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This Special Issue is devoted to labour market integration, including those who have not recently graduated from educational programmes but who are seeking to enter or re-enter the labour market. Such new entrants include migrant workers and those who have temporarily been out of the labour market for whatever reason.

In addition to migrant workers (Wrench *et al.*, 1999), refugees (Hernes *et al.*, 2019) or asylum seekers (Sager, 2015), including victims of modern slavery or human trafficking (Hanlon, 2018), have specific needs. In many countries, policies restricting immigration present challenges for labour market integration of refugees and asylum seekers (Bevelander and Pendakur, 2014; Bloch, 2008; Maroufi, 2017; Sager and Thomann, 2017). The most vulnerable categories of migrant workers are also more likely to face discrimination, presenting further barriers to employment and representing part of a complex web of factors of multiple deprivation or “hyper-precarity” (Lewis *et al.*, 2015). Among migrant workers, there are substantial gender differences with respect to their integration into European labour markets (Ala-Mantila and Fleischmann, 2018).

The second category, workers made redundant or temporarily out of the labour market for other reasons may need support to discover job vacancies and gain access to work. This could be after major health interventions (Kruse *et al.*, 2009), after having spent time in prison (Fletcher, 2001; Ramakers *et al.*, 2012) or after military service (Tütlys *et al.*, 2018, 2019). Others seek re-employment after taking time out to raise children or care for an aged relative; whilst they are often “women returners” (Tomlinson *et al.*, 2008), carers who are men face similar problems in balancing caring responsibilities with work commitments (Arksey, 2002). Another category is older workers returning to the labour market (Börsch-Supan *et al.*, 2019), whether to augment their pensions or as part of initiatives for “active ageing” (Gendron, 2011; Hamblin, 2013).

This Special Issue brings interdisciplinary perspectives to challenges of labour market integration of various groups in different regions of the world, exploring the issues for education and training and potential solutions and policy responses. The articles in this Special Issue deal with a range of vulnerable groups facing challenges of labour market integration in different institutional and socio-economic contexts. Before introducing the papers, this overview explores employment and employability challenges related to labour market integration, drivers of change associated with increasing vulnerability and precarity, and the implications for skill formation, education and training.

Employment and employability challenges

It is no exaggeration to claim that the employment challenges at this time are literally unprecedented and new labour market entrants from higher education (HE) and vocational education and training (VET) will face greater difficulties than ever, but they are not the focus of this Special Issue. Work readiness and employability are recurrent themes in the pages of this journal and have been extensively addressed for transition to work of graduates from various sectors of education (Winterton and Turner, 2019). Youth unemployment and underemployment have been persistent problems for decades (McDonald, 2011) and are expected to result in major socio-economic difficulties in the post-pandemic world.



Less attention has been paid to those entering or re-entering the labour market at different stages of their careers, yet questions of employability and work readiness are just as relevant to labour market re-entrants. Moreover, successive economic crises and associated restructuring (Winterton and Forde, 2013) are increasing the number of vulnerable workers and making precarious employment the norm rather than the exception in many labour markets (Burgess *et al.*, 2013).

Many countries have become dependent on migrant workers to address labour market shortages (Ruhs and Anderson, 2012), creating tensions captured in the statement that “Malaysia need these workers, but does not want them” (Gurowitz, 2000, p. 863). Labour market integration for migrant workers aiming permanently to relocate is more challenging when they are refugees or asylum seekers who had not planned to migrate, especially where they lack recognised qualifications or language skills. Al Ariss and Syed (2011) found skilled Lebanese migrants in Paris were able to develop careers not only because they had human capital but because they were able to mobilise social capital, cultural capital, economic capital and symbolic capital. The advantage of being Francophone, having common cultural identities and being connected to existing networks enhanced the value of having skills and financial resources. Migrants arriving as refugees are less able to mobilise such capitals even if they are relatively skilled, and without linguistic and cultural connections are more likely to find work that is below their level of qualification. Such individuals need access to education and training to enable them to integrate into the labour market and wider society.

