A COMPARATIVE STUDY OF DEMOGRAPHIC GROUPING ON THE FUTURE DEMAND FOR EMPLOYEE SKILLS

Chaojing Lin[1]
Phatthararuethai Kenikasahmanworakhun[1*]

Received 2 March 2023
Revised 24 March 2023
Accepted 27 March 2023

Abstract

In today's fast-changing labour market, globalization, technology, and demographic changes are changing the job market and requiring new skills. So, to maintain their position in the market, individuals as well as enterprises need to adapt. Understanding the skills that will be in demand in the future can help employers make informed hiring, training, and development decisions. The purpose of this study was twofold: 1) to examine the degree of future demand for employee skills at a firm in Beijing, China, and 2) to examine disparities in demographic characteristics determining future demand for employee skills in a firm in Beijing, China. The study population comprised 125 employees from the Beijing-based organization, and data was collected via a survey questionnaire. The statistical tools employed in the data analysis included frequency, percentage, mean, standard deviation, t-test, one-way ANOVA, and post hoc test with the Least Significant Difference method. The findings revealed that a majority of respondents perceived the need for skill development to be of high importance. Specifically, the top five skills deemed most essential were analytical thinking and innovation, leadership and social influence, emotional intelligence, strong communication and interpersonal skills, and active learning and learning strategies. The results of the hypothesis testing revealed that demographic factors such as gender, age, education level, income, and work experience significantly affected the future demand for employee skills in the Beijing-based organization, with varying degrees of statistical significance at the 0.05 level.

Keywords: Demographic Factors, Human Resource Development, The Future Demand for Employee Skill

[1] Faculty of Business Administration, Thongsook College. E-mail: chaojing.thongsookcollege@hotmail.com
* Corresponding author e-mail: oilpunpun2522@gmail.com

Introduction

Currently, the abilities of employees in a number of firms are insufficient to accommodate future digital technology advances. Several firms must plan to recruit and train personnel with the skills necessary to manage this transformation. According to research by the World Economic Forum (2020), a poll of workforce skill demand from business leaders identified twenty skill sets that are in demand and will be required in the future, the majority of which involve the use of digital technology and interpersonal connection. This study utilised the aforementioned skill sets to investigate the development needs of employees in organisations, the importance of lifelong learning in career growth, and the possible impact of each demographic element on inequality (OECD, 2019).

Over the past three decades, global labour markets have become more intertwined. The advent of countries such as China and India, which were economic underachievers for millennia, has caused a tremendous supply shock to established trading patterns. Globalization has both advantages and disadvantages. In industries more susceptible to import competition, employment and wages have typically declined, a trend that has been exacerbated by labour market frictions and social and financial obligations such as home ownership, which limit workers' ability to relocate and take advantage of employment opportunities (Bakhshi et al., 2017).

One of the most crucial facets of administration that impacts a company's performance is its human resources. If a company, whether public or private, has knowledgeable and capable employees, it will have a better chance of managing its operations efficiently. This adds a human dimension to what has been considered an organisational asset that places equal value on intellectual capital and human capital. As a result, the company needs to invest in its people to ensure they have the skills, knowledge, and abilities necessary to thrive in an ever-evolving industry (Nemeth, 2016).

Organizations have placed a premium on the development of their employees, and human resource development is essential to the organization's success. Because humans are capable of lifelong learning and development. The development of human resources is crucial to the organisation. So if the organisation has great people resources and resources, it will be highly effective (Anwar & Abdullah, 2021). It contributes to the organization's stability and strength. It is a must for companies now and in the future. In addition, only those who are prepared and powerful will endure the new era's competitiveness brought on by the current quick shift. When a company has a substantial quantity of knowledgeable capital

and human resources, the need for competence develops. This sophisticated framework must define each and every operation. Some systems and procedures exist. To build a positive interaction between workers in different departments by depending on personnel who are capable and willing to work (Patrick & Mazhar, 2019). Thus, there will be no issues or modifications to the management, particularly the management philosophy. Presently, a new management policy approach (New Public Management, or NPA) is emphasising the use of professional management and embracing the private sector's approach to management (Sakdiyakorm & Voravivatana, 2015). Some principles determine productivity and outcomes. It has a small, compact, and flat organisational structure, allowing it to be flexible, independent, and effective. It differs from the previous line in order to boost the organization's efficiency.

