Index

Note: Page numbers followed by "n" with numbers indicate footnotes.

Ability cultivation, 239 offline flipped classroom guided by, 244-245 Academic master's programme, 224 Academic personnel, 12-13, 15, 21, 24 Academic self-concept, own perceptions of, 24 Accelerometer, 179 Accreditation Board for Engineering and Technology, 239 Action execution and evaluation, 31 Activating innovation, 84 Active learning process, 13 Activity, 30 constructive, 30 learning, 33 task analysis, 259 training, 179 Admin/moderator, 163-168 Administrative Procedure Act. 289-290 Administrator of the Facebook group, 162 Adult Learning Process, 35 Aesthetic appeal, 80-81 Agency learners, 33 personal, 29 restoring agency of teacher/ professor, 301 in training, 29-31 as training resource, 35–36 Alexa (see Amazon Echo) Amazon Echo, 119 Amazon's Acquisition of Kiva systems, 120

Analysis, design, development, implementation and evaluation model (ADDIE model), 257-258 Annotation. 32–33 Antecedent of flow, 190-191 of immersive experiences of presence and flow, 191-193 Anticipation, 29, 211 **Application Programming Interface** (API), 164 Applied research, 78 Apprenticeships, 29 Artificial intelligence (see also Intelligence), 302 Assessment function, 159 instruments validity, 263-268 learning, 226-227, 261-262 of learning, 228 possibilities, 168 self-assessment, 129 web-based formative, 239 Association of American Universities (AAU), 86 Association of MBAs (AMBA), 57, 60 Attraction and retention of users in **SNS. 61** Augmented reality (AR), 171-172 environment, 173 Awareness, 90 of learning, 30

B-in-EU Jean Monnet Module, 300–301 Bachelor-level study programmes, 224 Basic research, 78 Bayesian networks approach (BN approach), 207-211 Behaviour, 90 Belief-Desire-Intention (BDI), 157 BIBliographic Ontology (BIBO), 32 Blended learning theory, 240 Blogs, 99 Bloom's taxonomy digital taxonomy, 226 of educational objectives, 204 Bodily kinesthetic intelligence, 175 Bottom-up innovations (see also Top-down innovations), 291 collaboration with other units. 292 facilities for students. 293–294 work organisation, 291–292 Bounded-learning community, 99, 105 Brundtland Commission, 74 Card Rotation Test (CRT), 175–176 Career management opportunities, 56 Center for Social Innovation (CSI), 81 Center for Social Innovation, Stanford University (SU-CSI), 72 Class management function, 159 possibilities, 165 Classroom interaction, 49 Co-authoring, 98 Coca-Cola, 83 Cognitive ergonomics, Frenchspeaking tradition of, 30 Cognitive processes of in-depth learning, 30-31 Cognitive social theory, 29 Cognitive style analysis test (CSA test). 258 Collaborative/collaboration, 48 in bounded and online communities, 98-100 collaboration-enabling software, 99 computing environments, 32-33 document planning, 98 function, 159

and interaction possibilities, 165, 168 learning, 47-48, 98 writing, 98, 100 Collective effectiveness, 31 Collective responsibility, 44 collective cognitive responsibility, 44, 48–50 Commitment. 31 Communication, 114, 163–164 channel, 140 computer-mediated, 50, 190-191 function. 159 perspective, 147-148 possibilities, 165 Communitary knowledge, 44 Community affiliation symbol, 140 Competency approach, 225–226 Computer software, 115-116 systems, 287-289 Computer-aided design (CAD), 177 Computer-mediated communications, 50.190-191 Conditional Probability Tables (CPT), 208Consortium, 134 Constructive activity, 30 Constructive discourse based on inquiry, 44 Constructive uses of authoritative sources, 44 Constructivist/innovative approaches, 131 - 132Content analysis, 50 Content selection process, 144-145 Continuing education, 87 'Continuous improvement of ideas', 44 Control group, 180 Cooperation, 88 Cooperative learning, 98 Core immersive experiences of presence and flow, 189-190 Coursera, 156-158 Courseware design, 255

