302  
 Bosman, E. A., 311, 320  
 Botwinick, J., 59, 64, 81, 85, 307, 354, 357

- Boutilier, R. G., 221  
 Bovet, M., 118, 279  
 Bower, G. H., 69, 167, 284  
 Bowles, N. L., 266  
 Boyle, F. M., 18  
 Brainerd, C. J., 120, 121, 144, 145, 147, 150, 152, 164, 183  
 Bray, R., 67  
 Brenner, H. G., 209, 220  
 Breslow, L., 249, 255  
 Briga, J., 117  
 Brigham, M. C., 316  
 Brinley, J. F., 174  
 Britton, B. K., 313  
 Broadbent, D. E., 68, 91  
 Brody, E. B., 19, 14, 25  
 Brody, N., 19, 14, 25  
 Bromley, D. B., 71  
 Bronfenbrenner, U., 191, 351, 352  
 Broughton, J. M., 110, 203, 208, 209, 217  
 Brown, A., 280, 281, 282, 286, 306  
 Brown, A. L., 229, 279, 331, 335, 338, 339, 340  
 Brown, M. M., 255  
 Brown, W., 23  
 Bruce, P. R., 307, 316  
 Bruchkowsky, M., 184  
 Bruner, J. S., 128, 152, 154, 157, 163, 165, 199, 283, 337, 339  
 Bryant, P. E., 117  
 Budwig, N. A., 332  
 Bulka, D., 218, 219  
 Bullock, D., 102, 120, 121  
 Burke, D. M., 265, 266, 313  
 Burt, C., 23, 37  
 Burtis, P. J., 184  
 Butterfield, E. C., 5, 271, 281  
 Butters, N., 71  
 Butterworth, L. B., 149  
 Byrd, M., 304
- Caldwell, J., 25  
 Camp, C. J., 355, 366  
 Campbell, C., 186  
 Campbell, D. T., 17, 58  
 Campbell, J. I. D., 307, 319  
 Campbell, T., 151  
 Campione, J. C., 331  
 Campos, J. J., 295  
 Campos, R. G., 295  
 Canestrari, R. E., Jr., 304  
 Canfield, R. L., 7, 8, 12, 102, 110, 117, 125, 278, 293, 294  
 Capon, N., 150  
 Card, S. K., 314  
 Carey, S., 162  
 Carnochan, W. B., 127  
 Carpenter, P. A., 315  
 Carr, H., 352  
 Carroll, J. B., 52, 53, 56, 57, 67
- Carter, P., 240  
 Case, R., 5-6, 10, 121, 125, 134, 163, 166, 168, 169, 171, 172, 180, 181, 184, 185, 186, 188, 189, 250, 255, 289  
 Caspi, A., 355, 357, 366, 374  
 Cassirer, E., 199  
 Cattell, J. M., 19  
 Cattell, R. B., 24, 36, 48, 50, 52, 56, 57, 61, 63, 68, 71, 73, 75  
 Cavanaugh, J. C., 355, 363, 364  
 Cavanaugh, M. C., 32  
 Caves, R., 187  
 Cazden, C., 336, 343  
 Ceci, S. J., 7, 8, 12, 278, 286-289, 292, 355  
 Cerella, J., 269, 273, 303, 315  
 Chance, J., 142, 143  
 Chandler, M. J., 221  
 Chap, J., 151  
 Chapman, M., 101, 103, 110, 350  
 Chapman, R. H., 151  
 Charness, N., 7, 8, 12, 264, 301, 305, 307, 308, 311, 319, 320, 352, 358, 359, 360, 374  
 Chase, W. G., 306, 310, 315  
 Chen, L., 88  
 Chi, M. T. H., 187, 241, 244, 278, 281, 282, 284, 286, 287, 288, 296, 307, 309, 312, 315  
 Chiarello, C., 268  
 Chinen, A. B., 216  
 Chomsky, N., 162, 280, 281  
 Clark, E., 4, 11  
 Clark, N. K., 368  
 Clarke, J., 281  
 Clarkson-Smith, L., 269  
 Clayton, V., 143, 149  
 Clinchy, B., 205  
 Cohen, I., 32  
 Cohen, J., 71, 72  
 Cohrs, M., 31  
 Colby, A., 213  
 Cole, M., 163, 165, 328, 335, 340, 343, 344  
 Collingwood, R. G., 199  
 Collins, L. M., 72, 73, 75  
 Colliis, K., 166, 169  
 Comalli, P. E., 313  
 Commons, M. L., 206, 207, 220  
 Conoley, J. C., 31  
 Conway, B. E., 2  
 Cook-Greuter, S., 212, 214  
 Cooley, S., 265  
 Cooper, L. A., 268  
 Cooper, R. G., Jr., 117  
 Coppinger, N., 142  
 Cornelius, S. W., 144, 153, 289, 355, 357, 366, 374  
 Coyne, A. C., 307  
 Craik, F. I. M., 62, 64, 69, 85, 271, 304, 316, 357, 364  
 Cronbach, L. J., 26, 30, 38, 58  
 Cunitz, A., 48  
 Cunningham, A., 245  
 Cunningham, W. R., 37

*Author index*

397

- Curnow, C., 311  
 Curtis, J. F., 67
- Damon, W., 204, 213, 336, 342, 343  
 Daneman, M., 184  
 Danner, F., 240  
 Darwin, C., 352  
 Dasen, P., 152, 165  
 Davidson, M. L., 209  
 Davis, E., 142, 155, 156  
 Davison, M., 67  
 DeFries, J. C., 61  
 Dellmann, M., 142, 155, 156  
 DeLoache, J. S., 186  
 Demetriou, A., 166, 171, 185, 186, 189  
 Demming, J. A., 367  
 DeMontmollin, G., 368  
 Denney, N. W., 88, 143, 144, 145, 153, 302, 355,  
 356, 366, 367, 368  
 Dennis, S., 177, 178, 179, 184, 289  
 DeRiboupierre, A., 185  
 Derr, T. F., 38  
 Detterman, D. K., 2, 47, 60  
 Deutsch, G., 65  
 DeVoe, M., 202, 211, 215, 218, 219  
 Dewey, J., 352  
 Diamond, A., 185, 290  
 Diaz, D. L., 266  
 Dingley, H. L., 231  
 Dittman-Kohli, F., 10, 88, 353  
 Dixon, R. A., 8, 9, 10, 157, 307, 309, 310, 350,  
 352, 353, 357–360, 362, 364, 367, 369, 374  
 Dobbs, A. R., 364  
 Dodds, J. B., 31  
 Dodge, K. A., 250, 255  
 Dodwell, P. C., 121  
 Dollinger, S. J., 142  
 Donaldson, G., 46–47, 56, 78, 88  
 Donaldson, M., 117  
 Donaldson, S. K., 217  
 Dorosz, M., 215, 372  
 Drake, R. M., 67  
 Droz, R., 124  
 Duchek, J. M., 266  
 Dumais, S. T., 241  
 Dunphy, D., 32
- Edelstein, W., 203, 211  
 Edwards, D., 368, 369  
 Edwards, W., 233  
 Efkliedes, A., 166, 185  
 Eisner, D., 142, 143, 149  
 Ekstrom, R. B., 53, 54  
 Elkind, D., 113, 118, 149, 152  
 Elliott, C. D., 29  
 Ellis, S., 335, 338, 341, 342  
 Engstrom, R., 47
- Ericsson, K. A., 306, 310, 315  
 Eriksen, C. W., 18  
 Escalona, S. K., 32  
 Eysenck, H. J., 58
- Fabian, V., 170, 184  
 Fairweather, H., 67, 70  
 Fandal, A. W., 31  
 Farrar, M. J., 120, 135  
 Feeman, D., 245  
 Feigenbaum, E. A., 302, 314  
 Feldman, D. H., 119, 120  
 Feltovich, P. J., 307  
 Ferguson, G. A., 245  
 Ferrar, M. J., 166  
 Fiati, T., 186  
 Field, D., 118  
 Fierman, B. A., 238  
 Fink, C. F., 368  
 Fischer, K. W., 5, 12, 102, 110, 111, 113, 116,  
 117, 119–125, 127, 131, 132, 134, 135, 166,  
 167, 169, 172, 180, 184, 185, 187, 189, 206,  
 208, 286, 289  
 Fiske, D. W., 58  
 Fitzgerald, J., 156  
 Flavell, J. H., 115, 117, 119, 120, 121, 147, 148,  
 152, 164, 183, 186, 221, 295, 307  
 Fodor, J. A., 281  
 Fogel, A., 124  
 Ford, D.H., 73  
 Foreman, E., 128  
 Forman, E., 336, 343  
 Forsaith, B., 309  
 Fowler, H., 292  
 Fowler, J. W., 213, 216  
 Fox, L. H., 69  
 Fozard, J. L., 63, 269, 307, 310  
 Frankenburg, W. K., 31  
 Frankfurt, H., 199  
 Frankfort, H. A., 199  
 French, J. L., 30  
 French, J. W., 53, 54  
 Friedman, L., 317  
 Frieson, I. C., 369  
 Frost, N., 12, 47, 62  
 Fruchter, B., 63  
 Furneaux, W. D., 48  
 Furth, E. G., 152  
 Fuson, K. C., 234
- Gabrieheski, A. S., 307  
 Gagne, R. M., 7, 161, 186  
 Galanter, E., 6, 115  
 Gallagher, J. M., 111, 143  
 Gallimore, R., 332, 335, 336, 339, 340, 342  
 Gallistel, C. R., 117  
 Galton, F., 3–4, 19

