A Study on Reskilling Needs Post Pandemic: Special Reference to Edtech Industry

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Abstract

Life is a cycle, what goes up, comes back. This is much experienced by this generation of students in their early part of life, preparing for a flexible adaptation for the evolving future. This paper aims to review research publications in educational and industrial settings that envisage making the students and teachers to benefit from the effort yielded knowledge and skills through online learning. Online learning, also known as e-learning has propped up the evolution of virtual universities to make educational experiences become customized to the needs of the students as well as for institutions which wanted to come out with new courses that are of demand in the employment market. Investment in skills is likely to have a positive effect on productivity levels and growth rates. The COVID-19 pandemic has caused significant disruption to the education system and to workplace training. On the basis of experience of previous recessions, the most immediate impacts of the lockdown of the education system and the reduction in output in sectors such as hospitality, are likely to be felt by young people. In turn they are at risk of longer-term 'scarring' if subject to prolonged unemployment.

Keywords: Pandemic, Skills, Reskilling, Ed-Tech

Introduction

The advancements in technology and changing employment patterns reaffirms that a new world of work has emerged. COVID-19 has given a new dimension to the already changing workspaces. This fuels the need for employability training aligning with new realities. According to an analysis by the National Skill Development Corporation (NSDC), about 60 million people between the ages of 15 and 30 are expected to join India's labor force by 2023. The preparation towards this and the opportunities became complicated as the pandemic has shifted the sectoral priorities. The existing employability training needs an urgent transition the new realities. This starts by understanding the gaps in the existing training framework and being prepared for the changes and evolving opportunities.

The impact of the pandemic on the looming crisis in higher education and workforce preparedness. Workforce preparedness is an outcome of higher education that impacts the current and future nature of work and education (Jackson et al. 2016).

Even before the pandemic, industry leaders expressed concerns that those graduating from the educational system lacked the skills required by the labor market (Cummins et al. 2019). Although these concerns included recent graduates and new hires, many industry leaders believed the problem extended to their existing workforce as well, claiming that at least a quarter of their employees would need to be retrained or replaced due to advances in automation or digitization (Ilanes et al. 2018).

Hoping to narrow the skills gap, investment in education continues to increase in both the formal university

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system and the corporate sector. Research shows that, by 2029, total U.S. spending on higher education (four-year college and up) will grow to $540 billion (in 2019 dollars), a 15 percent increase from 2019, while employee training (apprenticeships, certifications, and licenses), paid for by organizations through corporate universities, will grow to more than $1 trillion, up by over 30 percent from 2019 (Ip and Morenne 2020). Underpinning higher education and corporate universities is the educational technology (EdTech) sector, which also saw significant investments of billions of dollars in 2019 (Dua et al. 2020).

Given these changes, we look at the crisis in higher education from a broader level by including corporate universities and EdTech in addition to the traditional university system. We posit that instead of a siloed consideration of each actor—EdTech, corporate universities, and traditional universities—they should be looked upon as a collective unit. This integrated perspective will facilitate a holistic framing of the higher education crisis and help propose ideas for responding in a connected and congruent 3 manner. The ultimate purpose of these actors is to ensure optimal workforce preparedness to address needs of the future workplaces; therefore, all three play a role in responding to the crisis in higher education.

Literature Review

Kotsiou, A., Fajardo-Tovar, D. D., Cowhitt, T., Major, L., & Wegerif, R (2022): Many agree that education needs new goals that reflect the demands of the future. These are often called 'Future Skills', referring to the knowledge, attitudes, values, skills, and competencies intended to prepare learners for the future. The need to teach such Future Skills is often cited, justified by the perception that the future will present new challenges for society. Future Skills, often created and published without consensus, use hundreds of terms to refer to such skills and competencies, presenting a barrier to discussion of education futures. If we are to design a better future for education, then a cohesive analysis must link and synthesize these isolated frameworks published worldwide. This scoping review utilizes thematic analysis and Social Network Analysis to develop meta-categories representing clusters of future skills reported by extant research. Having started with 99 frameworks identified following a systematic search of the literature, which together included 341 different terms, our review identifies nine categories that provide a valuable overview of the field to inform the conceptualization of Future Skills. Educational practitioners, human resource professionals, policy makers, and educational technology developers can use the meta-categories to priorities the integration of certain skills into teaching, learning, and retraining. This will help ensure that students and professionals are better prepared to thrive in an uncertain future.

