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Link Between Adult Literacy and Participation in the Labour Market: Central European Region

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Abstract

Human capital, together with financial and material resources, is an important factor in the economy of society. Human capital can be defined in different ways, but knowledge, abilities, skills, competences, or literacy, in general, are essential parts. It can be said that literacy is the cornerstone of human capital. According to the basic principles of the theory of employment, factors such as education, gender, age, health, marital status, and emigration have a major impact on participation in the labour market. However, in scientific discourse, there is a strong emphasis on these factors and the importance of literacy. However, there is a lack of studies specifically analysing the links between literacy and participation in the labour market. In particular, it is important to analyse whether literacy is equally important for participation in the labour market in different regions and countries. This article analyses the link between participation in the labour market and literacy in the Central European region. Six Central European countries are analysed based on the International Survey of Adult Skills OECD PIAAC. An analysis of the main parameters showing how a person participates in the labour market suggests there is a link between a person's literacy and their working status, type of employment contract, managerial position, and economic sector.

Keywords: *reading literacy, numeracy, problem-solving, adults, labour market, PIAAC.*

Introduction

The concept of literacy and what makes it up has shifted from elementary "decoding" of information to more complex and diverse skills and understanding (Lonsdale & McCurry, 2004). Perhaps the most influential concept of literacy is that proposed by Brian Street (1984), where he defines "autonomous" literacy and distinguishes it from the "ideological" model. Most of the other concepts are variations of the two: literacy is seen as an individual attribute or a social practice (Lonsdale & McCurry, 2004). The point of exclusion is the term "literacy" itself (Ewell, 2001), which implies an integrated capacity to function meaningfully within a given practical community. In a broad sense, literacy is the ability to read, write, and speak in one's native language to communicate, make decisions, and solve problems in everyday life, such as in the family and the workplace (Wilson, 2002). Analysis of scientific discourse reveals that the concept of adult literacy is constantly expanding. In recent times, special attention has been paid to health literacy (Feinberg, Tighe, Greenberg & Mavreles, 2018) and civic literacy (Morgan, 2016), which also relates to the issue of immigrant literacy (Klassen & Burnaby, 1993).

Most international educational studies analysing primarily literacy measure its various structural components: numeracy, natural sciences, financial, ICT literacy, reading skills, the ability to solve problems through collaboration, etc.; but the most common characteristics of literacy highlighted by any international educational research are reading literacy and numeracy. The OECD PIAAC study measures literacy in the following respects: reading literacy, numeracy, and problem-solving in technology-rich environments (Perry, Shaw, & Saberimoghaddam, 2020; Trawick, 2019; OECD, 2019). PIAAC closely links the skills that are usually acquired in schools with their implementation in a real-life context and, at the same time, provides an opportunity to reveal new ways of combining different paradigms, cognitive and socio-cultural approaches (Perry, Shaw, & Saberimoghaddam, 2020).

Reading literacy is probably the most widely mentioned in the research. UNESCO defined reading literacy as early as in 1956. The modern understanding of these abilities goes beyond simply dealing with printed material. In a broad sense, reading is related to the ability to understand and interpret the entire media spectrum – visual, print, electronic (Lonsdale & McCurry, 2004). In the PIAAC study, the definition of reading literacy ranges from decoding of written words to comprehension and evaluation of complex texts (Trawick, 2019). The skills of adults with low qualifications are assessed based on reading components that include text vocabulary, comprehension of sentences, and passages. The PIAAC definition of literacy prioritises the willingness of adults to participate in society, achieve

their goals, and develop their knowledge and potential. They need to understand, evaluate, and use texts that differ in rhetoric, formats, and functions to achieve these objectives. The readiness of adults to use these texts for various purposes affects them and their families, their employability, their communities, and society as a whole (PIAAC Literacy Expert Group, 2009; Trawick, 2019).

The importance of numeracy is widely emphasised in scientific discourse, but it is also recognised that this sort of literacy is not easy to define (Steen, 2001). Numeracy does not lead to mathematical abstractions but focuses on real-life contexts (Hughes-Hallett, 2001). A person's numeracy is expressed in situations or contexts with mathematical elements or quantitative information. The PIAAC study examines numeracy on two levels – as a cognitive construct (knowledge basics and skills) and as attitudes, beliefs, mental habits, and other tendencies that help shape a person's numerical behaviour and practice (Tout, 2020).

