Building Organizational Learning Cultures in Response to Technology-driven Workforce Shifts

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Introduction to Lifelong Learning Cultures

Companies are experiencing unprecedented benefits in productivity and output from incorporating technologies, like machine learning and AI. Technological growth is creating new standards of productivity and efficiency in America. However, these benefits are coming at the cost of the workers who once performed those tasks. Hundreds of millions of people will soon be unemployed due to the rise in technological adaptation unless organizations act to institute cultural changes (Lund et al., 2019). Research has shown the best way for today's workforce to keep pace with the speed of growing technological capabilities is for organizations to build lifelong learning cultures that foster continual role changes and skill development (Edmondson & Saxberg, 2017). Otherwise, mainly middle-aged, middle-class Americans will be pushed out of the workforce, as the jobs they predominantly fill will experience the highest displacement rates (Manyika, 2017). The successful creation of learning cultures is critical to fulfill future demand of skill sets, avoid dramatic wage polarization, and reap the business benefits technology promises. To discover more about these learning cultures and their environments, Actor-Network Theory is used as a theoretical lens to analyze both the technological and human entities that make up a thriving learning culture (Cressman, 2009). The actors included in this network analysis include, but are not limited to, organizations, individuals, technologies, and learning platforms. This framework and extensive research serve to answer, "What is a learning culture, and how can organizations build one?"

Dissecting a Learning Culture

The analysis dissects how organizations can create learning cultures as a response to technologically fueled workforce changes. This exploration consists of documentary research

methods and network analysis. Through documentary research methods, various reports contribute to the necessary research for creating a successful organizational learning culture framework. The documents vary between research reports, publications, and articles that all serve to answer the questions: "How is technology changing the skills needed in the workforce," "What skills do people currently have and how do they attain new ones," "How can organizations influence their employees to adopt a new culture," and, most importantly, "What does a learning culture look like?" Network analysis evaluates the questioned organizations through observed hierarchies, membership, and connections between agents. The technique achieves a deeper understanding of the social and technical aspects of organizations, employees, and technology, as well as each agent's corresponding influence on the other agents. A firm grasp of this network is vital to building an effective learning culture in response to technological changes.