Creative climate, 49 Creativity, 275 Cronbach's alpha, 60 of composite variables, 63 Crowdsourcing innovation, 83 Data analysis, 24 Data flow diagrams (DFDs), 259-260, 269 Data mining (DM), 205 Defences, 289 Delivery modes, 255, 258, 263, 269 "Democratising knowledge" KB principle, 44 Demographics and education characteristics, 62 Development psychology, 47 Dialogic approach, 42 Digital communication channel, 140 competence, 13, 19 divide, 117-118 medicine, 120 space of logbook, 34 technologies, 129, 135 Diplomas, 289 'Direct interaction with the society' mission, 87 Distance learning, 156 Distributed cognition, 33 Doctoral study programme in pedagogy, 224 E-learning, 158, 188–189, 239, 254-255 e-Pedagogical ISD model, 255 e-Tutorial Module, 260-261 'E3M' European project, 86 Economic pillar, 75 'Education and training' mission, 86 Education(al) (see also Higher education (HE)), 47, 117, 222, 273-274 case for education as upbringing, 300-301 education-related processes, 140

existing technology in, 114-116 games, 275 holistic approach to, 298-300 implementing technology in, 116-117 organizations, 113 portal, 148n1 references, 204 research. 47 robotics, 231 sciences in France, 30 scientific disciplines, 47 system, 112-113 technologies, 45, 255 Educational data mining (EDM), 205 BN approach, 207-211 K-NN approach, 211–216 OpenAnswer system, 206-207 Education-innovation-sustainable development, 298-299 Educators, 13, 59, 117 EduLab, 130 edX, 156-158 Effect size (ES), 263 Embedded and transformative assessment, 44 **Empirical and Policy Foundations** for Social Innovation in Europe, 81 Empowering learning, learning ecosystem for, 31-32 Engineering education, VR for, 173 - 174Environment and infrastructure, 113-114 pillar, 75 Epistemic agency, 44 Equity of opportunity, 88 Erasmus Jean Monnet Project, 275 Etherpad, 50 Ethics, 90 Ethnicity, 59 European Citizen Protection Network, 277 European Parliament Eurobarometer on Youth, 274

European Union (EU), 273-274, 300 citizenship, 274, 301 Lisbon strategy, 85-86 Euroskepticism, 274-275 Events, 164-165 Experiential learning, 48 Experimental development research, 78 Experimental group, 180 Face-to-face training courses (F-2-F training courses), 256 Facebook, 60, 62, 64, 67, 159, 165 communication, 163-164 document, 165 events, 164-165 feed, 163 group creation, 161-162 group management, 162-163 MOOC functionalities with, 158-161, 165-169 privacy settings, 162 storage area, 165 taxonomy of important MOOC concepts, 158 video functionalities, 164 xMOOC and supporting platforms, 157 - 158Fascination effect, 19 Feed. 163 Feedback formative, 48 keywords from, 246–247 from student course evaluation, 252 of students on course teaching, 245 'Financial' support of HE, 88 First-level professional study programme, 224 Flash Eurobarometer, 275 Flipped classroom teaching mode, 240-241, 246 Flow core immersive experiences flow, 189-190

interplay of perceived interactivity and mental imagery with, 193-195 presence as antecedent of, 190-191 theory, 189 Foreign language, 118 Formative feedback, 48 Forums, 99 Fostering imagination, 173 4C-ID model. 256 French-speaking tradition of cognitive ergonomics, 30 Friend Of A Friend (FOAF), 32 'Functions' of missions of HE, 88 General Data Protection Regulation, 289 General Electric (GE), 83 Global Innovation Index (GII), 83-84 indicators, 85 Global partnership, 90 Google Docs, 130, 134 Google education and classroom, 114 Google Forms, 226 Grading phase, 206 Graduate-based sample, 59-60 Graphics interchange format (GIF), 164 Guarantee measures, 243 Gyroscope (mobile phone), 179 Handbook of Dean's Office, 292 Hierarchal task analysis, 259-260 Hierarchical school, 142 Higher education (HE) (see also Online higher education, experiences in), 12, 71, 84, 254.299 awareness, behaviour and ethics, 90 challenges and future development, 87-88 experience, 66 global partnership, 90 impact on society, 89 importance, 85-86

