Index

AAAS 42, 96, 98
ABC Model of Kaleidoscope Careers 228
ability, interest and (maths) 339
Abraham, N. 251
academic development 276, 277–8, 280, 305
access 53, 56, 72
to education 36–8
see also barriers
accountability 39, 97, 354
Accreditation Board for Engineering and Technology (ABET) 204, 252, 261–2
Acker, J. 71
action strategies 12–23
activity schedule (bridge program) 284
Adams, E.S. 101, 109
Adams, S. 253
add-ons (diversity initiatives) 240
Adelman, C. 188, 204, 337, 345, 346
admissions/admission criteria 260–61
ADVANCE programs 18, 20, 23, 35
institutional transformation 317, 322, 323, 327–30
advantage, accumulation of 11–12, 20–22
advertising 35, 202–3
mentoring positions 294–5
student support programs 308–9
Advisory Panel on Women for Science 36–7
African-Americans 257–8
PhD candidates in science 91–100
Agars, M.D. 161
Agarwal, R. 79, 82
Ahuja, M.K. 80
Aikenhead, G.S. 5
Alderfer, C.P. 129
Alexander, B. 253
Allen, T.D. 80
alternative work schedule (AWS) 358
Ambady, N. 164, 166, 167–8, 170, 172
American Association of Community Colleges 268
American Association of Engineering Societies (AAES) 189, 203
American Association of Medical Colleges 246
American Chemical Society 40, 260, 319
American Council on Education 246
American Indian Housing Initiative 256
American Institutes for Research 338–9
American Society for Cell Biology 38
American Society for Engineering Education (ASEE) 38, 268, 334
Anderson, L.S. 190
anxiety 168
Applewhite, A. 83
Armour, M.A. 233, 236
Aronson, J. 163, 164
articulation agreements 268–9
Asian Americans (in science and engineering) 128–54
Assessing Women in Engineering project 304
assessment (student support) 309
Assessment of NIH Minority Research Training Programs 100
assisted reproductive technologies 116
Association of American Medical Colleges (AAMC) 339
Association for Women in Science (AWIS) 34, 35, 38, 40, 41–2
Astin, A.W. 6, 250
Astin, H.S. 321, 326
Atkinson, R.C. 4
Aumann, R.J. 102
Aung, W. 262, 264
authenticity (ABC model) 228
Index

Avnimelech, G. 101, 112, 113
AXXS 38–9
Ayre, M. 53, 55

B. 254
baccalaureate 263–4
‘bad’ aspects of engineering education 58, 60–62, 65–7
Bagilhole, B. 48, 52–3, 56–7, 66
Bailyn, L. 20
balance (ABC model) 228–9
Bareket, A. 115
Barh, J.A. 174
Barling, J. 160
Baron, J. 79
Barringer, H. 129
barriers 7–12, 23, 72
to advancement in engineering 350–52
to integration (Israel) 107–21
in science and engineering 229–31
science careers 28–43
Baruch-Feldman, C. 79
Bassett-Jones, N. 335
Baum, E. 346–7
Bebbington, D. 52
Becker, G.S. 129, 130, 131
Beder, S. 55–6
behavioral engagement 188
Ben-Zeev, T. 164–5, 168
Bennett, J.F. 51, 65
Bennett, N. 74
Benokraitis, N.V. 161
Berglund, G. 338
Berkovitch, N. 111, 116, 117
Berslnski, S. 103
Bernas, K.H. 78
Berryman, S.E. 216
best practices 39, 349, 355–9
Bilimoria, D. 228, 326, 328
Billiard, L. 30
Black Government Student Association 94
Blewett, P. 266
block scheduling 302–3, 306
Blum, L. 16, 261
Bodvenhausen, G.V. 174
Bodzin, A. 7
Bonk, J.F. 260
‘boot-camp’ environment 250
Bopp, B. 251
Borucki, C.C. 74
Bouvier, L.F. 5
Bowen, D.E. 74
BP Global Path to Diversity and Inclusion 356–7
Brainard, S.G. 54
Brandt, C.J. 74
Branford, J. 249, 250, 251–2, 257
Brazilai, A. 111
Breznitz, D. 101, 112, 113
Brickhouse, N. 8
bridge programs 17, 278–91
Brown, A. 50
Brown, B.L. 222
Brown, R.P. 168
budgets 289–91, 304–9
Building Engineering and Science Talent 184, 187, 246
Burke, M.J. 74
Burnham, G. 260
Busch-Vishniac, I.J. 204–5, 253, 260
Business Round Table 187, 336
Bybee, R.W. 4
Byrne, E.M. 55, 229, 235