Cambridge University Press

978-0-521-39769-8 - Intellectual Development

Edited by Robert J. Sternberg and Cynthia A. Berg

Index

[More information](#)

398

Garcia, J., 281  
 Garcia, R., 102  
 Gardner, H., 38, 102, 115, 129, 197, 353  
 Gardner, M. K., 4, 11  
 Gardner, W., 335, 338  
 Garner, W. R., 18, 233  
 Garrett, H. E., 35, 37  
 Gauvain, M., 336, 341, 342  
 Gaylord, S. A., 269  
 Gee, J. P., 345  
 Gelman, R., 110, 117, 118, 120, 121, 165, 167  
 Georgoudi, M., 351, 356  
 Gerard, L., 312  
 Gesell, A., 279  
 Gibbs, J., 213  
 Gibson, E., 161  
 Gildea, P. M., 314  
 Gilewski, M. J., 363  
 Gilligan, C., 131, 206, 208, 214  
 Gillund, G., 309, 360  
 Gladwin, T., 110  
 Glanzer, M., 48  
 Glaser, R., 47, 234, 256, 291, 292, 294, 295, 307, 308  
 Gleitman, H., 44  
 Globerson, T., 185  
 Goddard, H. H., 21  
 Goldberg, I. D., 32  
 Goldberg, J., 185, 289  
 Goldberger, N. R., 205  
 Goldman, M. S., 71  
 Goldman-Rakic, P., 184, 280, 281, 290, 295  
 Goldsmith, H. H., 61  
 Gombrich, E., 180  
 Goodenough, D. R., 66  
 Goodman, D. R., 184, 185, 186  
 Gordon, W., 121  
 Gould, O. N., 367, 371, 372, 374  
 Grady, J. G., 364  
 Grant, M. J., 231  
 Graves, A. J., 142, 149, 152  
 Greenfield, P. M., 110, 131, 165  
 Greeno, J. G., 281  
 Grieve, R., 118  
 Griffin, P., 335, 340, 343  
 Griffin, S., 171, 186  
 Groenwig, G., 184  
 Grossberg, S., 194  
 Grossman, J.L., 304  
 Guilford, J. P., 17, 24, 25, 52–53, 66  
 Gustaffson, J. E., 56, 60

Haan, N., 212  
 Habermas, J., 199  
 Hagen, E. P., 21, 26–27, 30  
 Haith, M. M., 278, 293  
 Hakami, M. K., 308  
 Hake, H. W., 18  
 Hakim-Larson, J., 202, 211, 215, 218

*Author index*

Hakstian, A. R., 52, 56, 57  
 Halford, G. S., 118, 119, 121, 123, 166, 168, 172, 184, 187  
 Halpern, D. F., 269  
 Hamann, M. S., 238  
 Hand, H. H., 120, 206  
 Hankins, W. G., 281  
 Harman, M. H., 52  
 Harris, C. W., 75  
 Harris, J. E., 353  
 Harris, L. J., 70  
 Harris, P. L., 217  
 Hart, D., 204, 213  
 Harter, S., 204, 217  
 Hartley, A. A., 269, 271  
 Harvey, O. J., 212  
 Hasher, L., 307, 312, 313  
 Hauser, S. T., 214, 220  
 Hausmann, C. P., 304  
 Hawley, I., 151  
 Hayden, M., 211  
 Hayne, H., 292  
 Hayslip, B., 88  
 Hayward, S., 180, 250  
 Hearnshaw, L. S., 67  
 Heath, S. B., 344, 345  
 Hebb, D. O., 24  
 Hecaen, H., 142  
 Heidrich, S. M., 88  
 Heisey, J. G., 266  
 Held, R., 291  
 Heller, H. S., 313  
 Helson, R., 222  
 Henri, V., 20  
 Hertzog, C., 12, 60, 62, 63, 85–88, 269, 309, 363  
 Herzberger, S., 67  
 Herzog, A. R., 308  
 Hewer, A., 119  
 Hickman, M., 337  
 Hilgardtharp, E. R., 284  
 Hill, G. W., 368  
 Hinchley, J. L., 271, 316  
 Hobart, C. J., 215, 372  
 Hoepfner, R., 24  
 Hoffman, M. L., 214  
 Hofstaetter, P. R., 35, 36  
 Hogarty, P. S., 32, 33  
 Holly, K. A., 25  
 Holyoak, K. J., 281  
 Honig, W. K., 292  
 Honzik, M. P., 31, 32  
 Hooper, F. H., 118, 142, 144, 149, 151, 152, 156  
 Hoppe, R. A., 368  
 Hoppe-Graff, S., 171, 185  
 Horn, J. L., 4, 12, 23, 25, 36, 46, 47, 50–53, 56, 60–64, 67, 71, 72, 73, 75, 78, 85, 86, 87, 296, 313, 353, 366, 369  
 Hornblum, J. N., 143, 145, 156  
 Howard, D. V., 266, 309  
 Howe, M. J. A., 287  
 Hoyer, W. J., 146, 204, 268, 313

*Author index*

399

- Hughes, M., 119  
 Hulicka, I. M., 304  
 Hull, C., 186  
 Hulme, C., 240  
 Hulse, S. H., 292  
 Hultsch, D. F., 85, 304, 307, 309, 310, 357, 363, 364  
 Hume, D., 161, 162, 280  
 Humphreys, L. G., 53, 62, 63, 65, 67, 72  
 Humphreys, S., 309  
 Hunt, D. E., 212  
 Hunt, E. J., 12, 47, 81, 234, 269, 310  
 Hunt, J. M., 106, 164  
 Hurlburt, N., 32, 33  
 Hurst, P., 180, 250  
 Hutchinson, J. E., 287
- Ilg, F. L., 31  
 Inhelder, B., 107, 111, 112, 114, 118, 146, 147, 150, 151, 153, 233, 279, 280, 294  
 Inman, V. W., 270  
 Irwin, R. R., 208
- Jacewicz, M. M., 269  
 Jacklin, C. N., 69, 70  
 Jackson, D. N., 30  
 James, W., 351  
 Jamison, W., 120  
 Jenkins, E. A., 161, 234, 255  
 Jenkins, J. J., 16  
 Jensen, A. R., 25, 58, 61, 67, 69  
 Jepson, K., 215, 216  
 Johnson, J., 170, 184  
 Johnson, M. B., 47, 57, 60, 62, 64, 67, 68, 69  
 Joreskog, K. G., 26  
 Jukes, T., 186  
 Judd, C., 285  
 Just, M. A., 315
- Kahnemann, D., 203  
 Kail, R., 4, 7, 16, 19, 24, 25, 229, 231, 232, 240–244, 247–250, 252, 253, 255, 256  
 Kamin, L. J., 61  
 Kane, P., 2  
 Kanner, B. G., 8, 9, 337, 353, 357, 369  
 Kant, E., 162, 164, 200, 280, 282  
 Kantowitz, B. H., 63  
 Kaplan, B., 202, 203, 330  
 Karmiloff-Smith, A., 114  
 Karplus, E. F., 150  
 Karplus, R., 150  
 Kaufman, A. S., 28, 29  
 Kaufman, N. L., 29  
 Kausler, D. H., 304, 308  
 Kazuk, E., 31
- Keating, D. P., 165, 240  
 Kegan, J., 213, 217  
 Keil, F. C., 256, 288  
 Kellog, R., 176, 177  
 Kelly, F., 151  
 Kendler, H. H., 7  
 Kendler, T. S., 7, 161  
 Kennedy, E., 142  
 Kenney, S. L., 189  
 Ketron, J. L., 2  
 Keyser, D. J., 31  
 Kilcher, H., 114  
 Kimchee, R., 231, 233  
 King, P. M., 209, 210, 219, 220  
 Kitchener, K. S., 120, 203, 209, 210, 211, 220  
 Kitchener, K. W., 189  
 Kitchener, R. F., 203  
 Klahr, D., 161, 187, 229, 230, 232, 250, 251, 253, 256, 257, 281, 306  
 Kliegl, R., 88, 310, 315, 317, 320, 322, 356, 363, 372, 375  
 Knapp, J. R., 25, 53  
 Knight, C. C., 122, 131, 171, 189  
 Kniveton, B. H., 368  
 Knobloch, H., 32  
 Kofsky, E., 121  
 Kohlberg, L., 119, 204, 206, 209, 212, 213, 214, 217, 219  
 Kolakowski, D., 61, 67  
 Kominski, C., 142  
 Koplowitz, H., 203, 208  
 Kopp, C. B., 102  
 Korkel, J., 287  
 Kosslyn, S. M., 65  
 Kovach, J. K., 281  
 Kraker, M. J., 128  
 Kramer, D. A., 208, 220, 355  
 Kramer, J. J., 31  
 Kroeber, C., 180  
 Krus, D. J., 122, 132  
 Kuhlen, R. G., 73  
 Kuhlmann, F., 30  
 Kuhn, D., 150, 206, 211  
 Kuhn, T. S., 50  
 Kuleck, W., 122, 132  
 Kurland, D. M., 185  
 Kurzman, D., 369  
 Kvalsig, J., 185
- Labouvie-Vief, G., 5–6, 10, 141, 198, 200, 202, 203, 204, 206, 208–211, 215, 216, 218, 219, 220, 222, 353, 355, 358, 372  
 Lachman, J. L., 6, 271, 281  
 Lachman, M. E., 357, 363  
 Lachman, R., 6, 271, 281, 282  
 Lachter, J., 281  
 Lacy, J. I., 66  
 Lakatos, I., 190, 203–204  
 Lakoff, G., 199

