Top Ten Workplace Skills for Future Organizations

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Abstract

Many researchers have indicated that there are skills that are going to be essential for the future workforce. This review helps identify these skills and the applicability of these skills to job performance of the future organization competing in a globalized environment. The review provides insight into each of the ten listed skills and also information on how the skills will be useful for future organizations. The review will extend previous literature regarding the identified ten skills essential for future organizations. Providing this analysis of the literature and potential applicability of these identified essential skills will help guide and focus additional studies relating to future job performance requirements.

Keywords: Future Skills, Job Performance, Organizational Skills, Workforce Requirements.

1. INTRODUCTION

Globalization, advancement in technology, rapidly changing work environments, and culturally diverse work groups are becoming the norm in organizations and will likely become more widespread in the future. Over the years, many studies have failed to predict job categories that will be more prevalent in the future [1]. Instead of concentrating on future jobs, Davies, Fidler, and Gorbis [1] focused on future workforce skills that may be required across various work settings and professions. The new focus derives from the notion that the changing business environment will require new employee proficiencies in the future. The purpose of this literature review is to analyze how the ten workforce skills identified by Davies et al. [1] influence job performance and provide a summary of the literature that supports assertions. Also, these ten proposed skills are assessed in terms of interacting influences on future workplace performance.

2. FUTURE WORKFORCE SKILLS

2.1 Sense-making

The ability to critically think and assess environmental conditions will be a crucial skill for the future workforce who experience globalization and technological advancements that continue to change the dynamics of the workplace [2]. Employees in these ever-changing environments will need to possess the ability to analyze, understand, and solve problems from knowledge that is learned [3] [2] [4] [5]. Demand for employees with sense-making abilities is increasing because of several factors, including the rapid emergence of new technological readiness levels (TRLs), exponential gains in vast amounts of information and computing power, and experiencing increasingly complex problems in dynamically changing environments [2]. According to one survey of middle management, the most popular skills in demand in corporate industries include problem-solving skills (49%), collaboration/ability to work as a team (43%), and critical thinking (36%) [6].

Individuals who have the ability to engage in reflective thinking processes are essential to an organization's ability to respond and adapt to environmental contingencies [3] [7]. The organization may also encourage a learning environment in which members can reflect on processes and examine methods of improving current performance levels [3]. An organization in the global arena would benefit from members who can engage in adaptive and flexible thinking to make sense of opportunities and help reduce problems [3] [8].

One study found that several variables were associated with sense-making skills, including age, intelligence, years of education, and years of work experience [3]. Another study analyzed dispositions associated with sense-making and found that openness to experience, absorptions, and ego-resiliency (flexibility) were each related to the construct of critical thinking [9]. During selection and recruitment processes, global organizations may benefit from looking at candidates with these ideal dispositions toward critical thinking and sense-making skills.

2.2 Social Intelligence

Organizations are moving away from the traditional mechanized model, and moving toward a workforce that is agile, creative, independent, and interactive [10] [11]. This new type of flexible workforce requires individuals driven by social and emotional aspects of the workplace [12] [11]. To prepare employees for a more socially driven workforce, managers provide learning associated with social and emotional intelligence competencies [13]. Emotional intelligence is a type of social intelligence because emotional states in others are recognized and applied to behavior regulation and problem solving [14]. Emmerling and Boyatzis [13] define social intelligence competence as the capability to distinguish, comprehend, and utilize emotional information about others to achieve superior performance. Social intelligence is also referred to as 'people skills', as socially intelligent individuals are aware of the social dynamics that govern various situations [10]. Emmerling and Boyatzis [13] also define emotional intelligence competence as the capability to distinguish, comprehend, and utilize emotional information about oneself to achieve superior performance.

Socially and emotionally competent employees are important for effective organizational performance in variable work environments characterized by instability and change because environments such as these often cause emotional tension [12]. During the change process, employees often generate negative emotions associated with anxiety and uncertainty [15]. Social and emotional intelligence are abilities that help alleviate and manage tensions because they allow individuals to connect and interact with others during times of change [10] [16]. When employees cope with immense, rapid change, they more readily accept the change and develop positive feelings toward new roles and processes, which lead to better performance [12] [15].