innovation in, 71, 77-83

innovators, innovation and, 89 knowledge management in, 64-68 learning innovation in, 303 missions, 86-87 sustainable development, 73-77 sustainable development, innovation and, 72, 88-90 TEL in, 302–303 Higher Education Institutions (HEI), 72, 97, 156, 188, 225, 254, 299.303 administrative task. 285-286 bottom-up innovations, 291-294 innovative dean's office, 294-296 top-down innovations. 287–291 Highspeed Internet access, 117 Holistic approach to education, 298-300 Human-computer interaction (HCI), 189-191, 256 ID models, 254-256 Idea diversity, 43 'IDEA' project, 276 Improvable ideas, 43 In-depth learning, cognitive processes of. 30-31 Incentives for staff, 291 Inclusiveness, 59 Individualised learning, 238 Indo-European language family tree, 275-276 Industry 4.0, 112, 116, 119-120 Information and communication technology (ICT), 111, 144, 156, 188, 254, 301 digital divide, 117-118 discussion, 122-123 environment and infrastructure, 113-114 existing technology in education system, 114-116 future generation, 119-121 implementing technology in education, 116-117 investment, 114

IoT objects, 119 literature review, 112 method. 121-122 Pilot study, 121 results, 122 software, 114 thinking things, 118 Information deficit, 274 Information systems (IS), 258 Information Systems Analysis and Design (ISAD), 258 Information technology (IT), 256, 293 Innovative/innovation (see also Bottom-up innovations; Top-down innovations), 42, 59, 77, 79-80, 275, 287, 289 acceleration of knowledge over years, 77 challenge of knowledge, 77 dean's office, 294-296 drive for change and, 129-130 education, 113 in education, 87 GII. 83 in HE and innovators, 89 in higher education, 71 learning, 228 marketing, 80 media channels, 275 open, 82–83 outcomes, 80 in pedagogy, 28 R&D, 77–79 social, 81-82 soft. 80-81 student-centred strategies, 128 for sustainable development, 83-84 in sustainable development fields, 89 - 90teachers, 130 Instagram, 165 Instructional material, 259 Instructional pedagogy, 136 Instructional systems design models (ISD models), 254-257 experimental procedure, 262-263

extent of model effectiveness. 268-270 results. 263 settings and participants, 258 study instruments, 258-262 validity of assessment instruments, 263-268 Instrumental teachers, 129 Intellectual appeal, 80-81 Intelligence (see also Knowledge), 172 bodily kinesthetic, 175 interpersonal, 175 intrapersonal, 175 linguistic, 175 logical-mathematical, 175 musical, 175 naturalist, 175 spatial, 175 Intentionality, 29 Inter-disciplinary approaches, 303 Inter-unit collaboration, 292 Internationalisation, 59 Internet, 97, 115 Internet of things (IoT), 112, 118 Internships, 293 Interpersonal intelligence, 175 Intervention participation, 181 Intra-subject factor, 181 Intrapersonal intelligence, 175 Intrinsic motivation factors, 190 'Itanal' table, 265 Item response theory (IRT), 263 Item-fit map, 263–265 Joint editing, 98 K-NN approach, 205, 211