Cambridge University Press

978-0-521-39769-8 - Intellectual Development

Edited by Robert J. Sternberg and Cynthia A. Berg

Index

[More information](#)

## 400

Lamborn, S. D., 120, 127  
 Lamke, T. A., 30  
 Landauer, T. K., 312  
 Lane, D. M., 313  
 Langley, P., 253, 256, 305, 306  
 Lapp, D., 363  
 LaRiviere, J. E., 319  
 Lasaga, M. I., 266  
 Laurendeau, M., 142, 165  
 Lautrey, J., 185  
 Lave, J., 111, 163  
 Lawrence, A., 240  
 Lawrence, R., 200, 209  
 Layton, B., 313  
 Leadbeater, B., 211  
 LeFevre, J., 234, 240  
 Legg, S. E., 272, 320, 364  
 Lehman, H. C., 311  
 Leitner, K. L., 184  
 Lennon, M. L., 144  
 Lennon, R. T., 30  
 Leont'ev, A. N., 344  
 Leontiev, A. N., 102, 134  
 Lerner, R. M., 351, 352, 356, 358  
 Lesgold, A. M., 247  
 Levine, C., 119, 208  
 Levine, J. M., 332  
 Lewis, D., 67  
 Lewis, J., 234  
 Lewis, M., 180, 184, 250  
 Liben, L., 279, 280, 294  
 Lieberman, M., 213  
 Light, L. L., 268, 307, 309  
 Liker, J., 286, 288, 355  
 Lindberg, M., 287  
 Lindholm, J. M., 270  
 Lipsitt, L. P., 351  
 Lockhart, R. S., 69, 85, 304  
 Loehlin, J. C., 61  
 Loevinger, J., 214  
 Loewen, E. R., 364  
 Looft, W. R., 142, 144, 149, 152  
 Lovelace, E. A., 265, 271, 316  
 Lovell, K., 149, 151, 152  
 Lunneborg, C., 12, 47, 62, 234  
 Lunzer, E. A., 121, 148, 150  
 Luria, A., 352

Maccoby, E. E., 69, 70  
 MacFarlane, J. W., 31  
 Mandler, G., 85, 115  
 Mann, T., 216  
 Margolis, R. B., 265  
 Marini, Z., 289  
 Markley, R. P., 355  
 Markman, E. M., 118  
 Marsh, G. R., 269, 271, 316  
 Marston, D., 38  
 Martin, J., 313

*Author index*

Marx, K., 162  
 Matarazzo, J. D., 28, 59, 71, 72, 81  
 Matheny, A. P., 61  
 McAndrews, M. P., 266  
 McArdle, J. J., 61, 72, 78, 83  
 McCall, R. B., 17, 32, 33, 34, 36  
 McCann, R. S., 314  
 McCarthy, D. A., 30  
 McCartney, K., 61  
 McClaskey, C. L., 255  
 McClearn, G. E., 61  
 McClelland, J. L., 314  
 McCluskey, K. A., 352  
 McDermott, R., 163  
 McDowd, J. M., 64, 313  
 McGarrigle, J., 118, 123, 127  
 McGilly, K., 250  
 McGrath, J. E., 368  
 McKeough, A., 184, 289  
 McLane, J. G., 332  
 McLaughlin, G. H., 170  
 McLelland, J. C., 161, 187  
 McNamee, G. D., 332  
 McNemar, Q., 17  
 Mead, G. H., 204, 352  
 Mednick, S. A., 48  
 Melchior, J., 208  
 Menna, R., 185  
 Merrill, M., 21  
 Metzler, J., 66, 268  
 Meyers, C. E., 25  
 Michael, W. B., 25  
 Michaels, S., 131, 345  
 Middleton, D., 332, 337, 368, 369  
 Milberg, W., 313  
 Miller, G. A., 6, 115, 314  
 Miller, M. S., 186  
 Miller, P. H., 197  
 Miller, R., 185  
 Minick, N., 337  
 Minsky, M. A., 281  
 Mitchell, D. R. D., 272, 273, 302, 306, 309, 320, 364  
 Moessinger, P., 201  
 Moizo, 184  
 Monge, R. H., 304  
 Monod, J., 216  
 Moore, T., 32  
 Moran, T. P., 314  
 Moriarty, A., 32  
 Morra, S., 184  
 Morrell, R. W., 269  
 Moscovitch, M., 313  
 Mounoud, P., 166–169, 171  
 Muhs, P., 151  
 Muir, C., 240  
 Muller, M., 142  
 Murdock, B., 48  
 Murphy, D. R., 306  
 Murphy, G., 281  
 Murphy, J. M., 206, 208

