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Virtual HRD's Role in Crisis and the Post Covid-19 Professional Lifeworld: Accelerating Skills for Digital Transformation

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Abstract

Problem: The Covid-19 pandemic brought unprecedented crisis to a world already undergoing digital transformation. Millions of people began working virtually to prevent the spread of disease and to maintain business continuity, suddenly participating in virtual human resource development (VHRD) and alternative work strategies that helped organizations adapt to current challenges and prepare for future disruption. The purpose of this article is to analyze VHRD's role in the crisis and the transition to a new era marked by further disruption and change.

Solution: This article provides a primer for understanding the environmental perspective of VHRD, analyzes reskilling and upskilling trends during the pandemic and for early stages of the fourth industrial revolution, and addresses learning, adaptation, cultural, workplace, and economic implications. We argue that many of the changes to the workplace were already underway, but the pandemic has accelerated transformation. For this reason, organizations must anticipate more digital transformation, strategize VHRD, and leverage learning assets to prepare for the future.

Audience: This article is of interest to those helping their organizations to not only recover from crisis, but to thrive in a new era of work that is being fundamentally transformed by technology. The audience includes organizational leaders, HRD professionals, workers, scholars, as well school personnel seeking to prepare learners for future career conditions.

Virtual HRD's Role in Crisis and the Post Covid-19 Professional Lifeworld: Accelerating

Skills for Digital Transformation

Internet-age technology has been reshaping work and learning for several decades, theorized in the field under virtual human resource development (VHRD) inquiry. More recently, Artificial Intelligence (AI) and the Internet of Things (IoT) have become disruptive drivers of change, though initially limited as the wave of technological innovation crests with new workplace skills needed to recover from disappearing jobs due to automation and economic disruption (Bennett, 2018); this groundswell requires reskilling – that is, to prepare employees for new jobs and career changes – and upskilling – that is, to prepare employees for advancing within their current career tracks. The developing Gig economy thrives on freelance work and transient, often temporary assignments with multiple clients (Istrate & Harris, 2017), leading to questions about how to define employees and contractors, apply employment laws across multiple jurisdictions, and how to balance career flexibility with corporate aims.

Then along came a novel coronavirus: Covid-19.

Previously, VHRD conversations at conferences discussed the value of Internet and 3D technology for learning about uncommon diseases that medical personnel rarely see in practice and for a potential health crisis, such as field hospital simulation or sharing knowledge of a novel disease at the point of outbreak, a black swan event that we hoped would never materialize, but recognized the potentially catastrophic scenario. In the U.S., the impact of Covid-19 is now estimated to be $16 trillion with a deepening economic recession involving more than 60 million unemployment claims, numbers far exceeding the 1982 downturn (Cutler & Summers, 2020), and globally over a million lives lost. Coincidentally during this time – and perhaps due in part to distress from torn social fabric and economic hardship – civil unrest further damaged the

business/employment apparatus and generated mounting calls for social reform.

The world experienced VHRD with technology so pivotal to business continuity and education in the pandemic. VHRD has been an area of inquiry on the outskirts moving to the center of organizational practice. The year 2020 marks the point many new employers and professionals were thrust into the world of VHRD to accommodate work-from-home mandates and alternative work strategies (Bennett, 2009). The pandemic brought new division between essential and non-essential workers, sanitation practices, lay-offs and reduced hours, supply chain interruption, rapid innovation, work-life balance issues, and disruptive modes of learning and problem-solving, not to mention a time of great anxiety and much-needed empathy for the most vulnerable. In retrospect, the world-as-we-knew-it ended with a dividing line between pre- and post-Covid-19 historical eras, and we are just beginning to project the post-pandemic reality at the same time as reconciling great civil conflict.

We argue in this article that many of the changes to the workplace were already underway due to digital transformation, and the pandemic simply accelerated this transition, as well as brought a few unique challenges that may eventually become extinct or remain embedded in civic culture, like social distancing. The purpose of this article is to analyze VHRD's role in the crisis and the transition to a new era marked by further disruption and change. In this article we briefly describe VHRD, analyze reskilling and upskilling trends during the pandemic, and address learning, cultural, workplace, and economic implications.

Primer on Virtual HRD

VHRD is no longer in the realm of theory, though the roots of it were based in research from the earliest days (Bennett & McWhorter, 2014; McWhorter & Bennett, 2010). Many definitional elements are plainly observed in the pandemic response. The backbone of VHRD is

an organizational intranet or those internal systems that network various technologies, digital

objects, knowledge, applications and people together; it is defined as "a media-rich and

culturally relevant web[bed] environment that strategically improves expertise, performance,

innovation, and community building through formal and informal learning" (Bennett, 2009, p.