Cacioppo, J.T. 174
Cadinu, M. 168
Cal-Berkeley 97
calculus/calculus topics 260
California State University 268
Callister, R.R. 326
camp implementation (bridge programs) 285, 288–9
Campbell, M. 256
Campbell, P.B. 23, 188
Campbell-Wright, R. 256
Canada (career commitment study) 210–38
Canadian Association of University Teachers (CAUT) 217
capacity (ECC model) 187–8
Capacity Center 96–7
career choices (high school girls) 342–3
career commitment 210–38
career image (in engineering) 189–92
career interests (high school girls) 344
careers	n advancement 350–52, 356	n influencers 342–3
motivators 342
in science (barriers) 28–43
trajectories (predicted) 133, 145–53
Carli, L.L. 77, 83
Carmel, E. 101
Carmi, S. 262, 264
Carnegie Mellon University 255, 260–61
Carter, R. 49
Case, J. 190, 203
Catalano, G. 256
Catalyst 4, 77, 348–9, 353, 356–7, 358
Catsambis, S. 8
CCWESTT 212
CDW-G 203
Celebration of Women in Engineering 17
Chabrow, E. 72
Chait, R.P . 322
challenge (ABC model) 228
champions 357
Chasteen, A.L. 164
Chen, M. 174
Cheng, C. 128, 132
Cherin, D.A. 82
Cheryan, S. 174
‘chilly climate’ 9, 16, 53–4, 81, 250, 322
Chin, K. 23
Cholmondeley, P. 236
Chronicle of Higher Education 203, 251
Church, A.H. 75
Churchman, A. 105, 107, 109, 114, 119, 123, 125
Cicicocioppo, A.L. 213, 219, 223
Ciechanover, A. 102
Claire, T. 164
Clark, C. 235
Cleveland, R. 129
Clewell, B.C. 4, 17, 23, 188
climate
IT workplace (gender myths) 71–85
see also ‘chilly climate’
clustering 302–3, 306
co-op experiences 221, 222
co-worker support 79–81
Cockburn, C. 51
cognitive engagement 188
Cohen, S. 112
Colgan, F. 50
collective learning (Israel) 112–13
College Board 186, 194–5, 250
colleges
community colleges (role) 268–9
curricular change 245–71
experiences of women in 8–9
mechanical engineering curriculum 262–8
partnership with companies 355
support programs 276–310
transition programs 17, 278–91
see also faculty/faculty members;
students
Colorado School of Mines 256
Colquitt, J.A. 76
Colwell, R. 43
Commission on Professionals in Science and Technology 185, 186, 187, 194
Committee on Encouraging Underrepresented Minorities to Pursue Biomedical Research Careers 100
community colleges 268–9
computer science 109–10, 114, 190–91
Congressional Commission (CAWMSET) 37–8, 81, 187, 189, 246, 247
Construction Careers Service 48
Construction Industry Training Board 48
construction sector 48, 56
continuity (ECC model) 187–8
Cooper, C.L. 224, 227
Cooper Union survey 346–7, 348
Copeland, J. 54
Corbin, J. 58
core knowledge 263–4
Corning Incorporated 358–9
corporate strategy (engineering) 352–5
costs (bridge program) 289–91
 Cotter, D.A. 130–32, 147, 152–3, 154
Cotton, J.L. 80
Council for Higher Education (Israel) 104, 105
Courter, S. 252
Cowan, F. 335
Coyle, E.J. 205
Cramer, S.H. 220
Crandall, C.S. 168, 169
Cress, C.M. 321, 326
critical mass 49, 231–2, 350
critical path lengths 259–60
Crocker, J. 160, 163, 167, 175
Croizet, J.C. 164, 170, 172
Crombie, A.D. 50
Crozier, S. 227
culture 97
engineering organizations 49–57, 65–6, 346
of science 33–5
curriculum 53
action strategies 16–17
change, diversity and 245–71
content, teaching and 253–62
dissection 263–4
informal 66
mechanical engineering 262–8
multiculturalism in 257–8
prerequisites 259–60
streamlining 258
curriculum vitae 32–3
Curran, J.M. 9
Dainty, A.R.J. 48, 49
Dale, P.M. 219
Dally, J. 249, 253, 255, 260
Daniels, J. 321
Daniels, R. 129
Dansereau, F. 78
Dauenhauer, D. 161, 168
Davies, C. 52
Davies, P.G. 161, 164, 165, 167, 168
Davis, C. 7
Davis, D.D. 73, 74
Davis, L.A. 189
Davis-Kean, P. 339
Day, D.V. 78
Dedicated Engineers 245, 262
de Fontenay, C. 101
demographic profile (women in science) 28–30
DeNavas-Walt, C. 129
Denton, D. 202
department level (ADVANCE program) 328–9
Ding, W.W. 33
Discover Engineering Summer Camp 15–16
discrimination 37, 130
IT workplace 79–80
women engineers (UK) 48, 52, 57, 64–6
women in maths 159–61, 171
disengagement 167
disidentification 167
dissemination 309
gender equity data 329–30
of knowledge (Israel) 112–13
distributive justice 75–6
Di Tomaso, N. 130
diversity
curricular change and 245–71
in engineering (USA) 335–7, 356–9
division of labor 51, 116
doctorate terms (fulfillment) 97
domain identification 166–7
Dorward, J. 258
double minority 129–54
Downey, G. 261, 269
downstream conditions (pipeline model) 334–60
Dryburgh, H. 8, 48
dual-degree options 261
dual labor market theory 129
Duchan, L. 32
Ducharme, L.J. 79
Duchon, D. 78
Duderstadt, J.J. 189
Duke University 260
Duncan, S.C. 134, 135
Dweck, C.S. 170
Eagly, A.H. 77, 83
Eastman, C. 252
Eccles, J.S. 12, 160, 166
Eccleston, J. 13
economic effects of STEM 3–4
Economic and Social Research Council 47, 57
Edisen, A. 34
education 4
access to 36–8
action strategies 12–23
African-American PhD candidates 91–100
experiences of women 8–10
experiences of young girls 7–8
gender stereotypes in maths 159–77
programs (schools) 12–16
Index

