Waterhouse, Patrick

ISBN 978-0-7277-6430-0

<https://doi.org/10.1680/mce.64300.141>

ICE Publishing: All rights reserved

Index

Figures are indicated by the letter f, as in “38f.”

3D printing, 18 *see also* technology

academic qualifications, 68, 108

accidents

FIU bridge collapse, 2, 7, 14, 94, 127

Grenfell Tower fire, 2, 7, 127

Morandi Bridge collapse, 2, 7

Toddbrook dam potential breach, 2, 7

activist learning style, 10 *see also* learning

Alexander, G., 74

Anagost, Andrew, 17–18

appeals procedure, 133–137 *see also*

professional review

assessment (of trainees) *see also* development

reports; IPD Online; professional review

appraisal, academic, 68

appraisal, annual, 66–67

attributes, 37 *see also* attributes

quarterly review, 53–54

attributes

Attribute Achievement Form, 99

business strategy and, 47

classes of membership and, 46–47

developing of, 44–45, 99

development reports and, 95

diversity and, 29, 31, 42

gained through previous experience, 12, 44,

56–57, 101–102

groups of, 35–37, 38–40f

performance-based, 52

professional review and, 121

progress monitoring, 46, 101–103

skills and, 35–36 *see also* skills (trainees)

auditory learning style, 10

automation, 23 *see also* technology

BAME (black, Asian and minority ethnic)

individuals, 29, 111 *see also* diversity

Beevers, Kathy, 10

best practice, 9, 10, 28, 52, 122

bias, 28

black, Asian and minority ethnic (BAME)

individuals, 29, 111 *see also* diversity

boundaries, looking beyond, 14, 83–84, 93–94

bridge collapse at FIU (Florida, USA), 2, 7,

14, 94, 127 *see also* accidents

Building Information Modelling (BIM), 32

business strategies, 47, 49

Byrd, Ty, 40–41

career

continuing professional development

(CPD), 3, 41, 64, 73–74, 113

initial professional development (IPD)

see initial professional development

Carillion, 8–9

Cartwright, David, 8

Chapman, Tim, 37

chartered (CEng) membership, 38–40f, 68,

126

Chartered Management Institute (CMI), 100

Chartered Professional Review (CPR), 4, 38f

checks and balances, 115

civil engineering

diversity and *see* diversity

image problem of, 29

people, importance of, 17, 127

civil engineers *see also* Supervising Civil

Engineer

credibility of, 50

formation of, 58

salary of, 26

classes of membership, 46–47, 57–58, 103

CMI (Chartered Management Institute), 100

code of conduct, 41

commitment, professional, 17, 50

competence, demonstration of, 107, 120–122,

126 *see also* professional review

competition, 19, 49

construction industry, 17–18, 27–29, 45

continuing professional development (CPD),

3, 41, 64, 73–74, 113 *see also* initial

professional development

CPR (Chartered Professional Review), 4, 38f

criticism, delivering constructive, 83, 94

see also skills (mentors)