Examining the future demand for employee abilities is crucial in today's rapidly changing labour market. Technology advancements, globalisation, and demographic shifts are transforming the employment landscape and generating new skill requirements. As a result, both businesses and employees must change to remain competitive and relevant. Knowing the abilities that will be in high demand in the future will assist employers in making educated decisions on recruiting, training, and development (McKinsey Global Institute, 2017). Concurrently, organisations must evolve and adjust their structures to accommodate the changes. In addition, examining industry and professional skill requirements can guide policy decisions and assist educational institutions with aligning their curricula with industry needs. In the short term, however, analysing the future demand for employee abilities is necessary for organisations to thrive and develop a workforce capable of handling the challenges and opportunities of the twenty-first century (Acemoglu & Restrepo, 2018). Thus, the researchers are interested in studying the need for human resource development at a Beijing, China, company and using the study's findings to guide executives and related departments to improve and enhance resource and potential human development to operate in accordance with current conditions, which will affect the organization's future effectiveness.

Research Objectives

1. to examine the degree of future demand for employee skills at a firm in Beijing, China, and

2. to examine disparities in demographic characteristics determining future demand for employee skills in a firm in Beijing, China.

Research Hypothesis

The differences in demographic factors including gender, age, education levels, income, and work experience differently affect the future demand for employee skills in Beijing, China

