

# Index

- Academia–industry partnerships, 6
- Academic disciplines, 160
- Academic pathways viewpoint, 69
- Academics in Malaysia, 42
- Accounting for innovation in education, 68–71
- Accreditation, 83–84
- Accreditation Management System (AMS), 83
- Adaptability, 22
- Advanced FEMA credentials, 137
- Advanced technologies, 41
- Affordability, 22–23
- Aggregation of micro-credentials, 163–165
- Aligning interests, 57–58
- Alumni privileges, 71
- American Council on Education (ACE), 138
- Artificial intelligence (AI), 41–42, 63, 175
- Association to Advance Collegiate Schools of Business (AACSB), 65
- Australia’s Qualifications Framework (AQF), 51, 57–58
- Australian Institute of Building (AIB), 85, 115
  - analysis of Australian Institute of Building Competencies, 90–95
- Australian Institute of Quantity Surveyors (AIQS), 85
- Australian Quality/Qualification Framework (AQF), 105, 152
- Australian Tertiary Education Quality and Standards Agency (TEQSA), 21
- Bachelor of Applied Science (BAppSc), 85
- Bachelor of Science (BSc), 84
- Bernsteinian analysis, 56
- Big data, 42
- Blended learning, 24, 40
- Business Continuity Practitioner, 137
- Business model approach, 60
- Campus education, 40
- Capabilities-based employee assessment frameworks, 54
- Cardiopulmonary resuscitation (CPR), 130
- Causal process tracing, 85
- Center for Domestic Preparedness (CDP), 137, 144
- Challenge-Based Learning, 25
- Chartered Accountants of Australia and New Zealand (CAANZ), 63
- Chartered Institute of Building (CIOB), 114
- Chemical, Biological, Radiological, Nuclear, and Explosive weapons (CBRNE weapons), 144
- Civil society, 55–56
- Cloud computing, 42
- Cognitive wayfinding model, 102
- Community Emergency Response Team (CERT), 138
- Competencies, 105
- Complexity, 154
- Construction management (CM), 114–116

- analysis of Australian Institute of Building Competencies, 90–95
- analysis of tertiary institution
  - graduate attributes, 86–89
- comparative data analyses, 85–86
- course accreditation, 83–84
- course credentialing and digital badges, 84–85
- course multidisciplining, 83
- course reviewing, 82
- online pedagogy, 82
- research methodology, 85
- Contextual competence, 43
- Continuing education (CE), 37
  - and place in higher education, 37–38
  - units, 40
- Continuous change, 50
- Continuous professional development (CPD), 84
- Conventional credentialing systems, 24
- Course accreditation, 83–84
- Course credentialing, 84–85
- Course multidisciplining, 83
- Course reviewing, 82
- Course Weighted Average (CWA), 20
- COVID-19 pandemic, 151
  - and pervasive effects, 40
- Crafting micro-credentials, 160–162
- Credential Engine, 107
- Credentialism, 63
- Credentials, 84, 159
- Credible providers, 123
- Curricula innovation. seeking impact through, 61
- Curtin University's Curtin Online, 38
  
- Data privacy, 41
- Decluttering, 103–106
- Department of Education, Skills, and Employment (DESE), 107
- Department of Homeland Security (DHS), 147
  
- Training Consortium, 137
- Training Consortium Members, 144–148
  
- Design sciences, 4, 24
- Digital badges, 84–85
- Digital EdTech innovations, 62
- Digital innovations, 41
- Digital Mc, 21
- Digital technology, 61
- Digital transformation, 41
- Disaggregation of credentials, 162–163
- Disasters, 133
  - phases, 133–135
  - response, 138–139
- Discourse analysis framework, 6
- Distance education, 20, 40
- #diversityandleadership, 60
  
- E-learning, 40
- Eco-system, 158–160
- EdTech start-ups, 53
- Education, 4, 24, 131–133, 150
  - as essential element of higher education, 155–158
  - value chains, 66–67
- Elizabeth City State University in NC, 138
- Emerald, 102
- Emergency management (EM), 13, 130
- Emergency management Professional Programme (EMPP), 137
- Emergency services, 130, 132
- Emergency/disaster management, 133–135
- Emotional intelligence, 43
- Employability, 21–22
- Employer and industry demands, 51–52
- Employment considerations, 54
- Energetic Materials Research and Testing Center (EMRTC), 144–145
- ePortfolios, 51

