

Aligning Education and Workforce Training with Industry Needs: A Perspective on Human Capital Development

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Abstract

The purpose of this paper is to determine the effectiveness of workforce training and education programmes. According to the Global Manufacturing Index, there has been an increase in workforce aging within the manufacturing industry, which led to a decline in the high-tech skilled workforce. There is no doubt that the workforce is facing challenges of advancing technology, globalization, and demographics to name a few. Equally, these forces are challenging institutions, organizations, and industries to respond by supporting the workforce to reskill and upskill constantly. As a result, there is a need to focus on articulating the skills, competencies, and capabilities that will be necessary in a near future, and to determine the effectiveness and flexibility of workforce training and education programmes to establish relevance in a way that addresses life-long learning and work, and that addresses long-term unemployment solutions. The findings are based on a recent literature review that focuses on workforce development and aligning education and training with industry needs. These findings suggest that aligning education and workforce training with industry needs is a worldwide challenge for both developed and developing economies to invest in human capital development, especially with the focus on the manufacturing sector workforce which has been in decline in the past few years. The impact on education, skills, and career development forces institutions to reflect on their education and training programmes as to whether they should respond to the national mandate. The findings will provide some insight to education and training institutions, organizations, industries, workers, students, and job seekers of what is underway and what skills will be needed more, as well as on how to build and sustain a skilled workforce and economic growth while strengthening career pathways and guiding skills attainment for the nation.

Keywords

Workforce training, human capital development, education programmes, digital areas, developed and developing countries

1. Introduction

A nation's education system has a significant impact on its economic performance and the millennial nature of our workforce, who come with their perceptions of a conducive working environment compared to the baby boomers. These types of workforces always change their expectations, which are often influenced by globalization through social media. There is a notion that millennials come from universities with high expectations, seeking purposeful work experience, constant learning and development opportunities, and career progression. If they are underutilized and not developed, they leave. Meanwhile, the baby boomers are more concerned about financial necessities and health improvement. This has also influenced the way organizations now recruit, manage, and support the workforce. The digital era is forcing organizations, industries, and institutions to reposition their strategies to adapt quickly and be more agile to address the challenges.

As a result, there is a need for an appropriate approach to partnership collaboration from all stakeholders to address these challenges collectively. It is evident that all industries and economies are lagging behind in workforce innovation and development. Yet, the gig economy demands an approach that also aligns education and workforce training with industry needs for inclusive economic growth. Thus, this paper explores aligning education and workforce training with industry needs worldwide in both developed and developing economies to invest in human capital development, with the notion that education and skills development are pivotal for economic growth, yet skills shortages have been

a challenge. Notwithstanding Radcliffe's (2022, p.1) questions posed: a) How does a nation's education system relate to its economic performance? b) Why do most workers with college degrees earn so much more than those without degrees? c) How education and training interact with the economy can help explain why some workers, businesses, economies flourish while others falter?" This explorative paper will also attempt to address these questions in order to contextualize the importance of aligning education and workforce training with industry needs, moreover, to sensitize businesses that adaptability is more important than predictability. This paper has been structured as follows: the first section presents the recent literature review which highlights the emphasis on human capital development and aging workforce. Furthermore, the importance of workforce development and academic capacity with the last subsection sensitizing the economies and industries regarding the issues of justice and ethical workforce culture. Thereafter, there is the conclusion and future research section.

2. Recent Studies

The global workforce has been experiencing a drastic challenge fostered by COVID-19 and the fourth industrial revolution (4IR). Although others will argue that 4IR has presented both opportunities and challenges for all sectors, namely, education, public and private. Deloitte's (2020) study suggests that organizations were struggling to attract, recruit, and retain a workforce with the skills required to succeed in the digital era. Meanwhile, during the pandemic, some developed economies like Canada lost more than three million jobs. Furthermore, this study expresses that "leaders will need to anticipate and plan for the skills employees will need to capitalize on the organization's use of AI, and ensure employees have the tools and other enablers required to develop those skills" (Deloitte, 2020, p.3). Interestingly the discussions around the upskilling workforce were also noted through the G20 in 2010 with the emphasis on "a skilled workforce for strong, sustainable and balanced growth" (International Labour Office (ILO), 2010). This report claims that economies are investing in skills development as a strategy for future economic growth.