365). Unlike traditional HRD, it is an environmental perspective in which many development

activities occur enabled by technology.

A webbed environment in this definition means networked technology rather than

synonymous with the Internet or Web. As such there can be many intranets in use of varying

degrees of size and reach, including personal human intranets (Bennett, 2018). Growth of

intranets for learning and development was anticipated in VHRD (Bennett, 2009). According to

a Linkedin Learning (2020) survey, 56% of learning and development professionals use an

employee intranet to promote programs, and it is also the top venue for organizational members

to seek out learning opportunities. *Virtual HR* was conceptualized as an umbrella term that

included management and development from an ecological perspective that includes harmonies

and constraints where these functions exist in the same system or impact one another (Bennett &

Bierema, 2010). Because the environment is virtual, it is literally unlimited and expandable into

many geographically distributed places. Businesses practiced this in the pandemic with

teleconferencing software-connected business professionals working from a multitude of home

offices and kitchen tables.

The definition of VHRD is to an extent aspirational, recognizes the cultural and social

organizational characteristics embedded in and learned through rich technologies (Bennett,

2014a, 2014b), and predicated on both formal and informal learning (Bennett, 2009).

Increasingly, it is inclusive of AI and machine learning as a form of organizational learning in

addition to human learning (Bennett & McWhorter, 2017a). Learning is critical for performance, expertise development, innovation, and community building that are strategically aligned with professional and organizational objectives (Bennett, 2009, 2014a).

VHRD has long argued that HRD professionals need to help design technology – and we take a very broad view of what counts as technology— at the point it is envisioned, developed, implemented, as well as taught in training classes (Bennett, 2014a). HRD's role should be far earlier in the process during crisis and transformation, one that builds proper harmonies and constraints with management.

Bennett (2014a) conceptualized two modes of technology development in which HRD tools, theories, and techniques are fused with technology in a way that expands learning and performance capacity. The pandemic required significant, rapid technology development for continuity of both work and learning, which required reimagining the workplace, creating new norms, and jumpstarting skill development that position both current workers and future workers – such as students who had to adjust quickly to online learning and then will carry these skills into the future workforce – to embrace technology-mediated environments and VHRD.

Reskilling and Upskilling in the Technology Era

A new technological era was already underway in advance of Covid-19, called *the fourth industrial revolution* or *second machine age* (Brynjolfsson & McAfee, 2014), sometimes termed the *second information age*. As many as half the jobs known today are going away, some due to the already extant technology revolution and others due to the pandemic fundamentally reshaping the economy and how work is done. For example, supply chains were significantly disrupted during the pandemic, which increased prices and required significant re-routing of goods and services. AI was employed to analyze many trends discernible only through

supercomputing, including analysis of airline tickets to determine where Covid-19 might spread

next (McCall, 2020), searching vast medical records for Covid-19 symptom patterns (Ozturk, et

al., 2020), and how to maintain food supplies (Vanover, 2020).

Given isolation guidelines and quarantine orders, people could access health resources

online, utilize telemedicine, and monitor health conditions at home with standalone or IoT

connected devices (Bennett & McWhorter, 2020). The need for social isolation required greater

use of technology and with it, new skills.

Analysis of Industry Reports

To document new skills and work shifts, an Internet search was conducted to locate

industry reports that reflected survey responses of business professionals (March-June 2020).

Table 1 highlights six reports that were purposively chosen and analyzed (Lincoln & Guba,

1985) due to their data collection and discussion of new work practices during the pandemic,

documentation of respondents, and soft and hard skills identified. Three themes emerged from

these reports and Table 1 synthesizes the COVID-19 labor reports utilizing the theme

descriptions, technology facilitated processes and skills. The soft and hard skills are depicted

with source numbers in parenthesis corresponding to the reports listed below the table.

[Insert Table 1 about Here]

Theme 1, *On the fly: Employees' rapid shift to remote work,* was descriptive of the events

of early Spring 2020 when millions of workers left the workplace to work virtually from home.