K-NN approach, 205, 211 adding new peer into S+ core set, 13–14 core maintenance, 215–216 initialisation, 212–213 k-NN-based updates of models of peers in S–, 214 Key performance indicators (KPIs), 298 Knowledge (see also Intelligence), 34 accumulation in student lifecycle, 57-59 acquisition, 96 challenge, 77 creation, 96, 98 knowledge-based society, 86 model effectiveness and, 269-270 participation, 96 resources, 65 system reconstruction, 242 types, 261 work, 96 Knowledge building pedagogy (KB pedagogy), 42-43, 47 analysis procedure and variables, 47 discourse, 44 distribution of synthesised principles, 48 foci of research on, 47-50 importance of technology in, 45-46 objectives, 46 population, data collection and sample, 47 principles, 43-46 research aims addressed in checked papers, 49 technology employed to supporting, 50-51 Knowledge forum platform (KF platform), 46 Knowledge management (KM), 97 course demographics for students, 101 dimension, 58 in higher education, 64-68 Kolmogorov-Smirnov methodology, 15, 21 Languages in Europe

EU, 273–274 Euroskepticism, 274–275 evaluation and value added, 278–279, 282–284

rationale, 275-276 rules of game, 277-278 thesaurus, 276-277 Law on Higher Education, 289 Layered teaching, 240 Learners' agency, 33 Learning (see also Technologyenhanced learning (TEL)), 98 activities, 158 assessment, 226-227, 261-262 communities, 48 diaries, 102 environment, 226-227 excellence in post-truth era, 301-303 experimental procedure of, 262-263 meaningful, 48 metaphors for, 96 objective, 158 objects, 158 organisation, 142 outcomes, 238 process, 97, 140, 143, 149, 212, 215, 240 and research, 303 space, 35 systems, 302 types, 259 views on social media and Wikipedia assignment, 103 - 104Learning activity, 33 management, 159 management tools, 168 Learning analytics (LA), 206, 303 Learning ecosystem, 33 for empowering learning, 31-32 Learning management systems (LMS), 19, 21, 24, 99, 302-303 Learning object management, 159 possibilities, 168-169 Lecture-based learning, 238-239 Legal regulations, 289-290 LEGO, 83

Library services, 303 Life-long learning (LLL), 58, 66, 87 Linguistic intelligence, 175 LinkedIn, 60, 62, 64, 67 Logbooks in teacher training, 33-35 Logical reasoning, 175 Logical-mathematical intelligence, 175 Machine to machine (M2M), 119 Management of information systems (MIS), 258 Marketing innovation, 80 perspective, 146-147 Marking phase, 206 Mass collaboration, 99 Massive Open Online Courses (MOOCs), 156, 238–239, 303 functionalities around six main functions, 158-161 functionalities with Facebook, 165-169 teaching mode, 239-240 Master of Business Administration programme (MBA programme), 56 max_entropy, 209 max_wrong, 209 maxInfoGain, 209 maxStrangeness, 209 maxTotalEntropy, 209 Meaningful learning, 48 Media literacy, 223, 226-228 correlation results between scaffolding of learning and, 229 Medical therapies, 172 MEMORAe web platform, 32–33 Mental imagery with presence and flow, 193-195 Mental Rotation Test (MRT), 176 Messenger (Facebook), 164 Metacognitive activities, 204 Metadiscourse, 48

Microcontents, 302-303 Microeconomics, 241, 242 Microsoft Word 365, 99 Millennium Development Goals (MDGs), 75–76 Missing links, 118 Mobile applications in schools, 150 Mobile devices, 129 Mobile-based VR device, 172 Model effectiveness, extents of, 268-270 Model validation. 255 Modelling PE, 207 Monological approach, 42 Moodle (learning platform), 50, 99, 226 Multimedia projects, 178-179 Multiple instance-based algorithms, 206 Musical intelligence, 175 Mystu-edx online learning platform, 244

