



Research Article

Workforce Training and Development: A Comparative Analysis of Skill Demand in Slovak Companies

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Abstract

The paper investigates the critical role of workforce education, training, and skill development in effective human resource management. It emphasizes the importance of skill enhancement for driving enterprise innovation and sustaining competitive advantage in the market. The study examines the influence of external factors on the demand for employee skills, highlighting the ongoing necessity for continuous development. Furthermore, it presents research findings comparing the demand for various skill types among companies with different levels of training and development (T&D). The research, which surveyed 135 companies in Slovakia, focuses on cognitive, communication, digital, and social skills. The results are compared with the OECD's "Skills for Job" data for Slovakia. Utilizing the Mann-Whitney U test, the study evaluates four statistical hypotheses, confirming two related to cognitive and digital skills. Notably, the research suggests that companies with active T&D programs exhibit a lower external demand for digital and cognitive skills.

Keywords: training and development; skills; innovations; human resources.

Introduction

Innovations, whether they manifest as new technologies or organizational changes, transform workforce requirements. Employees need to acquire more advanced and complex skills, increasing the demand for highly educated individuals. This creates a dynamic interplay between technology and education, where technological advancements continuously reshape labor market needs, challenging educational systems to deliver relevant knowledge to a broader audience. When technology outpaces education, changes in job requirements occur faster than educational institutions can adapt, benefiting those with higher education. This trend has been evident in developed countries since the late 20th century.

Literature Review

Current developments in the world economy stem mainly from globalization and integration processes. Under strong competitive forces, so significant in the current business environment, companies are looking for a stable position with the prospect of further development (Vidya, 2022). The trends like globalization, digitization, and demographic changes are fundamentally changing the nature of work in terms of the type of jobs created, the skills required for these jobs and the way work is organized. These trends challenge traditional labor market policies and require new thinking to help navigate the new world of work and shape it to ensure a fair sharing of the benefits that these changes can bring (OECD, 2019).

Technological development brings new opportunities for HR professionals and managers when looking for new employees. With the use of new applications and modern ICT tools, not only the way of work changes, but also the nature of work. Employees must be able to achieve results and perform above average, manage communication and work within a multicultural team using modern technologies, and solve problems online. With the advent of a new generation, not only human resource management practices are changing, but also the values and meaning of terms in the contemporary world (Frejtichová, 2015).

Ensuring productivity growth and securing good jobs requires a strong emphasis on skills. Fundamental skills like literacy, mathematical literacy, and ICT literacy serve as essential prerequisites for easy entry into the labor market

and for adults to maintain stable and high-quality employment (Stef and Mirea, 2021). To build a successful career, individuals must embrace a mindset of continuous learning and adaptability to navigate changing working conditions and career paths (Riel et al., 2012).

According to the international group of stakeholders engaged in the OECD Future of Education and Skills 2030 project, skills are defined as the capabilities and requirements needed to execute specific tasks and effectively apply one's knowledge to achieve objectives. These skills are an integral aspect of a comprehensive notion of competence, which encompasses the utilization of knowledge, skills, attitudes, and values to meet intricate demands.

OECD Learning Compass 2030 distinguishes three different types of skills (OECD, 2018):

- cognitive and metacognitive skills that include critical thinking, creative thinking, learning and self-regulations;
- social and emotional skills, which include empathy, self-efficacy, responsibility and cooperation;
- practical and physical skills that include the ability to use new information and means of communication.

These challenges are even greater in countries with aging populations, where most of the future workforce has already completed initial education. Due to rapid technological change, the skills of these workers will fall behind faster and they will also have to stay in the workforce longer. In order to help these individuals adapt to the changing needs of the labor market, it will be particularly important to design high-quality lifelong learning systems that allow adults to regularly update and sometimes even acquire completely new knowledge, skills and competences. Given that the costs of training are likely to be borne by low-skilled workers, efforts should be focused on them, as well as on small and medium-sized enterprises, which tend to face greater barriers to investment in training. The labor market is poised to be impacted by globalization, technological advancements, and demographic alterations. Nevertheless, the exact extent of these effects and the speed of their emergence are marked by considerable uncertainty. In light of this, the emphasis should shift toward ensuring that the current labor market structures and policies empower individual workers and countries to navigate

these changes with minimal disturbance while optimizing their capabilities (OECD, 2019).