Conceptual Framework

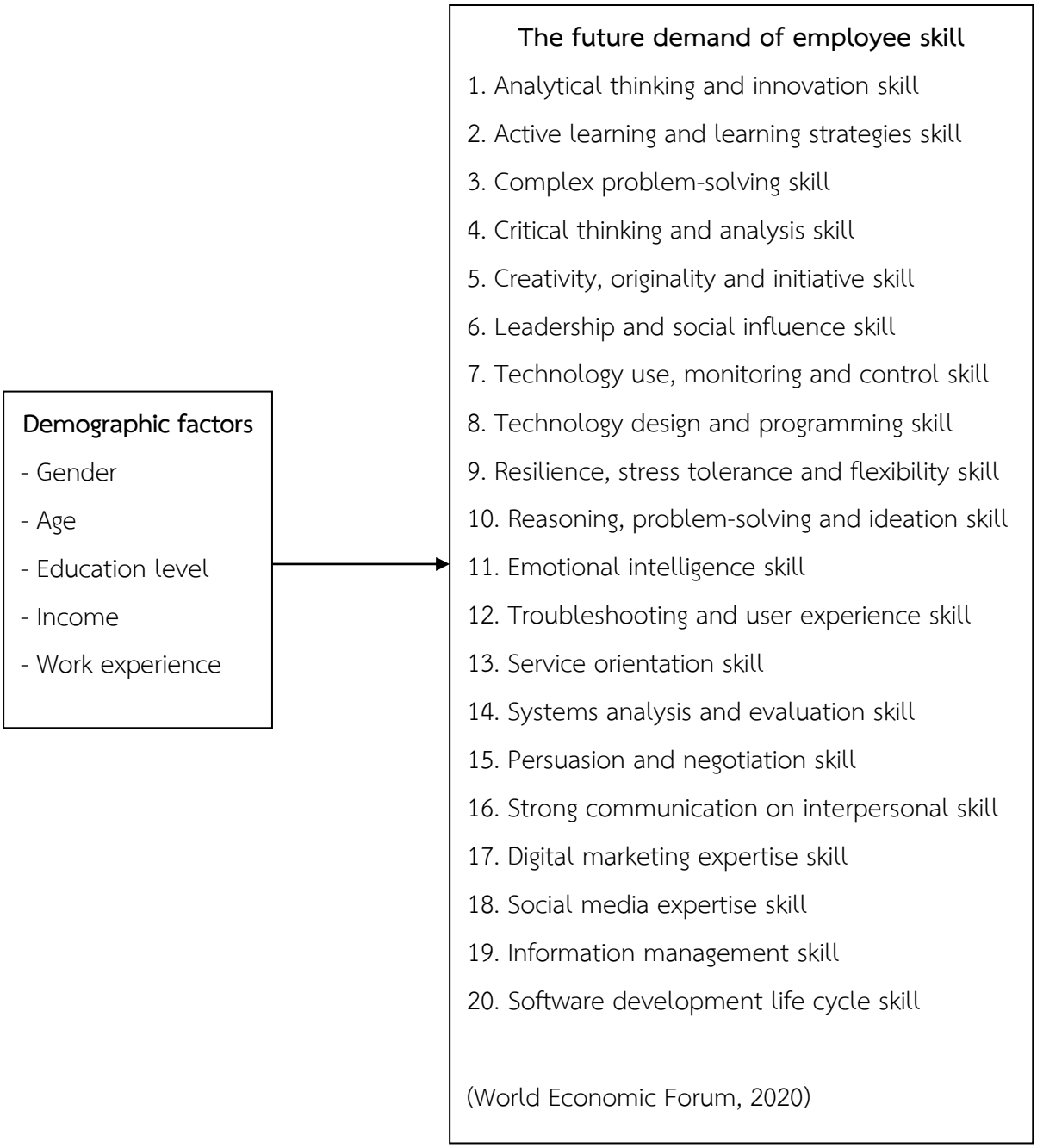

Figure 1 The Conceptual Framework

Literature Review

Concepts of human resource development

The goal of human resource development is to improve employee performance (Kareem & Hussein, 2019). Human resource development activities are related to other activities of human resource management such as incentive activities to boost the effectiveness of the organisation (Doenovi & Zolak-Poljaevi, 2021). The activities of human resource development comprise the activities of the working structure design. Individual-oriented activities include training, educational, and employee development activities, as well as activities that focus on connecting with the company, such as career development and organisational development activities, among others (Pepliska, Lipowski, & Nieckarz, 2011). Human resource development (HRD) responsibilities and practice are split into three categories: 1) teaching, teaching design, and being an engineer, 2) consulting, and 3) leading.

Two strategies can upgrade and increase the credibility of human resource development efforts to achieve organisational structure and strategy consistency (Gilley et al., 2002). Thus:

1. Business strategic partnership contributes to strategy formulation. There are five steps: producing services for customer happiness, auditing participation and providing advisory services, developing and building an atmosphere for cooperation, helping the company improve operations and decision-making, and discovering and meeting customer wants.

2. Defining the organization's human resource development mission and plan. Consistently advocate and support the organization's mission and strategy. Human resource developers must promote their job in the company.

Concept of the future demand for employee skill

In the past five years, the World Economic Forum (2020) has monitored the emergence of the future of work, highlighting the potential magnitude of worker displacement due to technological automation and augmentation, and offering effective strategies for empowering job transitions from declining to emerging jobs. At the heart of the report and its analysis is the future of jobs survey, a distinctive tool that evaluates short and long-term trends and the impact of technology adoption on labour markets. The data presented in the following chapter tracks technological adoption among firms, as well as changing job requirements and skills demand. These qualitative survey responses are further enhanced by granular data from new sources, derived from privately held data that tracks

key jobs and skills trends. The two sources together provide a comprehensive overview of the unfolding labour market trends and an opportunity to plan and strategize for a better future of work (Zahidi, 2020). The following demonstrates the skill sets in demand across multiple emerging professions. Specialized skills in product marketing, digital marketing, and human-computer interaction are examples of 'cross-cutting' skills. These skills are essential for any company that faces digital transformation today (World Economic Forum, 2020). The future demand for employee skills is as follows:

1. Analytical thinking and innovation skills refer to the ability to analyze information and use it to generate new ideas, solve problems, and make decisions.

2. Active learning and learning strategies skills refer to the ability to learn quickly and efficiently, using various learning techniques and strategies to acquire new knowledge and skills.

3. Complex problem-solving skills refer to the ability to identify and solve problems that are complex or have multiple components, often involving data analysis, critical thinking, and creativity.

4. Critical thinking and analysis skills refer to the ability to evaluate information and arguments, identify assumptions and biases, and draw logical conclusions.

5. Creativity, originality, and initiative skills refer to the ability to generate new ideas and solutions, think outside the box, and take proactive steps to achieve goals.