2.1 Human Capital Development and Aging Workforce

Human capital development is becoming a pillar for sustainable economic growth and the strength for economies to adapt to the global business environment. Hence, it enables innovation and uplifts investments in new technologies to address matters of renewable energy, healthcare systems, infrastructure development, and a platform for knowledge sharing. In recent years, both developed and developing economies have been focusing on skills development and retention, most importantly, revising labor policies to prioritize job growth (ILO, 2010). Although another concerning issue is the aging workforce and the 4IR, which demands a high-tech skilled workforce to bridge the gap in order to match skills with the needs of the industries.

Kayembe and Nel (2019, p.80) explored the challenges and opportunities for education in the 4IR area, and their findings suggest that the implication entails "reinventing education systems and strategic approaches to increase creativity and innovation." These authors concede with ILO (2010) notion that a training strategy is needed to coordinate across government institutions, enterprises, and agencies to support national strategies. In American 2017, it was noted that there were suggestions as well regarding the challenges and opportunities in workforce and labor market information: the mandate was to examine workforce and labor market issues. This report provided an overview of the quality labor market intelligence, which must be "accurate, objective, relevant, timely, and accessible", which is still a challenge to align career choices, curriculum development, and investing in the right training and sets of skills (Workforce Information Advisory Council (WIAC), 2017).

The Confederation of British Industry (CBI) (2019) also noted the challenges of an aging population and the impact of 4IR, which demands broader skillsets to reform. Clearly, there is no doubt that the digital era is changing the world and calls for economies, industries, and all institutions to accelerate the pace of adapting through upskilling and retraining the workforce. In fact, this report suggests that 30% of jobs will be affected by automation by 2030. Upskilling "is a refresh, revisit, or development of skills through continuous learning and training programmes. It allows an individual to keep up-to-date with technological and business developments, such as new compliance policies or working conditions" (CBI, 2019, p.10). Meanwhile, retraining "is the process of learning a new vocation or skillset, so that an individual can adapt new responsibilities, a new role, or a new job or career altogether" (CBI, 2019, p.10). Interestingly, this paper attempts to establish the appropriate approach regarding the alignment of the continuous learning and training programme with industry needs. Hence, the 4IR demands human capital development across the globe, yet, there is a shortage of skills and an aging population, which raises a serious question; How would the economies respond to challenges and opportunities with the aging population?

Frady (2020) proposed a practical workforce development framework that employs strategies and initiatives to boost workforce maturity. The author expressed that the demographic landscape has shifted, as a result, strategies and tactics should be focusing on developing and recruiting a workforce based on the employment needs of an organization or industry. Yet, these strategies are often not simple; hence, it is difficult to find talented and educated job seekers who are precisely suitable or meet the precise requirements of an organization. There is a slight possibility that the global skills shortages could derive from a misalignment or mismatching of the qualifications/knowledge/skills of the job seekers with industry needs. Figure 1 below shows the proposed practical framework of workforce development strategies and initiatives strengthening the mature workforce.

