# INDEX*


Agency, 101, 103–104, 110, 113, 118
  students, 112–113
  teacher educator, 110–111
  teacher educators digital, 111–112
Allender, Donna, 48
American Education Research Association (AERA), 18, 39–40
Antalya, Turkey, 17
Apelgren, Britt-Marie, 32
Applications/Apps, 19–20, 101, 109, 206, 227
Approaches, 26, 90, 93, 121, 128, 134, 136–137, 163, 186
Argentina, 56
Asian countries, 163
Assessment, 135
  adapting assessment practices to remote online teaching and learning, 137
  integrating assessment with teaching and learning, 135–137
  for learning, 135–136, 139, 141
  as learning, 136
  of learning, 141–142
  methods, 135
  questions about learning assessment raised by pandemic, 135
  reflection on assessment, 146–147
  research method, 138
  results, 139–147
  theoretical framework, 135–137
Asynchronous, 90–91
  modes, 119
  teaching, 127
  tools, 128
Australia, 4–5, 51, 56, 71–72
Australian Catholic University (ACU), 51
Austria, 4–5
Automated Engineering Learning Factory project, 185
Autonomy, 69, 78, 101–102, 141, 146, 206, 208, 214, 224

Bailey, Michael, 51
Barad, Karen, 219
  theory of intraactivity, 222
Begleitforschungsseminar, 179
Beijaard, Douwe, 51, 59
Belgium, 4–5
Ben-Peretz, Miriam, 25, 39–41
Berlin Wall, 43–44
Berliner, David C., 4–5
Biennial conferences, 7–12
Bildungsstandards, 177
Blended learning, 90, 108, 150, 155, 202
Bohané (Urban Special Education Teacher), 225–226
Bologna system, 199–200
Bordeaux, France, 18
Bourgeoisie, 194
Brain Drain phenomenon, 196
Brazil, 4–5, 56
Bring Your Own Device (BYOD), 217–218
Broadband, 125
Broeckmans, Jan, 43
Bromme, Rainer, 4–5
Brown, Alan, 4, 23, 25, 27
Budgeting process, 12
Bulgaria, 43–44



*Acknowledgements: Thanks to DaJuana Fontenot, Daniela Hotolean, Wendy Moran and Xiao Han for creating the Index.

Bundesverband Informationswirtschaft, Telekommunikation und neue Medien (Bitkom), 180
Burnard, Pamela, 32
Business Project, 43–44
Butcher, Peter Jude, 51
Butt, Richard, 27

Canada, 4–5, 56, 139
Care, enactment of, 90–91
CAT course, 205, 210–211
Center for Learning Research (CLR), 9–10
Center for Postgraduate and Professional Education and Training (CIPPET), 63–64
Changes in assessment, 138, 143, 146
Children's learning process, 168
Chile, 56
China, 56
Chris Clark, 59
CIRP, 184
Cisco Webex, 108
Clandinin, Jean, 25, 27, 40, 59–60, 219
Clark, Chris, 4–5, 23, 25–27, 36–37
Clark, Christopher M., 4–5, 35
Classroom observation, 135
Coding, 85, 103–104, 138
Cognitive development, 122
Collaboration, 7, 12, 15, 18, 36, 40, 76, 78–79, 221
Collegial friendships, 20
Community building, 87
Competence, 184
  development, 179, 184–185
  orientation, 177
  during pandemic, 120–121
Computer-assisted teaching (CAT), 199–201, 204–206, 209–211, 215
Computers, 107–108
Conceptual framework, 100–103
Concerns for students' well-being, 90, 94
Conferences, 64
Connection, 155
Connelly, F. Michael, 39
Connelly, Michael, 39–40
Content knowledge, 136
Corte, Erik De, 4
COVID-19, 82, 87, 169
  crisis, 75, 100, 160
  lockdowns, 105, 107–108
  pandemic, 78, 95, 118, 121, 171, 217–218
  universality of challenge of covid emergency, 92–93
  virus, 100
Craig, Cheryl, 47–48, 55, 71–72
Creative teaching
  field, 171
  findings, 165–169
  methodology, 164–165
  about technology, 160–164
Creativity, 156, 167
Cultural transformation, 161
Culture of convergence, 161
Cyberbullying, 155
Cyprus, 139
Czech, 43–44
Czech Republic, 56