6. Leadership and social influence skills refer to the ability to inspire and motivate others, build relationships and networks, and influence others to achieve shared goals.

7. Technology use, monitoring, and control skills refer to the ability to use and manage technology effectively, including monitoring and controlling the performance of technology systems.

8. Technology design and programming skills refer to the ability to design and develop technology systems and software applications.

9. Resilience, stress tolerance, and flexibility skills refer to the ability to cope with stress and adversity, adapt to changing circumstances, and bounce back from setbacks.

10. Reasoning, problem-solving, and ideation skills refer to the ability to reason logically, identify problems, generate ideas, and develop solutions.

11. Emotional intelligence skills refer to the ability to recognize and manage one's own emotions, as well as the emotions of others, to build relationships and navigate social situations.

12. Troubleshooting and user experience skills refer to the ability to identify and solve technology-related problems while ensuring users have a positive experience using those systems.

13. Service orientation skills refer to the ability to understand and meet the needs of customers or clients and to provide high-quality service and support.

14. Systems analysis and evaluation skills refer to the ability to analyze and evaluate complex systems, processes, and structures to identify areas for improvement and implement changes.

15. Persuasion and negotiation skills refer to the ability to convince others of one's point of view and to negotiate effectively to achieve a desired outcome.

16. Strong communication on interpersonal skills refer to the ability to communicate effectively with others, build relationships, and work collaboratively in teams.

17. Digital marketing expertise skills refer to the ability to design and implement marketing strategies and campaigns using digital channels and tools.

18. Social media expertise skills refer to the ability to use social media platforms effectively for marketing, communication, and relationship building.

19. Information management skills refer to the ability to collect, analyze, and manage large amounts of information and to use that information to inform decision-making.

20. Software development life cycle skills refer to the process of designing, developing, testing, and maintaining software applications, from conception to deployment and beyond.

Research Methodology

This study comprised of 185 employees from a Beijing-based company, with a sample size of 125 people determined by consulting the Krejcie and Morgan (1970) table. The research used a convenience sampling method, which falls under the category of non-probability sampling.

To collect data for the study, a questionnaire was developed based on an extensive review of the relevant literature and studies to ensure that the questions aligned with the research objectives. The questionnaire consisted of three parts. Part 1 was a

demographic questionnaire, Part 2 assessed the level of future demand for employee skill, and was developed using a 5-level rating scale (5 = Highest, 4 = High, 3 = Moderate, 2 = Low, 1 = Lowest) derived from the World Economic Forum (2020) report. The final section, Part 3, allowed respondents to provide additional suggestions and comments.

To ensure the reliability of the questionnaire, Cronbach's alpha test was conducted, which yielded a confidence value of 0.85. This value is above the recommended threshold of 0.7, indicating that the questionnaire is reliable (George & Mallery, 2016).

The process of data analysis in this study involves two main methods, namely descriptive statistics and inferential statistics. The former technique entails calculating and interpreting frequency, percentage, mean, and standard deviation measures to provide a summary of the preliminary data collected. On the other hand, the latter method involves testing the research hypothesis using various statistical tests, such as t-test, One-way ANOVA, and post hoc test, with the Least Significant Difference (LSD) method, while ensuring statistical significance at the 0.05 level. By employing both descriptive and inferential statistics, the study aims to provide a comprehensive analysis of the data collected, drawing both practical and theoretical implications for the research problem.

Results

Upon analyzing the data, it was revealed that the majority of the respondents (58.40%) were females, while the age group with the highest percentage of respondents was between 31-40 years old (40%). Furthermore, a significant proportion of the participants had completed a bachelor's degree (52%), and the majority reported an average monthly income ranging between 2,001 to 4,000 yuan (36.80%). In terms of work experience, the highest percentage of respondents reported having 6-10 years of work experience (36.80%).

Table 1 Shows the level of the future demand for employee skills.

The future demand for employee skill	$\bar{X}$	SD	Level of opinion	Ranking
1. Analytical thinking and innovation skills	4.17	0.72	High	1
2. Active learning and learning strategies skills	3.80	0.93	High	5
3. Complex problem-solving skills	3.75	0.96	High	7
4. Critical thinking and analysis skills	3.67	1.03	High	14
5. Creativity, originality and initiative skills	3.69	1.16	High	11

Table 1 Shows the level of the future demand for employee skills. (Cont.)