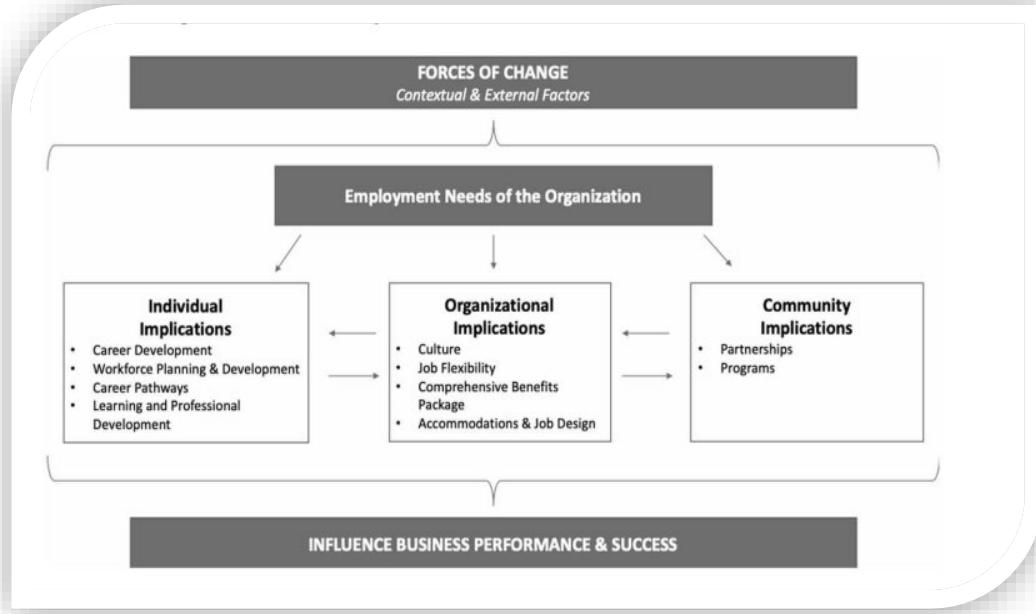


Figure 1. Practical framework of workforce development strategies and initiatives strengthening the mature workforce (Source: Frady, 2020, p.245)

The approach to re-alignment of workforce development is important for the continuous improvement of the organization to build a culture of competitiveness. Equally, it has a direct impact on productivity and influences organizational performance. Fig. 2 depicts these strategies as a force of change that starts with the contextualization of an organization and establishing the external factors that require certain skill sets to be addressed. Frady (2020) claims that external and contextual factors such as local, national, multinational, and global, to name a few, influence organizations, which could also be pronounced as diversity in the workplace. The aspect of human capital development formation is another matter that needs to be explored to address the issue of individualism. Seemingly, the jobseekers recruited become a responsibility of an organization to assist with career development planning, advise with career pathways, and learning and professional development. Eventually, to integrate them into the organizational environment such as the culture, benefits, the nature of the job, and the sense of belonging. Implementing workforce development strategies and initiatives requires collaboration/partnerships with other institutions to facilitate it successfully.

Recent study indicates that there are three variables that are affecting workforce development, namely, underqualification, overqualification, and field of mismatch (OECD, 2018).

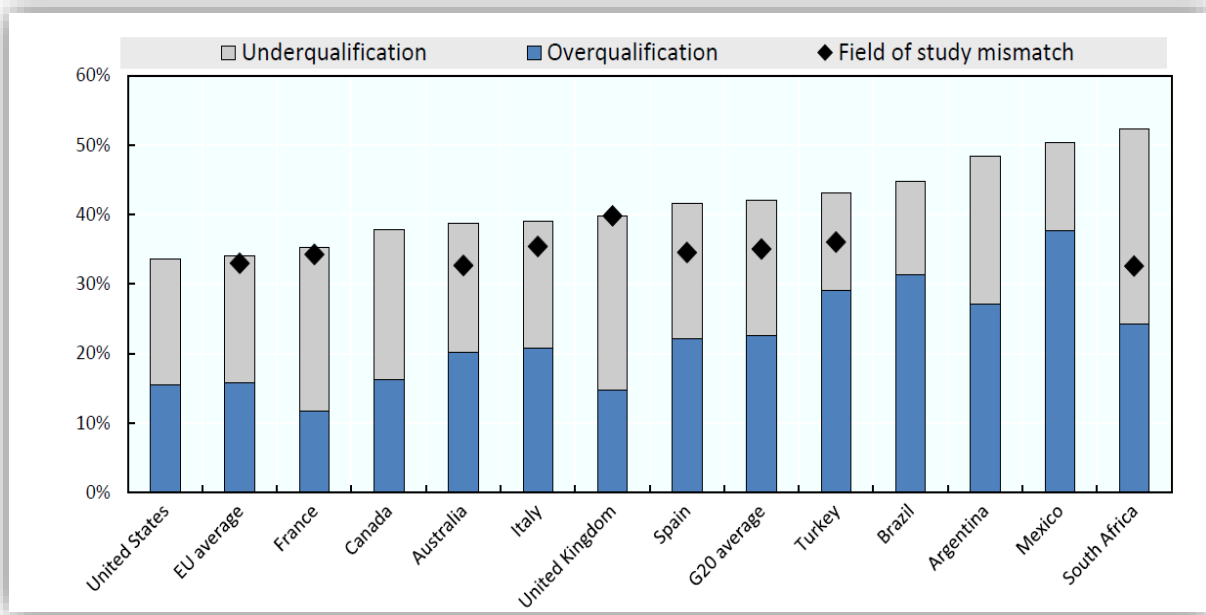


Figure 2. Qualification and field-of-study mismatch in G20 countries (Source: OECD, 2018)

Figure 2 illustrates the economies that are struggling with skills change and qualification mismatch. These results suggest that qualification mismatch is more pronounced in Turkey, Argentina, Mexico, and South Africa. Whereas the United States, is experiencing both under-qualification and over-qualification; however, the most interesting is the United Kingdom, which has the highest number of under-qualification and mismatch, which raises the question of whether the workforce doesn't need qualifications to secure jobs. According to the OECD (2018, n.d) report, "43% of workers are either over-or under-qualified relative to the qualification level that is required in their job." The imbalance is so concerning considering that the global business environment is so turbulent, and it calls for workforce development to address the skills shortage, meanwhile, we still have an overqualified workforce that is underutilized.