*Author index*

401

- Murphy, M. D., 270, 307, 316  
 Murray, D. J., 29  
 Murray, F. B., 118  
 Murrell, H., 309  
 Murrell, K. F. H., 309  
 Myers, B., 64
- Narens, R., 369, 372  
 Neches, R., 253, 256, 306  
 Neely, J. H., 246, 312  
 Neimark, E. D., 152  
 Neisser, U., 292  
 Nelson, M. J., 30  
 Nelson, T. O., 271, 369, 372  
 Nelson, V. L., 32  
 Nesselroade, J. R., 73  
 Neugarten, B. L., 215  
 Neumann, E., 203  
 Newell, A., 6, 230, 231, 249, 251, 278, 314  
 Newman, D., 335, 340, 341, 343  
 Newport, E., 291  
 Nichols, R. C., 61  
 Minio, A., 337, 339  
 Noam, G., 203, 211  
 Noelting, G., 150  
 Norman, D. A., 68, 91, 281–284
- Ochs, E., 344  
 O'Connell, K. M., 291  
 O'Dell, S., 176, 177  
 Oldfield, R. C., 314, 321  
 Oliphant, G., 64  
 Olson, D. R., 163, 165  
 Onians, R. B., 199  
 Oseas, D. M., 313  
 Otis, A. S., 30  
 Overcast, T., 142  
 Overton, W. F., 110, 142, 145, 149, 156  
 Owens, W. A., 78  
 Ozer, F. K., 208, 221
- Pachella, R. C., 62, 63  
 Palincsar, A. S., 335, 338, 339, 340  
 Palmer, S. E., 231, 233  
 Palmon, R., 272, 302, 320, 364  
 Papalia, D. E., 5, 13, 142, 143, 144, 149, 151, 152, 153, 156  
 Papalia-Finlay, D., 142, 155, 156  
 Parkinson, G. M., 184, 185  
 Parkinson, S. R., 270  
 Parr, R. B., 150  
 Pasamanick, B., 32  
 Pascual-Leone, J., 13, 165, 166, 167, 169–172, 180, 181, 184–187, 189, 211, 221, 254  
 Paterson, D. G., 16
- Paulus, P. B., 368  
 Pavlov, I., 284  
 Pearce, K. A., 302, 366, 367, 368  
 Pearson, L. S., 29  
 Peck, V., 271  
 Pellegrino, J. W., 4, 16, 19, 24, 25, 47, 234, 240, 256  
 Pennington, N., 211  
 Pepper, S. C. 352  
 Perfetti, C. A., 247  
 Perlmutter, M., 271, 308, 309, 357–360, 364, 368, 374  
 Perry, W. G., 205, 206  
 Pervez, M., 186  
 Peters, L., 265  
 Peterson, R., 150  
 Petit, G. S., 255  
 Piaget, J., 4–5, 101–107, 110–114, 117, 121, 129, 131, 141, 146, 147, 150–153, 162, 163, 164, 166, 168, 169, 172, 188, 197–204, 210, 212, 214, 216, 217, 219, 223, 233, 254, 279, 281, 290, 296, 330, 335, 336  
 Pinard, A., 165  
 Pipp, S. L., 180, 189  
 Plomin, R., 61  
 Plude, D. J., 313  
 Poon, L. W., 63, 266, 269, 307, 310  
 Posner, M. I., 247  
 Postman, L., 283  
 Powell, J. S., 4, 6, 7, 19, 20, 23, 24, 35, 36, 38  
 Powesland, P. F., 309  
 Pressey, S. L., 367  
 Pressley, M., 316  
 Pribram, K. H., 6, 115  
 Price, L. A., 52  
 Price-Williams, D., 110, 121, 329  
 Prill, K. A., 271  
 Puglisi, J. T., 269  
 Pumfrey, P. C., 150  
 Pylyshyn, Z. W., 281
- Rabbitt, P. M. A., 313, 364  
 Rabinowitz, F. M., 231  
 Rabinowitz, J. C., 271, 316  
 Radvansky, G. A., 312  
 Radziszwska, B., 336, 341, 342  
 Rahmy, M., 124  
 Ramirez, M., III, 121  
 Reder, L. M., 312  
 Redmore, C. D., 214  
 Rees, E. R. D., 187, 281, 282, 284, 286, 307  
 Reese, H. W., 62, 110, 351, 352  
 Reeve, R. A., 279  
 Reich, K. H., 208, 221  
 Reid, D. K., 111, 143, 170  
 Reinert, G., 37  
 Rescorla, R. A., 292  
 Resnick, L. B., 240, 332  
 Rest, J., 220

- Revesz, G., 67  
 Rey-Belley-Muller, M., 142  
 Richard, J., 142  
 Richards, D. D., 16, 33  
 Richards, F. A., 206  
 Richards, T. W., 32  
 Richardson-Klavehn, A., 309  
 Richman, H. B., 314  
 Ricoeur, P., 216  
 Riegel, K., 141, 202, 205, 208, 352  
 Rifkin, B., 240  
 Ringwell, E. A., 32  
 Robert, M., 114  
 Roberts, P., 142, 155, 156  
 Roberts, R. J., Jr., 127, 294  
 Robertson, E. A., 267  
 Robertson-Tschabo, E. A., 304  
 Robin, J. F., 287  
 Robinson, M., 237  
 Rodgers, W. L., 308  
 Rodriguez, R., 142  
 Roedioger, H. L., III, 312  
 Roeper, A., 118  
 Rogoff, B., 111, 119, 120, 133, 134, 328, 335,  
 336, 338, 340, 341, 342  
 Roitblat, H. L., 292  
 Roodin, P. A., 146, 204, 367  
 Rose, S. P., 122  
 Rosenbaum, G., 71  
 Rosenbloom, P. S., 314  
 Rosnow, R. L., 351, 356  
 Ross, G., 337  
 Rovee-Colloer, C., 292  
 Rubin, K. H., 142, 143, 144  
 Rule, B. G., 364  
 Rumelhart, D. E., 161, 187, 281–284  
 Russell, S., 206  
 Ryack, B. L., 368  
 Ryan, C., 71  
 Rybash, J. M., 146, 204, 367
- Saarni, C., 217  
 Sabatini, P., 152  
 Saetvelt, J. C., 67  
 Salthouse, T. A., 7, 62, 63, 81, 86, 91, 221, 240,  
 264, 270–274, 302, 303, 307, 312, 317, 320,  
 353, 355, 357–362, 364, 374  
 Salverson, S., 142, 149  
 Sammarco, J. G., 337  
 Sanders, R. E., 270, 307  
 Sanders, S., 142, 152  
 Sandieson, R., 186  
 Sattler, J. M., 21, 26–27, 30, 31  
 Scardamalia, M., 184  
 Scarr, S., 61  
 Scarr-Salapatek, S., 34  
 Schacter, D. L., 308  
 Schaie, K. W., 12, 23, 60, 72, 74, 78, 86, 88, 91,  
 264, 296, 317, 351, 354, 355, 357, 358, 367  
 Scheese, R. L., 208  
 Schell, D., 222  
 Schieffelin, B. B., 344  
 Schiffrin, R. M., 82  
 Schmitt, F. A., 270, 307  
 Schneider, W., 82, 246, 287, 288  
 Schoeberlein, S., 202, 215, 218  
 Schonfield, A. E. D., 267  
 Schrader, D. E., 206  
 Schrader, D. R., 25  
 Schroeder, H. M., 212  
 Schulenberg, J. E., 88  
 Schulz, R., 311  
 Schwartz, D. R., 313  
 Scialfa, C. T., 265  
 Scopessi, C. A. M., 184  
 Scribner, S., 110, 163, 165, 355, 368  
 Seashore, C. E., 67  
 Seergobin, K., 314  
 Seggie, J. L., 147, 148  
 Seidenberg, M. S., 314  
 Selman, R. L., 212, 213, 217  
 Selzer, S. C., 143  
 Selzer, V., 67  
 Severance, D. G., 311  
 Shapiro, E. S. 38  
 Sharabany, R., 185  
 Sharp, J. R., 71  
 Sharp, S. E., 20  
 Shaver, P., 127  
 Shaw, J., 6  
 Shaw, M. E., 368  
 Shaw, R. J., 266, 316, 364  
 Shayer, M., 186  
 Sheehan, N. W., 142, 152  
 Sheikh, J. I., 317, 363  
 Shepard, R. N., 66, 268  
 Shiffrin, R. M., 241, 246  
 Shimojo, S., 291  
 Shipley, 279  
 Shrager, J., 234–238, 247, 250, 251, 256  
 Shuter, R., 67  
 Shweder, R., 328, 329  
 Siegel, A. W., 251, 256  
 Siegler, R. S., 16, 33, 125, 161, 229, 234–240,  
 244, 247, 250, 251, 252, 255, 256, 279, 286,  
 289, 295  
 Sigel, I., 118  
 Silverman, I. W., 117  
 Silvern, L., 116  
 Simon, B., 199  
 Simon, H. A., 6, 229, 230, 231, 249, 251, 255,  
 278, 305, 306, 314  
 Simon, T., 4, 20  
 Simonson, E., 319  
 Simonton, D. K., 311  
 Sinclair, H., 118, 142, 279  
 Sinclair-de-Zwart, H., 142  
 Singh, A., 268