programs (universities) 16–17
school system (Israel) 107–10
transition programs 17, 278–91
women in engineering (UK) 47–67
women in engineering (USA) 184–207
see also colleges; curriculum; high schools; higher education; schools; universities
Eidelman, L. 101, 109, 110
Eldridge, J.E.T. 50
‘Electricity in the Palm of Her Hands’ project 123
Emerson, C.J. 231
emotional engagement 188
employment
occupational experiences of women 10
see also job; labor; pay; work; workplace
genre (ECC model) 187–8
EngineerGirl! website 17, 18, 345–6
engineering
action strategies 15–16
African-American PhD candidates 91–100
Asian Americans in 128–54
attracting more women 184–207
barriers to women 229–31
best corporate practices 355–9
culture 49–57, 65–6, 346
curricular change and 245–71
diversity in (USA) 335–7, 356–9
education (experience of women) 8–9
education programs 15–16
gender stereotypes 159–60
government initiatives 22
mechanical (curriculum) 262–8
messages 193–201, 207, 343–4, 359
occupational experiences of women 10
professional associations 17–18
retention/advancement (barriers) 350–52
student support programs 276–310
UK women (experience of HE) 47–67
US women in 334–60
see also STEM
Engineering Council (UK) 48, 67
Engineering Projects in Community Service (EPICS) 205
Engineering Training Authority 48
Engineering Trends 334
Engineering Workforce Commission 186
‘Engineers Without Borders’ 206, 344
ENHANCE project 40
entry-level engineering program 357
Epstein, D. 135
equal opportunities 48, 52–3, 102, 103, 116, 188, 248
equality (gender myth) 231–5
Etzioni-Halevy, E. 115
Etzkowitz, H. 7, 9, 10, 49, 54, 227, 229, 232, 235, 250, 322
European Union 22, 106
evaluation 309
bias 19–20, 322
Evans, M. 52, 66
Evetts, J. 49, 51, 66, 323
exam survival kits 304
executive-level appointments (BP) 356
expectations 7–8, 11–12, 300, 301
experience
upstream/downstream 334–60
women faculty in STEM 321–7
exports (Israel) 101
Extraordinary Women Engineers Project (EWEP) 339–45, 355
faculty/faculty members 9–10
advancement of women 18–22
level (ADVANCE program) 329
mentors 293–4, 304
representation of women 317–31
in science 29, 31
failure, attitudes toward 31–2
fairness in IT 75–6
familialism (in Israel) 115–19, 122
family-friendly policies 20, 21, 22, 117, 124–5, 328
family–work balance 35, 41, 171, 237, 328, 353–4
Farrell, E.F. 8
Fassinger, R. 246
Fastrac program 281
Feagin, J.R. 161
Fechter, A. 4
feedback loop 252, 336, 359–60
Feilchenfeld, N. 252
Fein, S. 172
Fels, A. 231
Fermi, E. 251
Ferraro, G. 248
Ferratt, T.W. 79, 82
fertility rate (Israel) 115–16
field location diversit councils 357
field locations 350–51, 357
field sites 353
Fielding, J. 49
financial considerations
bridge programs 289–91
mentoring programs 304
residential communities 304–9
Fisher, A. 5, 6, 190, 247, 250, 253, 254–5, 260
Fivush, R. 162
Fleishman, E.A. 79
Fletcher, J.K. 82
Florman, S.C. 251
Fogel-Bijaoui, S. 115, 116
Ford, D.C. 8
foreign knowledge transfer (Israel) 113
formative assessment 309
Fürster, J. 168, 174
Fort, D.C. 40
Forum of Female Industrialists of the Manufacturers’ Association 123
Fredericks, J.A. 188
Frehill, L. 330
French, S. 58
Frenkel, M. 106, 116, 117–18
freshmen
mentoring 292–300, 301–4
orientation courses 260
residential communities 304–9
transition programs 17, 278–91
Fuchs, B. 4
Fulligrove, R. 252
‘Future Generation of Hi-Tech, The’ project 123
Gale, A.W. 48, 51
Gallagher, A.M. 162
Galpin, V. 109
Gary, S. 42
gatekeepers 260
Gattiker, U.E. 129
Gehringer, M. 7
gender
bias 7, 35, 95–6
differences (in maths) 337–9
differential socialization 9–10
equity 20, 231–5, 328, 329–30
gendered culture 49–57, 65–6
gendered socialization 41, 51, 65, 83, 160, 161, 163
identity 120–21, 166–7, 176, 230
lens of (IT workplace) 84–5
myths (IT workplace) 71–85
perceptions about 341–2
schemas 11, 19–22, 322
gender stereotypes 7, 33, 233
in maths 159–77
GeoProbe mobile soil/water lab 257
Georgi, H. 4
Georgia-Pacific Corporation 357–8
Georgia Tech 20, 289
Germano, L.M. 74, 79
Gerstner, C.R. 78
GES project 122–3
Gess-Newsome, J. 235
Gherardi, S. 50, 66
Gibbin, R.D. 189
Gibbons, M. 262, 318, 319, 335
Gilbride, K.A. 15, 190
Gingras, A. 77
girls
career interests 344
caree motivators 342
experiences of (in STEM) 7–8
influencers of career choices 342–3
thoughts about engineering 341
glass ceiling effect 11, 77
Asian Americans in science and engineering 128–54
Glazer-Raymo, J. 216
global competitiveness 335–6
Global Path to Diversity and Inclusion strategy 356–7
Glover, J. 49, 51
Golombok, S. 162
Gonzales, P.M. 164
Gonzalez, C. 235
‘good’ aspects of engineering
education 58–60, 65–7
Goode, J. 53, 56–7, 66
Goodman, I.R. 190, 249, 250, 254, 262
government initiatives 22–3, 24, 48–9