Technology-facilitated processes were led by video conferencing platforms (i.e. Zoom) that

connected workers to co-workers/customers/clients. Skills needed during this time included soft

skills such as adaptability, creativity, and empathy. For example, a PwC US survey conducted in

June 2020 with 6,400 professionals (Van Buggenhout, Murat, & Susa, 2020) reported that

overall productivity of employees appeared to be skewed by a cohort of superachievers (one-

third of total sample) that disguised a decline in productivity among the remaining two-thirds

who reported working longer hours than before the pandemic. The researchers surmised fewer

distractions and crisis adrenaline led to the superachievers' productivity while the other two-

thirds reported work from home a challenge. However, there was a rise in "collaborative

activity" (p. 5) as measured by their digital performance technology system following the

lockdown. Hard skills required in this period included digital literacy, customer service, and

project management, among others.

　　　　Theme 2, *New-normal: Working collectively together-apart,* describes the late Spring

through Summer (2020) when many employees who were working remotely returned to the

office partially or fully. However, even while in the same workspace, regular routines changed,

like wearing facemasks and social distancing measures (McKinsey & Company, 2020a).

Technology remained very important for communication outside the organization, but also for

safety and learning (Go1, 2020).) A survey of 100 U.S. executives projected that their

workforces would return-from-home to the workplace with 80% of employees by September

2020 and 88% by December (McKinsey & Company, 2020a p. 2). Return-to-work initiatives

were necessitated by interventions through physical changes (i.e. reducing number of employees

onsite, physically separating workstations) and technology interventions (i.e. moving large

meetings online, using touch-free devices instead of handles).

　　　　Theme 3, *Reskilling-Upskilling: Building key skills,* emphasizes the necessity of learning

and development efforts to sustain worker productivity. Reskilling prepares employees for new

jobs and changes, while upskilling prepares employees for advancing within their current career

tracks. To this end, Fine et al., (2020) reported that the pandemic "ushers in a new paradigm for

reskilling across three dimensions" (p. 7) that includes *physical distancing* necessitating online

training and requires creativity to deliver training, especially soft skills like teamwork. Also, "*rapid reskilling* requires much shorter interventions and a different system to recognize those skills. Microcredits will replace traditional degrees in many cases" (pp. 7-8). Third, industry-level reskilling opportunities should be collaborative and "*a mindset shift* toward the greater good of society" (p. 8) along with empathy as a necessary skill by "caring enough to place responsibility for long-term futures above short-term gains, and creating space for people to be their whole selves" (Mercer, 2020, p. 2) through reskilling and upskilling efforts.

Table 1 demonstrates that technical skills are needed concurrently with cognitive, creative, and intrapersonal skills, or the combination of high tech and high touch (Bennett, 2010; Swanson & Holton, 2001). VHRD needs to be able to foster these skills by building sophisticated and compelling environments for authentic learning. Use of technology in the era of COVID-19 has accelerated digital transformation. Table 2 illustrates technology interventions garnered from labor reports cited in Table 1 plus five additional business articles published during the pandemic (Agrawal et al., 2020; Gandzeichuk & Forbes Technology Council, 2020; Johnson, 2020; Stillman, 2020; van Hoek & Lacity, 2020).

[Insert table 2 about here]

Pre- and post-pandemic conditions created new technologies and corresponding need for upgrading skills. These technologies will shape how the current and future workforce develop, as well as bring new consumer expectations and needs, creating new markets for goods and services. It has been oft-stated that education tends to lag behind on technology, but the pandemic created a survival crisis requiring rapid innovation by educators and learning institutions.

Moving Education Online

Globally, in efforts to promote the safety of students and educational employees during COVID-19, many colleges and universities rapidly moved all courses online and "implemented remote work for the majority of employees, and shuttered countless public spaces and programs" (Wigginton et al, 2020, p. 1190). Institutions recognized that timely adaptations for remote learning and work were essential to their viability and continued student learning (Gedro et al, 2020). However, a May 2020 survey of 1,008 undergraduate students in the U.S. revealed that the shift from face-to-face to fully online courses due to COVID-19 left them struggling to learn and stay motivated due to lack of instructor feedback and collaboration with fellow students; many had difficulties with the technology and indicated they were least satisfied with courses with few online learning strategies (Digital Promise, 2020). A scholar asked the question of ensuing radical policy changes to full online instruction, "will we ever be able to return the genie back into the bottle?" (Tesar, 2020, p. 556).

To stay relevant and engaged with students, innovative learning initiatives were enacted higher education. For example, the Faculty of Architecture's 4-day workshop at the University of Belgrade adapted to include online meetings that discussed "new, innovative typologies and architectural scenarios that will enable daily activities to be carried out safely and effectively even in time of a pandemic" (Milovanovi´c, 2020 et al., p. 4). The University of Texas at Tyler (2020) sponsored a series of webinars to connect undergraduate students with HRD scholars and afterward held an informal meetup for students to gather online following each webinar. Also, students at Tufts University (2020) were invited to weekly seminars online for staying connected as a community to help students to discern conflicting Covid-19 information/misinformation.