The key competences for digital literacy are defined as the ability to use digital tools, create and use computer files, and select the appropriate digital applications to achieve goals (Frank & Castek, 2017). In the PIAAC study, problem-solving in technology-rich environments focuses on using digital technologies in a new online environment to acquire and evaluate information, interact with others, and perform practical tasks in a personal, workplace, and civic environment. Problems are understood as situations where, either because of the current circumstances or encountered challenges, a person cannot achieve their objectives immediately or in their usual way (PIAAC Expert Group, 2009).

The importance of literacy does not lose weight in the context of adult integration in the labour market. Recent publications have focused on the learning crisis (De Hoyos, 2020). According to data of the World Bank, in developing countries, half of low- and middle-income students fail to achieve minimum education levels in areas such as reading literacy and numeracy. Although, according to the guiding principles of the theory of employment, unemployment is mainly influenced by the level of education, gender, age, emigration, marital status, and health (Pedersen & Lund, 2017), in scientific discourse, the emphasis on the importance of literacy and numeracy skills is striking the "effects of functional literacy appear to be substantially greater than the number of years of education" (Finnie & Meng, 2007, p. 10).

Problem of Research

In this context, it is important to examine the link between literacy and participation in the labour market in different regions, as they have different social,

cultural and economic contexts. One specific region – Central Europe – has been selected for analysis in this article.

Research Focus

The article aims to analyse the links between adult literacy (reading literacy, numeracy and problem-solving in technology-rich environments) with various aspects of participation in the labour market in six Central European countries.

Research Methodology

General Background of Research

The analysis in this article is based on the OECD study, Programme for the International Assessment of Adult Competencies (PIAAC). The study measures the literacy of adults and collects data on the educational-social parameters of the study participants. It is the largest international educational survey with an adult population ever. Six Central European countries participated in this study: the Czech Republic, Estonia, Lithuania, Poland, Slovak Republic, and Slovenia. The data of these countries are analysed in the article. The PIAAC databases of these countries' literacy tests and questionnaires were used for the analysis (data source: https://webfs.oecd.org/piaac/puf-data/SPSS/).

Sample of Research

The PIAAC survey's respondents are individuals aged 16–65 years. Data from all the respondents were used for the article's analysis. The survey sample by country: Czech Republic – 6102, Estonia – 7632, Lithuania – 5093, Poland – 9366, Slovak Republic – 5723, Slovenia – 5331 persons from all geographical and different types of living areas.

Instrument, Procedures and Data Analysis

The PIAAC questionnaire's questions related to working status and reading literacy, numeracy, problem-solving in technology-rich environments were used for analysis. The first plausible value of the literacy tests was used for the calculation. Descriptive statistical analysis, graphic representation, and the Independent Sample T-test statistical method for verifying statistical significance were used. The IBM SPSS 25 software package was used for the data analysis.

Results

This article examines the main parameters that indicate how a person participates in the labour market. Of course, the most important parameter is working status: whether a person has a job, if they are full-time or part-time, or do not have any job at all. Figure 1 illustrates the link between working status and reading literacy. We can see that in three countries – Lithuania, the Slovak Republic, and Slovenia – full-time employed are those with the highest reading literacy, the reading literacy average is lower for part-time employed, and the unemployed are the lowest (all differences are statistically significant, T-test from $p \leq 0.01$ to $p \leq 0.0001$). In the other three countries – the Czech Republic, Estonia, and Poland – the situation differs slightly in the case of part-time employed: their reading literacy average is slightly higher than that of full-time employed, but this difference is not statistically significant (for all three countries T-test $p \geq 0.05$).

The analysis of the link between numeracy and working status shows the same trend for all six countries: the average numeracy of full-time employed is the highest, lower for part-time employed, and lowest for the unemployed. All differences are statistically significant (T-test from $p \leq 0.05$ to $p \leq 0.0001$).

We see a slightly different situation when analysing the link between working status and problem-solving in technology-rich environments. Figure 2 shows that countries are divided into the same two groups as in reading literacy. In Lithuania,