Background Information on the Importance of Lifelong Learning Cultures

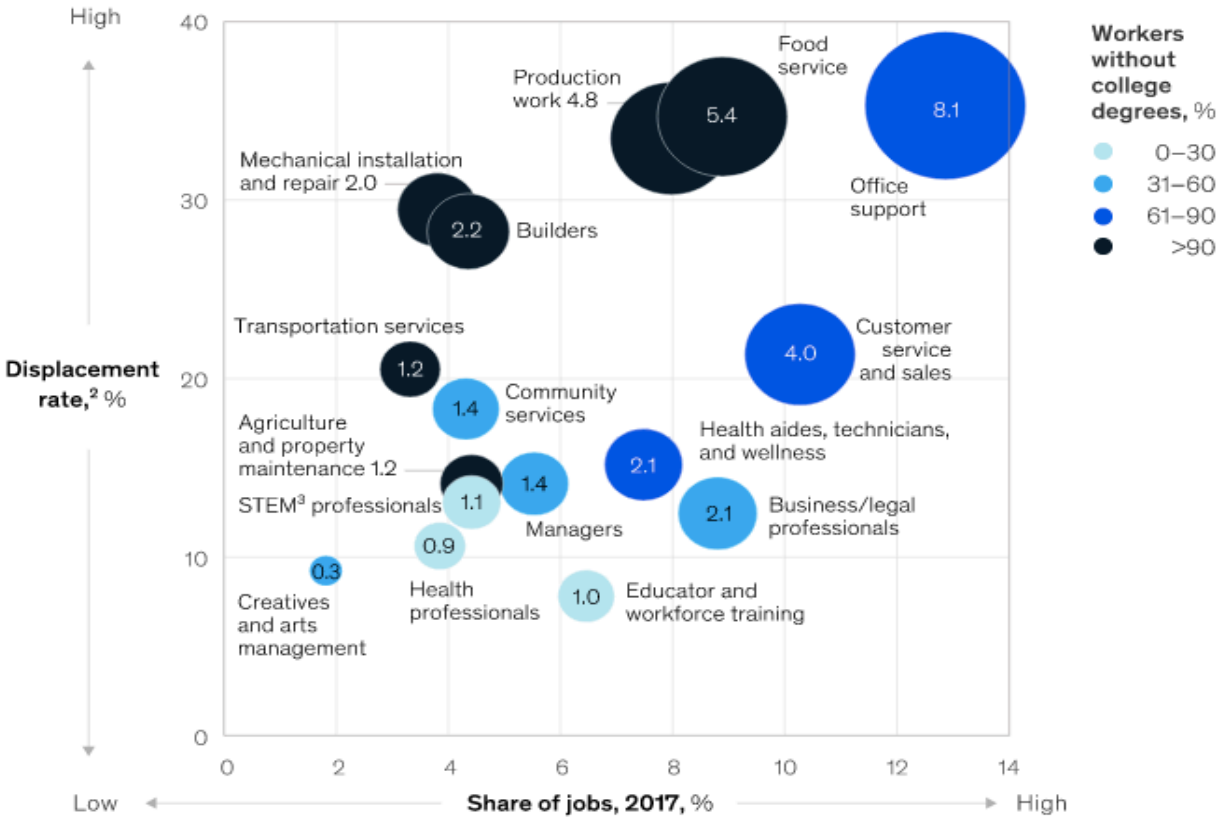
The rapid rise of technological capabilities is changing the skills companies need in their workforce. Robotics, machine learning, and AI technologies can not only do human tasks, but they are increasingly able to do these tasks better than a human can (Stiglitz, 2018). About 50% of current work activities today are automatable by current technologies; this rise in technological capability is predicted to displace 400-800 million individuals by 2030 (Manyika, 2017).

Automation is rapidly replacing work tasks such as physical activities in predictive environments and data collection and processing. Researchers expect workers in such occupations to be the first affected as organizations continue to adopt this technology. As a consequence, nearly 40% of U.S. jobs are currently in professions that can be replaced by 2030

(Figure 1), meaning that no community will be immune to these workforce changes (Lund et al., 2019). The jobs that make up the highest proportion of the US economy (Office Support, Food Service, and Production Work) are expected to have the highest displacement rates. A large share of the middle class, secondary-educated workers fill these roles. As middle-waged jobs disappear, these workers will likely take on lower-paying positions or unemployment, further contributing to the gap between America's upper and lower classes.

The largest occupational categories in the US economy have the highest potential displacement rates.

US jobs displaced in midpoint adoption scenario[1] by 2030, millions of full-time equivalents



[1]Based on share of automatable activities for occupations within each category.
[2]Full-time equivalents displaced in midpoint automation scenario by 2030. In office support, for example, technology could handle activities that account for more than 35% of all hours worked, or equivalent of 8.1 million full-time workers.
[3]Science, technology, engineering, and mathematics.
Source: US Bureau of Labor Statistics; McKinsey Global Institute analysis

McKinsey & Company

Figure 1. Forecasted US job displacement rate according to share of jobs. (Lund et al., 2019). As shown in the visual, jobs that make up the highest proportion of the US economy are expected to experience the highest displacement rates.

The performance benefits corporations experience from these automotive technologies, such as quality, speed, and efficiency, are incentivizing further technology business integration. In a survey of major organizations, "64 percent of respondents saw growth ahead in robotics, 80 percent predicted growth in cognitive technologies, and 81 percent predicted growth in AI" (Roy, Schwartz, & Volini, 2019). However, while organizations expect technology to fulfill more tasks, jobs that require socioemotional, problem-solving skills, and critical thinking are projected to rise (Pelster et al., 2016). Such skills are considered "human skills" due to their complexity, and so these skills are not currently capable of being replaced by technology (Acemoglu & Restrepo, 2018). As automation increases efficiency and output, the significance of these complex skills rises in importance and value.