graduate education 16–17
developing career commitment
  222–4
Graduate Scholars Program 92–100
  graduates 97
  as mentors 292–300, 301
  women in science 28–32
Greed, C. 55
Greenfield, Baroness 22
Greenhaus, J.H. 82
Greenwald, A.G. 162
Grimland, G. 103
Guillaume, D. 266
Ha-Poalim Bank 101, 102, 106
Ha’aretz (newspaper) 0 116
Hahm, J. 39
Hamilton College 257
hands-on work 55, 61, 237, 255
Hansard Society Commission Report 52
Harlow, L. 323, 324
Harris, E.F. 79
Harvard University 159, 202, 250
Hatch, S. 206
Hayes, B.C. 74
Haynes, A. 77
Hazzan, O. 101, 104, 109, 110, 123
Hebrew language 103, 119–21, 122
Hebrew University of Jerusalem 102
Helgesen, S. 77
Helsinki Group on Women and
  Science 22
Henderson, J. 254
Hendley, V. 268
Hennessy, J. 201
Herr, E.L. 219, 220
Hersko, A. 102
Herzog, H. 116
Hewitt, N.M. 5, 8
Hewlett, S.A. 116
Hewlett Foundation 256
high-tech sector (Israel) 101–25
High School and Beyond/Sophomore
  Cohort Longitudinal Study 337
high schools
  action strategies 12–16
  Israel 122–3
  partnerships with companies 355
US engineering and 341–3, 355
young women’s perspectives 213
higher education
  women’s experience in UK 47–67
  see also colleges; universities
Higher Education Statistics Agency 49
Higley, K. 256
Hilton, T. 338
historically black colleges and
  universities (HBCUs) 92, 95, 97, 99
Hofstede, G. 50
Hollenshead, C. 320
Holloway, P. 52
Holton, G. 11
Hoonakker, P. 75, 81
Hoover, Herbert 198
Hopkins, N. 5
Horn, L. 160
Hrabowski, F. 258
Huang, A. 31
Huang, G.N. 338
Hudson Valley Community College 268
Hughes, K. 224–5
Hulin, C.L. 74
Hult, C. 326
Hults, B.M. 74
human capital 80, 112, 248
  Asian Americans in science and
  engineering 129, 131, 134
Husu, L. 52
Hyde, J.S. 162–3, 338
Hyde, M.S. 235
Hynes, H. 270
Hypatia (residential community) 305, 307
IBM 101
identity
  bifurcation 175–6
  gender 120–21, 166–7, 176, 230
  social/stereotyped 173–4
Implicit Association Test (IAT) 162
inclusion 82, 83
  BP initiative 356–7
Indiana University 252
individual differences (responses to
  stereotype threat) 170, 174–7
individual faculty level (ADVANCE) 329
individuation 172–3
industrial engineering 352–5
industrial placement 57, 58, 60, 65, 67
industry
  mentors 294, 304
  representation of women (Israel) 105–7
influencers, career 342–3
Information Technology Association of America (ITAA) 80, 81
informational justice 75–6
Institute of Electrical and Electronics Engineers (IEEE) 17–18
institutional reality 97
institutional transformation (ADVANCE program) 317, 322, 323, 327–30
integration of curricular material 254–6
Intel Corporation 355–6
InterAcademy Council 36–7
interest
  ability and (in maths) 339
  performance and (in maths) 337–9
intergroup theory 129
Internet 193, 236, 237
interpersonal justice 75–6
interpersonal relations 97, 324, 327
interpersonal skills 78, 224–7
interventions 23
  personal 170, 172–4
  situational 170–71
investment in US science 92
Inzlicht, M. 164–5
Israel (women in high-tech sector) 101–25
Israel Industrial Union 106
Israel Institute of Technology 102, 104, 119
IT workplace (gender myths) 71–85
Izraeli, D.N. 102, 111–12, 114–15, 116
  Jarosz, J.P. 205, 253, 260
  Jawitz, J. 190, 203
  job
    rotation 351, 354
    satisfaction 40, 74, 79–82, 84, 223, 325–7, 347
    security 326
    turnover 82
  Johns, M. 168, 177
  Johns Hopkins University 256, 268
  Jolly, E.J. 187–8
  Jolly, L. 53
  Jones, G.M. 8
  Jordan, C.G. 328
  Josephs, R.A. 168
  Judge, T.A. 79
  JUMP program 13
  just-in-time teaching (JiTT) 252
  Kahanovitch, S. 103–5, 107, 109, 114, 123, 124
  Kahle, J.B. 8, 13, 251
  Kahn, S.M. 116
  Kahn, W.A. 79
  Kahu, D. 102
  Kanter, R.M. 77, 321
  Kaplan, D.M. 80
  Karambayya, R. 129
  Katz, J.H. 82
  Kaufman, J.C. 162
  Kawakami, K. 174
  Keegan, R.W. 201
  Keller, J. 161, 168
  Kemelgor, C. 10
  Kelly, B. 270
  Kimmerling, B. 111
  Kirkman, E.E. 318, 320
  Kirkup, G. 49
  knowledge
    body of (BOK) 263, 264
    core 263–4
    dissemination of (Israel) 112–13
    transfer, foreign (Israel) 113
  Kolar, R. 255
  Koput, K.W. 80
  Kozlowski, S.W.J. 74
  Kuck, V.J. 319
  Kulacki, F. 254
  Kunda, Z. 165
  Kvasny, L. 72, 81
Laanan, F. 12, 13
labor
division of 51, 116
skilled workforce 4–5
see also human capital; minorities; women
Lalande, V. 227
Landis, R. 252, 260
Lane, N. 48
Langdridge, D. 58
language, Hebrew 103, 119–21, 122
Larwood, L. 129
latent growth curve (LGC) analysis
129, 134–5, 153
LaVaque-Manty, D. 18
Layen, P. 23
leader-member exchange theory 77–8
leadership 39, 98
gender myth 77–9
‘leaky pipeline’ 20, 29–30, 319, 321–2
Leaper, C. 160
learning
collective (Israel) 112–13
communities 304–9
style 53, 54–5, 249–53
Lederman, M. 8