Workers seeking to re-enter the labour market after a period of absence will suffer skill obsolescence in proportion to the length of time they have not been working and the rate of change of technology. Any period of labour market absence reduces the chances of gaining employment and the longer the absence the more difficult it is to return (Nwavu *et al.*, 2018). For employees seeking work after redundancy, the likelihood of finding a position depends upon local labour market opportunities and institutional support (Gardiner *et al.*, 2009). Older workers have more difficulty in finding re-employment after job loss (Wanberg *et al.*, 2016) and are more prone to skills obsolescence (Lalé, 2018). Armstrong *et al.* (2008) compared two car plants that closed in Australia and the UK, finding more workers retired in Australia where there were fewer opportunities for retraining than in the UK, but noting that in both cases workers who found new employment invariably experienced lower earnings and reduced job security. Hane-Weijman *et al.* (2018), in a large study of downsizing in Sweden, found that re-employment was heavily dependent on the local presence of other employers in the same sector. When older workers are made redundant, they are often confronted with a hostile labour market that pushes them into entrepreneurship (Stirzaker and Galloway, 2017), but they need training and mentoring for new businesses to survive (Dickson *et al.*, 2008).

The global financial crisis of 2008 and the subsequent European Union (EU) sovereign debt crisis increased unemployment and temporary absences from the labour market. A comparative study of the impact on employment explained country variation in terms of relative labour market flexibility: greater flexibility was associated with more opportunities for re-employment, but the financial and economic crises exacerbated labour market polarisation (Eichhorst *et al.*, 2010), as has the COVID-19 pandemic.

Over the past two decades there has been substantial evidence of a growth in precarious work (Kalleberg, 2009) and increasing numbers of vulnerable workers (Alberti *et al.*, 2018). Those lacking language or basic skills are most in need of training and development, yet least likely to be offered learning opportunities, which is a corollary of the “Matthias effect” where the most qualified are offered more training (McCracken and Winterton, 2006). The growth of vulnerable workers poses a major challenge for education and training because part of their vulnerability is lack of access to union organisation and worker education (Hlatshwayo, 2020; Tapia and Alberti, 2019), which makes it more difficult for them to access learning through trade union initiatives (Stuart *et al.*, 2013).

Drivers of change

The financial and economic crises, which temporarily obscured long-run global shift first noted by [Dicken \(1986\)](#), are continuing to move the centre of gravity of the world economy from the West to Asia, with fast-growing ASEAN economies acting as a pivot between global markets and the power houses of China and India. Overlayed on global shift and the aftershocks of the crises are four other major factors driving profound and pervasive restructuring:

- (1) Globalisation, beyond the global shift already noted.
- (2) Technological transformations associated with the Fourth Industrial Revolution (Industry 4.0).
- (3) Climate change and environmental pressures.
- (4) The COVID-19 pandemic.

Each of these is considered briefly below

Globalisation, facilitated by new technologies, is creating increasingly integrated and sophisticated international supply chains. These global supply chains are also affecting labour markets, with some becoming dependent upon foreign workers, driven by skills shortages in receiving countries and the availability of low-cost labour in source countries. Globalised labour markets create the conditions of a Dutch auction for high-skilled workers, further exacerbating positional competition for educational credentials ([Brown et al., 2011, 2020](#)). In the process, large numbers of migrant workers face discrimination in employment and are concentrated in precarious work situations. Inflexible and opportunistic management behaviour in the recruitment of migrant workers reduces the potential for enterprises to attract talent from the global labour market and leads to more differentiated or segmented recruitment strategies ([Guo and Al Ariss, 2015](#)). Weak or absent social dialogue allows employers to offer precarious contracts, confident that they can fill low-wage, unattractive jobs with migrant workers ([Mau and Burkhardt, 2009](#)). There are noticeable lock-in effects in the chaotic and complex employment paths of migrants in the labour markets of host countries ([Galgóczi et al., 2012](#)). Initial difficulties in finding employment force migrants to accept work that is not commensurate with their competencies and locks them into a cycle of low-quality, low-paid jobs ([Drinkwater et al., 2006](#); [Forde and MacKenzie, 2009](#); [Laczik, 2014](#)). Low-skilled “hardship migrants” ([Kurekova, 2011](#)) tend to look for the most accessible employment in host countries, ignoring issues of job quality, potential for skill development and opportunities for collective representation. Their pathways share certain features of “liquid” migration ([Glorius et al., 2013](#)), involving strong work orientation, a preference for accessible employment with low requirements for skill adjustment, acceptance that their position in the host country is temporary, and avoidance of involvement with social partner organisations and migrant networks. Deregulated labour markets lacking systems for recognising competencies and qualifications acquired in home countries also contribute to this situation ([Trevena, 2013](#)).