*Author index*

403

- Sinnott, J., 151, 208, 212, 355  
 Skinner, B. F., 279, 280, 281  
 Skovronek, E., 273, 302  
 Smedslund, J., 153  
 Smith, C. L., 118  
 Smith, J., 181, 184, 304, 310, 315, 317, 320, 322, 353, 356  
 Smith, R. S., 32  
 Snow, R. E., 38  
 Snyder, C. R. R., 247  
 Solomon, L. M., 67  
 Somborg, B. L., 63, 307, 317, 320  
 Sorbom, D., 26  
 Sowarka, D., 88, 322  
 Spearman, C., 21–22, 60  
 Spelke, E. S., 162, 167  
 Springer, S. P., 65  
 Staddon, J. E. R., 295  
 Stankov, L., 56, 64, 67, 68, 88  
 Stanley, J. C., 17, 69  
 Stanovich, K. E., 244–248, 250  
 Starkey, P. D., 167  
 Steffe, L. P., 150  
 Steinberg, E. S., 363  
 Steiner, I. D., 368  
 Stephenson, G. M., 368  
 Sternberg, R. J., 2, 4, 6, 7, 10, 12, 17, 19, 20, 23, 24, 26, 35, 36, 38, 47, 50, 60, 82, 161, 315, 353, 368, 369  
 Sternberg, S., 45, 62, 240, 253  
 Storandt, M., 64  
 Storck, P. A., 142, 144, 149, 151, 152, 153  
 Strodbeck, F. L., 368  
 Subelman, I., 186  
 Svejda, M. J., 295  
 Swanson, J. M., 304  
 Sweetland, R. C., 31  
 Szeminska, A., 107, 117
- Tanke, E., 317  
 Tanner, J. M., 153  
 Taraban, R., 250  
 Tarule, J. M., 205  
 Taylor, D. W., 368  
 Terman, L. M., 21  
 Terrace, H. S., 292  
 Tesser, A., 313  
 Tharp, R. G., 332, 335, 336, 339, 340, 342  
 Thelen, E., 124  
 Thomas, E. J., 368  
 Thompson, R. F., 90, 317  
 Thomson, G. H., 23  
 Thomson, N., 240  
 Thorndike, E. L., 20, 23, 26–27, 30, 285, 317, 318  
 Thronesberry, C., 271  
 Thurstone, L. L., 23, 54, 87  
 Thurstone, T. G., 23, 87  
 Tierney, M., 142
- Tissot, R., 142  
 Todor, J., 170, 184  
 Tolman, E. C., 292  
 Tomlinson–Keasey, C., 151  
 Toulmin, S., 328  
 Trabasso, T., 117  
 Trevithick, L., 367  
 Trotter, S. D., 363  
 True, M., 142, 149  
 Tucker, J., 120  
 Tuddenham, R. D., 21  
 Tulving, E., 304  
 Tumulo, P., 142  
 Turiel, E., 206  
 Turner, T., 202  
 Tversky, A., 203  
 Twilley, L., 314
- Underwood, B. J., 313  
 Undheim, J. O., 53, 56  
 Uttal, D., 358, 359, 374  
 Uzgiris, I. C., 106
- Van Parys, M., 120  
 Vernon, P. E., 23, 61  
 Voloshinov, V. N., 346  
 Vurpillot, E., 113  
 Vygotsky, L. S., 102, 128, 163, 186, 279, 329–337, 346, 352, 369
- Waddington, C. H., 34  
 Wagner, A. R., 292  
 Waldman, I. D., 28  
 Wallace, I., 250  
 Wallace, J. G., 161, 229, 253, 281  
 Waller, N. G., 28  
 Walsh, K. K., 270  
 Wapner, S., 313  
 Watkins, M., 202, 313  
 Watson, M. W., 120, 184, 286  
 Webster, J. C., 67  
 Wechsler, D., 27–28, 71  
 Weinert, F., 287  
 Weinstein, E., 185  
 Wellman, H. M., 307  
 Werner, E. E., 32  
 Werner, H., 202, 203, 313, 330  
 Wertsch, J. V., 8, 9, 128, 134, 328, 332, 335, 337, 339, 340, 344, 346, 353, 357, 369  
 Wessler, R., 214  
 West, R. F., 244–247  
 Westerman, M. A., 134, 217  
 White, H., 266  
 White, S. H., 7, 110

## 404

Whitman, R. D., 71  
 Whitmont, E. C., 216  
 Whyte, L. L., 199  
 Wickelgren, W. A., 307  
 Wiener, P. P., 352  
 Willerman, L., 61  
 Williams, M. V., 312  
 Williams, W. M., 368, 369  
 Willis, S., 12, 88, 317, 355, 356, 367  
 Wilson, R. S., 61  
 Winer, G. A., 118  
 Wing, H. D., 67  
 Wink, P., 222  
 Winocur, G., 313  
 Wissler, C. L., 19–20  
 Witkin, H. A., 66  
 Wohlwill, J. F., 116, 118  
 Wollman, W., 150  
 Wood, D. J., 128, 337  
 Wood, P. K., 203, 209, 211, 212  
 Woodcock, R. W., 49, 56, 57, 60, 62, 64, 67, 68,  
 69, 71, 72  
 Woodruff, D., 208, 220

*Author index*

Woodruff-Pak, D. S., 317  
 Woods, A. M., 312  
 Woodworth, R. S., 285  
 Worthley, J., 313  
 Wright, M., 310  
 Wright, R. E., 270  
 Wundt, W., 328  
  
 Yee, P. L., 266  
 Yesavage, J. A., 317, 363  
 Youniss, J., 152, 200  
 Ysseldyke, J. E., 38  
 Yussen, S. R., 2  
  
 Zacks, R. T., 307, 312, 313  
 Zandri, E., 305  
 Zelinski, E. M., 363  
 Zimmerman, B. J., 111  
 Zimmerman, C., 205

## Subject index

- abilities: maintained, 59, 68–70, 90–1; organization of, 19, 49–58; practice and, 90; primary mental, 23, 52–65, *see also* structure of intellect model; structure of, 17, 51, 54, 92; verbal vs. nonverbal, 70–2; vulnerable, 59–67, 70, 87–90, 92
- accommodation as transformation, 167
- acculturation knowledge ( $G_c$ ), 56, 68, 90–1; vs.  $G_f$  (fluid reasoning), 89; *see also* crystallized ability
- action, internalized: regulation of, 106; in relation to thought, 101, 102, 113; reorganization of, 106, 108–10, 113–14
- adaptability, 352–5
- adult development, 188–9, 205–22; cognitive compensation and, 358–65; cognitive monitoring and, 211; creativity and, 204, 212; dialectical operations and, 205; interrelationships of, 219–21; judgment and, 209–10; knowing and, 208–11; organismic, 214–15; problem finding and, 212; relativism and, 205–6; and symbolic processing, 216; systematic thinking and, 206–8
- affect and cognitive development, 200–1, 250; and cognitive structures, 169; dimensions of, 217; experience of, 219; language of, 218–19; and motivation, 180, 250; regulation of, 217; and thought, 165
- age cohort: differences of, 74, 154–5; education and, 83, 152–3, 156; effects of, 76, 77, 355–6
- age differences, 76–87; in cognitive processing, 267–9; in executive processing, 269–71, 307; and experience, 355–6, 358, 360; and expertise, 286–7, 311; external vs. internal memory aids and, 364–5; in incidental learning, 308; in indirect tests of memory, 309; in intentional learning, 321; in knowledge representations, 266, 286–9; and knowledge retrieval, 311–15; in lab learning tasks, 310–11, 317–21; in learning, 303, 305–7; in processing resources, 271–4; and self-paced learning, 310; and speed, 311; and typing, 360
- age of acquisition: conservation and, 117–18; practice, training, and, 118, 164–5, 185; task complexity and, 117–19; variation in, 116–19
- aging: and attention, 85, 86, 313; and carefulness, 86; and cognitive compensation, 358–65; and cognitive functioning, 264–74; and decline in  $G_p$ , 85–87, 93, 156; and depth of processing, 85, 304; and effectiveness or efficiency of processing, 266–9, 302–5; effects of, on  $G_c$  and  $G_p$ , 81, 313–15, 357; and environmental factors, 302, 361–2; forgetting and, 307; increase in score variance and, 81–2; and IQ, 83, 85; and learning, 301–5; and memory aids, 364–75; and memory loss, 85, 265–8; and mental rotation, 268–9; and plasticity, 356; and speed of processing, 240, 269, 271–4, 302, 311–15; and task complexity, 86–7; and use of strategies, 304; and verbal learning, 83, 304; and vocabulary, 313–15
- analogy, 48; and education, 285; and induction, 284–5
- appropriation, 335–6
- arithmetic, mental: age differences in, 319–20; backup procedures in, 237, 238; computer simulation of, 237; development of, 234–40; and errors, 237, 319–20; model of, 235–7; and retrieval, 235; and working memory, 319–20; *see also* long division
- assessment, *see* tests
- association, 281, 284; strength of, and retrieval, 235, 238–40; word, 265–6
- attachment, *see* social bonds
- attention: and aging, 86, 92, 313; divided, 85
- auditory processing ( $G_a$ ), 67–8
- autism (stage), 104, 202
- automatization: of actions, 111–12; and  $G_f$ – $G_p$ , 82; of processes, 247–8; in stage transition, 168; and task consistency, 82
- autonomy vs. heteronomy, 200, 204
- behaviorism, 280; critiques of, 281
- bond theory, 23
- canalization, 34
- Cartesian model, 101, 102
- change, levels and rates of, 352–4; *see also* cognitive development; cultural development; mechanisms of development; reading