Naive Bayes approaches, 205 **NASA**, 83 National Education Technology Plan (NETP), 117 National Endowment for Science, Technology and Arts (NESTA), 72 Naturalist intelligence, 175 Network membership, 64 topology, 211 Non-IoT products, 119 Numerical aptitude, 175 Offline 271 class, 243 Offline flipped classroom guided by ability cultivation, 244 One-to-one initiatives (1:1 initiatives),

127 Online communities, 99 education, 187–188 logbook, 33

mentoring, 117 SPOC class teaching design, 242 - 243Online 311 class, 242-243 Online Encyclopaedia Article, collective edition of, 35-36 Online higher education, experiences in (see also Higher education (HE)) core immersive experiences of presence and flow, 189-190 interplay of perceived interactivity and mental imagery, 193-195 perceived control, focused attention and challenges, 191-193 practical recommendations, 196-197 presence as antecedent of flow, 190-191 Online-and-Offline (O2O), 240 feedback from student course evaluation. 252 flipped classroom teaching mode, 240 - 241MOOC teaching mode, 238-240 OBE teaching, 239, 241-245 teaching evaluation and follow-up, 245-249 teaching reform in China, 241 Open Annotation (OA), 32 Open innovation, 82-83 OpenAnswer system, 205–207 OpenGL-based functions, 174 Organization of Economic Cooperation and Development (OECD), 72, 111-112 Organizational image, 141 Organizational innovation, 80 Oriented basic research, 78 Outcome-based education theory (OBE theory), 238 design of offline flipped classroom, 243

online SPOC class teaching design, 242-243 teaching design driven by O2O, 241-242, 244 teaching implementation driven by 020, 244-245 Padlet, 50 Pearson's correlation analysis, 122 Pedagogical Content Knowledge, 222 Pedagogical/pedagogy (see also Knowledge building pedagogy (KB pedagogy)), 140 agency as training resource, 35-36 agency in training, 29-31 collaborative computing environments, 32-33 doctoral study programme in, 224 innovation in, 28, 254 learning ecosystem for empowering learning, 31-32 logbooks in teacher training, 33-35 paradigm, 24 perspective, 148-149 process, 222 Peer assessment, 204, 206-207 editing, 98 learning process, 228 tutoring, 48 Peer-to-peer support process, 34 Peers' evaluation (PE), 204-205 Perceived control, 191-193 Perseus, 255 Person-plus concept, 33 Personal agency, 29 Pervasive KB, 44 Platform users, 32 PMA-Revised tests (PMA-R tests), 175 PMA-SR test, 175–176 Policy makers, 188 Policymaking, 298, 305 Polyhedral model in experiment, 179

Post-course feedback, 102–105 views on social media in, 105 Post-learning measure, 263 Power to act in training, 29 PowToon app, 134 Practice, 30 Pre-course survey, 102 Prescriptive e-Pedagogical ID model, 263 Prescriptive ID models, 256-257 Prescriptive ISD model, 257–258 Presence and flow antecedents of immersive experiences of, 191-193 interplay of perceived interactivity and mental imagery with, 193-195 Presence as antecedent of flow, 190-191 Presence research, 189 President's Council on Sustainable Development (PCSD), 75 Primary Mental Abilities (PMA), 175 'Proactive' thinking and acting, 88 Probabilistic approach, 205 Probability distribution (PD), 208 Probability theory, 207 Problem framing, 48 Problem-solving, 30 Process innovation, 80 Product development process, 78 Product innovation, 79 Productive activity, 30 **Professional Learning Objectives** (PLOs), 241 Professional practice, 30 Professionalism, 222 Programme for International Student Assessment (PISA), 115 Project IDEA, 275 Promising ideas tool, 46 Promisingness, 48 Psychology educational categories, 47 Purdue Spatial Visualisation Test-Rotation test (PSVT-R test), 172, 176-177