Ledwith, S. 50
Lee, P.C.B. 79
Lenhart, A. 193
Levy, B. 164
Lewin, A.Y. 32
Lewin, K. 73
Lewis, S. 53–4, 61, 224, 227
liberal art 261–2
Liden, R.C. 77
Lieblich, A. 118
life–work balance 35, 41, 171, 237, 328, 353–4
Life Career Rainbow 228
Lii, D.T. 129
Lindell, M.K. 74
Lintern, S. 53–4
living–learning community 304–9
local hires/talent (BP) 356
Lockwood, P. 165
Loder, N. 10
Long, J.S. 323
Lottero-Perdue, P.S. 8
Louis Stokes Alliances of Minority Participation (LSAMP) 17
Louisiana State University 97
Lucena, J. 247, 261, 269
Luhtanen, R. 175
McArdle, J.J. 135
Maccoby, E. 338
McCormick, J. 9
McCormick, N. 9
McDermott, C. 72
McEneaney, E. 253, 257
McIlwee, J.S. 6, 10, 54, 62
McIntyre, R.B. 170, 171
McLean, C. 54
McLeod, P.L. 335
McMahon, M. 217
Madill, H.M. 55, 213, 223
Mainiero, L.A. 227–8
Majetich, S. 53
Major, D.A. 73, 74, 78, 79, 83
Makrakis, V. 7
Malpas, R. 51
management training 354
manager accountability 354
Manufacturers’ Association (Israel)
123
Marasco, C.A. 160
Margolis, J. 5, 6, 7, 190, 247, 250, 253, 254–5, 260
Mariano, C. 256
Markus, H. 173
Marshall, J. 258
Martell, R.F. 11
Martens, A. 164, 170, 172
Martin, J.K. 79
Martin, J.L. 5
Martin, L. 248
Marx, D.M. 164, 171
Mason, C.L. 13
mathematics 30, 185
education programs 13, 14–15
gender differences 337–9
gender stereotypes 159–77
school system (Israel) 107–9
see also STEM
Mattis, M. 268, 269
Maume, D.J. 131, 153
Mayfield, E. 14
Mead, C. 78
Mead, M. 189
Meade, J. 260
mechanical engineering curriculum 262–8
mechanical engineers’ survey 194–201
media (role) 359
mediators of stereotype threat 167–9
medical cover (bridge program) 284, 286–7
Melamed, T. 134
men
differential socialization 9–10
gender myths (IT workplace) 71–85
mentoring 80–81, 93, 95
career commitment and 234–6
choosing mentors 292–4
engineering (USA) 350, 354
portfolio (BP) 356–7
programs 292–304
recruitment 294–300
in science 39, 40–43
topics 292
MentorNet 294
Meredith, W. 135
Merrill-Sands, D. 83
messages, engineering 193–201, 343–4
Messner-Yaron, H. 103, 104, 105, 107, 109, 114, 123, 124
Metraux, R. 189
Metz, S.S. 204
Meyerhoff Scholarship Program 97, 222–3
Michigan, University of 18–19, 21, 97, 258, 280, 339
Michigan State University 255, 268
Michigan Supreme Court 278
Mickelson, R.A. 130
micropolitics of gender 52
military, Israeli 110–15
military service (Israel) 121–2, 124
Miller, F.A. 82
Miller, G.E. 230
Mills, J. 53, 55
Min, P.G. 129
minorities
African-American PhD candidates in sciences 91–100
Asian Americans in science and engineering 128–54
barriers 23
benefits of (in STEM) 7
LSAMP 17
multiculturalism in curriculum 257–8
in STEM 3–24
underrepresentation 5–6
MIT 20, 97, 161, 258, 270
Mitchell, K.E. 218, 220
‘model minority’ 128, 132, 154
Montgomery College 269
Moore, D. 119
Mor Barak, M.E. 82
Mordechai, A. 120
Morell, L. 253
Morella, C. 4
Morgan, A.J. 80
Morgan, L.A. 132
Morley, L. 52
Morrison, A.M. 129, 130
motherhood (in Israel) 115–18, 122, 124–5
Motorola 101
Muller, C.B. 204
multiculturalism in curriculum 257–8
Muthen, B.O. 135
Myer, J.P. 224
Myers, M. 72
myths
developing career commitment 216–35
gender (IT workplace) 71–85
Nair, I. 53, 251
NASDAQ 101
Nash, L. 228
National Action Council on Minorities in England 247
National Academies’ Board on Life Sciences 100
National Academy of Engineering 189, 192, 264, 334–5, 345–6, 349–50
National Assessment of Educational Progress (NAEP) 185
National Association of Engineers 17
National Bureau of Economics Research Conference 202
National Center for Education Statistics 185, 187
National Center for Women and Information Technology 72
National Conference for Women in
Science, Technology, Engineering and Maths 35
National Council for the Promotion of Women in Science and Technology 105
National Council for Research on Women 54
National Engineers Week 355
National Institutes of Health USA) 34, 38–9
National Organization for the Professional Advancement of Black Chemists and Chemical Engineers 98
national policies 24
National Research Council (USA) 100
National Science Board 352
National Science Foundation 17, 34, 43, 97, 160, 245, 254, 257, 261, 304, 320
ADVANCE programs 18, 20, 23, 35, 317, 322, 323, 327–30
institutional transformation 317, 322, 323, 327–30
Power Awards 327
Science and Engineering Indicators 6, 29, 318, 319, 351–2
SESTAT 133–4
National Society of Black Physicists 98
Naumann, S.E. 74
Nelson, D.J. 320, 322
networks 353, 354
career commitment and 234–5, 236
social 79–81, 82, 113, 115
women in science 39, 41, 42–3
Niederman, F. 80
Niemeier, D.A. 235
Nijstad, B. 335
Nkomo, S.M. 129
non-technical topics/link 266, 267
North, D.S. 5
Northern Cheyenne Indian Reservation in Montana 256
nuclear engineering 255–6
NVivo 58