development; sensorimotor development  
 chess, 287  
 chunking, 306–7  
 class-reunion effect, 76  
 classical learning view, *see* learning view  
 classification ability, 108–9, 118–19, 123, 127,  
 143–4; criteria of, 143–4  
 cognitive complexity, 217  
 cognitive development: adult, 188–9, 219–22; of  
 brain, 290–1; child vs. adult, 10; common rate  
 of, 243–4, 254, 291; components of, 239;  
 constraints on, 214–15; as cumulative learning,  
 162, 280; cycles of, 189; effects of knowledge  
 base and, 286–9; end of, 11; and formal  
 thought, 221; general vs. domain-specific,  
 220–1, 239, 244, 256, 284–6, 289; growth vs.  
 decline in, 221–2, 358–9; and increase in  
 processing resources, 288–9; learning vs., 167–  
 8, 186–7, 279–81, 294–6; linearity of, 32;  
 mechanisms of, 12–13 113–14, 134, 221–2,  
 239, 241–4, 251–5, 290–1, *see also* mecha-  
 nisms of development; nature of, 9; perspec-  
 tives on, 2–9; social factors of, 103, 110–11,  
 162–3; social origins of, 330–2, 346–7; as  
 unified process, 219–20; variability in, 12,  
 100–1, 116–22, 154, 254–5; and working  
 memory, 189  
 cognitive structure, *see* development of cognitive  
 structure; structure  
 cognitive style, 185  
 cognitive universalism, 110–11  
 collaborative cognitive performance, *see* group  
 cognitive performance  
 comparison-of-averages approach vs. individual  
 differences approach, 45–7  
 compensation: and aging, 358–65, 374–5;  
 collaboration as, 365–7; and contextual  
 demands, 358, 361–2; mechanisms of, 359–61;  
 and metacognition, 363; molar equivalence–  
 molecular decomposition (ME–MD) strategy  
 for, 359–61; selective optimization with (SOC),  
 359, 361; and typing skill, 360; use of memory  
 aids in, 363–75  
 competence: in childhood, 176–9; in infancy,  
 175–6  
 complexity of task: and age of acquisition, 117–  
 18, 123; and aging, 82, 86–7; *see also* cognitive  
 complexity  
 computer: and database systems, 311–12;  
 hardware vs. software, 304; as model for  
 human cognition, 230–1, 250–1, 301–2, *see  
 also* connectionism and learning; information-  
 processing view  
 concept: attainment of, 48–9; organization of,  
 265–6  
 conjunction, 47  
 connectionism and learning, 281  
 conservation, 109; number, 117–18; in old age,  
 141–3, 155–6; volume, 149  
 constraints, biological, 181, 184–5

construct validity at different ages, 76–8  
 constructivism (Piaget), 101, 102, 110–11, 162;  
 assumptions of, 197; and contextualism, 356;  
 mechanisms of, 112–14; *see also* structural  
 stage theory  
 context, demands of, vs. skills, 361–3  
 contextual cues in reading, 244–6  
 contextual support, *see* environmental factors  
 contextualism, 8–9, 162–3, 350–7, 392–3; and  
 aging, 357–65; features of, 351–7; function-  
 alism and, 352–5; and group functioning, 365–  
 74; and plasticity, 356; psychologists and, 351–  
 3; *see also* sociocultural approach  
 correct decision speed (CDS), 62–4  
 cortex, development of, 290  
 covariability, 47, 91  
 creed, 34  
 cross-cultural differences, 129–31, 185–6; vs.  
 cognitive universalism, 110–11  
 cross-sectional research, 74–5, 184; vs. longi-  
 tudinal research, 73–8  
 crystallized ability (G<sub>c</sub>), 48, 56; and aging, 81,  
 313–15, 357, 359; *see also* acculturation  
 knowledge  
 cultural development, 331–2  
 cultural universalism, 110–11  
 database systems, 311–12  
 décalage, 110, 116, 169, 289; *see also* develop-  
 mental range  
 development of cognitive structure, 105–7, 162,  
 291–2; and affect, 165, 180, 217; alternative  
 maps of, 129–34; and context, 197; cross-  
 cultural variability and, 129–30, 152–3, 165,  
 185–6, 188; cultural universalism of, 110–11,  
 152–3, 164, 197; cyclic recapitulation and, 169,  
 188; domain-general view of, 110–11; domain-  
 specific, 168–9, 197, 239; and education, 152–  
 4, 165, 186, 188; factors influencing, 180–1,  
 184–6; functional vs. structural aspects of, 134;  
 intercoordination and, 167–9; vs. learning,  
 167–8, 186–7, 279–81, 294–6; mechanisms of,  
 113–14, 165, 167–8, 183, 187; and order of  
 stages, 121–2, 183–4; perceptual and  
 conceptual, 112–14; processes of, 168; restruc-  
 turing and, 168–9, 187; social relationships  
 and, 200–1; social support and, 119–20, 128–9;  
 sources of variance in, 121; and transfer, 120–  
 1; and working memory, 184–5; *see also*  
 cognitive development; cultural development;  
 reading, development in; stages of cognitive  
 development; structural stage theory  
 developmental range, 127–9; effects of social  
 support on, 128–9; levels of, 128  
 developmental scaling, 124–7  
 digit memory, 287  
 dilemma, 294  
 discrimination, 252, 284  
 distractibility, 312–13

## Subject index

407

- division, long, 340–1  
 drawing, structural analysis of development of, 172–81; and higher-level relations, 178–9; integrated stage of, 177–8; interrelational stage of, 176–7; requirements for, 181; stages of, 181  
 dualism, 203
- ecological representativeness, 354–5; *see also* contextualism, functionalism and  
 education, 150–4, 165, 186, 188, age differences in, 77, 83; effect of, in old age, 78, 142–3, 151–3, 317; and type of task, 355  
 effort, mental, *see* mechanisms of development  
 elderly: clinical samples of, 142; and formal operations, 149, 152–5; and institutionalization, 143, 154; vs. middle-aged, 144; training of, 144–6  
 Elementary Perceiver and Memorizer (EPAM), 314  
 emotion, 200–1, 217–19; dimensions of, 217; language of, 218–19; regulation of, 217–18; *see also* affect; development of cognitive structure, and affect  
 empiricism: and development, 161–2; and learning, 280–1, 284  
 energy, mental, 22  
 environmental factors, 110–11, 119–21, 128–9, 134, 152, 232, 238–40, 291, 354–5; in mental arithmetic, 238–9; in old age, 154, 156, 301  
 epistemology, genetic, 101–3; assumptions of, 197–8, 223; *see also* knowledge, origin of  
 equilibration, 101, 110; *see also* self-regulation  
 errors, 319–20  
 ethnography and language study, 344–6  
 executive processing and aging, 269–71, 315–17; *see also* metacognition  
 expectations: and learning, 292–4; and memory, 292; and schema change, 293; and self-regulation 294  
 experience: and knowledge, 310; and learning, 238–40, 309–11; role of, 355–6  
 expert-novice differences, 286–9, 315  
 expertise: and aging, 311; disadvantages of, 312–13; as intelligence, 301; vs. IQ, 288; and knowledge structure, 287–9, 312  
 exposure to problems, *see* experience
- factor analysis, 17–18; development of, 2; organization of abilities and, 50–1 (*see also* abilities; structural stage theory); task choice and, 52; *see also* psychometric view  
 factor analytic approach (FA), 46–9; assumptions of, 47–8; cognitive processes and, 46; conjunction and, 47; covariability in, 47, 91;  $G_f$ – $G_c$  theory and, 50; tests of, 49–50; usefulness of, 51; variables of, 48–9  
 factors of intelligence: changes in, with increased age, 36–7, 76–87; construct independence of, 57–8; general ( $g$ ), 22–3, 51, 54, 56, 58–9, 91; group, 23; multiple, 51, 52, 56, 58–9, 91  
 failure and learning, 291–2  
 fan effect, 311–12  
 field independence, 66–7  
 fluid reasoning ( $G_f$ ), 49, 59–61; components in decline of, 85–7, *see also* aging; and formal operations, 149; and memory, 85; and novelty, 85, 88; relationship of, to  $G_c$ , 64–5, 89  
 forgetting, 307  
 formal operations, 108–10, 141, 146, 240; and adolescents, 148; and biological factors, 171; characteristics of, 146–8; conservation and, 149; cultural content of, 171; education and, 150–3; and elderly, 149, 152–5; and fluid reasoning, 149; and individual differences, 154, 165; and proportionality, 149–50; and speed of processing, 240–3; structure of, 147–8; tasks of, 148–54; universality of, 152–3, 164, 171; *see also* development of cognitive structure  
 functionalism, 352–4; vs. structuralism, 114  
 functioning, mental, 330–3; *see also* mental processes; zone of proximal development
- $G_c$ , *see* crystallized ability  
 gender differences, 67, 69–70, 131, 143, 150–1  
 general intelligence, *see* factors of intelligence, general  
 generality: of developmental mechanism, 149; of information-processing theory, 249–50  
 generalization: of learning, 286, 339, *see also* transfer; of thought, 252, 284  
 genetic analysis, *see* sociocultural approach  
 genetic epistemology, *see* epistemology, genetic  
 $G_f$ , *see* fluid reasoning  
 $G_f$ – $G_c$  theory, 50–1; construct validity of, 57–8; dimensions of, 56–7; IQ vs., 58–9; PMA vs., 57; as theory of intelligences, 58–9; *see also* structural stage theory  
 group cognitive performance, 369–74; and aging, 369–74; contextualism and, 365–7; and digit memory, 370–2; and elaborations, 373–4; and fact memory, 372–4; and memory aids, 365, 371; procedures in, 369–70; strategies of, 371–4; tasks used in, 366–7, 370, 372–3; and training and experience, 372  
 group psychology, 368
- handwriting study and learning differences, 317–19  
 heredity versus environment, 34–5, 72  
 heteronomy vs. autonomy, 200, 204
- images, mental, 112  
 individual differences (ID), 17, 154, 165, 246, 248, 264, 355–6; approach via, 45–7, 72–3, 91; and cognitive structures, 171, 185; vs. group,