Technologies associated with the “Fourth Industrial Revolution” ([Schwab, 2016](#)) involve interplay of job destruction through automation substituting capital for labour and capitalisation creating jobs associated with applying the new technologies. These new technologies have the potential to transform work, facilitating flexibility and individualisation of production processes through real time solutions and automation ([Hirsch-Kreinsen and Ittermann, 2019](#)). Optimists claim that the new technologies will liberate people from labour-intensive execution through delegating routine work to smart machines and production lines ([Schwab, 2016](#); [Susskind, 2020](#)). Pessimists point to how digital

Taylorism has already brought de-skilling to knowledge work, with formerly high-skilled jobs becoming automated using artificial intelligence (AI) leading to further skill polarisation (Brown and James, 2020). Measured assessments of the impact of Industry 4.0 note there will be job gains, but these will be insufficient to offset the losses (Autor and Dorn, 2013; Brynjolfsson and McAfee, 2015; Frey and Osborne, 2013) and qualitative changes in the nature of work and associated skill sets will be pervasive. Low-income jobs based on routine tasks will be eliminated, middle-income jobs requiring medium skills reduced, while high-income knowledge intensive and creative jobs are expected to grow, along with low-income manual occupations that cannot be easily automated, increasing labour market polarisation in terms of skills and income (Lee and Pfeiffer, 2019; Susskind, 2020). New technologies are displacing jobs and labour force growth is outstripping demand substantially, especially in developing countries with younger, faster growing populations (ILO, 2017). Adoption of more productive technologies can occur in parallel with work intensification and such combinations have been observed in earlier major restructurings in coal mining (Leman and Winterton, 1991), steel (Greenwood and Randle, 2007) and garment manufacture (Taplin and Winterton, 1995).

Climate change has been identified as the greatest contemporary challenge to humanity and one that will exacerbate risk in less developed countries already struggling to ensure the fundamental necessities of life. The relentless deforestation of Brazil, Malaysia and Indonesia, flooding in Bangladesh, and further desertification in Africa will disproportionately affect the poor and members of indigenous communities. More extreme weather patterns, as evidenced by more frequent forest fires in Australia and California, typhoons in the Philippines, and flooding in many parts of the world, demonstrate the urgent need to reduce carbon emissions. Like global shift and technological changes, climate change is a long-run issue but the urgency to reverse this cannot be over-emphasised. Moving to environmentally sustainable forms of transportation will require substantial product and process changes, and the associated restructuring is already altering skill needs in the motor and aerospace industries. Challenges of environmental, economic and social sustainability are shaping employment opportunities and new patterns of employability. Post-industrial societies are slowly learning to consume and produce less despite access to higher technologies and the continued “acceleration” culture where business strategies and economic policies rely on fossil fuel (Malm, 2016) and perpetual productivity growth typical of industrial capitalism (Dorling, 2020).

The current COVID-19 pandemic has had a major impact on the global economy, with Barro *et al.* (2020, p. 17) recognising at the outset that “the possibility exists not only for unprecedented numbers of deaths but also for a major global economic contraction”, anticipating gross domestic product (GDP) falling by 6%, comparable to the 2008–2009 Great Recession. By August 2020, it was acknowledged that the UK was in technical recession for the first time since the global financial crisis (GFC) and the fall of 20.4% in GDP was the “largest recession on record” as well as being far deeper than elsewhere in Europe. The COVID-19 pandemic is continuing to have a profound economic impact and will bring more people into the category of vulnerable workers as well as making labour market re-integration a priority for a large proportion of the global workforce. The OECD (2020b) noted that COVID-19 had brought the worst recession since World War II (WW II), and the IMF (2020) stressed the challenge of rebuilding economies. The OECD believes that it will more than halve global growth and that the global economy will take years to recover. The World Bank (2020) noted a sharp decline in remittances by migrant workers, which have been shown to play a major role in poverty reduction in developing countries (Chong *et al.*, 2019), and by January 2021, the World Bank (2021) was predicting 751 m people being in extreme poverty in 2021 compared with the pre-COVID projection of 588 m. The ILO (2021) is monitoring the unprecedented decline in employment and working hours, anticipating a

substantial increase in global unemployment surpassing the Great Depression. Modest recovery is expected in 2021 but there will be a persistent work deficit and an expected loss of 68 m jobs worldwide, with women, young people and the low–medium skilled disproportionately affected.