- crossing the road analogy, 102
- Crossrail, 7
- customers, 19, 37
- CV (professional review report), 120
- cycle of experiential learning (Kolb), 10
 - see also* learning
- deadlines, 79
- declaration, sponsors', 107–108 *see also* sponsors
- Delegated Engineer (DE), 5, 43, 52, 64, 65
 - see also* Supervising Civil Engineer
- development (professional) *see also* learning; training schemes
 - choice of employer and, 26, 41, 49, 55
 - continuing (CPD), 3, 41, 64, 73–74, 113
 - initial (IPD), 3, 43–45, 50, 58, 99
- development reports
 - attributes and, 95 *see also* attributes
 - backlog of, 67, 89
 - content/structure of, 95–96
 - discussion of, 91–95
 - purpose of, 85–86
 - quarterly review, 53–54
 - questions, asking the right, 88
 - storing of, 91
 - summary of, 97
- dialogue, examples of mentoring, 93–95
- digitisation, 18 *see also* technology
- disagreements with trainees, 83 *see also* mentoring relationship
- diversity
 - as attribute, 29, 31, 42
 - BAME, 29, 111
 - gender, 28–29, 30, 42, 111
 - geographic, 42
 - LGBTQ+, 29
- documents, scrutinised by sponsors, 117–120
- drones, 23 *see also* technology
- dyslexia, 118
- education
 - academic, 26–27, 58
 - STEM subjects, 28, 29
 - transition from, to workplace, 7, 11, 52–53, 56, 80
 - in UK, 26–27
- Egan, Gerard, 73
- emotional responses, handling of trainees', 131–133 *see also* mentoring relationship
- employees
 - job applicants, 26, 41, 49
 - motivating of, 19, 35, 49
 - recruitment of, 25, 28, 30, 49, 59
 - retaining of, 19, 49
- engineering (school subject), 28, 29
- Engineering Council, 3, 43, 44, 58, 115
- Engineering UK, 18
- errors and mistakes, 8, 13–14, 33
- expenditure on learning and development, 17, 21, 27–28 *see also* development; learning
- experience
 - in design, 45–46
 - difference in levels of, 52–53
 - direct, 102
 - IPD and, 45
 - learning from, 11–14, 86, 87–89
 - loss of, 28
 - previous, 56–57, 101–102
 - reporting of, 89, 95, 120
 - secondments, 53, 54
 - on site, 45–46
 - younger generation, 19, 58
- expertise, 20, 58
- failure of professional review, 131–136 *see also* professional review
- fee levels, 19–20
- financial crisis of 2008, 28
- FIU Sweetwater University City pedestrian bridge (Florida, USA), 2, 7, 14, 94, 127
 - see also* accidents
- Freibault, Victor, 21
- gender diversity, 28–29, 30, 42, 111 *see also* diversity
- Generation Z, 22, 25, 58
- generative design, 18 *see also* technology
- Genoa bridge collapse, 2, 7 *see also* accidents
- geographic diversity, 42 *see also* diversity
- Government, 7, 29
- graduates, 1–2, 7, 11, 19, 26, 44, 56
- Grenfell Tower fire (London), 2, 7, 127
 - see also* accidents
- GROW (Goal, Reality, Options, Will)
 - mentoring acronym, 74 *see also* mentoring and mentors
- Health, Safety and Welfare legislation, 38*f*, 45
- Heathrow R3, 7
- High Speed (HS) 2, 7
- highway upgrade, A14, 40–41
- ICE *see* Institution of Civil Engineers
- ICT, 32 *see also* technology
- incorporated membership (IEng), 20, 38–40*f*
- Indian staff example, 31
- individual approach to learning, 7, 9, 13–14
 - see also* learning; trainees
- infrastructure, 7, 32
- initial professional development (IPD)
 - see* IPD

- innovation, 49
 instincts, 13
 Institution of Civil Engineers (ICE) *see also*
 classes of membership; training schemes
 attributes, groups of, 38–40 *see also*
 attributes
 diversity and, 29, 31, 42 *see also* diversity
 evolution through changes of, 37, 40, 46
 high standards of membership of, 50
 international influence of, 112–113
 pragmatism of, 105, 133–134
 public interest role of, 19
 qualifications, value of, 41
 SCEs and, 63–64, 65–66 *see also*
 Supervising Civil Engineer
 interdisciplinarity, 36
 investing in learning and development, 17, 21,
 27–28 *see also* development; learning
 IPD (initial professional development)
 see also IPD Online
 experience, responsible, 58, 99
 technology and, 40–41
 training schemes, 43–45, 50
 IPD Online
 annual appraisal, 66
 progress, monitoring of, through, 46, 102
 as requirement for trainees, 14, 78, 99, 100
 training agreements, 55
 training review, 67
 transferring of trainee, 59
 job applicants, 26, 41, 49, 55 *see also*
 employees
 Jones, Keith, 30
 kinaesthetic learning style, 10 *see also*
 learning
 Kolb, David A., 10
 learning *see also* development
 from experience, 11–14, 87–89
 individual approach to, 7, 9, 13–14, 22, 53
 on the job, 26–27
 methods, 8
 mistakes and, 13
 opportunities, 9, 14
 styles, 9–10
 legislation of Health, Safety and Welfare, 38*f*,
 45
 Lendlease, 42
 LGBTQ+ (Lesbian, Gay, Bisexual,
 Transgender, Queer) individuals, 29
 see also diversity
 LinkedIn, 22, 27
 London's Grenfell Tower, 2, 7, 127 *see also*
 accidents
 Lynch, Jim, 18
 machine learning, 18 *see also* technology
 management, 17, 33, 39*f*, 50, 63
 marketplace, changing, 25
 mass media, 7
 maternity leave, 30 *see also* women
 mathematics (school subject), 28, 29
 MBAs, 20
 McKinsey, 23
 Membership Development Officers (MDOs),
 52, 56, 57, 64, 67–68
 mentoring and mentors *see also* mentoring
 relationship; skills (mentors); trainees
 importance of, 77
 models and techniques of, 72–74
 role of, 2, 15, 26, 28, 45, 71
 skills required of *see* skills (mentors)
 teaching vs., 80
 mentoring relationship *see also* mentoring
 and mentors; trainees
 advice for creating a successful, 78–84
 annual appraisal, 66
 aspirations, identifying and achieving,
 78–79
 development reports, commenting on,
 91–95
 disagreements, 83
 GROW mentoring acronym, 74
 mutual respect, 2, 3
 skilled helper model, 73–74
 termination of, 65, 66
 trainees leading, 74–75
 Metcalfe, Jack, 35
 millennials, 1, 22, 25, 58
 mistakes and errors, 8, 13–14, 33
 Morandi Bridge (Genoa, Italy), 2, 7 *see also*
 accidents
 National Vocational Qualifications, 44
New Civil Engineer, 22, 37, 40–41
 objectives, corporate, 18, 19, 35, 43, 47, 49
 organisational needs, 25
 outsourcing, 28
 paternity leave, 30
 PhDs, 20
 placements, 53, 54
 podcasts, 14
 portable technology, 23, 31–32 *see also*
 technology
 pragmatist learning style, 10
 problem assessment, 11–12
 productivity, 19
 professional civil engineers *see* civil engineers