The application of competencies associated with social and emotional intelligence continues to expand in today's global work environment, and it is predicted that these competencies will become more vital to job performance in certain organizational cultures [13]. In organizational cultures characterized by diverse work groups, emotional and social intelligence competencies promote effective collaboration when other cultural related barriers are present [15]. An experimental study at Yale University by Barsade [17] showed that positive emotions had a profound influence on group cohesion despite the similarity or difference in the social dynamics of its members. Positive feelings, such as enthusiasm and warmth, improved cooperation and group performance, allowing members to allocate resources more efficiently [17] [15]. Theorists suggested that identifying and measuring social and emotional competencies would allow organizations to predict future performance that results in workplace effectiveness [18] [16].

2.3 Novel & Adaptive Thinking

Novel and adaptive thinking is a skill that is crucial for organizations experiencing changing processes in the future [19]. According to Lucas [19], change will become the norm of the future organization. For example, physical meeting locations may change to virtual collaborating environments in response to technological advances, need for flexibility, and reduce overhead

expenses [19] [20]. One study found that adaptive learning was crucial in an organizational environment that involves hectic work situations with a strong focus on sales [21].

During times of organizational change, certain stages in the change process are critical to solidifying learned concepts and allowing the individual to apply new-found behaviors to various situations [22] [8]. The ability to engage in adaptive thinking is essential for improving task performance during these stages [8]. Shoss, Whitt, and Vera [8] found that adaptive performance was positively correlated with task performance among a group of call center employees. Adaptive performance derives from adaptive thinking and is defined as altering behavior to meet the demands of the environmental context [23]. Therefore, the ability to use novel and adaptive thinking strategies may contribute to steady increases in task performance during the organizational change process.

Glover, Rainwater, Jones, and Friedman [24] noted that the ability to find equilibrium among assimilation and accommodation cognitive tactics was crucial in engaging in effective performance in changing environments. Furthermore, the authors in this article stated that adaptive thinking among leaders was influenced via genetics, culture, cognition, and willpower [24]. Shoss et al. [8] found that organizational politics and the disposition of conscientiousness moderated adaptive performance. Novel and adaptive thinking involves the ability to come up with solutions to unexpected problems in an evolving workplace context [25]. Therefore, organizations experiencing changing environments may benefit from seeking candidates who have the ability to engage in adaptive thinking strategies by analyzing type of work experience, cultural background, and level of conscientiousness.

2.4 Cross-cultural Competence

In the new globalizing business environment, it is expected that more individuals will work in culturally diverse teams in the future [26] [27] [28]. This new international business world requires cross-culturally competent employees with intercultural sensitivities and a global mindset to develop relationships, adapt to change, learn quickly, and effectively communicate [29]. Effective performance will be contingent upon the development of cross-cultural competencies, which are a set of congruent guidelines, attitudes, and behaviors that allow individuals to function successfully in diverse situations [26] [30]. Becoming cross-culturally competent will help individuals understand and value differences, and communicate and coordinate across differences [27].

For management, it will become vital to comprehend the complexity of cultural diversity and utilize individual identities within work groups to ensure balanced relationships that attain organizational goals [29] [28]. Managing a culturally diverse workforce is beneficial to overall organizational performance because the collective intelligence and knowledge inherent in multi-cultural teams allows for better creativity, decision-making, and innovation [28]. According to literature, most international business failures are caused by the inability of managers and employees to understand and effectively interact in cross-cultural situations [26] [30]. Lloyd and Hartel [27] speculated that in the future, lack of cohesion in multicultural work teams would be one of the most demanding organizational concerns.