Implications for skill formation

Each of these drivers of change has implications for education and training. Although these are considered separately below, the drivers are overlaid and in many respects interconnected so skill formation systems and processes must adapt to those changing circumstances simultaneously. In much of the literature on labour market integration, the concept of intersectionality, involving gender, class and ethnicity, is intertwined with notions of multiple deprivation, reflected in poverty, education and health, and these together establish patterns of disadvantage and discrimination (McDowell, 2008; Riaño and Baghdadi, 2007), so too the drivers of change are overlaid and cumulative in their impact on education and training needs (Falkenhain *et al.*, 2020). After considering the implications of each of the drivers independently, the overall challenges for education and training systems are summarised in relation to labour market reintegration in this context.

Globalisation and trends of economic development are increasing the gap between capital accumulation and labour productivity growth, which, combined with demographic trends, is increasing economic inequalities and risks fostering jobless growth (Dorling, 2020; Piketty, 2014, 2019). Degree qualifications do not guarantee decent employment with the massification of HE and growing mismatches between supply and demand of high skills leading to “over-qualification” and youth unemployment (Brown and James, 2020; Brown *et al.*, 2011, 2020). As jobs become scarcer through economic downturn and automation (Susskind, 2020), part-time work and zero-hours contracts will proliferate leading to growing numbers of “working poor” and degradation of working conditions (Brown and James, 2020). Global competition puts downward pressure on labour costs, so under-performing employees are viewed as a liability and training seen as a cost rather than an investment (Grugulis and Stoyanova, 2011). Diametrically opposed to this scenario is one where universal labour standards protect fundamental workers’ rights, ensure an adequate living wage and guarantee decent working conditions, including social working hours (Dorling, 2020). Perhaps between these scenarios is a middle road involving high-performance work systems (HPWSs) and high-involvement work practices (HIWPs), but the implications for employees depend on how tightly or loosely these are defined (Ashton *et al.*, 2017; Boxall *et al.*, 2019a) and different employee groups will experience such initiatives differently (Cafferkey *et al.*, 2020). Work design facilitating continuous learning and skill development can significantly help employees develop cognitive, functional and social competencies to deal with work requirements (Boxall *et al.*, 2019b). Job design that integrates training and competence development with work also helps reduce job-related time pressures, job strain and occupational stress (Winterton and Winterton, 1997).

Digitalisation should be associated with multi-skilling and increased attention to continuing vocational training and dual apprenticeship. Technological solutions (Big Data, AI, augmented and simulated reality, the Internet of things) can make work-based training more effective and facilitate integrating learning and work. At the same time, these new technologies also facilitate modular, flexible qualifications, widening the range of skills developed, but also faster deterioration of professional skills. Industry 4.0 is having a major impact on vocational skills (Spöttl and Windelband, 2021) and enterprises need agile training and development cultures to create faster, flexible approaches to skill formation (Kinschel *et al.*, 2019). Research in Bavaria suggests increased demand for systemic understanding and cognition of work processes and technologies (Spöttl *et al.*, 2016). Widening content of work