Data, 76–79
  adapting to changing, 76–79
  coding, 85
  collection process, 85–86
Day, Chris, 25, 59–60
Denicolo, Pam, 4, 24–25, 31–32, 63
Denmark, 18
Desktop, 217–218
Developing themes, 103
Dewey, John, 163, 223
Differentiation, 177
Diffraction, 222
Diffractive processes role in locating entanglement, 222–223
DIGI_EDU21 project, 211–212
Digital age, 199
  limitations, 215
  research methodology, 204–205

Romania, 194
setting context, 195–198
technology in training and professional development of teachers, 199–204
understanding significance of collected information, 205–213
Digital agency (DA), 102, 112
Digital didactics, 147
Digital Economy and Society Index (DESI), 198
Digital equity, 101, 114
Digital inequality, 129
Digital Information and Communication Technologies (DICTs), 160–161
Digital learning, 218
Digital metamorphose, 167
Digital technologies (*see also* Teaching technologies), 164
access to technological infrastructure, 220
agency as relational phenomenon, 221–222
conceptual framing, 221–223
diffractive processes' role in locating entanglement, 222–223
digital technologies as multiple overlapping relational agencies, 224
directions for teacher education, 226–228
entangled agencies for using technologies, 224–228
entangled issues of access and preparation, 220–221
leveraging agencies for inclusion, 225–226
relationality and ongoing becoming through narrative, 223
review of literature, 219–221
Digital tools, 91, 100, 111–112, 121–122, 214, 225
Digital/online learning, 75, 88, 105, 218
Digitalization, 166, 176, 180
Distance learning, 94, 101, 139–140
Diversity, 8, 19, 56, 148, 208
Doctoral students, 18, 25, 36, 68

E-learning, 124
Early Education (EE), 199–200
Education, 176, 194
concern for future of, 90
technology and, 195–198
Education 4.0, 157, 187
German education in transition toward, 176
Education and Training (ET), 187
Educational inequity concerns, 88
Educational institutions, 119–120
Educational process, 119
Educational reform, 67–68
Educational standards, 177
Educator reflections, 147
Educators, 120–121, 126, 129–130, 140, 142–144, 149
confidence, 101–102
providing feedback to, 139–140
reflections on assessment, 146–147
workloads, 130
Educators practices, 129
impact of pandemic on, 119–121
Efforts in resilience, 91–92, 94
Eilam, Billie, 40
Eisne, Elliot, 39
Electricity, 107–108
Emotional labor, 79
Emotional skills, 120–121
Emotions, 82
common concerns of teacher educators, 93
concern for future of education, 90
concern for student well-being, 90
concerns related with issues of inequity, 88–89
efforts in resilience, 91–92
enactment of care, 90–91
explicit, 86

feelings of optimism, 89–90
feelings of sorrow, 89
findings, 85–92
identified, 86–88
implications, 95
implicit emotion, 86–88
methods, 84–85
in pandemic, 84
in teacher education, 83–84
teacher educator motivation, 94–95
themes of expressed, 88–92
universal emotional experience, 82–83
universality of challenge of Covid emergency, 92–93
Enactment of care, 90–91, 94
England, 4–5
English and Foreign Languages University (EFLU), 47
English for Academic Purposes (EAP), 55
English for Specific Purposes (ESP), 55
English Language Teaching (ELT), 47
Equity, 100–101, 104, 137
of access to online, 105–108
enhancement, 108–110
institutional equity enhancement, 108–109
teacher educators' equity enhancement, 109–110
Estonia, 16, 18
Ethical
compliance, 143
issues, 142–143
research, 56
European Commission report, 197–198
European Union (EU), 43–44, 213–214
Executive Committee, 6
Explicit emotion, 86