However, public backlash ensued as the pandemic closed childcare centers and schools beginning Spring 2020 and parents began being both worker and teacher, overloaded with

dueling roles (Dean, 2020). Miller (2020) noted that social distancing requirements for COVID-19 changed on-site employment to residences with dual role of both teacher and remote worker. In contrast, Facebook and Google employees without children claimed inequity due to increased workload and less time off than those with children at home (Wakabayashi & Frenkel, 2020).

As work and education swiftly moved online, educators, parents, and students found they needed new skills for successfully communicating and navigating educational requirements (Buchholz, DeHart & Moorman, 2020). Likewise, workers must acquire new literacies not previously emphasized or known.

New Literacies in Education and VHRD

Students and professionals alike, now and in the future, need a balance of hard, technical skills and soft, intrapersonal skills that can be effectively practiced both face-to-face and mediated through technology. This means that new literacies should be incorporated into education and training.

New literacies such as data literacy, digital literacy, and technology literacy must be balanced with soft skills and high touch for leadership at all levels, organizational development, strong performance adaptation and for building VHRD (Bennett, 2014a; Bennett & Gorman, 2018). Data literacy is knowing "where to acquire data, how to analyze it, and how to gain actionable results" (Rasheed, 2020, para. 1). For example, in 2020 the public and organizations began reading clinical studies to understand how to protect themselves from Covid-19. A good example of how people can interpret data differently is whether reusable cloth masks work, do not work, or whether they are harmful by increasing infection risk. There are many opinions on this matter alone. Data is both necessary for action and as a resource for learning. There will be an increased need of statistics and probabilistic reasoning.

Digital literacy has been described as "finding and consuming digital content; creating digital content; and communicating or sharing it" (Heiten, 2016, para. 5). Digital skills can be taught at many learning levels, supportive of innovation. Similarly, technology literacy is "the ability to effectively use technology to access, evaluate, integrate, create and communicate information" (Estes, 2017, p. 103). Thus, we see learning and development concurrent with these literacies, supporting the view that people learn informally and develop through technological environments. These literacies support skills needed in the pandemic, but also beyond as the world recovers from economic recession and adapts to the industrial revolution underway.

Pandemic VHRD: Implications and Preparing for Future Disruptions

Reviewing how the pandemic unfolded in retrospect, it becomes clear that some things are not going back to 2019 conditions. The oft-repeated phrase *new normal* indicates that many have recognized this truth, even if they do not fully accept current conditions as normal or good. There has not been adequate time to mourn such a catastrophic launch into a new era; but we know enough at this stage to consider initial implications for the field that address VHRD during the pandemic but also move us beyond. There is no doubt that the world is currently in crisis with financial, health, and civil consequences that will all affect HRD practice and research.

Learning Agility and Resilience

HRD as a field champions learning as a critical part of performance and organization development, with both formal and informal learning fundamental processes in VHRD (Bennett, 2009). While past economic crises saw training and development departments slashed to save cost, and this could be the case at present, we anticipate the value of learning and development assets will be recognized and protected like no other time in history. These assets create strategic advantage for corporations to not only recover with resilience but to leverage planning to thrive

in the technology-enabled future. This expectation is supported by recent industry reports reviewed (i.e. Mercer, 2020).

The era of high technology and AI will not be uniform; in some cases, humans will still do routine jobs where the cost of developing AI is too high. Some things simply do not make sense to automate. However, more automation is showing up in everyday activities, such as how lunch is served at a fast food restaurant. Robots and machines help reduce contact and maintain social distance, and they simultaneously collect data for analysis. Given how many jobs will be lost to automation, people need to be agile in their learning and provide value that machines cannot yet provide. The purpose of high technology is not to automate per se, but to augment work. Rapid advancement of technology and the large volume of data generated requires learning agility and resilience to bounce back from setbacks and changes. As new analysis unfolds, humans will need to learn quickly how to respond when a new direction is indicated.

Learning agility is both an orientation toward learning (willingness) and the capability to use experience as a source for learning and to navigate new conditions for successful outcomes (Eichinger & Lombardo, 2004). We add that learning agility should include the ability to switch learning modes adeptly and to use intuition, metacognition, and creativity to adapt to new conditions, solve problems, as well as further develop learning capacity and learning how to learn. An interesting aspect of learning agility is that it is not easy to predict what needs to be learned in advance and so people need to be learning-ready. For example, the difference between leaders who succeed and those who fail has to do with taking responsibility for adjusting to a wide variety of situational characteristics, rather than being inflexible in style or blaming others for missteps (De Meuse, Dai, & Hallenbeck, 2010).