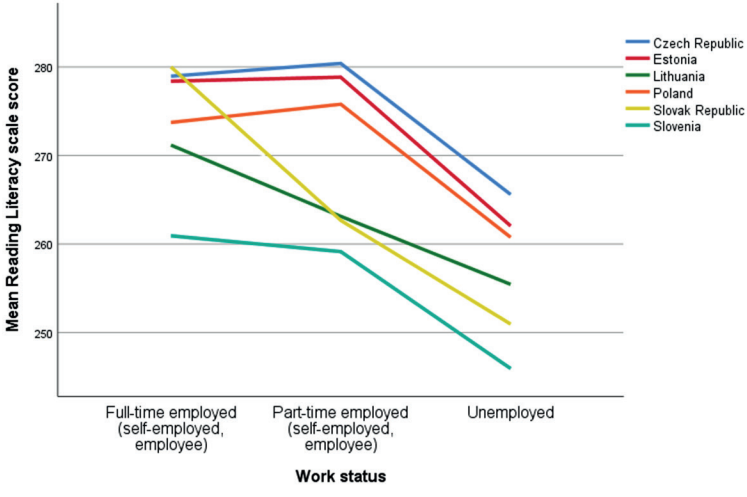

Figure 1. Link between working status and reading literacy

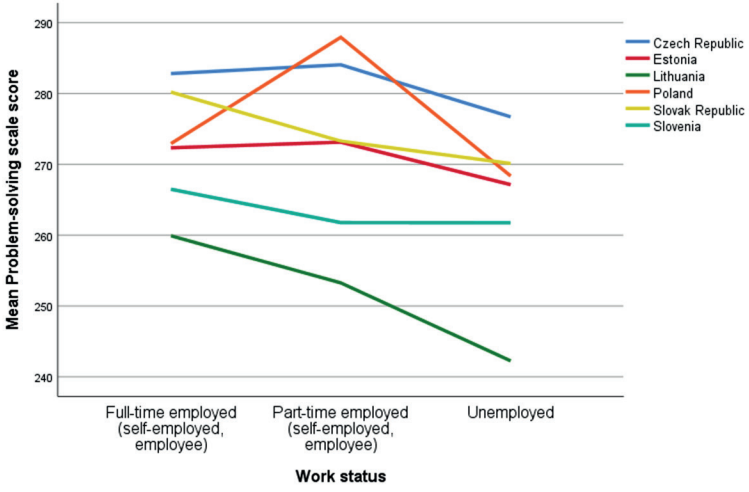

Figure 2. Link between working status and problem-solving in technology-rich environments

the Slovak Republic, and Slovenia, the problem-solving average decreases along with the decrease in employment. In Lithuania, the difference in the problem-solving average between full-time employed and unemployed persons is very significant (T-test $p \leq 0.0001$), while in the Slovak Republic, there is a slight difference with no statistical significance (T-test $p \geq 0.05$). The Czech Republic, Estonia, and Poland have the highest problem-solving average for part-time employed: Poland is very different in this case, with the problem-solving average for part-time employed being very high compared to full-time employed and unemployed (T-test $p \leq 0.0001$), while in the Czech Republic and Estonia this difference is not statistically significant (for both T-test $p \geq 0.05$).

To summarise, we can claim that there exists a link between all three areas of literacy and working status: in all countries, literacy of the employed is higher than that of the unemployed.

Another important parameter dealing with a person's participation in the labour market is the type of employment contract, whether the contract is fixed-term, indefinite, or the person works without any employment contract.

The data of Figure 3 shows that there is no statistically significant difference in reading literacy between persons employed with a fixed-term of indefinite contract in all countries concerned, except for the Slovak Republic and Poland, where there is statistically significant lower reading literacy among persons work-

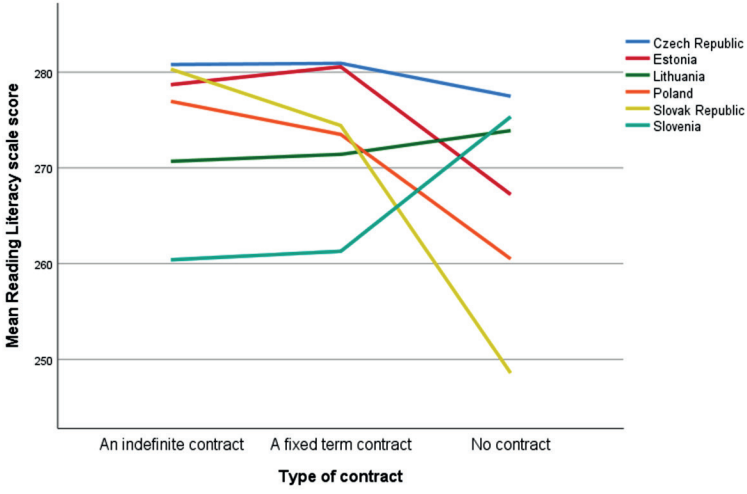

Figure 3. Link between the type of employment contract and reading literacy

ing with a fixed-term contract (Slovak T-test $p \leq 0.01$, Polish T-test $p \leq 0.05$). Regarding those working without an employment contract, we can see that in all the countries, except for Lithuania and Slovenia, their reading literacy results are significantly lower (T-test $p \leq 0.05$). In Lithuania, and Slovenia in particular, we observe the opposite result – the reading literacy of those working without an employment contract are higher than those working with any type of contract (T-test $p \leq 0.05$).