Face-to-face teaching, 123–124
Faculty of Applied Economics, 43–44
Fear Of Missing Out (FOMO), 24
Federal Republic of Germany, 4–5
Feedback
process, 140
providing feedback to educators, 139–140
providing feedback to students, 140–141
Feelings of optimism, 89–90, 94
Feelings of sorrow, 89, 94
Financial inequity concerns, 88
Finland, 4–5
Fisher, 121–122
Flores, Maria, 11
Fontoura, Helena Amaral da, 156–157
Formative assessment, 135–136
Founders, 4, 7, 19–20, 31
Fourth Industrial Revolution, 156–157, 161, 180–181
Fox, Seymour, 39
Framework, 68, 163
Freire, Paulo, 163

Gamification, 161
Geopolitical boundaries, 4
German education in transition toward education 4.0, 176
Germany, 139
school system in, 177
vocational education system in, 177–178
vocational teacher education in, 179
Gilligan, Carol, 48
Gladwell, Malcom, 195
Google Classroom (online learning platforms), 106, 112
Governance model, 6
Grading system, changed, 144–145
Greece, 56
Guidance assessment, 147

Halkes, Rob, 4, 23, 25–27
Hallmark, 18, 37

Handal, Gunnar, 60
Haworth, Penny, 55–56
Higher education, 67–68, 135
Higher education institutions, 84, 108
Hong Kong, 4–5
Hood, Robin, 24
Hotolean, Daniela, 23
Hotolean, Danni, 23–24
Huber, Gunter, 4–5
Human emotions, 82–83
Hungary, 43–44
Hybrid education, 160

Iceland, 4–5, 56
Implicit Emotion, 86–88
Inclusion, leveraging agencies for, 225–226
Inclusive education, 177
India, 56
Individual educators, 141
Industrial advances, 180
Industrial revolution, 180–181
Industry 4.0, 157, 187
  concept of, 180–181
  disadvantages of, 187–188
  integrating concept of industry 4.0 in vocational schools, 181–182
  learning factories as integration from industry 4.0 in vocational schools, 183
  students' and teachers' conceptions on, 182
Inequity, 79, 88, 218
  concerns related with issues of, 88–89
Influencers, 161
Information and Communication Technology (ICT), 111, 119, 181–182
Innovation processes, 188
Innovative teacher education, 157
Institutional equity enhancement, 108–109
Institutional history, 7–8
Integration, 160
  concept of industry 4.0 in vocational schools, 181–182
  learning factories as integration from industry 4.0 in vocational schools, 183
Integrity, 143
Interactive process, 145
International Association of Learning Factories (IALF), 184
International communities, 51–52
International educators, 148–149
International Forum on Teacher Educator Development (InFo-TED), 17
International organization, ISATT as, 6–20
International reports, 135
International shift, 26–27
International Study Association on Teachers and Teaching (2013–2023) (ISATT), 4, 6, 17, 24–25, 39–40, 47–48, 51–52, 59, 64, 156–157, 162–163
  awards, 12–15
  biennial conferences, 7–12
  business, 7–12
  40th Anniversary Yearbook project, 77
  governance, 6
  with gratitude to ISATT founders, 25
  as international organization, 6–20
  members, 11–12, 18–19, 25, 164
  National Representatives, 75, 78
  networks, 64
  publications, 19–20
  regional conferences and symposia, 15–18
  scholars contributed to ISATT, 27–28
  shaping pattern and structure for growth, 4–6
  ST²AR Award, 12
International Study Association on Teachers and Teaching

Conference (1988), 35–36, 52, 59, 68
International teacher educators, 121
International Workshop on Higher Education Learning Methodologies and Technologies Online, 167
Internet connectivity, 107–108
Internet-based instructional materials, 219–220
Internship work, 144
Intimacy *vs.* growth, 6–7
Iran, 18
Isolation, 76, 84, 107–108
Israel, 4–5

Jackson, Philip, 4–5
Jerome, 48
Job "polarization", 180–181
Jonas-Ahrend, Gabriela, 157

Kazan, Russia, 17
Kelchtermans, Geert, 59
Keynote, 4–5
Kompf, Michael, 4, 25, 27, 60, 64
Kultusministerkonferenz (KMK), 177

