7.2 THE GROWING IMPORTANCE OF NON-COGNITIVE SKILLS IN JOB SEARCH AND AT WORK

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It is not only the sectoral and occupational structure of the economy that changes during technological development and transformation of the international, regional and social division of labour. There is a substantial shift in the task content within an occupation, in terms of what skills are required to accomplish them. Over the past decades the share of jobs requiring mathematical and social skills has seen the fastest increase, while the share of jobs requiring neither mathematical nor social skills has declined the most (*Deming,* 2017).

Social (non-cognitive) skills are primarily needed for effective cooperation with others at work. They include the elements of the skill group termed *Big Five* in personality psychology: extraversion, agreeableness, conscientiousness, emotional stability, openness. They also include the theory of mind, which is the ability to place oneself in another's position when observing others, to understand the reasons for other people's actions and judge their state of mind from the viewpoint of our goals and actions. The theory of mind capacity is highly important for the success of cooperation with another person and within a group in both education and the labour market (*DeAngelo–McCannon,* 2015).[1]

The increasing importance of non-cognitive skills observed in the past decades are due to closely related technological, social and demographic reasons. As a result of technological development (robotization, the spread of production and service systems consisting of continuously communicating elements and the expanding use of artificial intelligence) an increasing proportion of tasks requiring high-level cognitive skills can be performed by intelligent, computer-controlled equipment. By contrast, the expansion of robotisation has so far not taken place in occupations requiring non-cognitive skills (*Deming–Kahn,* 2018). At the same time, the proportion of these occupations in the labour market has been steadily increasing partly due to an increase in the share of employees in the service sector and partly due to the increasing share of nursing and healthcare jobs, and also because tasks requiring group work, trust, intuition and social skills play an increasingly important role in modern business management (*Schanzenbach et al,* 2016).

Some traditional occupations and jobs will likely disappear, even within a few years, but new jobs and occupations may emerge in the meantime and demand for labour in certain occupations, primarily those requiring non-cognitive skills, is continuously growing. For a long time it seemed that artificial intelligence is not capable of acquiring or learning non-cognitive skills. However, there has also been significant progress in this field recently. According

1 Previous volumes of The Hungarian Labour Market have covered the definition and measuring of cognitive and non-cognitive skills in more detail (*Fazekas,* 2018a, 2018b).

to forecasts based on results of the most recent developments, robots with non-cognitive skills will increasingly be able to undertake the necessary tasks in a wide range of personal services, nursing, elderly care, healthcare, trade and the creative industries (*Morgan et al,* 2019).

Considering the expansion of robotization, it is essential that young people possess the motivation and abilities necessary for learning the latest skills. Furthermore, it will be necessary to undertake continuous analysis to reveal changes in the content of occupations in a labour market and support teachers and educational policy makers in adapting to changes by developing curricula and methodology (*Alabdulkareem et al,* 2018).

Although the majority of non-cognitive skills are linked to hereditary traits, several empirical studies report that parents, the environment and school are able to develop or modify them to a large extent (*Zhou,* 2016). Methods aimed at developing non-cognitive skills (such as project-based groupwork) are increasingly utilised in educational systems all over the world.[2] Several non-cognitive skills may also be developed in later life, in adult education or on-the-job training (*Hoeschler et al,* 2018*, Hoeschler–Backes-Gellner,* 2018).[3]

Analysis of job advertisements and recruitment practices shows that the level of non-cognitive skills is a significant predictor of successful job search (*Hoeschler–Backes-Gellner,* 2018). This is supported by impact assessments reporting that programmes for the integration of inactive youth are more successful if they also include the development of non-cognitive skills (*Guerra et al,* 2014).[4] Numerous examples show that at companies which included the development of non-cognitive skills in their in-company training, investment into training yielded significant productivity gains (*Adhvaryu et al,* 2017*, Groh et al,* 2012).

In addition to skills development, it is important that employees and employers possess relevant information about their skill levels and the yield of these skills. This information both strengthens the motivation of employees to improve their skills and increases the willingness of employers to reward high-level non-cognitive skills (*Bassi–Nansamba,* 2019).

2 The PISA assessment by the OECD and STEP by the World Bank have contained items assessing the non-cognitive skills of pupils since 2012 (*Kautz et al,* 2017, *Gaelle et al,* 2014).

3 *Guerra et al* (2014), based on the PRACTICE model developed by the World Bank specifically for improving non-cognitive skills needed by the labour market, describe what methods are best suited for developing these skills in different age groups.

4 For example: *Job Corps, Youth Build* and *Big Brothers Big Sisters* in the United States or EPIDE (Etablissments pour l'Insertion dans l'Emploi) in France (*Quintini,* 2015).

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