- eQuals, 164
- #ESGawareness, 60
- European Council (EUCCO), 105
- European Qualifications Framework (EQF), 58
- Executive education growth, 60
- Face-to-face (F2F), 83
  - courses, 136
  - learning, 40
- Federal Emergency Management Agency (FEMA), 132
  - courses, 136–139
  - in person courses, 137
  - SID Number, 143
- Federal research grants, 39
- ‘Fit for purpose’ approach, 57
- Formal EM-related micro-credentialing opportunities, 135–139
- Fourth Industrial Revolution (4IR), 4, 10, 50, 52–53
- Frequently asked questions (FAQ), 7, 172
- Full-time academic staff, 70
- Funding for institutions, 39
- Generation Z, 42–43
- Genericism*, 60, 160
- Global campuses
  - continuing education and place in higher education, 37–38
  - COVID-19 pandemic and pervasive effects, 40
  - demand for 21st century learning skills and competencies, 42–43
  - disruptive influences to higher education, 38–39
  - shifting focus to future directions, 40–42
- Global economy, 5
- Google/Google Scholar, 102
- Grade Point Average (GPA), 20
- Graduate certificates and diplomas, 41–42
- Graduate employment levels, 50
- Graduate salaries, 50
- Helices, 55–56
- Higher Education (HE), 4, 6, 20, 171
  - CE and place in, 37–38
  - changing HE models, 173–174
  - disruptive influences to, 38–39
  - foundations of micro-credentials
    - policy in, 154–160
  - institutions, 9
  - micro-credentials in, 13
- HRTech, 62–63
- Human resources (HR), 51
- Immersive communications, 42
- Inclusivity, 22
- Independent study courses (IS courses), 136
- Industrial/human relations (IR), 96
- Informal micro-credentialing opportunities, 139–141
- Information and communication technology, 4, 24
- Innovation, applied R&D and technology translation, 70–71
- Innovators, 52–53
- Institute of Singapore Chartered Accountants (ISC), 63
- Institutional organisational design, 70
- Institutions of higher learning (IHL), 10, 50
  - performance measures for modern, 53–54
- Interdisciplinary studies, 24
- International Enrolments (IE), 7–8
  - Mc, MdMc and, 25–26
- International HE brands, 26
- International Standard Classification of Education Qualifications (ISCED), 106, 150

Internationalisation of industries, 10  
 Internet of things, 42  
 Ivy League institutions, 40  
 John Hopkins University contact tracing programme, 138  
 Jstor, 102  
 Knowledge atomisation, 50–51  
 Knowledge domains, 56–57  
 Knowledge management, 52  
 Learners, 20  
 Learning and Development (L&D), 4, 6–7  
 ‘Learning on the job’, 20  
 Learning outcomes, 84  
 Leveraging technology, 51  
 Lifelong learning, 42  
     supporting, 61–62  
 LinkedIn, 53, 132  
 Longer-term strategic engagement of adjunct expertise, 69–70  
 Louisiana State University (LSU), 145  
 Manipal GlobalNxt, 53  
 Market-centricity of course outcomes, 57  
 Massive Open Online Courses (MOOC), 26–27, 39, 42, 72, 173  
 Master Exercise Practitioner Programme (MEPP), 137  
 Mature learners, 37–38  
 MC Attributes Model (MCAM), 110  
 Member of the Australian Institute of Builders (MAIB), 115  
 Meta-analyses, 6  
 Micro-credentialed learning, 172  
 Micro-credentialing (Mc), 23–24, 42, 82, 84, 130  
     capabilities, education, innovation and helices, 55–63  
     continuous change, 50

    current characteristics and future scenarios, 30  
     education, training, and experience, 131–133  
     emergency/disaster management, 133–135  
     employer and industry demands, 51–52  
     employment considerations, 54  
     formal EM-related micro-credentialing opportunities, 135–139  
     and IEs, 25–26  
     informal micro-credentialing opportunities, 139–141  
     innovators and 4IR, 52–53  
     integrate old and new, 67–68  
     knowledge atomisation, 50–51  
     pathways to embracing MC, 63–71  
     performance measures for modern IHLs, 53–54  
     recommendations, 71–74  
 Micro-credentials, 4–5, 12–13, 27, 54, 62–63, 84, 150  
     context of policy and strategy formulation, 152–154  
     critics, 151  
     foundations of micro-credentials  
         policy in higher education, 154–160  
     strategies, policies, and procedures, 160–165  
     warrant for addressing micro-credential policies and strategies, 151–152  
 Micro-masters, 4  
 MicroCred Seeker, 107, 116, 118  
 Minerva, 53  
 Minerva University, 61  
 Mitigation phase of disasters, 134  
 Mixed-methods research, 6  
 Mobile Training Teams (MTTs), 146  
 Model of MC Attributes (MMA), 116