Learning agility needs a creative approach, too. Creativity requires incubation time for

unconscious processing (Bennett, 2012; Starko, 2001) and solitude (Kaufman & Gregoire, 2015),

which are often in short supply during crisis. This is especially important given overemphasis on

collaboration and check-in meetings that interrupt focus-time. Given the current and future

changes, we recommend organizations do not wait to begin the process of enhancing the skills

given the revolution of work. Some questions HRD professionals should consider:

1. What capacity does your organization have for learning? How can capacity be
    increased?

2. How is learning recognized and rewarded? Both formal and informal learning?

3. How are learning errors addressed? Are learners punished for taking risks?

4. How has your organization surveyed the current state of talent, including new
    skills adopted during the pandemic?

5. How does your intranet and technology strategy support learning? What
    environment do these create?

6. What gaps in skills and knowledge acquired during the pandemic should be
    closed?

7. What new skills are needed to for your organization to be resilient and thrive
    beyond the pandemic?

There is an opportunity to leverage learning by circling back with employees and further

developing skills that were learned in crisis-mode. HRD professionals and organizational

members must be learning leaders, not just organization or function leaders. Executives play a

key role in building a culture of learning, yet 79% of worldwide CEOs indicate essential skills

for growth are missing (Linkedin Learning, 2020), which means it is in their interest to support

and invest in learning.

Alternative Workplace Strategies, Changing Business Norms, and Wellbeing

VHRD literature has discussed alternative work strategies, including what has been

known by the archaic term *telecommuting* and other forms of virtual work, as well as wellbeing,

critical HRD, trust in teams and manager-employee relationships, and ethics where employees

may be out of sight for promotion or online too long for proper work-life balance (Bennett, 2009;

Bennett & Bierema, 2010; Thomas, 2014). Given that creativity needs solitude, being too

accessible through technology is detrimental at times. The pandemic pushed more people to

work from home, and likely many jobs will remain all or partly remote throughout the pandemic

and beyond. Organizations may rightly question whether to continue to invest in costly physical

infrastructure if work can be done as well, or better, offsite. Employees, and the environment,

may benefit from reduced commuting; however, this requires new norms for work that support

high performance and wellbeing.

As the pandemic hit, business norms began changing. A good example of a first norm to

change was the classic handshake. As governments began responding and locking down, the

world revisited definitions of essential and non-essential workers, the latter able to either work

offsite or furloughed if not. Those who were able to continue working virtually were privileged

to have jobs, whereas racial disparity arose to public consciousness due to who tends to occupy

essential positions, like delivery services and groceries, and who was most at risk for worse

outcomes due to Covid-19's mode of attack (See: Chowkwanyun, et al., 2020; McLaren, 2020).

These are important areas to consider for equity and for re-opening plans. We project that some

positions will remain virtual, especially in states like California that are beginning to view work

from home as a right. This will further blur the line between employees and independent

contractors and raise questions about who outfits and pays for home offices, as well as how to

support learning and development from a distance. In other words, how to develop people

through VHRD and how to recognize the innate development of people working in technology-

enabled systems with lots of data.

There is no doubt Covid-19 had substantial impact on physical wellbeing and emotional

burden of workers. Concern for health of loved ones, adopting new hygiene standards, lay-off

anxiety, and learning to work in new ways created emotional labor that the field has not yet

studied or understood. As more business meetings went online from home, many organizations

turned to teleconferencing programs. New terms like *Zoom fatigue* and *Zoom bombing* (Daigle,

2020) demonstrate stressors as well as new regard for cybersecurity. New norms were created to

address how to work virtually, especially given some managers lack skill in this area and may

use outdated and heavy-handed methods for virtual teams (Bennett & Bierema, 2010).

As millions of people began to work from home, some with little remote work

experience, concerns for security drove global virtual private network (VPN) usage up by 35%

(Cadir, 2020). While some may have been concerned about loafing, VPN data analyzed during

the early days of the pandemic also indicated workers were putting an extra three hours on the

job per day in some areas, causing deep concern for work-life balance (Davis & Green, 2020).

Organizations are at risk of losing talent when this toll is unrecognized. Alternatively, the

increased load virtual jobs with dependent schooling for families has created a gender gap in

work hours (Collins et al., 2020), which may create inequity of short-term skill attainment and

longer-term career development. It also indicates these women may be hit harder in this current

crisis than in past downturns.