It seems as if there is an economic inequality that was observed by Remington (2020) in Maine, where he argues that income has been the main factor of inequality whereby it creates a big gap between the rich and poor. The following elements were noted, namely: "wages and incomes in the middle and lower parts of the distribution are stagnant and "weakening of collective labor bargaining power" (Remington, 2020, p.19). The implications of these issues could be detrimental to some households, hence this author's results point out one of the critical outcomes that "it is likelier that individuals and their offspring will remain in the same income bracket well into the future", meanwhile, the rich "families who enjoy the benefits of good incomes, stable employment, safe neighborhoods, and good healthcare and education give their children a much greater advantage starting out in life than can families lacking those resources". Workforce development and academic capacity-building are imperative to address inequality and justice

2.2 Workforce Development and Academic Capacity

Economies and industries need to invest in workforce development and capacity building as much as they have been investing in advanced technologies and building infrastructures. Meanwhile, the main pivotal resources are not developed to strengthen the organization's capabilities to build and sustain competitiveness. Most importantly, to develop an ability to adapt within the global marketplace. It is important to point out the factors that economies and industries are overlooking, the world is changing so fast that humans can anticipate it. The first lesson was the COVID-19 pandemic, which took the world by surprise, yet economies and industries were forced to adapt quickly. Unfortunately, industries that were not ready for change or had sufficient resources couldn't survive. On the other hand, some economies are trying to recover while dealing with shortage of skills. Notwithstanding, the fact that workforce aging is affecting average output per worker and the depreciation of knowledge (Aiyar, Ebeke, & Shao, 2016). Aiyar et al., (2016) argue that "a more mature labor force will have a higher average level of work experience" with a significant impact on productivity.

However, over time these old workers find it difficult to adapt, hence their study suggests that senior workers have a lower level of innovation. The impact might differ as well per profession and occupation, moreover, there is a notion that “the increased penetration of information technologies might place older workers at a disadvantage” (Aiyar et al., 2016, p. 6). Nonetheless, upskilling and retraining the workforce is required to bridge these gaps. Improving education and workforce development can be facilitated through partnerships with different stakeholders/institutions, hence some of the skill development programme needs to be customized as per the needs of an organization and its nature. Additionally, the call for re-alignment through collaboration will assist economies by “articulating career pathways from schools to work, and fostering cross-sector partnerships that oversee state and regional workforce initiatives” (Department of Labour, 2020, p.1). This is precisely what this paper advocate to bridge the gaps and build a culture of sustainability, which Zaber, Karoly and Whipkey (2019) believe requires new strategies and modification of policies in order to address these labor issues. Their findings suggest that there are shortfalls:

- “Clear pathways and supports for workers who need retraining
- Employees struggling to find workers with 21st-century skills
- The increased risk on some workers because of the changing nature of work
- The slow Evolution of educational institutions” (Zaber et al., 2019, p.2)

The shortfalls show the lack of systemic support for the teaching and learning of society and the workforce (Hora et al., 2016), which is continuing in the 21st century.

2.3 Justice and Ethical Workplace culture

The workforce still faces issues of work ethic and ethical workplace culture, which oftentimes tend to affect their productivity. The widening gap in income and inequality between rich and poor as well is concerning when it comes to workforce development planning. There is a lack of appropriate ethical system(s) in some industries, particularly in Africa and South Africa (Nicolaidis, 2009). The findings of this study suggest that the African business environment is under scrutiny due to unethical business practices such as self-preservation, narcissistic cultural orientations, a sense of entitlement, “have-arrived” syndrome, nepotism, and corruption to name a few. In light of the above, the amendments of policies are imperative to address the injustice of unethical practices, which appears as if the leaders have no interest in workforce development but rather in their own benefits and self-preservation. Clearly, there is a lack of ethical workplace culture that governs the people and holds the leaders accountable. These are the factors that are affecting the alignment of education and training of the workforce with industry needs, and additionally, the human capital development.