processes requires holistic understanding of work and technological processes, along with data processing abilities. Decentralised AI-enhanced intellect is saturating industrial work processes with data, necessitating the integration of process orientation, networking and data analytics into education and training. Networked production increases the volume of processed data and meaningful interpretation and evaluation of data is no longer the preserve of humans. AI-based technological innovations networking the physical and virtual digital world, integrating mechanical-electronic production processes into unified digitalised business structures, and digital networking through the Internet of things requires people competent in dealing with intersections between cyberspace and the physical world (Pfeiffer, 2017). Integration of professional fields and the development of hybrid occupational profiles necessitate enriching curricula with information and communication technology (ICT) knowledge. Increased work complexity makes non-routine activities in highly automated production processes more significant and requires holistic perception and dialogic approaches using intuition (Pfeiffer, 2017; Spöttl, 2016). Increased demand for workers with technical, managerial and professional skills (including “super-technicians”) is having a major impact on labour market mobility (Spöttl and Tütlys, 2020). Changing skill demand in turbulent labour markets often contributes to skill under utilisation, mismatches between aggregate demand and supply, and widening credential gaps and performance gaps of candidates compared with employers’ requirements (Livingstone, 2017). Competence gaps can be addressed by improving the functioning of qualifications and skill formation systems, whereas performance gaps can best be dealt with through the human resource management (HRM) and human resource development (HRD) practices of enterprises. The relevance gap in relation to knowledge acquired in education and what the labour market needs, should be reduced through learning outcomes and competence-based approaches to curriculum design, as well as to the subjective gap as job holders’ personal assessments of their capabilities exceeding job limitation, which is a growing trend due to overqualification. Dealing with these issues in labour market integration is less about improving skills supply than facilitating labour market skill demand through sustainable employment opportunities (Brown *et al.*, 2020; Livingstone, 2017). Employment opportunities and skill utilisation are largely shaped by the upskilling and de-skilling practices embodied in managerial choices over work organisation (Ashton *et al.*, 2017).

Tackling climate change has profound implications for skill formation. Developing economies and lower-skilled workers are most affected by climate change, adding further to existing inequalities and creating challenges for education and training because such workers are less likely to have access to learning opportunities. Developing new “green skills” was already a policy priority before the pandemic (ILO, 2011; Pavlova, 2017) and must be a key part of the sustainability agenda that should be at the core of the recovery (OECD, 2020a). Implementing sustainable technologies in different sectors may create new employment needing new skills both in post-industrial and developing countries (Pavlova, 2018; Raworth, 2017). The European Green Deal (European Commission, 2019) foresees green initiatives leading job growth, but Chen *et al.* (2020) stress major skill gaps of displaced manufacturing workers and the need for substantial retraining for them to occupy green jobs. Developing renewable energy in Scotland created fewer jobs than expected, and these were mostly highly skilled, suggesting a need for retraining the existing workforce in the sector as most of the workers have lower skills (McQuaid and Bergman, 2016). It is vital that the green agenda is at the centre of recovery strategies, but this is clearly not a panacea for job creation and must be supported by substantial education and training.

The COVID-19 pandemic similarly disrupted skill formation, particularly VET, as lockdown led to closure of service sector enterprises and workforce reductions in manufacturing, which impeded access to practical, work-based training. Disadvantaged VET students (ethnic minority, migrant and disabled workers) face particular difficulties,

frequently dropping out of the VET system and having more arduous and prolonged transitions to the labour market. The problems for disadvantaged and excluded youth have been amplified by disrupted employment training and integration services, adding to growing youth unemployment and dependence on precarious work (PWR Study Consortium, 2021). The ILO (2021) reported that disruption of VET significantly reduced learning outcomes, increasing the risk of dropping out of training and longer transition to employment, especially in lower income countries. Such a situation can also increase dropouts from general education leaving them ill-prepared for entry to HE studies, and left with precarious, unstable employment or relying on social support. Skill formation has a major role to play in post-pandemic economic and social recovery, but the scale of skill formation interventions will depend on the political-economic approach of recovery strategies and the role of governments. Following the neoliberal pathway of short-term economic growth based on cost cutting and reduced investment in people and welfare would significantly reduce the potential for skill formation to foster sustainable recovery. The alternative strategic, mission-oriented approach of responding to crisis with the “entrepreneurial state” and active involvement of social partners would create important space for education and training to develop the skills needed for sustainable, green and welfare-oriented recovery (Mazzucato, 2021). The crisis will probably change methodological and organisational approaches to skill formation, increasing attention to developing digital skills and updating training in job-specific technical skills, paying special attention to the work processes related to the resiliency of society to the environmental, healthcare and other emergencies. The crisis should also enhance rethinking of overly “profit-oriented” approaches to valuing skills and qualifications, by strengthening their social, ethical and moral value, improving the esteem of vocational skills and qualifications, and improving access to skill formation.

Taken together, the challenges for education and training systems and institutions, including qualifications systems, will affect strategies for labour market reintegration. These challenges also provide an opportunity to assess the strengths and weaknesses of skill formation policies and propose alternative trajectories. In liberal market economies like the UK predominant approaches to work design involving narrow specialisation of work tasks enabled quick on-the-job training for low-skilled occupations which hindered the development of VET and led to partial and fragmented qualifications (Wilkins, 2017). By contrast, in coordinated economies like Germany, advanced production technologies were supported by dual vocational training pathways, despite increasing pressure from enterprises for rationalising training time and resources (Spöttl, 2016).