- professional commitment, 17, 50
- professional development *see* development
- professional indemnity insurers, 50
- professional qualifications, 1–2, 19–21, 35, 41, 43
- professional review *see also* reviewers
 - appeals procedure of, 133–137
 - application for, 119
 - attributes and, 29, 38–40*f*, 121 *see also* attributes
 - checks and balances of, 115
 - competence, demonstration of, 107, 120–122, 126
 - delay of, 133–134
 - diversity issues, 42
 - failure of candidate, 131–136
 - interview during, 112, 127–128
 - material used for, 107
 - myths on, 106
 - preparing for, 4, 79, 107, 112–113, 125
 - presentation of, 125–127
 - projects, suitable for, 121–122
 - purpose of, 106–107
 - report, 45, 120–123
 - resitting (or retaking) of, 132, 135–137
 - sponsors, 105–109, 117–120, 134, 135
 - technology and, 31–33 *see also* technology
 - timing of, 4
 - written exercise during, 96, 128–129
- Professional Review Guidance*, 9, 54, 105, 117, 121, 128
- progress, monitoring of, 46, 99–100, 101–103
- qualifications, academic, 68, 108
- qualifications, professional, 1–2, 19–21, 35, 41, 43
- quarterly review, 53–54
- Rea, Andrew, 10
- recognition, professional, 2
- recruitment, 25, 28, 30, 49, 59 *see also* employees
 - reflector learning style, 10 *see also* learning
- regional membership recruitment team, 50, 63, 132–133, 134–135
- religion, 30 *see also* diversity
- reports *see* development reports
- reputation, corporate, 21, 28
- resitting/retaking professional review, 132, 135–137 *see also* professional review
- retaining employees, 19, 49 *see also* employees
- retirement, 28
- review, professional *see* professional review reviewers
 - appeals procedure and, 134
 - application of new, 113
 - availability of, 114–115
 - training of, 111–112, 113, 114
- robotics, 18 *see also* technology
- Rohnean, Alin, 36
- Rossall-Valentine, Daniel, 29
- safety cases, 20
- Salter, Richard, 33
- SCE (Supervising Civil Engineer) *see* Supervising Civil Engineer
- science, technology, engineering and mathematics (STEM) subjects, 28, 29
- scrutiny, sponsors', 117–120
- 'seamless continuity' of development, 58 *see also* education
- secondments, 53, 54
- seniority, 27–28
- sex (gender) diversity, 28, 29, 42, 111 *see also* diversity
- sexual orientation, 30 *see also* diversity
- skilled helper model (Egan), 73 *see also* mentoring relationship
- skills (mentors) *see also* mentoring and mentors
 - communication, 91
 - confidence, providing of, 83
 - listening, 72, 84
- skills (trainees) *see also* trainees
 - analytical, 27, 32
 - collaboration, 22, 27, 32, 35–36, 83–84
 - communication, 32, 35, 37, 83–84, 118, 129
 - computing, 31, 36
 - creativity, 27, 49
 - curiosity, 7, 8, 9, 13, 14, 21, 26–27
 - decision-making, 13
 - design, 32, 45–46
 - goal-setting, realistic, 79
 - language, 27, 96, 118, 122
 - leadership, 22, 39*f*, 42
 - listening, 37
 - organisational, 35
 - persuasion, 27, 35
 - planning, 39*f*, 96, 100
 - questions, answering, 127–128
 - questions, asking, 13, 88–89, 92–93
 - responsibility, 39*f*, 43
 - soft, 22, 27
 - writing, 96, 118, 122, 128–129
- software, 32, 36, 94 *see also* technology
- sponsors
 - appeals procedure and, 134, 135
 - eligibility of, 105–106
 - review process, 106–107
 - role of, 105
 - scrutiny by, 117–120
 - sponsors' declaration, 107–109