Pure basic research, 78 Pure PE-based approach, 205 Qualitative study, 143 Quantitative field research design, 14 QUEST analysis software, 262 interactive test analysis systems, 263 Program Pre-tests Fit Maps, 263 - 264Rasch IRT model-based software, 263 Rasch-model case for Saudi Arabia ID models, 254-255 ISD. 255-257 methodology, 258-270 prescriptive ISD model, 257-258 Real ideas, authentic problems, 43 Recommender Systems for Technology-Enhanced Learning, 206 Research aims addressed in checked papers, 49 applied, 78 attention, 57 basic. 78 education, 47 experimental development, 78 learning and, 303 oriented basic, 78 presence, 189 pure basic, 78 Research and Development (R&D), 72, 77–79 Resources, 32 Respondents, 14-15, 18 Revision, 98 Rho method for data analysis, 15 "Rise above" principle, 43 Rising above tool, 46 Robotics Toolbox, 174 Samsung, 83 Saudi Arabia, Rasch-model case for,

254-270

Scaffolding, 48 of learning, 226-228, 229-231 School website as media communication perspective, 147 - 148from content functions to goals, 146 content selection process, 144–145 future, 149-150 identifying school website content, 143 image of school, 140-142 important content, 145 marketing perspective, 146-147 pedagogical perspective, 148-149 Schools, 114, 141 ICT in, 114-116 image, 140-142 portfolio, 140 representatives, 145 Science Citation Index (SCI), 47 Second-level professional study programme, 224 Select-next-or-stop strategy, 206 Selection strategies, 208 Self-assessment and reflection, 129 Self-determination theory, 189 Self-efficacy, 29, 31 Self-regulation of learning, 33 Semantically Interlinked Online Communities (SIOC), 32 Sensory perception, 81 Sequence principle, 259 'Service' abuse, 301 Sharing spaces, 32 Skill acquisition, 13 Small private online course (SPOC), 238, 240 Smart classrooms, 113 Smart technology, 119 Social capital, 56, 58, 66 connections, 64 engagement, 87 innovation, 81-82 interactions, 66

media, 97, 293-294, 302-303 pillar, 75 relationships, 64 Social media online community, 97 collaborating in bounded and online communities, 98 - 100collaborative writing and learning, 98 empirical study on collaborative writing of group essay and Wikipedia pages, 100 findings of survey and learning diaries, 102-105 justifications for importance of, 103 Social networking services (SNS), 55-56 ANOVA results, 65 Cronbach's alpha of composite variables, 63 definition and sources of variables. 61-62 implications for practice, 59-60 knowledge accumulation in student lifecycle, 57-59 knowledge and social capital with social platforms, 58 knowledge management in higher education, 64-68 methodology and sample characteristics, 60-64 summary statistics, 65 Social networks (see also Facebook), 50, 56 social networking sites, 303 Social Sciences Citation Index (SSCI), 47 Socio-affective health of community, 44 of KB communities, 48 Socio-constructivism, 42 Soft innovation, 80-81 Software, 114 Spatial ability, 177 experiment, 178-180 and measurement, 175–177

previous works, 177-178 results, 180-181 Spatial aptitude, 175 Spatial intelligence, 175 Spatial memory, 178 Spatial orientation, 178 Spatial visualisation skills, 178 Special education, 47 Specialised organisations, 66 Specification skill development matrix, 261 Staff, incentives for, 291 Stake, 301 Stakeholders, 241 Standard deviation (SD), 15 Stanford Business School, 82 Stanford's Artificial Intelligence MOOC, 157 Statistical analysis of data, 19, 21 Statistical Package for Social Sciences programme (SPSS programme), 180-181 Stochastic variables, 207 Strategic business unit, 73 Strategic units (SUs), 72-73 Student model (SM), 212 Student-teachers' ability current situation in Latvia, 224-225 methodology, 225-227 results, 227-231 Student(s), 173 affairs, 286, 293–295 facilities for, 293-294 follow-up performance, 247 knowledge accumulation in student lifecycle, 57-59 learning process, 114, 147 service, 287, 292-293 student-based sample, 59-60 student-centred approach, 142 Student-teacher communication, 146 Supplements, 289 Sustainability, pillars of, 75-76 Sustainable development, 73-74