O’Brien, L.T. 168, 169
occupational experiences (of women) 10
O’Donnell-Trujillo, N. 50
Office of Research on Women’s Health 38–9
Oglala Lakota College 257
Oliver, M.L. 130
one-on-one mentoring 300
O’Neil, D.A. 228
Opportunity 2000 48, 51
optimization problem 263, 266–7
Oregon State University 255–6
organizational catalysts 18
organizational climate (IT workplace) 71–85
organizational commitment 79, 82, 84, 223
organizational culture 50
organizational justice 75–6, 223
Orndorff, R.M. 219
Ostroff, C. 73, 74, 82
outreach 93–4, 269
Pacanowsky, M.E. 50
Packard Graduate Scholars 92–100
Padavic, I. 131, 153
parents 15
Park, S.M. 323
Parsons, E.E. 9
participation (corporate strategies) 352–5
patents 33, 102, 106
pathway model/metaphor 96, 220, 336–7
Patton, W. 217
Paulus, P. 335
pay
Asian Americans 133, 134, 147–8, 153
gender differences 76, 347–8, 351–3
Pearson, W. 4, 258
peer-oriented mentoring 292–300, 301–4
peer review 34, 36
Pegher, V. 80
Peled, Y. 117
Peleg-Popko, O. 110
Peled, L.H. 82
Pennsylvania State University 256
perceptions
about gender and engineering 341–2
climate (gender differences) 71–85