Lands, A., & Pasha, C. (2021): Online learning platforms (like Coursera) are an example of responsive, agile, scalable workforce development that can adapt at the speed of business and improve on delivery to overcome many of the previous challenges of instructor-led or classroom training for working adults and the out-of-work. As evidenced by the company's response to the COVID-19 pandemic, these learning technologies not only support operational continuity across sectors, but also help learners themselves sustain focus on their personal goals and cultivate well-being during a stressful episode. This helps them minimize lapses in momentum and stave off skills erosion, which is now becoming essential to achieve a robust economic recovery.

V Padmaja, K Mukul (2021): The opportunities and challenges faced by Higher Education Institutions (HEIs) in recent times due to technological disruptions have forced both academia and industry to realign their strategies for survival and growth. With the acceleration of disruption in higher education, it has now become imperative for educators to constantly upskill and reskill to meet the needs and requirements of the future of work in the digital age. Technological advancement is an unstoppable wave and the lack of relevant skills to handle the disruptions in higher education will become a huge challenge if not addressed promptly. This is the

new phase of Education 4.0, where HEIs are aligning themselves and preparing both faculty as well as students to embrace the changes happening in the teaching-learning processes. Today, the biggest challenge is skills shortage, and the biggest question is how to bridge this skill gap. Upskilling is the way forward and HEIs need to become equipped to handle technological disruptions by creating a skill-focused environment. This chapter focuses on multifaceted strategies to be adopted by HEIs to deal with the emerging issues related to teaching-learning processes, technological interventions, curriculum overhaul, experiential learning, multidisciplinary approach, continuous innovations and digitalization. Also, strategic pragmatism is expected to resolve issues about skill gaps and skill upgradation. In the current evolving phase of Education Technology (Ed-Tech), both faculty and students need to be adept in adjusting to the ever-changing requirements of the teaching- learning process. Skills, such as critical thinking, innovative and novel perspectives, emotional intelligence (EI), transformational leadership, systems thinking, and design thinking will soon become crucial for survival in HEIs. To prepare and train leaders for future workplaces, HEIs must align their teaching, pedagogy and curriculum accordingly. Skill advancement of educators must go on parallelly to the skill evolutions and requirements of new-age workplaces.

- **Hamburg, I (2021):** Covid-19, following recession in 2020 and digitalization have created uncertain labor market and required rapidly change of work and education. The period of opportunity to reskill workers i.e.to have digital skills and other ones which are necessary in job and life has become shorter due to the newly constrained labor market. Education is an important component of poverty reduction efforts and economic and social development. The use of digital approaches in entrepreneurship education is necessary to prepare students for technological change, particularly digitalization nowadays; until now a digital based entrepreneurship education curriculum has seen as critical. Lifelong education is a key factor for improving knowledge, competence, working possibilities and the quality of life. The intensive use of digital technologies during the Covid-19 crisis and after it is a substantial impulse for entrepreneurship education and digital lifelong learning, i.e., lifelong learning via e-learning platforms. This paper firstly presents some requirements for entrepreneurship education to scope with disruptions due to Covid-19 and requirements like the use of digital technologies and reskilling of employees. Secondly some digital approaches within lifelong learning and learning methods used within entrepreneurship education are given as well as some examples. Conclusions and recommendations are proposed.

- **Dam, N. V. (2021):** The pandemic has accelerated existing organizational trends. Many leaders around the world were surprised by the level of their workforce's resilience—the ability of people to change their way of working and build new digital skills, virtually overnight. Indeed, today we are already living in the future of work—a future most of us imagined would take another decade to reach.

- **Enfield, S (2021):** Global impacts on employment and the labor market with the particular impact for the very high numbers of youth, women, migrant workers, and people with disabilities who are more likely to be employed in the informal sector. There has been a high negative impact on the informal sector and for precariously employed groups. The informal labor market is largest in low and middle-income countries and engages 2 billion workers (62 percent) of the global workforce (currently around 3.3 billion). Particularly in low- and middle-income countries, hard-hit sectors have a high proportion of workers in informal employment and workers with limited access to health services and social protection. Economic contractions are particularly challenging for micro, small, and medium enterprises to weather. Reduced working hours and staff reductions both increase worker poverty and hardship. Women, migrant workers, and youth form a major part of the workforce in the informal economy since they are more likely to work in these vulnerable, low-paying informal jobs where there are few protections, and they are not reached by government support measures. Young people have been affected in two ways as many have had their education interrupted; those in work these

early years of employment (with its continued important learning on the job) have been interrupted or in some cases ended.