The future demand for employee skill	$\bar{X}$	SD	Level of opinion	Ranking
6. Leadership and social influence skills	4.15	0.75	High	2
7. Technology use, monitoring and control skills	3.74	0.99	High	8
8. Technology design and programming skills	3.65	0.98	High	15
9. Resilience, stress tolerance and flexibility skills	3.70	1.07	High	9
10. Reasoning, problem-solving and ideation skills	3.69	0.97	High	10
11. Emotional intelligence skills	4.04	0.79	High	3
12. Troubleshooting and user experience skills	3.58	1.01	High	17
13. Service orientation skills	3.55	1.21	High	19
14. Systems analysis and evaluation skills	3.56	1.08	High	18
15. Persuasion and negotiation skills	3.76	1.00	High	6
16. Strong communication on interpersonal skills	4.02	0.87	High	4
17. Digital marketing expertise skills	3.68	1.18	High	13
18. Social media expertise skills	3.47	1.08	High	20
19. Information management skills	3.69	1.17	High	12
20. Software development life cycle skills	3.60	1.14	High	16
Overall	3.75	0.72	High	

Table 1 presents the findings of the respondent's perceptions of the future demand for employee skills. The majority of respondents held a positive opinion regarding the future demand for employee skills. Upon examining the mean scores, it is evident that respondents ranked analytical thinking and innovation skill as the most crucial skill, with a mean score of 4.17 and a standard deviation (SD) of 0.72. The next essential skill identified by respondents was leadership and social influence skill, with a mean score of 4.15 and an SD of 0.75. Additionally, emotional intelligence skills (mean = 4.04, SD = 0.79), strong communication on interpersonal skills (mean = 4.02, SD = 0.87), and active learning and learning strategies skill (mean = 3.80, SD = 0.93) were also considered as critical skills for future employees.

Table 2 shows a summary of the hypothesis test results.

The future demand for employee skills	Gender	Age	Education	Income	Work Exp.
1. Analytical thinking and innovation skills	**2.126*** (**0.036**)	**2.692*** **(0.049)**	**3.163*** **(0.046)**	**2.753*** **(0.031)**	**3.499*** **(0.018)**
2. Active learning and learning strategies skills	0.271 (0.787)	**3.530*** **(0.017)**	0.217 (0.806)	1.719 (0.150)	1.196 (0.314)
3. Complex problem-solving skills	-0.969 (0.335)	**3.240*** **(0.025)**	0.528 (0.591)	1.562 (0.189)	1.200 (0.313)
4. Critical thinking and analysis skills	**-2.134*** **(0.035)**	0.313 (0.816)	0.113 (0.893)	0.906 (0.463)	0.763 (0.517)
5. Creativity, originality and initiative skills	-1.061 (0.291)	1.826 (0.146)	0.075 (0.928)	1.039 (0.390)	0.647 (0.586)
6. Leadership and social influence skills	0.504 (0.615)	0.505 (0.679)	1.584 (0.209)	**4.392*** **(0.002)**	**4.587*** **(0.004)**
7. Technology use, monitoring and control skills	-1.413 (0.160)	1.512 (0.215)	1.248 (0.291)	0.950 (0.438)	0.892 (0.447)
8. Technology design and programming skills	-1.625 (0.107)	1.097 (0.353)	0.266 (0.767)	1.089 (0.365)	0.881 (0.453)
9. Resilience, stress tolerance and flexibility skill	-0.708 (0.480)	0.404 (0.751)	1.007 (0.368)	1.312 (0.270)	0.941 (0.423)
10. Reasoning, problem-solving and ideation skills	-1.460 (0.147)	0.144 (0.933)	0.472 (0.625)	**2.822*** **(0.028)**	0.951 (0.418)
11. Emotional intelligence skills	1.136 (0.258)	0.454 (0.715)	2.108 (0.126)	**4.435*** **(0.002)**	**5.790*** **(0.001)**
12. Troubleshooting and user experience skills	-1.070 (0.287)	1.614 (0.190)	0.177 (0.838)	1.376 (0.246)	0.815 (0.488)
13. Service orientation skills	-1.304 (0.195)	2.236 (0.088)	0.218 (0.805)	0.838 (0.503)	0.521 (0.669)
14. Systems analysis and evaluation skills	**-2.239*** **(0.027)**	1.130 (0.340)	0.241 (0.787)	0.333 (0.855)	0.467 (0.706)
15. Persuasion and negotiation skills	-0.998 (0.320)	1.676 (0.176)	0.104 (0.901)	2.197 (0.073)	2.547 (0.059)
16. Strong communication on interpersonal skills	1.421 (0.158)	2.245 (0.087)	**4.616*** **(0.012)**	**5.103*** **(0.001)**	**5.420*** **(0.002)**