Identifying a universal set of competencies that employers seek in today's employees might be elusive; however, specific types of competencies tend to emerge consistently in studies exploring current workforce demands (Pool and Sewell, 2007). Instead, labor market demands are intertwined with a broader spectrum of general competencies and personal traits (Tomlinson, 2008). Employees are expected to possess flexibility, adaptability, and a continuous learning mindset throughout their careers (Nyström, Dahlgren and Dahlgren, 2008). Workers must be capable of gaining a comprehensive understanding of diverse tasks within the organization, functioning effectively in multidisciplinary environments, and fostering collaboration and communication with others. In addition to job-specific skills, labor market requirements include an ethical aspect that encompasses integrity and the ability to comprehend and respect the explicit and implicit rules, values, and norms present within an organization. This ethical dimension is fundamental in interpreting diverse contexts and aligning with the distinct organizational culture (Nilsson, 2010).

Two types of skills are likely to be particularly important in the future. First, as routine tasks disappear, more and more emphasis will be placed on skills that are harder to automate. In particular, there is evidence that the labor market increasingly rewards soft skills such as the ability to communicate, work in teams, lead, solve problems and self-organize (Deming, 2017). Second, the importance of digital skills is growing. While demand for ICT specialist skills is growing rapidly, existing evidence does not suggest that large shortages are likely to occur. Of much greater concern, however, are individuals' general ICT skills, such as the ability to retrieve and search for information or use office productivity software. Here, existing evidence suggests a significant mismatch between demand and supply of skills (OECD, 2016).

Rapidly changing skills needs increase the risk of skills mismatch and shortages, both of which have significant economic costs. For individuals, skills mismatch has a negative impact on job satisfaction and wages. For firms, this reduces productivity and increases employee turnover in the workplace, while shortages increase recruitment costs and hinder the adoption of new technologies. At the macroeconomic level, the mismatch raises equilibrium unemployment and

reduces GDP growth by misallocating human capital and/or reducing the productivity it creates, while skills shortages have an equally adverse effect on labor productivity. In addition, recent research has shown that countries that are better at meeting the demand for skills also have lower wage inequality (OECD, 2015).

Senyucel (2013) further argues that organizations must see their employees as valuable assets and invest in T&D. Employees expect organizations to invest in their development and in return to be flexible, creative and productive. The job market is unforgiving, so employees must constantly improve their knowledge and skills. Organizations face difficulties in using resources for employee training and development because they have to satisfy customers and meet deadlines at the same time.

The overarching goal of education is to enhance employees' productivity in various ways. However, education may not always directly equip individuals for the specific tasks they will encounter in their professional roles (Helms Jørgensen, 2004). Adult education and training play a crucial role in preparing individuals to face challenges by fostering their capacity to develop and adapt to different job requirements. To ensure a steady supply of qualified labor, the dynamic and evolving labor market necessitates increased investments in learning and education (Livingstone, 2010). While the demand for more educated individuals has risen, it remains uncertain whether the current workforce precisely matches the present workplace demands. In order to retain competitiveness within the job market, secure a steady income, and achieve a respectable social standing, individuals must consistently invest in enhancing their skill sets to remain pertinent amid the growing competition (Clarke, 2008). As the external landscape of the labor market undergoes transformations, the factors concerning employees also experience shifts. One notable factor is the phenomenon of career transition, characterized by frequent alterations (Nyström, Dahlgren and Dahlgren, 2008). This progression has led to new circumstances and prerequisites within the labor market. Clearly, in a swiftly evolving technological and societal milieu, the mere completion of education is inadequate to excel as a proficient employee.

The realm of T&D is currently undergoing multiple shifts. These changes are closely intertwined with transformations in our working environment, including the rise of virtual work

forms, as well as alterations in how we execute our tasks, marked by an increased integration of technology. It can be asserted that change has evolved into a consistent factor, and, for numerous employees, the hurdle isn't merely accessing information for their work but deciphering and effectively utilizing the wealth of available information. As Kraiger (2014) points out, the trajectory is clear, indicating an escalating demand for employee training along with an expanding requirement for technology-driven instruction, surpassing traditional face-to-face methods. Every human task demands skill and current knowledge to execute it with both effectiveness and efficiency. As tasks and assignments become more complex and complicated, training and development is required. In order to survive, organizations must provide training and development to their employees. Training is a process that helps develop a set of knowledge and skills of employees in order to advance and change their performance in the workplace. Training and development serve to acquaint individuals with the essential information required for carrying out a designated task, offer knowledge to elevate job proficiency, and cultivate the skills that underscore an employee's capabilities. Training achieves its intended effectiveness by addressing disparities in knowledge or skills, thereby equipping employees with a new skill set to navigate upcoming requirements (Jyothi Sheeba and Prabu, 2020).