Technological advances have promoted the emergence of new qualifications, updating of existing ones and developing monitoring instruments of these changes (Hirsch-Kreinsen and Itterman, 2017; Lee and Pfeiffer, 2017). The impact of such changes is evident in comprehensive reforms of qualifications systems (Allais, 2016; Bosch, 2017; Spöttl, 2016), reforms involving radical re-population of systems and registers of qualifications with “re-arranged” qualifications (Spöttl and Tütlys, 2017). Such changes are typical for countries undergoing transitional reforms of their systems of qualifications like Lithuania, Estonia, Czech Republic and Poland. Reforms of traditional qualifications systems are also underway, such as the recent innovation *France compétences* bringing new level descriptors and stronger integration of existing pillars of diplomas, titles and certificates of professional qualifications (Céreq, 2017). Digitalisation of work processes on the one hand enhances flexibility of qualifications and training curricula permitting modularisation and accessibility, whereas increasing knowledge intensity requires holistic understanding of work processes enhancing “academisation” of VET and orientation to solid and holistic vocational curricula and qualifications, as in the case of “super-technicians” (Tütlys and Spöttl, 2017). Neoliberal models of employment fostering narrowly instrumental competition-

driven investment in skill formation cannot respond adequately to the challenges of global labour markets, digitalisation, economic and environmental crises, which requires holistic and systemic view that emphasises the shortage of decent employment rather than individualised human capital strategies (Brown *et al.*, 2020).

The post-pandemic landscape will involve substantial changes to labour markets and work. Many jobs will be lost forever (Fana *et al.*, 2020), remote working is expected to endure affecting work-integrated learning (Dean and Campbell, 2020) and accelerated restructuring is expected to have a major impact on careers (Hite and McDonald, 2020). Reich (2020) distinguishes four categories of affected workers in the labour market: “remote”, who are working online; “essential”, working in healthcare, cleaning, retail, safety and security; “unpaid”, vulnerable workers losing jobs during the closedown; and “forgotten”, socially excluded groups (migrants, homeless and unemployed), outside public policy support and relief measures. The pandemic has altered our understanding of the value and meaning of work, highlighting the contradiction that essential jobs of cleaners, nurses, retail workers and couriers, offer the lowest economic returns to labour (Hughes *et al.*, 2017; Mazzucato, 2020, 2021; Reich, 2020).

The pandemic has devastated service sectors like hospitality, where the workforce is disproportionately made up of women, young people and migrant workers (PWR Study Consortium, 2021). Rising unemployment is exacerbating the existing duality of labour market with asymmetric regimes of employment and social protection, evident well before the pandemic (Boeri, 2011). The ILO (2020) survey of young people showed a significant decrease in labour market vacancies and longer school-to-work transitions, increasing risk of unemployment for young people, especially those with lower qualifications or employed in clerical support, services, sales, crafts and related trades, as well as increasing incidence of part-time work lowering incomes (ILO, 2020). Pandemics also increase employment opportunities in public security, sanitation and control of customer flows, though these are mainly low-skilled and precarious jobs. Healthcare and social protection are expected to generate new jobs as governments develop capacity to deal with emergencies. Moving work online has reduced obstacles associated with long travel to work for high-skilled workers, but this carries attendant risks of work intensification and outsourcing to low-cost countries (ILO, 2020). Lockdown slowed labour migration temporarily but increasing social and political tensions are expected to increase flows of refugees and economic migrants.

Introduction to special issue

The papers in this Special Issue address questions of labour market integration and reintegration, connecting with many of the issues raised in the above overview. Contributions to this Special Issue tackle labour market integration from the perspective of different geographical regions, target groups of learners, economic sectors and types of education and training. For convenience they can be grouped according to education sectors: initial and continuing VET (including in-company training), adult education and HE.