Labone, Elizabeth, 51
Laptops, 217–218
Learning
  assessment for, 139, 141–142
  changed content or goals to be assessed, 143
  changed form or processes of assessment, 144
  changed grading system, 144–145
  changes in assessment, 143–146
  changes in students' attitudes and feelings about assessment, 146
  changes in teachers' perceptions and feelings about assessment, 145–146
  engage students in learning, 141
  evaluating students against standards at end of semester or academic year, 141
  fields, 178
  industry, 184
  integrating assessment with, 135–137
  no change, 146
  process, 119, 136–137, 203
  providing feedback to educators, 139–140
  providing feedback to students, 140–141
  quality of assessment, 142–143
  questions about learning assessment raised by pandemic, 135
  theoretical framework to explore learning transformation during pandemic, 122
  use assessment to inform teaching, 141–142
Learning factories, 185–186
  definition and characteristics of, 184–185
  as integration from industry 4.0 in vocational schools, 183
Leveraging agencies for inclusion, 225–226
Lewin's model of change, 123–124
Li, Jing, 72
Limburg Business School, 43–44
Loughran, John, 59–60, 121
Lowyck, Joost, 4–5, 25–26, 43, 45
Lucian Blaga University of Sibiu (LBUS), 194–195
Lyon, France, 17

Machines, 217–218
Macrocycle, 178
Malaysia, 56
Mandatory isolation, 160
Manuscript, 20
Marcondes, Maria Ines, 16

Mary, Mount Saint, 51
Maslow, Abraham, 48
Medical internship, 144
Meijer, Paulien, 51, 55, 71–72
Members, 71–72
Mena, Juanjo, 11–12, 17–18
Meta (company), 161
Mexico, 4–5, 56
Microcycle, 178
Middle East, 56, 71–72
Ministry of Education and Research (MER), 197
Mobile devices, 160
Monaco, 17
Morine-Dershimer, Greta, 51
MS Teams (online learning platforms), 106
Multinational, 19
Multiple overlapping relational agencies, digital technologies as, 224

Narrative inquiry, 223, 226
National Educational Technology Plan, 219–220
National Representatives, 75, 78
Negative emotions, 83, 92, 94
Netherlands, 4–5
Network, 7, 35–36
New normal, 147
New York City, 17
New Zealand, 55–56, 71–72
Newsletter, 19
Noddings, Nel, 48
Nottingham Castle, 60
Nottingham Conference (1988), 65

Olson, John, 4, 23, 25, 27
One-fits-all solution, 156
Online, equity of access to, 105–108
Online assessment, 142
Online documents, 219–220
Online education, 118
Online learning, 105, 107–108
  platforms, 106
  students' participation in, 106–107
Online session students, 113
Online teaching, 201–202
  and learning, 118, 123
  and learning practices, 118
  teacher educators' lack of preparedness for, 107–108
Ontario Institute for Studies in Education (OISE), 31
Organization for Economic Cooperation and Development (OECD), 100–101, 114, 195
Orland-Barak, Lily, 36
Outreach Coordinator, 6–7, 18
Outstanding Article Award, 12
Outstanding Book Award, 12
Outstanding Dissertation Award, 12
Outstanding TTTP Article Award, 12

Paderborn, learning factory in, 185–186
Pakistan, 71–72
Pandemic, 78, 95, 118, 121, 171, 217–218
  agency, 101, 103, 110, 113
  conceptual framework, 100–103
  data resources and analyses, 103–104
  emotions in, 84
  equity, 100–101
  equity enhancement, 108–110
  equity of access to online, 105–108
  findings, 104–113
  methodology and methods, 103–104
  pandemic-forced isolation, 161
  participants, 103
  questions about learning assessment raised by, 135
  students' participation in online learning less than expected, 106–107
  teacher educators' lack of preparedness for online teaching, 107–108