Re-centering life to the home – streaming entertainment, work, and school – is shifting

society in ways not yet understood. How organizations manage during this time will affect the organization's culture as new policies, values, and modes of work become embedded in organizational history.

Cultural Work, Trust, and Technology Development

VHRD is social and cultural work, and a sense of belonging is a deep human need that is just as strong when virtual. Cultural relevancy has been embedded in the definition of VHRD since 2009, primarily focused on organizational culture, though personal, national, and discipline culture are also evident (Bennett, 2009, 2014b). Prior research has shown that culture can be learned through a corporate intranet or VHRD (Bennett, 2014b). Edgar Schein's perspective of organizational culture is that it results from shared learning, and culture change is difficult to accomplish even when the data supports need for change, requiring survival anxiety to be higher than learning anxiety (Schein & Schein, 2017). Rapid technology development during Covid-19 indicates that survival anxiety did indeed override learning anxiety. Teachers, for example, had to place a significant amount of content online and learn new technologies at an unheard-of pace given sudden pandemic closures. Many of the typical cultural rites of passage and rituals were either skipped or altered to accommodate social distancing, such as graduation ceremonies and retirements. Businesses realized that they needed to adapt or die, and cottage industries sprang up, such as homemade masks on direct market sites like Etsy.com.

Social bonding is critical for organizations to function well, and telecommuting isolation required novel ways of connecting teams and leaders. Prior VHRD literature discusses trust and virtual team management (Bennett & Bierema, 2010), including the very real threat of over-management (Foster, 2020). In fact, pandemic news stories described managers not used to working in virtual environments demanding their employees turn on cameras regularly

throughout the day and using monitoring software (Evans, 2020; Satariano, 2020). This type of managing by distrust causes toxic culture and employee disengagement. It is far better for managers to develop good key performance indicators and have regular, but not excessive, check-ins based on an ethic of care and trust in employees. Consider what fosters belonging and engagement through technology and build that instead.

HRD professionals and leaders need to shape reasonable policies that support employees and managers even in crisis technology development. The need for policy and sector seals of approval for technologies that capture private data has been discussed in VHRD, particularly for competing intranets that combine people, things, and services in a seamless system (Bennett, 2018). This is especially the case as technology becomes increasingly invasive and even 'creepy' (McWhorter & Bennett, 2020). Covid-19 demanded many HRD practitioners engage in rapid technology development that is isomorphic with culture (Bennett, 2009, 2014b; Bennett & McWhorter, 2017b). Virtual recruitment and onboarding, for example, became necessary features of pandemic VHRD to keep the economy and business continuity moving.

Economics and Recovery

Swanson and Holton (2001) described how economic theory has been an important support in HRD's three-legged stool, along with systems theory and psychology. Economics studies the distribution of scarce resources, whether the limited resource is data, time, money, products, software, customers, skills, and the like. Significant supply chain disruption occurred during the pandemic, which underscores the need for learning and analytics to anticipate and respond to changing economic conditions, which can be helped or hampered by technology. Of supply chain managers surveyed in one study, 82% were frustrated by a) AI software due to lack of reliable data, b) diminished data-driven decision-making capacity of organizational leaders

who lacked knowledge on the ground, c) inability for AI to function well in unprecedented situations, and having to return to manual analysis, demonstrating the need for better human-AI collaboration (Briggs, 2020). AI is part of the VHRD environment, particularly with learning analytics; however, human talent and insight is still an important scarce resource to protect.

Economic effects were widely felt in the pandemic. The shift of work and school to home was a significant part of shortages since products that were created for institutional purchasers, like cafeteria food and paper goods, could not easily or inexpensively be retrofitted for retail customers. While some may have blamed panic buying for the infamous toilet paper shortage of 2020 in the United States, there were industrial sized wheels of paper available, the wrong supply suddenly altered conditions.

Stores and producers struggled to keep product in stock, especially as vulnerable workers called out or became sick. Hazard pay was a way to incentivize employees for working in-person despite Covid-19 risks. Rapid re-routing of goods and services occurred, a function of free markets and a critical part of recovery and virtual integration. The downside is that some areas of the world were outbid for products because customers in developed countries could pay. Price signals also helped keep shortages at bay since people tend to buy less when costs rise, leading to conservation behavior as well. The anxiety of shortages affected consumers and likely added new emotional labor for employees. Some behaviors stemming from pandemic economics, and resulting anxieties, may need to be unlearned.