International organizations can employ various cross-cultural competencies to promote effective performance and collaboration in culturally diverse work groups [31]. As organizations become more international, they may require cross-cultural competencies such as translating complex ideas, valuing different cultures, coping with ambiguity, and developing relationships within the present culture [31]. According to Johnson, Lenartowicz, and Apud [26], culturally competent workers have to educate themselves about other cultures, perspectives, business practices, and trends. Culturally competent employees may also attain the skill of working simultaneously with individuals from various cultures, adapt to residing in other cultures, and understand how to connect with diverse colleagues [26]. Cultural empathy, intercultural communication, and emotion management are also competencies that promote effective multicultural group performance [27]. The implication for global organizations is to incorporate cross-cultural competencies into employee training and development initiatives [29] [27]. Incorporating cross-cultural competencies

into training and development initiatives will promote cooperation among culturally diverse organizations, teams, and individuals, which is essential to the overall performance of organizations [29].

2.5 Computational Thinking

Davies et al. [1] define computational thinking as the ability to convert immense quantities of data into nonfigurative concepts and to comprehend reasoning processes based on available data. Computational thinking involves methods for solving problems, designing systems, and comprehending human behavior by drawing on ideas that are important in computer science [32]. In other words, individuals engage in computational thinking when they process large amounts of data from several sources (e.g., social media, internet, intranet) and organize this data into complex interconnections that allow analysis and synthesis.

Several dispositions have also been associated with computational thinking, including confidence, persistence, tolerance, ability to deal with open-ended problems, and communicating well while working with others [32]. These dispositions may help aid an individual's ability to engage in problem-solving processes with the objective of attaining the most effective arrangement of stages and resources [32]. Handling open-ended problems and communicating effectively with others, for example, are essential functions of computational thinking processes, in that they contribute to the individual's ability to synthesize incoming information and translate the desirable output processes to others.

Organizations today are becoming increasingly reliant on technology to overcome challenges and to ease the process of directing inputs to outputs [33]. Expanding reliance on technology will allow increased flexibility in terms of virtual workspaces where employees can congregate and work on projects both individually and in teams almost instantaneously [20]. Technology allows rapid access to ever-changing information from multiple sources [20]. With the increased use of technology in the workplace, it is likely that the future employee will be required to analyze and digest vast amounts of data from multiple sources, as information can be accessed using various technologies in a globalized context. Therefore, organizations may benefit from using strategies to recruit individuals who understand the language of technology and are prone to using computational thinking processes.

2.6 New Media Literacy

With the arrival of digital technologies, there is increasing awareness of the importance regarding understanding and using various media to communicate [34]. Technology influences an individual's perceptions, beliefs, and attitudes [35] [34]. Organizations must effectively use technology to communicate with others and analyze trends to compete in the global market [36]. Organizations in the future may see an increased need to employ individuals who have the ability to understand information from various media formats.

In the literature, media literacy is defined as the ability to access media, critically evaluate media, and create communications in a variety of contexts [34] [37]. Ohler [37] suggested the importance for employees to be able to integrate new forms of media into a single format and to process and communicate the information. This single format process may take the form of a "blog-folio" in which information is updated in real-time to communicate with others on a topic [37].

The future of presentations may see a change from PowerPoint presentations to video-mediated communication and other multimedia simulation formats [38] [39]. Benefits of using video-mediated communication for meetings include increases in flexibility, reduced costs, reduced travel, and potential increases in employee well-being [38]. These potential benefits highlight the importance of employees understanding how to deliver information and otherwise communicate more effectively using multimedia methods in the competitive global environment.

One study using call-center employees analyzed the use of interactive multimedia simulations as a selection measure [40]. Fluckinger, Dudley, and Seeds [40] found that these interactive

methods were more cost-effective for selection processes than conventional methods of selection. Furthermore, these multimedia simulations demonstrated substantial amounts of criterion-related validity and significant incremental validity over other non-cognitive measures (e.g., bio-data, personality) [40]. Therefore, organizations may benefit from looking at ways to use multimedia simulations in the recruiting and selecting process. Multimedia method of selection may attract individuals who are adept at using new media methods to communicate with others.