3. Conclusion and future research

The human capital development and workforce aging is a challenge globally despite all the interventions that other economies have been implementing. On the other hand, is digitalization era as well that forcing organizations, industries, and institutions to reposition their strategies to adapt quickly while attending to issues of under-over-qualified workforce. It is imperative that future research investigate there factors contributing to lack of workforce upskilling and retraining. Most importantly, how to bridge the gap of inequality income and the unethical business practices. The African business ethical systems require serious attention from the policymakers and the leaderships. Hence corruption, bribery, self-preservation hinders social economic development and economic growth.

References

- WIAC, in: Challenges and opportunities in workforce and labor market information. Prepared by Workforce Information Advisory Council, 2017.
- Deloitte, in: The upskilling imperative, Building a future-ready workforce for the AI age.
- C. Kayembe, D. Nel, in: Challenges and opportunities for education in the Fourth Industrial Revolution. African Journal of Public Affairs, Vol (11) 3, pp.79 – 93, 2015.
- R. Ciutiene, and R. Railaite, in: Challenges of managing an ageing workforce. Proceedings of the 19th International Scientific Conference; Economics and Management 2014, ICEM, 23-25, 2015. Riga, Latvia. Procedia of Social and Behavioral Sciences.
- A. M . G. L . R. J. S. Pinto, S. C. M. da Ramos, and S. M. M. D. Nunes, in: Managing an aging workforce: What is the value of human resource management practices for different age groups of workers? TEKHNE – Review of Applied Management Studies, 2015, <http://dx.doi.org/10.1016/j.tekhne.2015.01.007>
- R. Ciutiene, and R. Railaite, in: A development of human capital in the context of an aging population. Proceedings of the 20th of International Scientific Conference Economics and Management – 2015 (ICEM-2015), Procedia – Social and Behavioural 213, pp.753-757, 2015.
- M. T. Hora, R. J. Benbow, and A. K. Oleson, in: Beyond the skills gap: How the lack of systemic supports for teaching and learning undermines employer, student, and societal interests. (WCER Working Paper no.2016.9). Retrieved from University of Wisconsin-Madison, Wisconsin Center for Education Research website: <https://files.eric.ed.gov/fulltext/ED580842.pdf>
- A. Nicolaides, in: The paradox of Business Ethics, Quality and Leadership: the path to business sustainability. African Journal of Hospitality, Tourism and Leisure, Vol. 4(2), 2015 Special Edition
- US Department of Labor, in: Improve education and workforce development. Retrieved from: https://www.cmap.illinois.gov/documents/10180/19155/Education-and-Workforce-Development_10-6-2010.pdf/95287875-a257-4947-82d3-0d3c32b96c24_2010.
- A. Nicolaides, in: Business Ethics in Africa. Journal of Contemporary Management, Vol 6, pp.490-501, 2009.
- S. Aiyar, C. Ebeke, X. Shao, in: The impact of workforce aging on European Productivity. International Monetary Fund (IMF) working paper, 2020.
- M. A. Zaber, L. A. Karoly, K. Whipkey, in: Reimagining the Workforce Development and Employment System for the 21st Century and Beyond, 2018.

Biographies

Dr. Nelson Sizwe Madonsela is currently a Senior Lecturer and Deputy Head at the Department of Quality and Operations Management, University of Johannesburg (UJ), South Africa. He served as a chair of the Society for Operations Management in Africa (SOMA). He holds a doctoral degree (Ph.D. in Engineering Management) from UJ and obtained his Master of Technology degree in Operations Management from UJ. He received a Bachelor of Technology degree in Quality from the University of South Africa (UNISA) and a National Diploma in Information Technology (Software Development) from Tshwane University of Technology (TUT). His research lies around Business and Artificial Intelligence, and operation management with a particular focus on operational excellence.

He also focuses on areas such as quality management systems, digital transformation, and project management. He has presented at both local and international conferences and has authored book chapters. He has helped in providing high-level strategic and technical guidance in the areas of quality management and advanced project management to upskill the workforce amongst industries within South Africa. Additionally, he also serves as a National Advisor on curriculum development and teaching and learning methods, and best practices in the quality and operations management domain in several universities in South Africa.