innovation for, 83-84 pillars of sustainability, 75 **SDGs.** 75 SUs, 73 sustaining, 75-77 Sustainable Development Goals (SDGs), 72, 75-76 Sustainable growth and development case for education as upbringing, 300 - 301education-innovation-sustainable development, 298 holistic approach to education, 298-300 promoting teaching and learning excellence, 301-303 restoring agency of teacher/ professor, 301 Symmetric knowledge advancement, 44 Tablets in lower secondary education analysis, 131 drive for change and innovation, 129 - 130focus group, 131 method, 130 questionnaire, 130-131 results, 131-135 Task analysis activity, 259 Taxonomy of MOOC concepts, 158 Teachers logbooks in teacher training, 33–35 personal pedagogical beliefs, 45 professional master's programme, 224 restoring agency of, 301 teacher-created websites, 149 Teaching activities design, 243 lecture-based, 239 in post-truth era, 301–303 practices, 128 profession, 222 Teaching evaluation, 245 course teaching evaluation done by student, 245

feedback of students on course teaching, 245 follow-up, 249 keywords from feedback, 246-248 students' follow-up performance, 247 Teaching mode flipped classroom, 240-241 MOOC, 239-240 Teaching-learning processes, 172, 188-189, 223-225 Technologies, 226 correlation results between scaffolding of learning and, 230 in learning process, 223, 226, 228, 231 technology-driven initiatives, 129 transfer and innovation, 87 Technology-enhanced learning (TEL) (see also Learning), 13, 113, 302 case summaries, 16, 20 correlation analyses, 17, 22-23 literature analysis, 12–13 methodology, 14 results, 14-21 Test reliability, 265-268 Textbook, 134 Thesaurus, 276-277 Three-dimension (3D), 172 computer technologies, 178 Top-down innovations (see also Bottom-up innovations), 287 computer systems, 287–289 incentives for staff, 291 legal regulations, 289-290 Traditional teacher-centric perspective on learning, 96 Traditional/instrumental approaches, 131 - 132Training activity, 179 agency as training resource, 35-36 agency in, 29-31 scheme, 28, 36

'Transcends the academic sphere', 44 Transcript of records, 290 Transportation-imagery account, 189 Trialogical approach, 42 Trialogical educational perspectives, Twitter, 165 Two-dimensional visualisation (2D visualisation), 172 UC Berkeley's Hass Business School, 82 Udemy, 156-157 Unidimensionality, 265 United Nations (UN), 74 United Nations Educational, Scientific and Cultural Organization (UNESCO), 72 United Nations Sustainable Development Goal, 59 University of Toulouse, 34 University students, 173 University Study-Oriented System (USOS), 293 'University X Consortium', 158 US Department of Education, 117 US primary school websites, 143 Validity of assessment instruments, 263-268 Value perception, critical reconsideration of, 303 Variable maps, 268 Variables, 61-62

Verbal aptitude, 175 Verbal fluidity, 175

Vicariance process, 34 Video functionalities, 164 Virtual environment, 189-190, 192 Virtual learning environment (VLE), 156 Virtual learning experiences, 117 Virtual reality (VR), 171, 302 applications, 15, 18 experiences on VR and spatial ability, 177-181 spatial ability and measurement, 175 - 177VR for engineering education, 173-174 Virtual Reality Modelling Language (VRML), 174 Visual Studio C++, 174

Wasteland, 118 Web of Science (WoS), 46 Web-based application, 179 Web-based formative assessment, 239 Website, 146 Wikipedia, 99, 100 empirical study on collaborative writing of group essay and, 100 exercise, 104 Wikis, 99 Work organisation, 291–292 World Economic Forum (WEF), 87 WWW, 117–118

xMOOC platforms, 156–158

YouTube, 15, 164-165