- 114–15; and knowledge base, 289  
 induction, 282, 284–5; and analogy in schemata, 284–5  
 infant tests, 31–2; correlation of, with adult IQ, 32–4  
 inferences and knowledge organization, 287–8  
 information-processing view, 6–7, 161, 229, 261–4, 390–1; assumptions of, 230–2, 262–4; and development, 234–48; diversity of, 232–3, 248–9; generality of, 249–50; mechanisms of, 232–3, 249, 251–5; precision of, 250–1; research and, 248–55; and social development, 250, 255  
 information retrieval, 267–8  
 instruction: organization of, 333; reciprocal, 338–40; and teacher-child interaction, 338–41, 345–6  
 intelligence: definitions of, 2; experts' vs. laypersons' views of, 2; fluid and crystallized, 24 (*see also* factors of intelligence;  $G_f$ - $G_c$  theory); innate vs. acquired, 72; mechanics vs. pragmatics of, 359; multiple vs. general, 58–9; practical vs. academic, 353–5  
 interaction, social: child-child, 341–3; classroom, 338–41; collaborative, 342–3; and intramental functioning, 339–40, 343; and language variants in school, 344–6; parent-child, 337–8  
 intercoordination, 167–9  
 interrelational stage, 176–7  
 IQ: and aging, 83, 85; different tests and, 77; vs. expertise, 288; vs.  $G_f$ - $G_c$  theory, 58–9; verbal vs. performance, 71  
 knowledge: acquisition of, 282, 313; action-based, 107–8, 164, 166, 182; and adult development, 210–11; autonomous vs. heteronomous, 200; as compensation for processing losses, 320–1; compilation and proceduralization and, 319; nature of, 100–2; operative vs. figurative, 111; origin of, 100, 102, 103, 105–7, 113, 115, 162, 281; representation of, 235, 239; restructuring of, 282–4; retrieval of, 267–8; role of, in development, 7–8, 278; as schema or script, 281–2; structure of, 90–1, 162, 164, 262; and ways of relating, 200  
 knowledge base: advantages of, 315–16; content and structure of, 287–9; as database system, 311–12; disadvantages of, 311–15; and distractibility, 313; vs. memory as measure of development, 288; and new information, 313; qualitative vs. quantitative differences in, 315–16; and retrenchment, 286–9; as site or cause of development, 286–9; size of, and retrieval, 312–13; and speed of processing, 288–9, 312–15  
 language: ethnographic studies of, 344–6; as mediational means, 333–5, 346; social vs. inner, 334–5, 346; socialization of, 344  
 learning: as accretion, 282–3; adult, 217–21; age effects in, 318–19, 321; and association, 281, 284; classical theory of, 279–81; cognitive and perceptual, 161; conditions affecting, 305; connectionism and, 281; cumulative, 161–2; development vs., 167–8, 186–7, 279–81, 294–6; dimensions of, 305–9; direct vs. indirect assessment of, 308–9; and empiricism, 280–1; expectations and, 292–4; experience and, 238–9, 301; and failure, 291–2; generality of, 286, 339; and handwriting, 317–19; intentional vs. incidental, 307–8, 313–14, 355; intentionality and, 307–8; LM and LC, 167–8; mechanisms of, 238, 280–1, 294; metacognition and, 291–2; novice-to-expert transition in, 301–2; organism-guided, 291–3; and organization of knowledge, 281–2; vs. Piagetian theory, 289; and practice schemata, 281–6; structural, 180; temporal duration of, 305–7; theory of, 115, 161, 233, 280; view, 7–8, 278, 286, 296, 301, 391–2  
 letter series, 49  
 literacy skills, 337–8; *see also* reading  
 literary development, 131, 215–16; and symbolic processing, 216  
 logic: cross-referencing and, 106–7; development of, 103–5; propositional, 109; and rationality, 205  
 long division, 340–1  
 long-term storage: fluency of retrieval from ( $G_p$ ), 68–9; vs. short-term memory, 69  
 maps of development, 129–34  
 matrices, 49  
 maturation of brain regions, 290–1  
 means, mediational, *see* mediation, cognitive  
 mechanisms of development, 167–8, 183, 238, 251–5; central, 241–4, 248–9; generalization as, 252; inter- to intramental functioning as, 337–9; and learning, 238, 280–1, 284–6, 294; and mental effort, 253–4; and self-modification, 252–3; *see also* cognitive development  
 mediation, cognitive, 333–5, 343–6; and language socialization, 344–6  
 memory, 238, 280–1, 288, 294; aids for, in older adults, 363–75; capacity for, 254–6; failure of, 309; implicit vs. explicit tests of, 267–8, 308–9; loss of, and aging, 85, 267–8, 363–4; and speed of access, 314–15; working, 184–5, 189, 320; *see also* long-term storage; short-term memory  
 mental arithmetic, *see* arithmetic, mental; cognitive development; tasks  
 mental processes, 230–1; automatic vs. controlled 246–7, 255; executive, and aging, 269–71; intermental vs. intramental, 331; levels of, 231; role of, in development, 7, 232; social origin of, 331–2  
 mentalism, 202, 204  
 metacognition: and age differences, 306–7, 316–

## Subject index

409

- 17; and cognitive compensation, 362–5; and learning, 291–2
- mind: and body, dualism of, 198–9; as organic, 199, 201
- models: computer, 230–1, 250–1; descriptive vs. explanatory, 274–5; factor analytic, 46–50; generality of, 249–50; information-processing, 232–3, 249–55, 262–4, 274–5; learning, 294–5; meta modal or process, 262–4; multidimensional, 353; and organization of abilities, 49; paramorphic, 49; precision of, 250–1; refutability of, 49; simple-structure, 48–9; of slowing, 314–15; sufficiency of, 251, 274–5
- monitoring, *see* metacognition
- moral judgment, 212–13
- motivation, 180
- multidimensionality: of change, 353–4; of constructs, 353
- neo-Piagetian view, 5–6, 387–9; and adult cognition, 198, 202–5; origins of, 163–6; vs. Piagetian system, 170–2, 183–8, 201–5; postulates of, 166–72, 182–3; and structural analysis of drawing, 172–9
- neural processes, 291; and aging, 304
- novel tasks, 82
- novelty; and  $G_p$ , 85, 88–9; and rationality, 203–4
- novice-to-expert transition, 301–2
- object permanence, 106
- objectivism, 199; vs. organism, 201–2, 291
- operant learning theory, 280
- operations: concrete, 108–9, 147; dialectical, 141, formal, 108–9; 146–53, 221, *see also* structural stage theory; as internalized actions, 107, 111; kinds of, 107–8
- organicism (Piaget), 201–2, 204
- organism: active vs. passive, 291; vs. objectivism, 201–2, 291
- organization, *see* structure
- paramorphic models, 49
- participation, guided, 335–40; *see also* mediation
- perception: as basis of knowledge, 102; and conception, 111–13
- performance-concept gaps, 113; *see also* *décalage*
- perspectives: coordination of, 104; development of, 104–5, 122
- physical measurements, 10–20
- Piagetian stages vs. skill theory, 125–6
- Piagetian tasks and training, 164–55, 184
- Piagetian view, 4–5, 100–35, 289, 385–7; vs. neo-Piagetian view, 170–2, 183–8, 201–5
- plasticity, 356
- postformal thought, 157, 203–5, 221
- practice, 180, 253–5, 309–10, 356, 358; *see also* experience; training
- preoperations, 107, 108
- primacy memory, 48
- primary mental abilities (PMA), *see* abilities, primary mental
- priming, 265–6, 305–7
- proactive inhibition, 313
- probability, 151
- processes, *see* mental processes; neural processes
- processing resources (space), 241–4, 254–5, 262–4; and aging, 271–4, 302–3; vs. components, 273–4; vs. knowledge base, 286, 288–9; quantity vs. quality of, 272–4
- processing speed ( $G_s$ ), 62–3, 302; *see also* speed of processing
- processing visual information, 290–1
- proportionality, 149–50
- proximal development, *see* zone of proximal development
- psychometric view, 3–4, 16, 44–5, 233, 382–4; assumptions of, 17; and developmental changes, 35–6
- quantitative knowledge ( $G_q$ ), 69–70
- ratio, 149–50
- rationalism, 162, 214
- reading: ability in, 245–6; and comprehension vs. word recognition, 246–7; contextual cues in, 244–6; development in, 131–5, 244–8; readiness for, among minorities, 339; strategies in comprehension in, 338–9; top-down vs. bottom-up models of, 246
- reasoning: alternative forms of, 165, 203–4; combinatorial, 151–2; hypotheticodeductive, 146–8, 200, 203; and social relationships, 200, 202–3; *see also* fluid reasoning; formal operations; logic
- recall: vs. recognition, 267; serial, 320–1; story, 367; strategies in, 270–1; word, 244–8
- recency memory, 48
- recognition: vs. recall, 267; word, 244–8
- reflective abstraction, 113
- reflexes, 106
- refutability of models, 49
- relating, ways of, and understanding, 200
- relativism, contextual, 205–6
- representation: and change, 252; of information, 230, 315; of states vs. transformations, 111–12
- research, longitudinal, 73; average-comparison, 73; vs. cross-sectional research, 73–8, 155; dropout in, 76; process-pooling in, 73–4
- resources, mental, 253–5; *see also* processing resources
- retrenchment, 286–9
- retrieval: information, 235, 267–8; name, 240, *see*