Table 2 shows a summary of the hypothesis test results. (Cont.)

The future demand for employee skills	Gender	Age	Education	Income	Work Exp.
17. Digital marketing expertise skills	-0.672	0.468	0.394	1.525	0.904
	(0.503)	(0.705)	(0.675)	(0.199)	(0.441)
18. Social media expertise skills	-0.593	2.438	0.228	1.757	1.525
	(0.554)	(0.068)	(0.797)	(0.142)	(0.212)
19. Information management skills	-1.361	1.871	1.827	0.954	0.956
	(0.176)	(0.138)	(0.165)	(0.435)	(0.416)
20. Software development life cycle skills	-1.477	0.716	0.471	1.519	0.605
	(0.142)	(0.544)	(0.625)	(0.201)	(0.613)

* Statistically significant at the 0.05 level

Table 2 presents the findings of the research on how demographic factors such as gender, age, education level, income, and work experience affect the future demand for employee skills in Beijing, China. The statistical significance was set at 0.05 levels, and the results were categorized as follows:

Gender was found to impact the future demand for employee skills in Beijing, China, particularly in analytical thinking and innovation skill, critical thinking and analysis skill, and systems analysis and evaluation skill with statistical significance at the 0.05 level.

Age also played a significant role in the future demand for employee skills in Beijing, China, particularly in analytical thinking and innovation skill, active learning and learning strategies skill, and complex problem-solving skill, with statistical significance at the 0.05 level. The average comparison can be found in Tables 3-5 of the appendix.

Education level also had a notable impact on the future demand for employee skills in Beijing, China, particularly in analytical thinking and innovation skills and strong communication on interpersonal skills, with statistical significance at the 0.05 level. The average comparison can be found in Tables 6-7 of the appendix.

Income was also found to impact the future demand for employee skills in Beijing, China, particularly in analytical thinking and innovation skill, leadership and social influence skills, reasoning, problem-solving, ideation skill, emotional intelligence skill, and strong communication on interpersonal skills, with statistical significance at the 0.05 level. The average comparison can be found in Tables 8-12 of the appendix.

Work experience was also found to impact the future demand for employee skills in Beijing, China, particularly in analytical thinking and innovation skill, leadership and social influence skills, emotional intelligence skills, and strong communication interpersonal skills, with statistical significance at 0.05 levels. The average comparison can be found in Tables 13-16 of the appendix.

Discussion

According to the first objective of the research, the majority of respondents expressed a positive outlook on the future demand for employee skills. Among the top five skills that the respondents believed would be most in demand in the future, based on the assumptions made, were analytical thinking and innovation, leadership and social influence, emotional intelligence, strong interpersonal communication, and active learning and learning strategies. Of these skills, analytical thinking and innovation were deemed to be of the utmost importance, as they are essential for improving efficiency and introducing new techniques, technology, and initiatives in the workplace.

Leadership and social influence were ranked as secondary in importance, as these skills can motivate employees to perform better and help them recognize the benefits of their colleagues' contributions. Emotional intelligence was ranked third, as it can help employees control their emotions and behaviours, and exercise patience when dealing with problems and obstacles. Strong interpersonal communication skills were ranked fourth, as they are critical for managing work effectively and creating unity within the workgroup. Finally, active learning and learning strategies were ranked fifth, as these skills are crucial for lifelong learning and adapting to the changing world. Developing these skills is essential for increasing productivity and reducing available resources in the organization.