Demand is causing changes in formal and informal education. Change encompasses shifts in technology, production processes, knowledge, and information, which consequently give rise to the necessity for organizational training. This requirement is closely tied to employees' intent and motivation to engage in learning, as highlighted by Ferreira and Abbad (2013). Crafting an effective training program demands a concentrated effort on its mechanism for imparting knowledge and skills to employees. The effectiveness of T&D extends beyond the realm of suitable methodologies and materials; the successful transfer of acquired knowledge is equally critical. Gaining skills during training and effectively utilizing them in the workplace contribute to both educational effectiveness and enhanced employee performance. Within the domain of training and development, employees and the organization at large benefit from an atmosphere conducive to innovative work behavior. The level of innovation displayed by employees within an organizational context is influenced by multiple factors, including the presence of technologically skilled personnel

(Sharma, 2017), leadership styles, and the practice of knowledge sharing (Feng et al., 2016).

T&D plays a key role in creativity and innovation. Sheehan et al., (2014) suggest that the development of human resources through T&D influences organizational innovativeness by having a positive effect on employee engagement, leadership, motivation to learn, fostering a learning culture and developing social capital.

Research Design and Methodology

The purpose of this study is to investigate whether there exist statistically notable disparities in the need for distinct skill sets sourced from the external labor market. This pertains specifically to companies that actively pursue employee education versus those that engage in such endeavors occasionally or not at all. The subject of the research was the types of skills according to the OECD classification, that is:

1. cognitive skills
2. communication skills
3. digital skills
4. social skills

135 companies were involved in the research, which were divided into two groups based on their approach to T&D (active, regular T&D: n=58 vs. exceptional or no T&D: n=77). The demand for skills from external sources was evaluated on a scale of 1-5, where the value 1 expressed the minimum demand for the given type of skills, and the value 5 expressed the maximum demand for the given type of skills. Respondents (managers, possibly HR specialists) were approached and asked to fill out the questionnaire in March - May 2023.

To fulfill the research objective, 4 statistical hypotheses (for individual types of skills) were tested using a non-parametric two-choice Mann-Whitney U-test. The U-test is used when comparing the medians of two independent groups and answers the question of whether the difference in medians (or rank averages) of two groups is statistically significant ($p < 0.05$) or is just random.

H1: We assume statistically significant differences in the demand for cognitive skills between companies that actively implement T&D and companies that do not (or only exceptionally) implement T&D.

H2: We assume statistically significant differences in the demand for communication skills between

companies that actively implement T&D and companies that do not (or only exceptionally) implement T&D.

H3: We assume statistically significant differences in the demand for digital skills between enterprises that actively implement T&D and enterprises that do not (or only exceptionally) implement T&D.

H4: We assume statistically significant differences in the demand for social skills between enterprises that actively implement T&D and enterprises that do not (or only exceptionally) implement T&D.

The composition of the research sample in terms of the implementation of T&D is shown in figure 1.

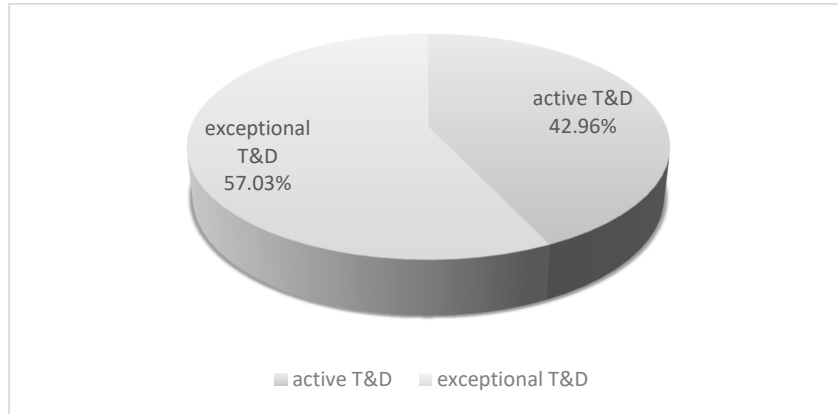


Fig 1. Composition of the research sample in terms of the implementation of T&D

Results and Discussion

The first type of knowledge investigated was cognitive skills. These are skills that include critical thinking, creative thinking, learning and self-regulation.

According to the results of the OECD research "Skills for Job", which tracked the lack and surplus of skills within individual countries, cognitive skills are in short supply, that means the demand for the given skill is higher than the

offer on the labor market. As part of the presented research, we investigated whether the implementation of education and development by companies is related to the demand for the given type of skills.

H1: We assume statistically significant differences in the demand for cognitive skills between companies that actively implement T&D and companies that do not (or only exceptionally) implement T&D.

Table 1: Testing H1

Variables	U	Z	p-value
Cognitive skills	1166.000	2.569125	0.010196

(Source: results of IBM-SPSS-Statistics-20)

The verification of hypothesis H1 confirms its veracity, leading to the inference that companies actively involved in T&D undertakings and those occasionally implementing T&D practices showcase differing cognitive skill requirements. Importantly, it was observed that companies eschewing T&D interventions display a heightened need for cognitive skills from external labor market sources.