Ronald J. Burke and Mary C. Mattis - 9781847206879
Downloaded from Elgar Online at 02/15/2019 04:30:26AM
via free access
Index

performance contract 97, 357
criteria 51
maths 337–9
personal development 276, 277, 279, 305
personal interventions 170, 172–4
personal tutors 59, 64, 67
Peter, K. 160
Petroski 251
Petty, R.E. 164
Pew Internet and American Life Project 193
PhD students 9–10
African American candidates 91–100
physical sciences 160, 253–4, 257
Pickford, L.J. 71
piloting 263, 267–8
Pima Community College 269
pipeline model 29–30
career commitment 216–19, 220, 237
in IT sector 72–3
leaky pipeline 20, 29–30, 319, 321, 322
upstream/downstream conditions 334–60
‘planned happenstance’ theory 218
Podolny, J. 79
Poggio, B. 230
Portugese, J. 115
positive marginality 78
Powell, A. 8, 49, 60
Powell, G.N. 82
power relations 52, 72, 83
Preliminary SAT (PSAT) data 186
prerequisites (curriculum) 259–60
Prestoj, A. 23
Preston, A.E. 5, 323
Priester, J.R. 174
procedural justice 75–6
Procter and Gamble 356–7
professional associations 17–18, 41
role 38–9
professional development 276–7, 279–80, 305
professionalpractice.asme.org 197–201
Project ENHANCE 40
Prokos, A. 131, 153
PROMISE project 257
promotion 11, 20, 32
Pronin, E. 170, 175
Psenka, C. 33
public understanding (engineering) 188–9
publishing 32, 33
Purdue University 205, 252
Quinn, K. 328
racial bias 95–6
Radeloff, C. 253, 257
Ragins, B.R. 80
recruitment 35–6
local hires (BP) 356
of mentors 294–300
pipeline model 216–19
retention and 352
Registrar of Patents (Israel) 106
Reichers, A.E. 73
Reisz, L. 164, 165
Remennick, L. 115, 116
Rensselaer Polytechnic Institute 268
representation of women
faculty (in STEM fields) 317–21, 327–31
Israeli academia 103–5
US engineering workforce 334, 349–50
research
on Asian Americans in workplace 132
on experiences of women engineers 346
and development (in Israel) 112, 121
residential communities 304–9
Resource Equity Committee Report 322
retention of women
in engineering 350–55
in IT 72, 73, 82, 84
rewards (for employees) 353
Ridgeway, C.L. 50
Riley, D. 251
Ripley, A. 160
‘Rising Tide, The’ 48
Robinson, J.G. 6, 10, 54, 62
Roldan, M. 75
role models 9, 10, 41, 171, 202, 229
in Israel 123, 124
in USA 342, 343, 350, 355, 357
Roman, J. S. 171
Rosenblum, J.L. 75
Rosser, S.V. 20, 248, 253, 270, 321, 322, 327
rotation programs 351, 354
Ruskai, M. 30
Sadker, D. 7
Sadker, M. 3, 7
Sagebiel, F. 48, 51, 54, 55, 67
salary see pay
Sanchez, P. 80
Sanchez-Hucles, J. 80
Sasson Levi, O. 111
SAT tests 162, 185, 188, 194, 337
Saxenian, A. 113
Sayer, A.G. 134–5
Schein, E.H. 50
Scheinerman, E. 259
Schmader, T. 168, 170, 175
Schneider, A. 10
Schneider, B. 73–4, 75
schools
action strategies 12–16
education programs (Israel) 12–3
level (ADVANCE program) 328–9
system (Israel) 107–10
see also education; high schools
science 185
African-American PhD candidates 91–100
Asian Americans in 128–54
attracting women 212–13
case of (Israel) 118–19
culture of 33–5
curricular change and 245–71
education programs 13–15
government initiatives 22–3
representation of women 103–5
sterotypical scientist 33–5
women in (barriers) 229–31
women in (keys to success) 28–43
see also STEM
Science and Society Action Plan 22
Science and Technology Authority (of
Israeli Ministry of Education) 123
Scientific American 102
Scientific Research Society 40
Scientists and Engineers Statistical
Data System (SESTAT) 133–4
Scottish HE Funding Council 49
search committees 35–6
Sechrist, G.B. 160, 166
Seibert, S. 79
Seibt, B. 168
Selby, C.C. 24
selection panels (BP) 356
self-affirmation 172, 173
self-confidence 31–2, 42, 224, 226
self-efficacy 226–7
self-empowerment 41
self-integrity 172
self-perceived efficacy 226–7
self-promotion 33, 42
Selingo, J. 205
Sered, S. 115
service learning 205
Seta, C.E. 231
sexual harassment 10, 52, 74, 233, 347,
359
Seymour, E. 5, 8
Shafran, G. 117
Shauman, K.H. 6, 188, 217, 219, 227,
229
Shaywitz, S. 39
Shih, M. 162, 164, 166, 170, 173–4
Short, T.D. 62
Shuman, L. 264
Sigma Xi 40
Silicon Valley 101
’silicon wadi’ 101
Silver, B. 323–4
Single, P.B. 16
’sink-or-swim’ environment 250, 260
Sislin, J. 268, 269
situational interventions 170–71
skills
interpersonal 78, 224–7
key role of skilled workforce 4
looming shortages 4–5
of new PhDs (underestimated) 96–7
women/minorities in STEM 3–24
Slaughter, J. 246
Slocum, J.W. Jr. 74
Smith, K. 253
Smith, S.A. 130
Smith College 35, 36, 268
social capital (Israel) 121–2
social identity 190
social justice 247
social networks 79, 80–81, 82
Israel 113, 115
social relevance (curriculum) 256, 257
social skills 224–7
socialization 98, 159
differential 9–10
gendered 41, 51, 65, 83, 160, 161, 163
Society of Women Engineers (SWE) 245, 340, 346, 347–8, 349, 351
soft skills 224–5
software engineering 255
Solarz, A.K. 174
Sonnert, G. 11
Sooner City 255
Special People in the Northeast 256
Spelke, E.S. 7, 163
Spencer, S.J. 161, 163, 168, 169, 172
Springer, L. 14
Srivastava, A.K. 55, 56, 62
Stanford University 97, 201
Stangor, C. 160, 166
Staples, B. 222
Starobin, S.S. 12, 13
start-ups (Israel) 101, 106
Steele, C.M. 160, 161, 163, 164, 166–7, 168, 169–71, 172
Steele, J. 160, 161, 162, 167, 170, 176
STEM
  action strategies 12–23
  barriers see barriers
developing career commitment 210–38
economic effects 3–4
future challenges 23–4
looming shortage of skilled workers 4–5
skilled workforce (key role) 4
women/minorities (benefits) 7
women/minorities
  (underrepresentation) 5–6
women in (Israel) 101–25
women faculty in 9–10, 317–31
see also engineering; mathematics;
science; technology
stereotype threat 161, 163–77
stereotypes
  in engineering 201–3, 342
  stratification 176
Stevens Institute of Technology 268
Stevenson, H. 228
Stewart, A.J. 18, 21, 72, 246
Stone, J. 164
Strack, F. 174
Strand, K.J. 14
Strauss, A. 58
Stricker, L.J. 161
STRIVE Mentoring Program 355–6
Stroh, L.K. 131, 134
students
  admission criteria 260–61
differential treatment of 63–4
freshmen see freshmen
gatekeepers 260
as mentors 292–300, 301–4
representation of women 318–19
residential communities 304–9
starting assumptions 258–9
transition programs 17, 278–91
undergraduate mechanical engineering
curriculum 262–8
undergraduate support programs
  (Virginia Tech) 276–310
subordination 71
Sullivan, S.E. 227–8
summative assessment 309
summer bridge program 17, 278–9,
  281–4, 289–90
Summers, L.H. 159, 160, 161, 202
’Sums of Women in Engineering’ 349
Sumner, M. 77, 80
Super, D.E. 219, 220, 222, 226, 228
supervisory relationships 77–9
support programs 234–5
  Virginia Tech 276–310
Survey Monkey website 308
Sverko, B. 226
Swallow, E.R. 270
Swearengen, J. 247
Swim, J.K. 161
Swiss, D. 42
syllabus (residential course) 306–7
Sztein, A.E. 36, 43
Tai, R.H. 218
Takaki, R. 129
Tang, J. 130
Tapia, A.H. 72, 75, 81
Task Force on Women, Minorities and the Handicapped in Science and Technology 30
Taylor, A. 222
teaching
  curricular content and 253–62
  learning style and 53, 54–5, 249–53
  team-based mentoring 300, 301–4
Technion 102, 104–5, 109, 119, 125
technology
  high-tech sector (Israel) 101–25
  see also computer science; STEM
Tel-Aviv University 103
Tenenbaum, H.R. 160
tenure 19, 22, 33–4, 35
  -track positions 20, 118, 119, 160,
  246, 319, 320, 324–5
Teubal, M. 101, 112, 113
Tewksbury, B. 257
Thatchenkery, T.J. 132
Theme Housing 305
Thomas, K. 52, 55, 56
Thorn, M. 54
Tienda, M. 129
Tietjen, J.S. 160
time-in-study model 135, 136
TIME Magazine 201–2
Tisak, J. 135
Tobias, S. 250, 251, 258
Todd, K. 75, 80
Tolbert, P.S. 72
Tonso, K. 250, 253
topic association map generation 263,
  264–6, 267
topic evaluation 263–4
total quality (at Corning) 358
trailblazers 93, 94–5
training 39
  human capital and (Israeli military)
  112
  management 354
  of mentors 300, 302
  workshop 300, 302
transistion programs 17, 278–91
Trauth, E.M. 73, 80
Treisman, P. 252
Trix, F. 33
Trower, C.A. 322
Tryggvason, G. 258, 262, 264
Turkle, S. 83
Turner, J.C. 72
Tuskegee University 281
UA:WiSE Career Fair 220
‘ugly’ aspects of engineering education 58, 62–7
Uhl-Bien, M. 77, 78
UK
  engineering industry 47–67
  government initiatives 22–3
universities
  African-American PhD candidates 91–100
  curricular change 245–71
  experiences of women 8–9
  HE culture (UK) 52–7
  Israel 103–5, 118–19
  STEM programs 16–17
  see also faculty/faculty members;
    graduate education; graduates;
    students
University of Alberta 212, 236
University of Arizona 259, 269
University of Colorado 252, 324
University Community and Climate
  Survey 325
University of Maryland 97, 222, 258,
  269
University of Michigan 18–19, 21, 97,
  258, 280, 339
University of Nebraska 253
University of Nevada 257
University of Notre Dame 256
University of Oklahoma 255
University of Pennsylvania 261
University of Puerto Rico 252
University of Rhode Island 323, 324
University of Texas 259
University of Toledo 251
University of Washington 268
University of Wisconsin–Madison 324
upstream conditions (pipeline model) 334–60
Urban-Lurain, M. 255
Index