Pandemic pedagogy
change in implementation, 125–128
findings, 123–128
methodology, 123
impact of pandemic on educators' practices, 119–121
refreezing' stage, 126–128
situation, 118
teacher qualities and competences during pandemic, 120–121
theoretical framework to explore teaching and learning transformation during pandemic, 122
unfreezing' process, 123–128
Parreren, Van, 43, 45
Participants, adapting to changing, 76–79
Partnerships, 36
Pedagogical content knowledge, 136
Pedagogical practices, 161–162, 167–168
Pedagogy, 43, 118
Pedagogy for Primary and Preschool Education (PPPE), 199–200
Pedagogy of Informatics, 219
Perla, Loredana, 166
Personal computers, 160
Personal construct psychology (PCP), 64
Peterson, Penelope, 59
Phenomenological approach, 167
Pick-By-Light system, 186
Pimenta, Maria Alzira de Almeida, 156–157
Poland, 43–44
Policy/policies, 26–27, 219
Political instability, 19
Pope, Maureen, 23, 25–26, 33, 64–65
Portfolios, 135
Portugal, 4–5
Positive emotions, 83, 94
Postgraduate Certificate in the Education of Adults (PGCEA), 63
Postgraduate Development Program, 64
Požarnik, Barica Marentič, 67–69
Požarnik, Barikca Marentič, 67–68
Practical semester, 179
Prata-Linhares, Martha, 156–157, 168
Preservice teacher education, 177
Professional agency, 101
Professional development (PD), 19–20, 160, 200–201
Professional learning/communities, 200–201
Professional teacher education, 135
Publications, 19–20
Pugacewicz, Agnieszka, 168

Qualitative, 68, 79, 103, 182, 204
Quality of assessment, 142–143
ethical compliance and integrity, 143
ethical issues, 142–143
validity and reliability, 142

Ratnam, Tara, 76–77
method, 76–79
perspective, 75–76
Reflective writing, 135
Refreezing, 126–128
Regional conferences, 7, 15, 18
Regional representative, 15
Reid, William, 4
Relationality through narrative, 223
Reliability, 142
Remote education, 160
Remote learning, 100, 104–105, 134
Remote online teaching and learning, adapting assessment practices to, 137
Remote teaching, 124
strategies, 166, 169
technology proficiencies, 118
Renewal of education, 90
Republic, 43–44
Research
adapting to changing research orientation, 76–79

method, 138
Resilience, efforts in, 91–92
Resources, 125
Rice, Mary, 168–169
Rogers, Carl, 48
Role-Model-Lectures, 185–186
Romania, 10, 194
Romania education, 194–195
Romanian educational system, 213–214
Romanian paradox, 197
Romanowsky, 167
Rural teachers, 224–228
Rust, Frances, 26

Šarić, Marjeta, 68–69
Saudi Arabia, 139
School system in Germany, 177
Schwab, Joseph J., 39
Science, Technology, Engineering, Art, Mathematics (STEAM), 187–188
Scientific Electronic Library Online–Regional Portal (SciELO–Regional Portal), 163
Scotland, 63
Second Industrial Revolution, The, 180–181
Self-Directed Learning, 141
Sen, Julu, 47
Service to Teachers and Teaching, the Academy, and Research ($ST^2AR$), 11–12
Shulman, Lee, 4–5, 39
Simmons, Nicola, 32
SINELG Method, 212–213
Singapore, 139
Slovakia, 43–44
Slovenia, 139
Smartphones, 160
Social inequity concerns, 88
Social media platforms, 110
Social process, 122
Social skills, 120–121
Sociocultural, 78–79, 127–128
Socioeconomic, 56, 75, 107, 195
South Africa, 139
South America, 225
Spain, 4–5
Šteh, Barbara, 68–69
Students
  agency, 112–113
  changes in students' attitudes and feelings about assessment, 146
  conceptions on industry 4.0, 182
  concern for student well-being, 90
  engage students in learning, 141
  evaluating students against standards at end of semester or academic year, 141
  learning experiences, 130
  participation in online learning, 106–107
  providing feedback to, 140–141
  teachers, 102
  of vocational schools, 178
Study process, 141
Summative assessment, 136
Supply chain, 19
Sweden, 4–5
Switzerland, 4–5
Symposia, 15–18
Synchronous
  online teaching approaches, 90–91
  tools, 128