The findings of this study align with the research conducted by Akyazi et al. (2020) on “A guide for the food industry to meet the future skills requirements emerging with industry 4.0.” Their study found that companies require job innovation skills to effectively apply techniques and technology, resulting in enhanced operational efficiency. Additionally, Schallock et al. (2018) researched the Learning Factory for Industry 4.0, which emphasized the importance of learning in developing the skills that will be in demand in the future world, going beyond just technical training.

According to objective 2, the research results revealed significant differences at a statistical level of 0.05 in the future demand for employee skills based on various

demographic factors, including gender, age, education level, income, and work experience in Beijing, China. The significance of individual differences in human resource planning and development cannot be overstated as each person possesses distinct physical skills, knowledge, preferences, expertise, and needs. In order to cultivate human resources with the necessary skills for the future world, it is imperative to comprehend these differences. The research identified differences in multiple dimensions, which will be summarized below to grasp the essence of the disparities uncovered.

The existence of gender differences highlights the requirement for imaginative self-improvement and logical thought. This difference is since each gender has qualities that are distinctive to themselves. For example, men are known to have lofty goals and elaborate dreams. On the other hand, girls have a higher level of sensitivity and are more reasonable than males.

The variations in maturity, knowledge, and expertise were reflected in age and educational attainment. The initiative is more accurate if the age and education levels are higher since there is a body of past information or concepts and arguments utilised as the ground of thinking. It makes that person more capable of growth and invention than those who are less experienced or less educated. It was discovered that there were variations in each aspect of the study of the average difference between the test results. In conclusion, persons who are younger and less educated need to improve their thinking and innovative skills. Older, more educated individuals will put more emphasis on studying to improve their capacity for handling and resolving difficult issues

Income also reflects job titles, with greater salaries going with more senior positions or specialised knowledge. Because of this, high-paying employees often push themselves to develop specialised knowledge. Imitators are difficult to locate. because the organisation requires this talent to function. It was discovered that there were variations in each aspect of the study of the average difference between the test results. In conclusion, because the organisation had high expectations of them, high-income workers are more likely than low-income workers to gain talents in a range of areas. To have a high potential for organisations to recognise the worth of their abilities, one must engage in self-development.

Work experience shows knowledge of the work they do. Those that stay the work for a long time will have greater experience and knowledge in that field. It was discovered that there were variations in each aspect of the study of the average difference between the test results. As a result of the high working hours required by their jobs and the resulting

acquired job abilities, persons with more work experience feel as though they must be able to advance their skill sets even farther than those with less work experience. Less experienced workers still need to put their newly acquired talents into practice and refine them to become proficient and masterful. There is a belief that increasing one's skill set will put more pressure on one to grow personally.

These were in line with the findings of Spetz et al. (2015) study, which found that “Future demand for long-term care workers will be influenced by demographic and utilisation changes.” The findings also revealed that various demographic factors have an impact on the required skill sets of future workers. In line with studies by Ahmed et al. (2016) on "How important is Sub-Saharan Africa's demographic dividend for its future growth and poverty reduction?" The findings demonstrated that demographics play a significant role in characterising the demands, requirements, knowledge, and capabilities of future job growth.

Suggestions

1. The leaders and HR executives of the organization should take the lead in initiating programs or courses aimed at developing skills that are essential for employees' future success. One crucial skill that can enhance the organization's efficiency is analytical thinking and innovation. Therefore, a training course on design thinking and creativity should be organized to promote innovation in the workplace, followed by leadership training. Furthermore, emotional intelligence development programs should be created to make employees accountable and capable of effective self-control. To build relationships and improve interpersonal skills, activities of the same scale should be organized for all employees. Additionally, the organization should support and promote a learning culture among employees by providing necessary resources, including internal institutions and knowledge-sharing platforms within the organization.

2. The executives and heads of the human resources department of the company should utilize personal data to identify employees who need to improve their skills to meet the organization's future requirements. This will ensure that the company's investment in human development is effective and that the budget allocation is appropriately utilized.

3. The executives and heads of the human resources department of the company should ensure that training and development programs are tailored to meet the specific needs and backgrounds of employees. For instance, training programs can be created to

address the challenges faced by women and employees in lower roles, who may have experienced barriers to accessing development opportunities. Furthermore, organizations can collaborate with community organizations or educational institutions to provide training to individuals who may not have access to traditional training programs, prioritizing equality and inclusion in skills development initiatives. By doing so, organizations can help ensure that all employees are equipped with the necessary skills to succeed in a rapidly changing work environment.