- Monash University, 38
- Multidimensional credentialing, 82
- Multidisciplinary approach, 171
- Multidisciplinary Micro-credentialing (MdMc), 4, 8, 24–25, 172
  - breaking binary conditions, 28–29
  - challenges, 174–175
  - formwork, 7–14
  - framework, 6
  - future, 175–179
  - and IEs, 25–26
  - reachability and reliability, 4
  - shifts in learning models, 5
- Nano-credentialing, 97
- National Association of Colleges and Employers (NACE), 43
- National Center for Biomedical Research and Training (NCBRT), 145
- National Disaster Preparedness Training Center at the University of Hawaii (NDPTC), 147
- National Domestic Preparedness Consortium (NDPC), 144
- National Emergency Response and Rescue Training Center (NERRTC), 145–146
- National Fire Academy (NFA), 132
- National Nuclear Security Administration (NNSA), 146
- National Standards Framework, 58
- National Training Center (NTC), 137
- Needs assessment, 139
- Neo-industrialisation efforts, 53
- Nestedness, 154
- Nevada Site Office (NSO), 146
- Nevada Test Site's Counter Terrorism Operations Support Programme (NTS/CTOS), 138, 146
- New market entrants, 58–60
- New Mexico Tech School of Energetic Materials (NMT School of Energetic Materials), 138
- New Zealand's Qualifications Framework, 58
- Newcomers, challenge existing vs. market entry efforts of, 65–66
- Niche specialisations, 52
- Noble Training Facility (NTF), 144
- Non-governmental certification sources, 138
- Non-resident courses, 137
- Occupational health and safety (OHS), 96
- Office for Grants and Training (G&T), 145
- Online delivery modes, 83
- Online education, 40
- Online learning, 40
  - and teaching, 41
- Open University Australia (OUA), 41, 105, 123
- Operationalising MC, 67
- Organisation for Economic Co-operation and Development (OECD), 103
- Partnership for 21st Century Learning (P21), 43
- Pedagogies, 39, 82
- Performance measures for modern IHLs, 53–54
- Postgraduate certificates, 41–42
- Preparation phase of disasters, 134
- Private IHLs, 60
- Problem-based learning, 56
- 'Product-market fit' approach, 57
- Professional Development Series (PDS), 136
  - Level I Required Courses, 143
- ProQuest, 102

- Providers of micro-credentials, 154–155
- Quality assurance (QA), 96
- Quality Management initiatives, 63
- Quantic University, 53
- Radiological/nuclear training (rad/nuc training), 146
- Rankings and innovation, 64–65
- Recognition of micro-credentials, 163
- Recognition of prior learning (RPL), 163
- Recovery phase of disasters, 134
- Research and development (R&D), 96
- Response phase of disasters, 133–134
- Rigour criteria, 23
  - analysis and recommendations for future practices, 27–32
  - findings, 23–27
  - methodology, 21–23
- Robotics, 42
- Rubik design, 22
- Scholarship, 158–159
- Scopus, 102
- Self-sufficiency, 31–32
- ‘Semiotic Social Spaces and Affinity Spaces’ principles, 31
- Service innovation, 51
- Short courses, 20, 25
- Singulars*, 56
- SkillsFuture initiative in Singapore (SSG), 58
- Social connectedness and innovation, 43
- Sourcing network expertise, 64
- Specific, Measurable, Achievable, Relevant, and Timely (SMART), 140
- Stackable micro-credential units, 41–42
- Stackable qualifications, 12
- Stacking, 163–164
- Staff support and development, 165
- Stakeholders, 55–56
- State funding, 39
- Student acceptance criteria, 69
- Student completion criteria, 69
- Student Identification (SID), 136
- Student learning, 160
- Student satisfaction, 50
- Students learning off-campus, 41
- Swinburne University’s Swinburne Online, 38
- Systematic literature reviews, 6
- Teaching-by-designing, 25
- Technical and Further Education (TAFE), 105
- ‘Technology over sound educational design principles’, 27
- Tertiary institution graduate attributes, analysis of, 86–89
- Tertiary vocational education and training (TVET), 42
- Texas Engineering Extension Service (TEEX), 145
- Threefold tensegrity MdMc model, 31
- Times Higher Education, 123
- Training, 131–133, 156
- Transcended geophysical boundaries of MdMc, 26
- Transparency, 107
- Transportation Technology Center, Inc. (TTCI), 146–147
- Travel-restricted international students (TRI students), 21
- ‘Triple helix’ of IHLs, 52
- Triple-bottom-line mobility, 22
- Unit learning outcomes (ULOs), 85
- United Nations’ Sustainable Development goals, 123
- Universities, 38, 41
  - maintaining universities as ecosystem, 158–160

- and other institutions of higher education, 138
- studies, 159
- US Fire Administration (USFA), 144
- Vocational education and training (VET), 155
- Wayfinding micro-credentials
  - via attribute model, 116–124
  - baselining industry
    - accreditation, 116
  - conceptual model, 108–114
  - decluttering, 103–106
  - discourse design, 102–103
  - leveraging local case, 114–116
  - reconciling accounts of measures, 106–107
  - wayfinding ‘wicked problem’, 107–108
- Weapons of Mass Destruction (WMD), 137
- Wittingness, 157
- Workforce Singapore (WSG), 58
- Workload, 112
- World Bank Press (2022), 60
- World Economic Forum (2022), 60
- World Universities with Real Impact (WURI), 61, 65