The analysis of the link between numeracy and the type of employment contract showed the same trend as for reading literacy.

A completely different situation can be seen by analysing the link between the type of employment contract and problem-solving in technology-rich environments. Figure 4 shows the highest capacity to solve problems in all countries, except the Czech Republic (compared to fixed-term contract in all countries T-test $p \leq 0.05$).

To summarise, we can claim a link exists between all three areas of literacy and the type of employment contract: the literacy of persons working without contract differs from that of persons working with the contract.

Another important parameter defining a person's participation in the labour market is managerial or non-managerial position. Figure 5 shows that, for all three areas of literacy, managers show a higher level of literacy than non-managers

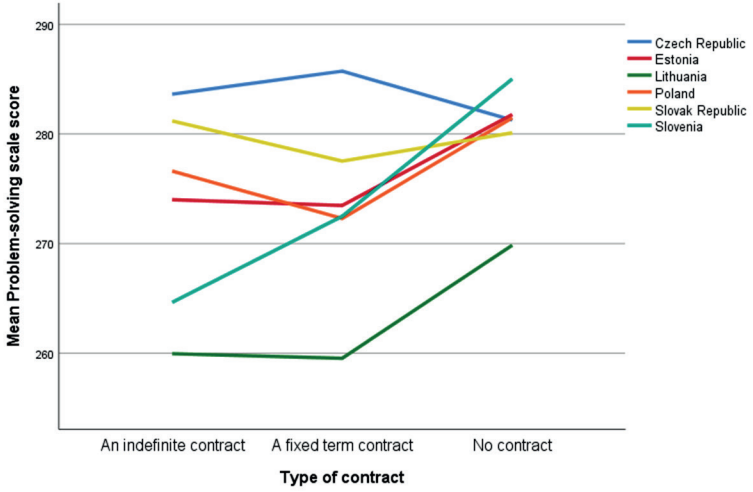

Figure 4. Link between the type of employment contract and problem-solving in technology-rich environments

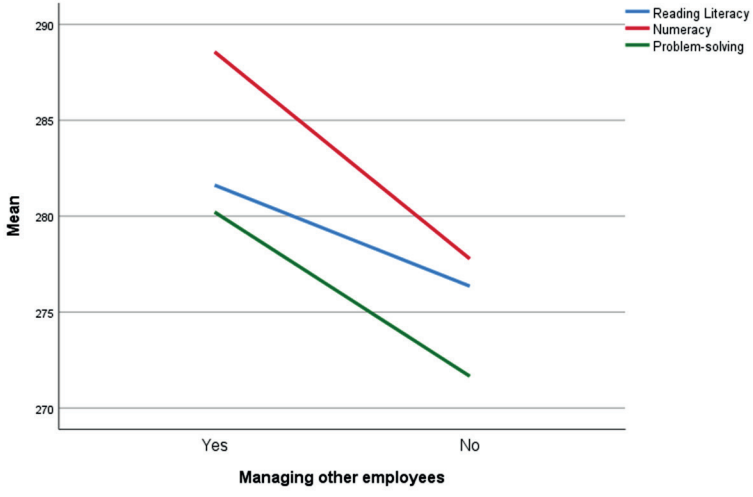

Figure 5. Link between managerial and non-managerial position and literacy

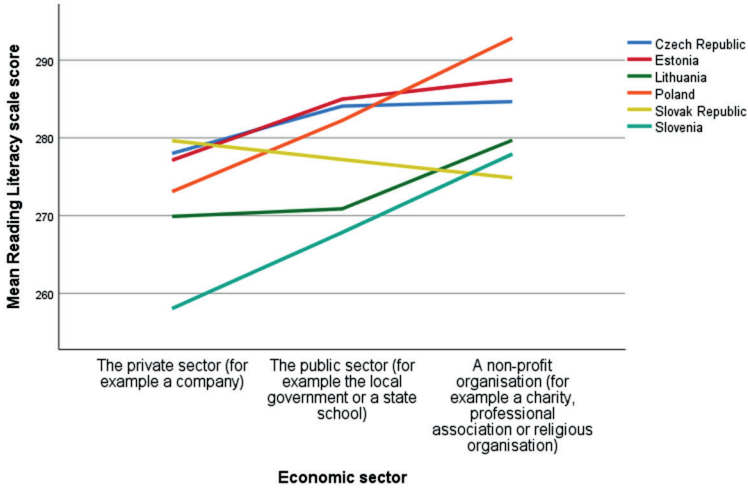

Figure 6. Link between the economic sector and reading literacy

(T-test $p \leq 0.0001$). The figure summarises the data for all six countries, as the results are very similar in all countries.