2.7 Transdisciplinarity

Fine [41] describes transdisciplinarity as the practice of integrating various approaches across disciplinary, professional, and occupational boundaries to solve complex, real-world problems. Transdisciplinarity is becoming more important as a workforce skill as organizations become global, collaborative, and culturally sensitive [42]. This shift in disciplinary attention is also attributed to structural changes in organizations [43], changes in technology [42], the need for solving complex problems, and radical shifts in work environments [41]. Employees with a transdisciplinary perspective obtain a degree of development and flexibility regarding their knowledge base and recognize that answering questions often requires the consideration of multiple disciplines [43].

To become transdisciplinary, employees need to understand the core principles, language, and mindset of other disciplines [43]. Therefore, organizations are re-examining customary methods for structuring disciplinary expertise, learning, and knowledge [42]. A new transdisciplinary structure would involve critical thinking skills, reflexivity, reflective learning, and self-examination and awareness [44]. Learning would also incorporate, theoretical, tacit, and practical knowledge generation [45]. Mehlenbacher [42] proposed that in the future, the current vertical approach to learning would change to a horizontal approach, where learning occurs across workplace boundaries. A horizontal approach to learning allows employees to continually develop competencies, literacy, and comprehension of concepts from a variety of disciplines, instead of developing job skills only relevant to their current position [42]. Flint [45] defined this type of learning as work-based learning. Work-based learning is required in globalized knowledge networks, as it allows organizations to shift away from linearity [45].

Transdisciplinarity has implications for effective performance in a changing business environment characterized by divergent work activities because such activities require flexible employees who can quickly and creatively adapt to novel situations or challenges [41] [42]. Transdisciplinary employees can draw from their knowledge in other disciplines to solve problems that lead to increased organizational and employee performance [41]. Accessing the knowledge, skills, and abilities from various disciplines to achieve superior performance authenticates “the whole is greater than the sum of its individual parts” (Parkes & Blewitt [44], p. 210).

2.8 Design Mindset

Attaining a design mindset represents an ability to develop job tasks and processes for preferred results [1]. To develop work processes that result in a desired output, organizations and employees need to be flexible [46]. Flexible organizations can modify resource utilization and adapt to or create environments that produce opportunity for improved productivity [47]. Flexible employees are employees who can arrange organizational and environmental specific features so that they operate to their advantage [46].

Technological developments, globalization, and unpredictable environments have created a need for organizations to be flexible, depending less on hierarchical structures [48]. Flexibility permits organizations to alter structure and task formation to promote effective performance [49]. Lee and Brand [50] anticipated that organizations would continue to change rapidly, requiring new styles of work supported by flexibility. Developing strategic flexibilities that provide the capacity to follow alternative scenarios in reaction to changing conditions increases organization’s opportunity for success [49].

In the new business environment, organizations progressively search for functionally flexible workers who can adapt to and facilitate changes in job and task design [47]. To promote the flexibility required for a design mindset, organizations facilitate self-direction, employee empowerment, and a bottom-up method to task design that allows employees a degree of freedom in the development of job tasks and processes [49]. Lee and Brand [50] examined the influence of workspace flexibility and employee freedom in designing their work environment on job performance. The authors found that allowing employees control in designing their workspaces (e.g., physical environment characteristics, and task, work process, and decision control) affected work outcomes through enhanced actual and perceived performance [50]. In the future, it is likely that organizational structures will continue to change, requiring employees to design their job tasks. Therefore, organizations may benefit from recruiting or training employees to be flexible so that they may utilize and modify features of the work environment to fit their goals [47].

2.9 Cognitive Load Management

Cognitive load theory was first proposed by Miller [51] and refers to the notion that working memory is restricted concerning the extent of information that an individual may process. Excessive information may also induce "stress" on both the producer and receiver and the organizational learning system [52]. In other words, cognitive load refers to the amount of constraint that may be placed on working memory in terms of an individual's ability to process, store, and retrieve information related to stimuli. These types of constraints can create a bottleneck effect, which prevents the individual to maximize fully their performance related to desired outcomes [52] [53]. These constraints are influenced by both external and internal factors, including environmental pressures, choice of strategy, task difficulty, and time pressures [52] [53] [54]. Research shows that employees who experience higher levels of cognitive load also risk reducing performance as the increased load places more stress on cognitive functions [55].