Future Research

1. It would be beneficial to conduct qualitative research with management to identify the specific skills that executives anticipate employees needing in the future. Additionally, gathering employee feedback through qualitative research could provide valuable insights into their own personal development needs.

2. To enhance the generalizability of the findings, future research could utilize the proposed conceptual framework to analyze data from a broader range of companies and population groups. This approach could help identify similarities and differences in skill development needs across diverse industries and regions.

3. Further research could explore additional factors that may influence employees' future skill development needs, such as their awareness of emerging digital technologies or other industry trends. Understanding how these factors impact employees' desired knowledge and skills can inform the development of more effective training and development programs.

Reference

Acemoglu, D. & Restrepo, P. (2018). The Race between Man and Machine: Implications of Technology for Growth, Factor Shares, and Employment. **American Economic Review, 108**(6), 1488-1542.

Ahmed, S. A., Cruz, M., Go, D. S., Maliszewska, M., & Osorio-Rodarte, I. (2016). How Significant Is Sub-Saharan Africa's Demographic Dividend for Its Future Growth and Poverty Reduction?. **Review of Development Economics, 20**(4), 762-793.

Akyazi, T., Goti, A., Oyarbide, A., Alberdi, E., & Bayon, F. (2020). A guide for the food industry to meet the future skills requirements emerging with industry 4.0. **Foods, 9**(4), 492.

Anwar, G., & Abdullah, N. N. (2021). The impact of Human resource management practice on Organizational performance. **International journal of Engineering, Business and Management, 5**, 35-47.

Bakhshi, H., Downing, J. M., Osborne, M. A., & Schneider, P. (2017). **The future of skills: Employment in 2030.** Pearson.

Došenović, D., & Zolak-Poljašević, K. (2021). Digital competence in the era of digital transformation: A systematic literature review. **Sustainability, 13**(1), 1-20.

George, D., & Mallery, P. (2016). **SPSS for Windows Step by Step: A Simple Guide and Reference** (13th ed.). Pearson.

Gilley, J., Eggland, S., Gilley, A. M., & Maycunich, A. (2002). **Principles of human resource development.** Basic Books.

Kareem, M. A., & Hussein, I. J. (2019). The impact of human resource development on employee performance and organizational effectiveness. **Management Dynamics in the Knowledge Economy, 7**(3), 307-322.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. **Educational and psychological measurement, 30**(3), 607-610.

McKinsey Global Institute. (2017). **Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation**. https://mck.co/3KipeHb

Nemeth, C. P. (2016). The ability to adapt. **Resilience Engineering Perspectives, 2**, 23-34.

OECD. (2019). **The Future of Work and Skills: OECD Education 2030 Position Paper.** https://www.oecd.org/education/2030-project/position-papers/Future-of-Work-and-Skills.pdf

Patrick, P., & Mazhar, S. (2019). Core functions of human resource management and its effectiveness on organization: A study. **International Journal of Social Economics, 9**(5), 257-266.

Peplińska, A., Lipowski, M., & Nieckarz, Z. (2011). Career and professional development–challenges for employees and modern organizations. **Polish Journal of Social Science, 6**(1), 75-100.

Sakdiyakorn, M., & Voravivatana, S. (2015). New Public Management from a Human Resource Perspective: The Case of Thailand. **Thai Journal of Public Administration, 13**(1), 125-125.

Schallock, B., Rybski, C., Jochem, R., & Kohl, H. (2018). Learning Factory for Industry 4.0 to provide future skills beyond technical training. **Procedia manufacturing, 23**, 27-32.

Spetz, J., Trupin, L., Bates, T., & Coffman, J. M. (2015). Future demand for long-term care workers will be influenced by demographic and utilization changes. **Health Affairs, 34**(6), 936-945.

World Economic Forum. (2020). **The future of jobs report 2020.** https://www3.weforum.org/docs/WEF_Future_of_Jobs_2020.pdf

Zahidi, S. (2020). The jobs of tomorrow. **Finance & Development, 57**(004).