- standards, 33
- Stanmore, Greg, 42
- STEM (science, technology, engineering and mathematics) subjects, 28, 29
- Supervising Civil Engineer (SCE) *see also* mentoring relationship; trainees
- annual appraisal, 66–67
 - attributes and, 56–57
 - personal commitment, 71
 - professional review and, 105–108, 125
 - role of, 63–65
 - training agreements, 55
- sustainability, organisational, 19
- Swaminathan, Mathangi, 30
- tablet computers, 23 *see also* technology
- TAGSO (Training Agreements Online) system, 59
- talent development, 19, 26, 30, 55
- Tarr, Stephen, 37
- technician membership, 44
- technology
- change and, 31, 40–41
 - leadership and, 42
 - learning and, 14
 - loss of jobs through, 17, 18
 - mentoring and, 78
 - portable, 23, 31–32
 - in professional review, 125–126
 - on site use of, 11, 32–33, 41
 - software and, 94
 - as subject requirements, 28, 29
 - video conferencing, 78
- Telford, Thomas, 31
- Temporal, Nicola, 22
- TGROW (Topic, Goal, Reality, Options, Will) mentoring acronym, 74
- theorist learning style, 10 *see also* learning
- Threlfall, Richard, 28, 29
- Toddbrook dam (Whaley Bridge, Derbyshire, UK), 2, 7 *see also* accidents
- trainees *see also* assessment (of trainees); mentoring relationship; skills (trainees); training schemes
- attributes, recording progress towards, 102–103 *see also* attributes
 - backlog, experiencing, 89
 - becoming mentors themselves, 81–82
 - competencies, demonstrating, 120, 122, 126
 - development reports and, 85–86 *see also* development reports
 - disagreements with, 83
 - emotional responses of, 131–133
 - individual approach to learning, 53
 - information and, 92
 - initiative-taking, 52
 - management, top and, 50
 - and mentors *see* mentoring relationship
 - opinion, answering matters of, 81
 - organisations' expectations of, 51
 - orientation, 50–51
 - perfection, striving for, 103
 - professional review, 107, 112
 - reflecting on the job, 87, 88
 - secondments, 53, 54
 - self-criticism, 83
 - software use, 94
 - target class of membership, 57–58
 - training agreements, 55–61
 - training review, 67–68
 - transferring of, 59
 - treatment of, 11, 80–83
 - understanding, ability to demonstrate, 99
- training agreements, 55–61
- Training Agreements Online (TAGSO) system, 59
- training review, 67–68
- Training Scheme Guidance*, 85
- training schemes *see also* mentoring relationship; trainees
- attracting of job applicants through, 26, 41, 49, 55
 - development reports and, 85–86
 - IPD and, 43–45
 - length of, 34
 - mentoring and, 77
 - purpose and aims of, 50–51
 - training agreements and, 55–61
- trends forcing marketplace change, 25
- universities, 26 *see also* education
- Vickers, Hannah, 37
- video conferencing, 78 *see also* technology
- visual, auditory and kinaesthetic (VAK) learning acronym, 10
- visual learning style, 10
- Walkley, Nick, 32–33
- webinars, 14 *see also* technology
- Whitmarsh, Theresa, 30
- Williamson, Bruce, 42
- women, 28, 29, 30, 111 *see also* diversity