Two papers discuss various aspects of labour market integration related to initial VET. The Italian VET expert views on competencies related to Industry 4.0 and their role for employment are provided in the paper of Tommasi *et al.*, presenting findings of a qualitative study of challenges for education and training institutions providing Industry 4.0 competencies demanded in the labour market. This study revealed that Industry 4.0 significantly increases the demand for sets of competencies comprising science, technology, engineering and mathematics (STEM) knowledge, technical skills and key competencies. Changes associated with Industry 4.0 have complex, multilevel implications for skills, necessitating corresponding responses from education and training providers to address emerging employment risks wrought by disruptive digital technologies. The paper of Tütlys

et al. demonstrates the implications of neoliberal employment and training policy agendas for the social and institutional ecosystems of VET and labour market integration of at-risk youth in the three Baltic states: Lithuania, Latvia and Estonia. Analysis of the institutional development of VET and employment systems in these countries referring to historical institutionalism and exploring critical junctures in the development of these systems shows key pathways of development of skill formation for at-risk youth in the Baltic countries. Profoundly neoliberal policies in these countries favoured a market-oriented approach to address social exclusion of at-risk youth based on fostering employability to meet immediate skills needs in the economy. At the same time, public assistance to guarantee equal access to VET and employment services has been maintained as part of the welfare system and strengthened by EU support for reforms implemented after EU accession. During the period of recovery from the global economic crisis, systemic support has been offered to socially disadvantaged or at-risk young people in developing their capabilities.

Three papers of this Special Issue tackle the perspective of labour market integration in continuing training, HRD and adult education. Barriers to, and responsibility for, workforce integration of skilled immigrants in Canada are analysed in the paper of Chinzer and Oh. Their paper provides the analysis of employer perspectives on barriers and responsibilities of companies in integrating migrant workers. Their quantitative study conducted in 99 companies located in Ontario shows that employers tend to shift responsibility for integration of migrant workers to state institutions and other stakeholders, applying employment and HRM strategies that bureaucratise labour market integration, as well as discriminating against migrants in such areas as validation of foreign education and previously acquired skills. Celume and Korda offer a literature review of practices and programmes of labour market integration of unemployed persons implemented between 1920 and 2020 and their effects on the employment and re-employment competencies. This literature review identifies three key effects of labour market integration programmes and measures: the dominant area of psychological support; development of technical competencies; and support and assistance in employment and re-employment. Wallis *et al.* present a viewpoint paper on the development of government policy on adult education in England over the past 20 years and its effects on adult and community learning and union-led learning for socially excluded adults. The authors explore the political economy behind a steady reduction in learning opportunities for adults with limited qualifications during the last 20 years.

The remaining three papers explore various issues concerning labour market integration of HE graduates. The paper of Castro-López *et al.* explores students' employment perception as an indicator of HE quality using blended multi-criteria decision-making methods. The survey of 641 students and interviews with HE lecturers from Spain shows the importance of incorporating uncertainty associated with multi-criteria decision processes in analysing employment-related student behaviour. These multi-criteria decision-making processes also include consideration of previous work experience, academic achievement and soft skills developed during education. Such holistic understanding of students' decisions concerning employment and employability helps HE teachers adapt pedagogical practices accordingly, incorporating uncertainty associated with decision-making to optimise employability perception. Tinashe and Chinyamurindi explore challenges experienced by black graduates from rural areas in South Africa transitioning from HE to the labour market, focussing on students' perceived work readiness and assessment of labour market access. A qualitative study using focus groups with 30 final-year students at a historically black university in South Africa helped distinguish key factors affecting rural black students' perceptions of work readiness and their assessment of labour market access, such as language of instruction within the HE system, challenges around access to career counselling and guidance services, irrelevance of the curriculum to the lived experience of black people and challenges inherent within HE institutions. Chang *et al.* explore the implications of an

industry-oriented capstone courses in the technological universities of Taiwan for student employability. Their quasi-experimental study suggests that such courses facilitate developing work-related professional skills and competencies, and foster key competencies and attitudes related to employability.

The high interest shown by potential contributors to this Special Issue from different regions of the world is indicative of increasing relevance of labour market integration for research in education science, economics, sociology and other areas. Current global challenges faced by humanity, including pandemics and other healthcare crises, geopolitical uncertainties and conflict, climate change and increasing energy costs, inevitably focus attention on questions of labour market integration. The changing role of education and training institutions in developing the requisite competencies to support labour market integration needs underpinning with critical, inter-disciplinary and open research such as the papers presented in this Special Issue.

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