Conversely, while these jobs are growing, today's workforce will be unable to fill the demand for these skills (Chui et al., 2016). The increased competition for relevant skills is making filling positions progressively tricky and costly for businesses; as of today, it already takes an average of 42 days to fill an open job (Roy et al., 2019b). Furthermore, due to the rate technology is evolving, the needed workforce skill sets will continue shifting rapidly. Organizations will be unable to fire and hire their way to success in such a restricted labor market (Edmondson & Saxberg, 2017). To meet these workforce shifts, organizations must turn inward, upskilling and reskilling current employees so that these organizations can obtain required skills and alleviating the disproportionate effect automation has on the middle-class, secondary-educated citizen (Manyika, 2017).

To prepare for these effects and to develop the workforce of the future, organizations will have to undergo significant cultural and business shifts. For individuals to feel inspired and

empowered to obtain these critical skills, companies must create cultures of lifelong learning (Pelster et al., 2016). While many researchers agree that a lifelong learning culture is vital to organizations, significant gaps remain in the knowledge needed to foster such a culture (Weber, 2019).

Analyzing Lifelong Learning Cultures through ANT

Science and Technology Studies (STS) is a field that studies the "impacts and control of science and technology, with particular focus on the risks, benefits and opportunities that S&T [STS] may pose to peace, security, community, democracy, environmental sustainability, and human values" (*What is STS?*, n.d.). Exploring lifelong learning cultures as a response to changing workforce needs fits within the STS field, as it is analyzing how the rise of AI and other technologies created a dramatic shift in employment sustainability.

When analyzing organizations and their cultures, both human and nonhuman entities are involved. Discarding the effect that either entity group has on each other significantly reduces the applicability of the analysis. Due to this constraint, the STS framework, Actor-Network Theory (ANT), is used as a theoretical lens to evaluate the levers needed to create a thriving organizational learning culture. ANT stresses the importance of treating human and nonhuman actants equally (Rodger et al., 2009). This framework explores the different combinations of networks that consider both the technological and social aspects of this issue and, ultimately, would uncover the critical components of a learning culture.

Various contributors have shaped Actor-Network Theory through the years. In essence, early ANT studies imply all interactions and occurrences should be attributed to a network. At the same time, Law and Hassard's later approach yields an 'after-ANT' mindset that focused on how

things became linked and explored networks within networks (Fenwick & Edwards, 2012). This analysis utilizes both the early and later approaches.

ANT is valuable within this learning culture exploration, as it highlights "how power is in the relations, not in the actors themselves, as power is dependent upon the actions of others" (Rodger et al., 2009). Since the goal is to uncover a thriving learning culture, the interactions and influences the actors have on each other take precedence over the individual actors. The emphasis ANT places on the relationships between the actors makes this theory useful for discovering how to create a cohesive culture between these various actors.

While ANT is useful in this exploration of creating novel cultures to meet workforce needs, critics of ANT exist. Since ANT sets out to follow the actors in any given network, it becomes unclear and subjective which actors to include and what networks to "black box" (Cressman, 2009). Another shortcoming is ANT's treatment of hybrid objects (Michael, 2017). The theory relies on the distinction between human and nonhuman objects. However, some of the agents within this analysis (i.e., artificially intelligent robots, human tasks) do not fall into either category. As Latour, a significant contributor to ANT, claims, "hybrids have always been present but have, through the Modern Constitution, been neglected" (Michael, 2017). The analysis accounts for these limitations within Actor-Network Theory by including these entities regardless of their hybrid status.

Building Learning Cultures through a Multifaceted Approach

Creating an organizational lifelong learning culture should follow a multipronged approach of both cultural traits and individualized learning enablers. Research has found that learning culture organizations should encompass collaboration, active learning, and timely feedback, while also providing personalized learning enablers, like learning platforms, and role modeling.

As discussed below, a variety of research findings in various industries, like education and the military, contributed to building this faceted approach.