*also* speed of processing; and size of knowledge base, 294, 311–15  
 reversibility, 104–5

scales of skill theory, 125, 127  
 schema, 282–5; accretion and, 282–3; discrimination, generalization, and, 284; induction of, 282, 284–5; tuning of, 283–4  
 Scholastic Aptitude Test (SAT) scores, decline in, 78  
 selective optimization with compensation (SOC), 359  
 self: and ego development, 214; relation of, to others, 212–4; and religious values, 213–14; structures of, 213  
 self-development, 204  
 self-interrogation, 331–2  
 self-modification, 232, 252–3, 256; *see also* cognitive development  
 self-regulation, 101–2, 115; of actions, 105–6, 134; development of, in adulthood, 217–18; and expectations, 294; and other-regulation, 338–9  
 sensorimotor development, 105–7; control structures of, 173; in drawing, 172–6  
 sentence priming task, 244–6  
 short-term memory (STM or  $G_m$ ), 48, 56, 59, 61–2, 69  
 skill acquisition, 256, 317–21; as mechanism in development, 241–4; self-taught vs. schooled, 308; and speed of processing, 241  
 skill theory, 125–7  
 social bonds, 202–3  
 social context, 128–9, 134, 162–3; *see also* developmental range  
 socialization, language, 344–6; *see also* interaction, social  
 sociocultural approach, 328–35, 346–7; characteristics of, 328–9; and cognitive mediation, 333–5, 344–6; and genetic analysis, 330–1; and social origins of cognition, 331–3, 335–43, 346–7; *see also* contextualism  
 sociohistoric view, 162–3  
 speech: internalized vs. egocentric, 334–5; patterns of, in children, 104  
 speed of processing, 234; age differences in, 240–4, 269, 302, 310–11; and correct decision speed (CDS), 62–4; developmental change in, 240–4; and formal operations, 240–3; and  $G_s$ , 62–3, 302; and processing resources, 241–4, 253–5, 262–4; and size of knowledge base, 312–15  
 speediness, 62–3; *see also* correct decision speed; processing speed  
 stability/plasticity dilemma, 294  
 stage debate, *see* structural stage theory  
 stage transition, 180–1  
 stages of cognitive development, 107–10, 254; and age of acquisition, 116–19, 165, 167, 183–4; alternative sequences of, 122; analysis of, in

drawing, 172–9; biological factors of, 171; changes in, 108–9; constraints on, 170; convergent vs. divergent, 131–3; cultural influence on, 171, 185–6, 197; factors of, 180–1; hierarchical, 167; individual differences and, 171, 222; vs. levels, 119; order of acquisition of, 121–2; Piagetian, 125–6; redefinition of, 170; stability of, across contexts and domains, 119–20, 165, 170; working memory and, 184–5  
 standardized tests: and Binet scales, 20–1; and Differential Ability Scales (DAS), 29; group, 30–1; and Kaufman Assessment Battery for Children, 29–30; and McCarthy Scales of Children's Ability, 30; Stanford-Binet, 21, 26–7; and Wechsler scales, 27–9  
 Sternberg effect, 45, 46, 48  
 story recall, 367  
 strategy selection, 270–1, 316–17; development of, 340–3; *see also* metacognition  
 Stroop interference, 313  
 structural stage theory, 100, 107–11, 166–7, 182–3; debate over, 115–22, 152–3, 164–6, 197, 254–5; vs. functionalism, 114  
 structure: innate, 280; logical, 164; universality of, 165; of vocabulary, 314  
 structure of intellect model (SOI or SIM), 24–5, 52, 53, 56

tasks, 197; academic vs. familiar, 355; class inclusion, 118, 123; of classification, 108–9, 121, 127; comparisons of, 267–8, 273–4; complexity of, 117–18; conservation, 109, 117; delayed response or object permanence, 290; dual, and mental effort, 253; experience or practice with, 355–6; free recall, 270; laboratory learning, 310–11; letter series, 49; long division, 340–1; mental arithmetic, 235–40, 243, 252; name retrieval, 240, 242–3; novel, 82; Piagetian, 164–5, 184; priming, 265–6; recall vs. recognition of, 267; route planning, 342; sentence priming, 244–6; serial-recall, 320–1; “shadows”, 343; social interaction, 125–7; story-recall, 367; Stroop, 313; used in collaborative or group cognition, 366–7, 369–70, 372–3; variability across, 274; word association, 265; word recognition, 246–8  
 teacher-student interactions, *see* interaction, social  
 teaching, *see* instruction  
 tests: academic, 250; changes in, 36–7; content of, 19–21; data- vs. theory-driven, 38; development of, 18, 25; familiarity and, 355; and instruction, 38; of intelligence, 332–3; of memory, 267–8; performance variability in, 78–81, 83; reliability and validity of, 18, 21–2; *see also* infant tests; standardized tests  
 thinking: nature of, 199–200, 203–4; systematic, 206–8  
 thought: dialectical, 205, 208, 215; dualistic, 203;



*Subject index*

411

- formal (scientific), 200, 203, 205–6; meta-systematic, 207, 208; nature of child's, 104–5; organization of, 106–7; postformal 157, 203–6, 221
- tip-of-the-tongue experiences, 313
- training: of elderly, 144–6; and  $G_f$ - $G_c$ , 89; and mental effort, 253–5; and Piagetian tasks, 164–5, 184; and transfer, 89, 145; and vulnerable abilities, 87–8
- transfer, 89, 120; age differences and, 310–11; learning and, 285–6; negative, 313; and training, 89, 145
- transformation, 167–8
- transitive inference, 149
  
- variability, 12, 100–1, 116–22, 154, 170, 254–5; cross-cultural, 129–30, 152–3, 165, 185–6, 188; across tasks, 274; in test performance, 78–81, 83
- variation, developmental, 122–35
  
- verbal intelligence (VQ) and aging, 83
- visual processing ( $G_v$ ), 65–7; and field independence, 66; and gender differences, 67; maturation and, 290–1
- vocabulary, 48; accessing of, 314; and aging, 313–15; estimates of, 314; and experience, 310
- Vygotskian view, 8, 330–5
  
- Wechsler Adult Intelligence Scale (WAIS), 71–2; factors of, 71–2; longitudinal studies of, 83–5; and performance subtests, 71; and variability across age, 78–81, 83; and verbal subtests, 71
- wisdom, 157
- Woodcock-Johnson battery, 49
- word recognition: comprehension vs., 246–7; context and, 244–8
  
- zone of proximal development, 128, 332–3, 346; and assessment of intelligence, 332–3; and instruction, 333; and mediational means, 336–9