There seems to be a growing shift from urban to suburban centers that questions the future of megacities that produce a vast majority of country GDP, calling for the need to re-imagine the post-pandemic economy that involves inclusive growth and innovation investment (McKinsey & Company, 2020b). Prevailing wisdom suggests it is important to diversify and

explore new ecologies of activity that can insulate communities from future economic shock.

The pandemic also points to the need for countries to re-shore manufacturing in the interests of

national security, such as personal protective equipment and pharmaceuticals. On the one hand,

life has been re-centered on the home, and on the other hand, decentralized from large, populous

hub. No matter how one looks at the situation, technology played a major role, and will continue

to do so. In fact, digital currency may be a next evolution (see blockchain in Table 1). These

economic issues and trends have had profound impact on employees and organizations as well as

the process of recovery. HRD professionals, and graduate programs that help prepare them,

should teach economic theory as well as techniques that help anticipate and respond to future

disruptions.

Preparing for Future Disruptions with Scenario Planning

How can organizations plan for future catastrophic events? In 1960, Herman Kahn

alerted leaders about the potential of thermonuclear war as an effort to help them grasp the grim

possibilities of such an event and develop strategies beforehand to thwart its occurrence.

Various methods for strategic planning have been offered to predict and manage events of global

proportions including "futuring" (Hoyle, 2007, p. 1) activities to prepare organizations for the

forthcoming environment. These planning activities include long-term strategic planning and

scenario planning (SP).

One method for long-term strategic planning was offered by Webb (2019) who uses a

concept of "time cones, not time lines" (para. 11) with a team that draws a cone with four

categories (tactics, strategy, vision, and systems-level evolution) and identifies highly probable

events supported by existing evidence or data. Then, the planning team moves outward from the

tip of the cone to increased time and less certainty due to less data and evidence. As more data

and evidence are collected verifying progress on actions, "the beginning of the cone and your

tactical category is always reset in the present day. The result, ideally, is a flexible organization

that is positioned to continually iterate and respond to external developments" (para. 18). In other

words, it supports learning agility and a culture of learning.

Scenario planning has been posited for catastrophic event preparation. Chermack (2011)

presented scenario planning as "a tool for helping decision makers reperceive the potential future

in alternative ways. Having these alternative ways of seeing helps decision makers avoid

surprises and prepare for a variety of plausible futures" (p. 3). A recent article published in

March 2020 reported on a scenario planning (SP) activity (held before the pandemic) involving

twenty experts representing areas of national security, emergency response, biosciences, and

global health. Their SP session was designed specifically "to stress-test U.S. approaches to

global health challenges that could affect national security" (Brannen & Hicks, 2020, para. 2).

The article reflected the accuracy of the behavior of a coronavirus in their scenario that "spread

much as today's virus does, jumping between countries via international air travel, causing

problems not only for health systems, but for economies and political leaders" (para. 8) thus

demonstrating that SP is advantageous for preparing organizations for future negative and even

catastrophic events.

McWhorter and Lynham (2014) theorized virtual scenario planning (VSP) as a cost-

effective learning tool that utilizes virtual technologies for crafting strategy in real-time with

disbursed stakeholders, thus improving decision-making and participants' abilities to respond to

changes in the environment. VSP can also help shift perceptions more quickly as unexpected

events unfold and could be carried out with current video conferencing platforms such as Zoom,

Skype, or Microsoft Teams. Scenario planning, like other techniques in the field, intersects with

VHRD to capture knowledge, strategies, and increase learning and cultural readiness to meet future crises.

Conclusion

Crisis will come around again, and digital transformation due to the fourth industrial revolution is afoot. We mark 2020 as the year millions of people joined the world of VHRD, with some sobering and inspiring clues to what lies ahead in the fourth industrial revolution. We renew the call for HRD programs to incorporate technology beyond instructional software and online training, such as interdisciplinary consulting projects (Bennett, 2010), as well as greater emphasis on data analytics with emphasis on high touch and human need to belong. HRD professionals must embrace their growing roles in technology development and designing virtual learning environments. VHRD is necessary to help organizations recover from Covid-19 and to thrive in a world increasingly powered by AI, robotics, and a multitude of unseen intranets. In closing this article, we would like to thank those on the front lines, in healthcare, essential workers, organizations who ensured less disruption within supply chains, governments, and the many who bore up under great pressure to maintain business continuity at a time of great threat and loss.