Since this organizational lifelong learning culture exploration uses actor-network theory, the relevant actors are first identified and defined. The network is limited to include actors only if they would directly benefit from or affect this culture. The principal actor identified in this network is working employees of organizations, as they are the fundamental reason for building a learning culture. Other human actors include managers, learning and development (L&D) professionals, and executives. Non-human actors include employed technology, organizational culture, employee skill sets, and the purpose of organizations.

Before conducting the analysis, it is essential to define the actor 'organizational culture.' However, this proves difficult, as there is no universally accepted definition for an organizational culture (Skerlavaj et al., 2007). One description coined culture as "the customary and traditional way of doing things, which is shared to a greater or lesser degree by all members, and which the new members must learn and at least partially accept to be accepted for the firm's services" (Skerlavaj et al., 2007). On the other hand, an organizational learning culture is defined as "formal and informal ways to make individuals ready for a society that has not existed yet" (Sahin et al., 2010). This network analysis uses both definitions. The network's relationships between organizational culture and other actors contribute to the discovered organizational lifelong learning culture knowledge.

A lifelong learning culture must consist of three key traits, one of which is collaboration. A collaborative culture is defined as open communication, encouragement of respect, teamwork, adaptability, and diversity (Kucharska & Bedford, 2019). Prior research found that collaboration is vital to employee learning since employees learn faster when they learn together; employees

achieve a deeper understanding of concepts by exposure to other mindsets. Additionally, a collaborative culture that promotes knowledge sharing helps to develop organizational learning and individual learning competence (Jun & Shin, 2019). Other research found that collaborative cultures have a positive influence on learning climate and mistake acceptance, which are traits that also contribute to the growth of a learning culture as well (Kucharska & Bedford, 2019). These key insights suggest that encouraging collaboration within organizations will strengthen the connection between employees and organizational culture within the Actor-Network, and ultimately, promote active learning within organizations. To encourage collaboration, studies suggest restructuring individual work towards an agile or team structure, reducing competitiveness among employees, and communicating the importance of team goals over personal goals (Campbell & Bokhove, 2019).

Encouraging active learning through mistakes is also vital for learning culture development (Kucharska & Bedford, 2019). When considering the connection between employees and employee skill sets, research found that employee intelligence increases through errors and that accepting and learning from mistakes assists in future change and adaptability. Furthermore, mistake-conducive situations allow real-time practice and application of skills that employees are learning (Edgerly et al., n.d.). Nevertheless, this attitude of 'mistake acceptance' is not found in many organizations today. A study of college students and working adults found that college students readily accept and learn from mistakes while working adults do not (Kucharska & Bedford, 2019). Moreover, the lack of mistake acceptance among employees directly hinders the growth of organizational intelligence. Higher perceived risk among working adult influences their decision making, leading to a fear of failure and aversion towards new situations. These

conclusions suggest creating a supportive culture promotes employees to take risks and increases learning via mistakes and fresh experiences.

The last vital trait of an organizational lifelong learning culture is feedback. Effective feedback is specific, timely, and consistent (Edgerly et al., n.d.). When given effectively, it allows groups to adjust performance and processes midstream (Campbell & Bokhove, 2019). Moreover, when looking at the network connection between employees and skill sets, feedback addresses gaps in employee's knowledge, providing direction for employees to improve understanding and attain skill sets (Edgerly et al., n.d.). To incorporate feedback into organizational cultures, research shows that employees should be trained on how to give feedback, how it should be perceived, and how it should be used.