- **Sherino, M., & Bhatta, N. M. K. (2021):** In the era of the transition towards the 'new normal', rapidity and adaptability hold the key to determining the pace of success. It becomes all the more imperative to decide the course of action or approach to be adopted to fast track resilience to competitive advantage for growth. Continuous or lifelong learning has assumed prominence as never before in asserting one's suitability to a changing job landscape. In order to prove top-notch in the job market, there is a need for building up on information technology skills, especially those that seem 'essential' in the new era. These skills 1 are termed as 'new-collar' skills in the modern era. This paper illustrates a field study conducted by the authors to examine how the IT Skills Building ecosystem is evolving, how skills initiatives are contributing to the development of these new-collar skills and, in turn to employability in the IT sector. Indian Skills Building ecosystem was chosen for the purpose of the study with the assumption that since the bulk of the global IT industry is in India, the study can be successfully extrapolated to the rest of the world with necessary local customization. A survey of 600 graduates of IT/ITeS skills development programs in India was undertaken to get their views on employability skills and what it takes to sustain in the information technology industry. The results point to the impact of essential IT skills in driving employability further, identifying the high impact factors that influence the Skills building ecosystem and the need for focusing on skilling, reskilling, and upskilling in those high impact skills to bring about growth in the new era. Skilling, Reskilling and Upskilling are highlighted as the three-pronged strategy for people worldwide to emerge stronger and prove adept in the new transition post-pandemic.

- **Govindani, B., Jasotani, K., & Bhargava, A. (2021):** exploring effectiveness of online training for employees. It is imperative to know what the trainees prefer, when it comes to it, giving focus to Work-life Balance. Thereby, employees were administered a structured questionnaire to comprehend their likelihood of opting for online training vs offline training.

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- **Wong, S., Kwok, V., Kwong, T., & Lau, R (2020):** Applied education and lifelong learning are integral towards delivering more dynamic and comprehensive education for every global citizen by 2050. If society wants to equip its learners with the requisite knowledge, skills, and guidance to navigate the turbulent shifts of the 21st century, then education, as the linchpin of fostering tomorrow's talent, must in turn also become more enterprising and inclusive.

- **Almeida, F., Santos, J. D., & Monteiro, J. A. (2020):** The repercussions and pace of technological disruption in organizations are increasing and have been accelerated by COVID-19. Companies need to be prepared for this challenge, and to this end, they need to foster a culture of innovation that involves the company's employees in this process. In fact, COVID-19 has accelerated the processes of digital transformation not only in companies but also in individuals and public entities. The enormous challenge for managers is to get involved in this change, while trying to keep the business running, facing a different and uncertain future. Furthermore, it is relevant to highlight that the three key aspects related to labor/society, market/sales, and technology are strongly interconnected. Digitization of companies will increase the importance given to the digital channels of marketing and sales of companies. It will also foster teleworking and consumption of technological products as

more people will interact using hybrid communication mechanisms accessible from anywhere, and not exclusively in the physical environment of companies and their homes.

- **Azmi, I. M. A. G. (2020):** curriculum structure and instructional design must also be revisited to ready the graduate to face the onslaught of technological revolution. Through content analysis of relevant literature, this paper analyses the myriad ways in which legal education has been impacted by IR4.0 both in terms of the ˜body of knowledge as well as the required for law students to survive in the era of automatous systems. The paper is structured to first explain the concept of IR4.0 and how some national countries leverage the digital technology to improve their economy or facilitate social transformation. The paper proceeds with a discussion of how autonomous system, artificial intelligence and data analytics can enhance the instructional design of teaching and researching law. In terms of the body of knowledge, most of the legal principles drawn for the brick-and-mortar environment are no longer relevant in the IR4.0 era. The paper reveals that the traditional method that focuses on the training of law graduates to think like a lawyer by understanding the reasoning in the judgement of cases or the preparation of conveyancing and court documents are no longer relevant in the IR4.0 era as these activities could easily be undertaken by bots. Instead, law students should be imparted with a multiplicity of human skills that could not be performed by autonomous systems such as those involving conscience, high level thinking, and emotion such as mediation, negotiation, counselling, court prosecution, advocacy, witness examination, plea mitigation as well as social skills, resource management skills, technical skills and most importantly system skills.