Tablets, 160
Teacher agency, 110–111, 115
Teacher education, 83–84
  directions for, 226–228
  emotion in, 83–84
  research, 82
Teacher educators, 84, 88–89, 112–113, 130, 135
  agency, 110–111
  common concerns of, 93
  emotions, 83
  lack of preparedness for online teaching, 107–108
  motivation, 94–95

motivations for agentic decisions, 110
Teacher Educators' Digital Agency, 111–112
Teacher Educators' Equity Enhancement, 109–110
Teacher shortages, 19
Teachers
changes in teachers' perceptions and feelings about assessment, 145–146
conceptions on industry 4.0, 182
emotions, 83–84, 95
identities, 223
learning, 212
preparation, 85–86
professionalism, 214
qualities during pandemic, 120–121
technology in training and professional development of, 199–204
Teachers and Teaching: Theory and Practice (TTTP), 6, 18, 59–60
Teachers' training, 157
Teachers' Training Department (TTD), 199
Teachers' Training Program (TTP), 199–200
Teaching
integrating assessment with, 135–137
and learning, 4, 64, 169, 204
process, 119, 136–137
theoretical framework to explore teaching transformation during pandemic, 122
use assessment to inform, 141–142
Teaching of English to Speakers of Other Languages (TESOL), 55
Teaching technologies (*see also* Digital technologies; Creative teaching), 176
concept of industry 4.0, 180–181
definition and characteristics of learning factories, 184–185
German education in transition toward education 4.0, 176
impulses for future, 188
industrial advances of twenty-first century, 180
integrating concept of industry 4.0 in vocational schools, 181–182
learning factories as integration from industry 4.0 in vocational schools, 183
school system in Germany, 177
students' and teachers' conceptions on industry 4.0, 182
from theory to practice, 185–186
vocational education system in Germany, 177–178
vocational teacher education in Germany, 179
TeachOn, 212
Technical, 56, 186
Technological resources, 107–108
Technology, 119–120, 125, 155, 160, 164, 177, 202
and education, 188, 195, 198
for learners and educators, 118
in training and professional development of teachers, 199–204
Temmen, Katrin, 157
Tenure, 18
Thailand, 56
Thematization approach, 166
Theoretical framework, 122, 135, 137
Third Industrial Revolution, 180–181
Tilburg Meeting, 4–6
Tillema, Harm, 51
Top-down approach, 123
Toronto, Canada, 18
Traditional teaching process, 119
Transformations, 119, 121
Tributes, 24–25
Turkey, 56

Twain, Mark, 47
Twenty-first century, industrial advances of, 180

Ukraine, 39
Uncertainty, 92
Uneasiness, 92
Unequal diffusion, 129
Unfreezing, 123–128
Union of International Associations (UIA), 17
United Kingdom, 56, 163
United Nations Educational, Scientific and Cultural Organization (UNESCO), 134, 162–163
United States, 4–5, 56, 163
Universal emotional experience, 82–83
Universality of challenge of covid emergency, 92–93
University-School Collaboration, 177
Urban, 105, 218, 225

Validity, 142
Verband Deutscher Maschinen-und Anlagenbau (VDMA), 180
Vernholz, Mats, 157
Virtual Learning Environments (VLE), 161
Virtual world platforms (VW platforms), 162
Vocational education and training (VET), 176
  dual system of, 177
Vocational education system in Germany, 177–178
Vocational schools
  integrating concept of industry 4.0 in, 181–182
  learning factories as integration from industry 4.0 in, 183
Vocational teacher education in Germany, 179
Vygotsky, 122

Wales, 18
Washington, D. C., 17
Web pages, 219–220
WhatsApp (Social media platforms), 109–110
Wi-Fi, 125
Working class, 194
World Bank, The, 134
Wubbels, Theo, 23, 26

Xie, 168–169

Yang, Xiaohong, 72
Yearbook tributes
  Alan Brown, 27
  common threads across tributes, 24–25
  with gratitude to ISATT founders, 25
  many other ISATT scholars contributed to ISATT, 27–28
  Rob Halkes, 26–27
Yendol-Hoppey, Diane, 15–16

Zentralverband Elektrotechnik-und Elektronikindustrie (ZVEI), 180
Zhong, Libo, 72
Zoom (online learning platforms), 106, 140