In addition to the cultural attributes discussed above, a learning culture also needs individualized learning enablers. An example of such an enabler includes learning platforms that feature personalized educational content employees can access. Effective platforms contain a mix of materials that are either purchased from another company or made internally to create custom career journeys (Chelovechkov et al., 2019). A survey of more than 1,200 L&D and human resources (HR) professionals and 2,100 employees found that learning platforms close employees' and organizations' skill gaps, retain top talent, and allow individualized learning journeys. When employees are allowed to create personalized learning, it fosters deep learning. Deep learning is when individuals are "intrinsically interested in a topic and aim for understanding and development of specific competences Accordingly, they attempt to link ideas and concepts and relate new knowledge to previous knowledge" (Froehlich et al., 2014). Research has found that deep learning results in a multitude of benefits, including the highest levels of academic achievement, enhanced workplace learning outcomes, enriched core skills,

increased perceived career development, and improved subjective job performance. Organizations can increase employee engagement with these learning platforms through socialization and marketing. Despite common conception that socialization only appeals to millennials, the learning platform survey also discovered that over 50% of each generation values the ability to collaborate with instructors and other learners (Chelovechkov et al., 2019). This socialization could take place in forums, groups, or Q&A sessions that can supplement the learning platform. Employee engagement can also increase through marketing learning platform capabilities via email, videos, events, signage, and more.

Role modeling from leadership will also support the implementation of an organizational lifelong learning culture. Managers and executives should communicate to employees how learning affects individual and team performance and should also provide additional mentorship and support for employee's learning journeys (Chelovechkov et al., 2019). Various research findings highlight the impact of role modeling from leadership; in one survey to workers globally, 75% said they would learn a new skill if a manager recommended it to them. Another report found that leadership styles strongly affected development, learning outcomes, and performance in employees (Froehlich et al., 2014). Of various leadership styles, transformational leadership was found to be the most effective. Transformation leadership "emphasizes intrinsic motivation, development, and emotional care of the followers. Transformational leaders serve as role models, challenge assumptions, articulate inspirational visions, and attend to each follower's individuality to cause lasting changes among the followers and contribute to their learning and development" (Froehlich et al., 2014). Likewise, a military study found that transformational leadership also proved to benefit the performance and deep learning of employees. Given these findings, strong leadership is vital to the growth and sustainability of organizational learning

cultures. Communicating learning as a good use of time, creating urgency towards completing learning goals (i.e., using conferences, meetings, or other events to set deadlines), and recommending learning courses on performance reviews are all methods managers could use to support a budding learning culture (Chelovechkov et al., 2019).

These mentioned traits, if implemented within an organization, will strengthen the network connections between various actors discussed and will translate this network into a single entity of an organizational lifelong learning culture.

Limitations within the Analysis and Looking Ahead

As of today, there is limited research on organizational lifelong learning cultures. This topic is an emerging field due to its growing prevalence, but at this time, there is a lack of research to support it. This shortage led to two limitations within the analysis. First, the analysis utilizes research from a variety of different contexts. Some research was conducted only within certain professions (i.e., military, teaching, nursing), and some took place in other countries (i.e., Australia, Poland). These arrays of contexts may limit the applicability towards American organizations. Since there has been a long time focus on learning cultures within education and military professions, most learning culture research currently stems from those fields. However, legacy businesses and other large corporations operate very differently. Conducting additional learning culture research within the context of such companies would contribute significantly to the findings in this analysis.

Second, the analysis relied on research that tested for the positive effects of all recommended attributes individually. The effects these levers may have on one another within an organization was unable to be accounted for through current research findings. Henceforth, this study should be continued by testing the effectiveness of various combinations of the

recommendations within an organizational context. Investigate interactions between the levers to ensure any interactions are not creating adverse effects. Looking into these areas will increase organizational ability to build lifelong learning cultures.

Building Lifelong Learning Cultures Conclusion

The future of our workforce and middle class depends on today's employees gaining the skills that tomorrow's employers need. At the rate technology is evolving, organizations need to undergo significant cultural shifts to meet these workforce changes. Through the discoveries in this analysis, organizations can begin building their lifelong learning cultures so that they can continually upskill their employees and stay competitive in evolving markets. These new cultures should promote constructive characteristics, like collaboration, active learning, and timely feedback, and personalized learning enablers, like learning platforms and role modeling. These findings ensure society and all of its individuals will benefit, even in an age of rapidly advancing technology. Lifelong learning cultures pave the way for society and technology to advance together.

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