Another type of skill that is highly desirable, especially in the field of service businesses, is communication skills. According to OECD research "Skills for Job", these skills are in short supply in Slovakia.

H2: We assume statistically significant differences in the demand for communication skills between companies that actively implement T&D and companies that do not (or only exceptionally) implement T&D.

Table 2: Testing H2

Variables	U	Z	p-value
Communication skills	1188.500	1.857739	0.063207

(Source: results of IBM-SPSS-Statistics-20)

Testing the H2 hypothesis using the Mann-Whitney U Test did not confirm the H2 hypothesis. Between enterprises that implement T&D and enterprises that implement T&D only exceptionally, there are no statistically significant differences in the demand for communication skills.

Digital skills were another group of skills that was the subject of research. Digital skills appear to be the most in short supply among the other skill groups, which points to the fact that digitization represents a very fast process to

which education is not able to respond quickly enough. According to the results of the OECD research "Skills for Job", Slovakia registers a high demand for digital skills, especially in the case of Digital skills data processing and Web development.

H3: We assume statistically significant differences in the demand for digital skills between enterprises that actively implement T&D and enterprises that do not (or only exceptionally) implement T&D.

Table 3: Testing H3

Variables	U	Z	p-value
Digital skills	1117.000	2.407894	0.016045

(Source: results of IBM-SPSS-Statistics-20.)

In the case of digital skills, hypothesis H3 can be accepted and it can be stated that there are statistically significant differences in the demand for digital skills between enterprises that implement T&D and enterprises that implement T&D only exceptionally. A higher level of demand from external sources is shown by enterprises that implement T&D exceptionally or not at all. It is clear that T&D is a very important practice that also affects the possibility of filling jobs with workers with digital skills.

The last type of skills to be researched are social skills. Based on the results of OECD research "Skills for Job", these skills are generally

considered redundant in the Slovak Republic (but not as the EU average); nevertheless, they are very important, as they are the type of skills that cannot be replaced by automation. These are social intelligence skills – especially social awareness, ability to teach others, persuasion and negotiation.

H4: We assume statistically significant differences in the demand for social skills between enterprises that actively implement T&D and enterprises that do not (or only exceptionally) implement T&D.

Table 4: Testing H4

Variables	U	Z	p-value
Social skills	1414.000	1.786000	0.238558

(Source: results of IBM-SPSS-Statistics-20.)

Based on hypothesis testing, the hypothesis H4 shall be rejected. There are no statistically significant differences between companies in the demand for social skills in terms of whether they implement T&D or not.

The research focusing on comparing the demand for specific skill types among businesses and

their external sources yielded the following outcomes. Enterprises actively engaging in T&D exhibit reduced demand for cognitive and digital skills from external origins, indicating their capacity to fulfill job roles using their internal resources via T&D efforts. However, these assumptions did not hold true for communication and social skills. The most

notable level of demand was observed for digital skills. This discovery aligns with OECD research findings, which identified skill shortages and surpluses across nations. The study highlighted that, both in the EU and Slovakia, the most pronounced skill shortage pertains to digital skills. This is confirmed by the studies of many authors, who point out that the needs of employers are also changing as a result of digitization. This applies not only in the case of digital skills, although these separately, but also in the case of cognitive, communication, and social skills. This trend only emphasizes the need and importance of training and development as an important human resource management practice. As reported by Jyothi Sheeba and Prabu (2020), T&D is significantly important among various HRM practices that help employees to update the necessary knowledge and skills and attitudes required for innovation. The purpose of training is to update employees' skills for the latest technological developments. It is said that learning is a never-ending process and therefore it is also the task of the employer to create conditions for innovative forms of education that support the development of desirable skills (Narasimhan and Ramanarayanan, 2014).

Innovation stands as the sole yardstick enabling organizations to distinguish themselves in the market, fostering a competitive edge and meeting consumer expectations. Nurturing creativity in education empowers organizations to instill innovation in their employees, culminating in the evolution of an inventive and forward-thinking entity (Mousavifard and Ayoubi, 2018).

Conclusion

In the current ever-changing landscape, one of the prerequisites for a company's survival is its capacity for innovation. The primary wellspring of this innovation is the human resources themselves, whose actions and thoughts reverberate through the organization's processes, outcomes, and its ability to attain set objectives. To nurture such indispensable human resources, the company must actively engage in the efficacious training and development of its workforce. It's imperative for the company to adopt a proactive stance in the domain of employee training and development. This entails an ongoing and forward-looking approach to education and development, ensuring the cultivation of the skills that are both desirable and indispensable in the contemporary context. Lacking this approach, the business will grapple with hurdles in procuring the essential proficiencies.

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