Organizations competing in the global arena of the future workforce will likely see increased pressure to meet the challenges of various contingencies, including time pressures, communicating in various cultures, and overcoming increasingly complex challenges to meet the needs to the organization. These time pressures and increased complexity of completing tasks will require higher amounts of individual cognitive load management ability [53] [54]. Furthermore, as organizations competing in a global market desire to become innovative to compete more effectively with other organizations, they will need employees who are capable of balanced thinking (e.g., linear, non-linear) strategies to overcome obstacles and remain competitive [56]. Effective management of mental load and effort may contribute to job learning effectiveness, which in turn provides the organization with enhanced competitive advantage [54].

Cognitive load management skills would be a difficult construct to measure, as the foundation is an instructional theory derived from knowledge in human cognitive structural design [57]. Therefore, the key for organizations to maintain members who are innovative and have balanced thinking to achieve effective cognitive load management is not to screen for these individuals during the selection process, but instead to help employees actively manage their cognitive load. Sweller [57] provides several methods for helping to reduce cognitive load among individuals. Leaders within the organization, for example, may provide employees with worked examples that can be studied, which is shown to be superior to solving equivalent problems [57]. When providing employees with information, leaders may be mindful of split-attention effects and group together similar information, including diagrams to help ease the digestion of the new information [57]. According to Sweller [57], another method of providing information would be to present the content in verbal and written format because the combination of both auditory and visual working memory processors expands working memory capacity.

2.10 Virtual Collaboration

Davies et al. [1] define virtual collaboration as a skill pertaining to the ability to work effectively, advocate engagement, and show existence as a virtual team member. As a process, virtual

collaboration results from the necessity to collectively resolve a problem, produce, or identify something in a virtual environment, and involves shared ownership in decision-making and accountability for results [58]. New organizational structures and an increase in communication and information technologies have led to the need for effective collaboration in various organizational environments such as virtual workplaces [59]. Cascio [60] posited that the presence of virtual workplaces and teams would become more widespread in the future.

Organizations benefit from virtual teams because they allow individuals from different backgrounds to contribute to the decision-making process, which delivers new insights and enhances team performance [61]. Virtual teams that are interdisciplinary or culturally diverse are often used to encourage complex problem solving, creativity, innovation, and the advancement of new solutions [59]. When virtual teams effectively collaborate, they are more productive, innovative, and content than virtual teams that do not effectively collaborate [58].

For effective virtual collaboration, virtual team members must be capable of interacting and communicating across organizational and physical boundaries [59]. Virtual teams that are globally dispersed will also require members to collaborate effectively with others from varying business and national cultures [60]. Peters and Manz [58] stated that effective collaboration requires the development of new mindsets and skills such as readiness to listen, conflict resolution, acquiring trust in team members, recognition of common goals, relationship building, and possessing an open mind. Interpersonal trust and virtual team connectedness influence effective collaboration because of psychological and physical distances [62]. To achieve superior team performance, organizations can integrate various competencies related to effective collaboration (e.g., building trust, knowledge sharing, shared identity, conveying and comprehending different information contexts) into virtual team training [61].

3. SKILL INTERACTION

3.1 Cognitive Skills

The cognitive skills group includes cognitive load management, sense-making, computational thinking, and also novel and adaptive thinking. These cognitive skills interact in complex ways with one another with a heavy emphasis on the ability to use working memory to make sense, interpret, and apply concepts that relate the information to the current environmental context. Cognitive load management skill relates to each of the other cognitive skills because people need to have the ability to process, interpret, categorize, and retrieve data in an efficient manner to ensure that they are contributing to increased levels of job performance. Furthermore, these effective cognitive load management processes may contribute to increased levels of job learning effectiveness, which may also influence novel and adaptive thinking strategies [54].