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Table 1: Synthesis of Six COVID-19 Labor Reports

Theme	Description	Technology-Facilitated Processes	Soft & Hard Skills by Alpha Order
Theme 1: **On the fly:** **Employees'** **rapid shift to** **remote work**	With little warning, COVI9-19 forced millions of employees to work virtually .	Video conferencing platforms for working from home (WFH; 1,2,3,4,5). Team performance software	• Adaptability/ Agility/ Mindshifting (1,2,3,5) • Creativity (1) • Digital Leadership (1,3) • Empathy (3,5) • Innovative (1,2)

			• Interpersonal Skills (2,3) • Resilience (2,3) • Social/Emotional Skills (1,3,5) • Teamwork (1) • Negotiation (2) **************************** • Customer Service (2,3) • Delivering Online Content (1,2,3,4,5) • Designing Short Interventions (1) • Digital Literacy (1,2,4,5) • Digital Marketing (3) • Create/Interpret heat maps (1) • Online Training Delivery (1,2,4,5) • Project Management (5)
Theme 2: New-Normal: Working collectively together-apart	Social distancing mandates shifted traditional business processes requiring digital technologies for safety while in the office and for optional remote work	Video conferencing platforms for team meetings, customer service Social Distancing and Contact Tracing apps and wearables	• Collaboration (3,4,5) • Emotional Intelligence/ Self-Awareness (2,3) • Intuition (3) • Mentoring (2,4) **************************** • COVID-19 Safety Skills (2,6) • Project Completion (5) • Strategic Planning (1,5) • Teamwork Skills (1,2,3,5) • Video Production (4)
Theme 3: Reskilling and Upskilling: Building key skills	Need for employee learning and development to build and sustain productivity	Video conferencing platforms for individual and team training Customized Training Software	• Adaptability/agility (1,2,3) • Encouraging (2,5) • Leadership (1,2,5, 6) • Problem Solving (1,2, 3,6) • Strategic Thinking (2,5) **************************** • Creating/issuing training microcredits (1) • Customer Service (2,3,5,6) • Data Visualization (3) • Delivering online training (2,4,6) • Designing incentives for redeployment reskilling (1,2,3,4,6) • Gamification skills (5) • Instructional Design/Design Thinking (3) • Tracking Results (3,5,6) • Training talent for new online roles (3,5)

1. Fine et al (2020; N=1,004 business leaders, 3/26/20-4/20/20); 2. Go1 (2020; N=800+ business professionals);
3. Mercer (2020; 6,400 professionals); 4. St. John (2020; 978 CLOs);
5. Van Buggenhout et al. (2020, 129 executives & 1,200 U.S. office workers, 5/29/20-6/4/20);

6. McKinsey (2020a; 100 U.S. executives, 5/8/20-5/13/20)
 (Total Participants = 10,600+)

Table 2 – Digital Technologies for the COVID-era

New Technology Examples	Description/Authors	Examples/Uses
Social Distancing Technologies	• Video conferencing platforms used in lieu of face-to-face meeting (Agrawal et al., 2020)	• Online Department Meeting • Online Meeting with Customers • Virtual Training Meetings • Telehealth in lieu of in-person visit with healthcare professional
	• Sensors to monitor employee location and movements (Gandzeichuk & Forbes Technology Council, 2020); some also save contact tracing data (Johnson, 2020)	• IoT wearable devices with proximity alert of others such as Halo https://www.proxxi.co/contact
Short-form Training Online	• 15-minute-or-less online training module in short-form to engage learners (Go1, 2020)	• Bite-sized training content with short reading, use of brief audio/reading/video clips
Customized Online Talent Exchanges	• Industry associations, and labor organizations can quickly create portals for employers to post openings (Fine et al., 2020)	• Displaced workers or the unemployed can locate employment opportunities online
Data Visualization Software	• Heatmaps use color to visualize data for making decisions (Fine et al., 2020; Mercer, 2020)	• Heatmaps used for visualizing locales where venerable jobs could be lost, requiring interventions
E-Learning Delivery	• E-learning is course materials/modules or learning event delivered electronically (St. John, 2020)	• Several short modules delivered online for onboarding a new employee
Promoting Company Culture from a Distance	• New employees need reinforcement of the company culture, especially when working from home (Johnson, 2020)	• Weekly company-wide AMA (Ask Me Anything) session on Slack or Slido App where employees submit questions to leaders (Stillman, 2020)
Blockchain Technology	• Increased security to digitally sign legal documents or contracts (Gandzeichuk & Forbes Council, 2020)	• Blockchain-powered smart contracts can be signed remotely without sharing private information, tracks products throughout supply chain, may reduce chances of germ spread on physical currency (van Hoek & Lacity, 2020)