- **Escueta, M., & Holloway, S. (2019):** Increasing demand for educational technology (Ed Tech) products and services has coincided with rapid growth in the marketplace, sparking opportunity for both innovation and entrepreneurship. This paper seeks to advise ed tech entrepreneurs on what motivates investors to support certain products over others, the importance of balancing financial returns (profit) and educational outcomes (purpose), and best practices in planning and execution to help ensure success when taking their products to market.

- **Notaris, D. D. (2019):** MOOCs are what public and private players are currently using to train their employees and workers. For that reason, producing a MOOC requires high attention to its design and must involve specialized experts with dedicated skills. This contribution reports the production workflow at Federica, the leading MOOC platform in Italy and one of the top MOOC providers in Europe, and also describes the experts and skills engaged in it.

- **Alvarez, M., Osborne, T. F., Mayeu, K., Cullen, K., Masterson, E., & Stevenson, M.(2018):**The goal was to determine if there was a demand for this type of "alternative" learning experience in the market to see if it could be sustainable within the current higher education framework at the University. Through rigorous research, including both internal and external interviews, multiple pilots, and testing, the DCL sought to answer these questions and determine if micro-credentials could add more diversity to the SNHU catalog. In this chapter, the authors offer insight and experience, including findings from various pilots and learner feedback, to help inform other institutions that may be considering offering micro-credentials.

- **Kumar, R., & Pande, N. (2017):** Blended learning has emerged as a viable and increasingly popular option among working professionals. This research paper analyses the conceptual and contextual relevance of blended learning for working professionals and makes three notable contributions. Firstly, it develops a learning paradigm relevant to working professionals, whose learning needs are context-centric, skills-focused, situation-specific, peer-dependent and action- oriented. Secondly, the paper operationalizes this learning paradigm through an integrative framework, the blended learning ecosystem. And finally, the paper

summarizes institutional, faculty-related, student-specific and pedagogical variables considered as key success factors for effective blended learning experience.

- **Rafiei, N., & Davari, F. (2015):** Human performance in organizations reflects on the knowledge, skills, behaviors, and values. Since the abilities and skills will help the organization to better performance and productivity, any expenditure on education and development is a long-term investment that as long as the organization can benefit from it. The aim of this research is assessment of influence of structured workshops by resource management at different levels of acquaintance, skills, updates, and upgrades in field of teaching before teaching for invited professors and tuition.

- **McKay, E., & Izard, J (2014):** The government sector relies on continual employee reskilling. This paper outlines research to facilitate cost effective eLearning using advanced information communications technology (ICT) tools to enhance work-place training with assured predictable outcomes. The most desirable approach is to personalize an employee's knowledge development through flexible online learning. Improved information technology (IT) governance will serve to motivate disinterested trainees and energize frustrated management. Multi-disciplined specialists are required to resolve the factional dilemmas of corporate IT resource ownership. The timeliness of our research project will highlight desirable change management issues to improve efficiencies and effectiveness of existing IT training resources.

- **Djumalieva, J., & Sleeman, C. (2014):** occupations which we are more certain will have poor prospects, are more likely to require a digital skill than the occupations that are most likely to grow by 2030. This is because the relationship between the digital intensity of an occupation and its potential for growth is not straightforward: there are occupations that are currently not digitally intensive but are expected to grow in the next 10-15 years, as varied as teachers and chefs. The type of digital skills needed in a job also makes a difference: the digital skills most likely to be needed in growing occupations are ones that are used in non-routine tasks, problem-solving and the creation of digital outputs.

Research Methodology

Research Design

For the study **descriptive research design** is followed which describes the characteristics in detail.

Secondary Data:

For the purpose of this study, secondary data has been used from reports, journals, websites, previously published papers and articles duly mentioned in the bibliography in order to provide insights into the research study.

Data collection methodology:

A research design is a set of circumstances for data collecting and analysis that tries to combine relevance to the study goal with ease of use. Descriptive research can be described as either quantitative or qualitative research approaches, but it frequently combines the two in the same study. The word descriptive research refers to the type of research question, design, and data analysis that will be used to investigate a certain subject. Inferential statistics attempt to determine cause and effect, whereas descriptive statistics describe what is. In order to complete a review of the reskilling needs post pandemic special reference to edtech industry, this chapter describes our study's methodology.