US Commission on Civil Rights 129, 130
US Congress 30–31, 37
US Department of Labor 130, 334, 350
US Military Academy 256
USA
  African-American PhD candidates in sciences 91–100
  Asian Americans in science and engineering 128–54
  attracting women engineers 184–207
  gender equality 34
  student support programs 276–310
  women in engineering (impact of upstream/downstream conditions) 334–60
Utah State University 258, 326

Valian, V. 10, 11, 20, 122, 322, 323, 327
values, career image and 189–92
Varney, H.L. 8
vertical segregation 52
Virginia Polytechnic Institute 258
Virginia Tech., College of Engineering 276–310
virtual reality projects 255
Vlachos, E. 254
vocational engagement 188
Volunteer Matching Grants Program 355
Volunteers for Medical Engineering 256
Von Glinow, M. 129, 130

Waclawski, J. 75
wages see pay
Walker, M. 49
Wall Street Journal, The 110–11
Walsh, K. 250
Wanberg, C.R. 80
wearable computers 255
websites 17, 18, 345–6
  MES survey 194–201
weekly schedule (summer bridge program) 284–5, 288
Wegner, D.M. 168
Weinburgh, M. 7
Weiner, G. 52, 66
Weinshank, D. 255
Weizmann Institute 124
Werner, K. 77, 80
West, C. 50, 65
WGBH Educational Foundation 191, 339–40
Wharton, A.S. 72
Wheeler, S.C. 164
Wieman, C.E. 252
Willet, J.B. 134–5
Williams, F.M. 231
Williams, J. 246
Williams, R. 258, 262, 264
Wills, E. 246
Wilson, M. 72
‘wise schooling’ strategies 170, 171
WISEST Summer Research Program (WSRP) 212, 216, 226
women
  African-American (in PhD programs) 91–100
  Asian Americans in science and engineering 128–54
  attracting to engineering 184–207
  attracting to science careers 212–13
  barriers to see barriers
devolving career commitment 210–38
  in engineering (USA) 334–60
  engineering students (UK) 47–67
  gender myths in IT 71–85
  in high-tech sector (Israel) 101–25
  in Israeli military 111–15
  in maths (gender stereotypes) 159–77
  motherhood (Israel) 115–18, 122, 124–5
  representation see representation of women
  retention see retention of women in science (key to success) 28–43
  in STEM 3–24
Women in Engineering: Programs and Advocates Network (WEPAN) 55
Women in Engineering Association 17–18
Women in Engineering summit 17
Women in Science and Engineering (WISE) campaign 22, 48
Women in Scholarship, Engineering, Science and Technology (WISEST) 212, 216, 226
Index

Women’s Corps (Israeli Military) 123, 124
Women’s Experiences in College Engineering 249
Woo, D. 128, 129, 132
Wood, S.L. 13
Woodward, H. 52
work
–family balance 35, 41, 171, 237, 328, 353–4
relationships 77–81
see also employment; job
workplace
climate (inclusive) 81–3
IT (gender myths) 71–85
worldwidelearn.com 194, 196–7
Wright, E.O. 131

Wright, R. 6
Wulf, W.A. 245, 335
Wurf, E. 173
Wyer, M. 9

Xie, Y. 6, 188, 217, 219, 227, 229
Yaniski-Ravid, S. 106
Yoder, J. 321

Zandonella, C. 34
Zimmerman, D. 50, 65
Zobrist, G. 262
Zohar, D. 73, 74
Zuckerman, H. 23
Zych, T. 219