In order for people to make sense of the data, for example, they would need the ability to use working memory to interpret the information and retrieve similar memories that may be associated with the data interpreted in the current context. People engaging in novel and adaptive thinking strategies must also have the ability to use working memory to identify and use creative strategies to interpret and provide new insights on perceived information. Computational thinking involves the way people think about solving problems by drawing on concepts from computer science, and requires the use of successful cognitive navigation to analyze and interpret this information [32]. Therefore, each of these cognitive skills relates with one another in complex ways to promote the effective performance of an individual, which may in turn influence group dynamics and organizational goals.

3.2 Technology Skills

The technology related skills group includes virtual collaboration and new media literacy. These two skills interact because they acknowledge the need for employees to understand how to use technological advancements for effective performance. A lot of advancements in technology result from the need for more effective ways to communicate. For effective virtual collaboration, team members need to be able to use a virtual environment to interact and communicate across

organizational and physical boundaries [59]. One method in which virtual teams can communicate is through the use of new media platforms such as Facebook, Slideshare, and LinkedIn. According to Koltay [34], understanding and using various forms of media is becoming increasingly important for effective communication.

3.3 Multidimensional Skills

The multidimensional skills group includes transdisciplinarity, design mindset, social intelligence, and cross-cultural competence. This group of skills is labeled multidimensional because they use various personal characteristics, capabilities, and professional approaches to enhance performance. Transdisciplinarity relates to each of the other multidimensional skills because effective performance in the changing business environment requires employees to be flexible, drawing from their knowledge and expertise in other domains to solve complex problems. This type of flexibility is a skill that allows employees to adapt quickly and creatively to novel situations or challenges [42].

For employees to be functionally flexible workers, they should be able to adapt to and facilitate changes in job and task designs so that the design corresponds to their performance needs. Socially intelligent employees also require a degree of flexibility in how they use emotional information and social cues as resources to make informed decisions about complex problems. Social and emotional intelligence are related to cross-cultural competence because cross-cultural competence requires individuals to be aware of the social and emotional dynamics of other cultures [13]. Through a transdisciplinary lens, cross-cultural competence is viewed as an extension of the construct of social intelligence in a new domain [29]. These multidimensional skills interact through the concept of flexibility, as effective performance is influenced by employees' flexibility in how they utilize information, personal attributes, knowledge, and abilities to accomplish organizational goals [47].

4. EVALUATION OF RESEARCH

The proposed ten workforce skills were first suggested by Davies et al. [1] as skills that may be useful in future organizations. To examine the validity of the ten skills perceived usefulness, the authors researched peer-review databases to identify research that would either support or refute assertions made by Davies et al. [1]. The authors used each of the ten skills as keywords in their search for relevant scholarship along with terms such as 'future workforce', 'job performance' and 'workforce trends'. The authors collected several studies and literature reviews within a five year span for each skill to ensure relevancy and applicability of these ten proposed skills essential for globalized organizations.

5. CONCLUSION AND FUTURE DIRECTIONS

The future workplace will likely see increases in the need for flexibility while adapting to environmental contingencies. The list of ten skills is provided for consideration of future workforce needs in an environment that sees rapid change, technological growth, and globalization. Each of these skills is important in of themselves as well as to the skill interactions that occur, where one benefits or cumulates from another (e.g., new media literacy & virtual collaboration). Each of the listed skills is also independent of one another; therefore, each skill may be identified in various degrees among individuals. Organizations may want to consider their potential needs prior to making decisions regarding recruitment, selection, training, and development purposes to ensure that qualified individuals are considered while complying with equal employment laws. Interested researchers may want to consider examining how these proposed skills interact to determine performance requisites in those organizations characterized by globalization, technical, and diversity demands. Future research may also explore the interacting effects these skills may have in terms of improving workplace performance, along with examining how these skills contribute to the globalized workplace using quantitative analyses.

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