It is used **secondary data**. Secondary data refers to information that is already available, i.e., information that has previously been collected and gained by someone else. When a researcher uses secondary data, he or she

must look into several sources to see where they may get it. Secondary data can be either published or unpublished information.

Discussion

The crux and findings of the research papers consulted is summarized as below:

Sl.No.	Types of Paper	Skill Emphasized
1	Reskill to Rebuild: Coursera's Global Partnership with Government to Support Workforce Recovery at Scale Alison Lands and Chad Pasha Case Study (2021)	responsive, agile, adaptability
2	Upskilling and Reskilling in the Digital Age V Padmaja, K Mukul Research paper (2021)	critical thinking, innovative and novel perspectives, emotional intelligence (EI), transformational leadership, systems thinking, and design thinking
3	A scoping review of Future Skills frameworks Kotsiou, A., Fajardo- Tovar, D. D., Cowhitt, T., Major, L., & Wegerif, R. Research Paper (2021)	creative thinking, skills caring, compassion, and sensitivity
4	Reskilling within Digital Lifelong Learning and Entrepreneurship in Vocational Education I Hamburg original paper (2021)	Tech Savvy
5	The Role of Business Education in Supporting the Future of Work Dam, N. V. case study (2021)	adaptability, digital skills
6	Covid-19 Impact on Employment and Skills for the Labor Market Enfield, S. Research paper (2021)	online education, green economy, digitalization
7	Applied Education and Lifelong Learning in Revolutionizing Education for the 21st Century Wong, S., Kwok, V., Kwong, T., & Lau, R. case study (2020)	Individuality, Accessibility, and Inclusivity
8	Online training design: Workforce reskilling in government agencies McKay, E., & Izard, J. Research Paper (2014)	Multi-disciplined, Cross Functionality
9	Investment in Education Technology Across the Globe l Escueta, M., & Holloway, S. research paper (2019)	Innovativeness
10	Technology-mediated learning paradigm and the blended learning ecosystem: what works for working professionals? Kumar, R., & Pande, N. Case study (2017)	Interpersonal skills, Adaptability, Action orientation
11	A Three-Pronged Strategy for Emerging in the Next Normal Ahead Sherino, M., & Bhatta, N. M. K. Article (2021)	competitive advantage for growth

Sl.No.	Types of Paper	Skill Emphasized
12	Laying the Foundation for a Micro-Credential Strategy Alvarez, M., Osborne, T. F., Mayeu, K., Cullen, K., Masterson, E., & Stevenson, M. Research paper (2018)	cross-functionally
13	Enhancing teaching skills Rafiei, N., & Davari, F. case study (2016)	technical expertise
14	Challenges for legal education in the era of i.r.4.0 Azmi, I. M. A. G. Article (2020)	conscience, high level thinking, social skills, resource management skills, technical skills.
15	Reskilling Higher Education Professionals Notaris, D. D. research paper (2019)	experts' skills
16	The Reshaping of The Human Skills for Double Disruption – Covid-19 & Technology Almeida, F., Santos, J. D., & Monteiro, J. A. case study (2020)	Innovativeness technology
17	Effectiveness of Online Training for Employees Govindani, B., Jasotani, K., & Bhargava, A. case study (2021)	knowledge and skill retention,
18	What are the digital skills that will be needed in the future? Djumalieva, J., & Sleeman, Case study (2014)	Cognitive flexibility, Judgement and decision-making, Emotional and social intelligence

Following are the most used skill sets that are used in the recent times:

Functional Skills	**Competencies Skills**	**Technical Skills**
Interpersonal skills (6)	Critical Thinking (8)	Experts (6)
Time management (8)	Collaboration (6)	Tech savy (10)
Adaptability (10)	Sociability (8)	Digitalization (8)
Innovations (9)	Entrepreneurship (4)	Design thinking (3)
Cognitive (6)	Creative thinking (8)	New languages (6)
Multidisciplinary (6)	Ability to learn (10)	System thinking (6)

From the above **table most frequently used skill in covid 19** period adaptability, tech savy, ability to learn, innovativeness, and the **least skill used in covid 19 period** system thinking, entrepreneurship and lastly the design thinking.

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