Another important parameter defining a person's participation in the labour market is the economic sector in which the person works.

Figure 6 shows that in all countries, except for the Slovak Republic, the lowest result in reading literacy can be seen in the private sector, higher – in the public sector, and the highest in non-profit organisations (these differences are not statistically significant in Lithuania: T-test $p \geq 0.05$, for other countries T-test $p \leq 0{,}0001$). We observe the opposite trend in the Slovak Republic, but differences between values are not statistically significant (T-test $p \geq 0.05$).

In the case of numeracy, again, the trend is similar to that observed in reading literacy – only next to the Slovak Republic, the lowest results in the non-profit sector were obtained in Poland.

Analysis of problem-solving in technology-rich environments shows mixed results (Figure 7). They differ from reading literacy and numeracy. Poland and Lithuania record a very high result for problem-solving among people working in non-profit organisations, while in Slovenia – it is the lowest. In all countries, except for Slovenia, the result of public sector employees is slightly lower than that of the private sector (this difference is not statistically significant in the Czech Republic, T-test $p \geq 0.05$).

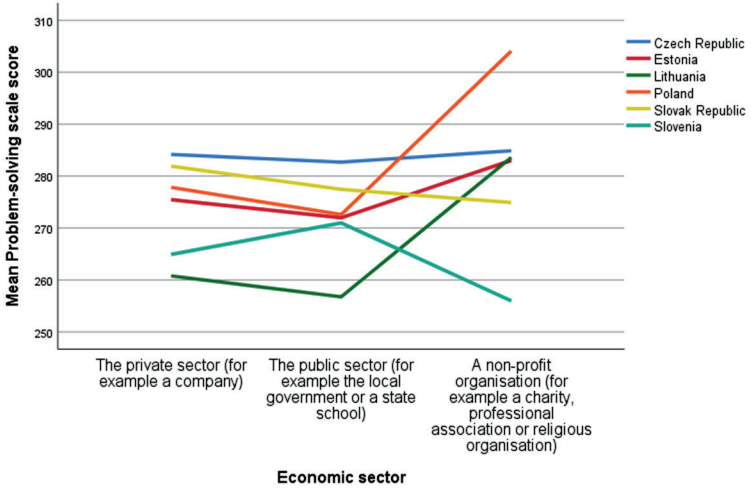

Figure 7. Link between the economic sector and problem-solving in technology-rich environments

To summarise, we can claim a link exists between all three areas of literacy and the type of economic sector. However, the links are not unambiguous in different countries and for different types of literacy.

Discussion

Analysis of scientific discourse shows that reading literacy and numeracy undoubtedly contribute to economic and social well-being and impact the results of participation in the labour market (Finnie & Meng, 2007). Reading literacy and numeracy skills are listed among the transferable skills for career success (Overtoom, 2000). Over the last two decades, the scientific discourse has increasingly focused on the skills and learning outcomes of the adult population to monitor the readiness for a knowledge-based labour market. Studies have shown that individuals' reading literacy and numeracy skills have a strong and positive impact on labour market results in many countries. There are studies showing that people with higher literacy skills are more involved in the labour market and are more successful in avoiding unemployment (Li et al., 2016). Literacy skills are considered important for persons looking for a job and by training institutions, but research

shows that human resource managers at organisations attach great importance to these abilities of potential candidates to a job opening (Rosenberg, Heimler, & Morote, 2012). Analysis of the scientific discourse confirms that adults working full-time have higher skill scores than their part-time colleagues, and adults with higher reading literacy and numeracy skills are more likely to be employed full-time (Fogg, Harrington, & Khatiwada, 2018). On the other hand, although research often assumes that a low level of reading literacy and numeracy is directly linked to unemployment and reduced employability, there are studies showing that increasing reading literacy and numeracy levels by participating in special training programmes do not necessarily lead to better employment outcomes. There were no statistically significant differences in employability between those who participated in such training and those who did not (Meadows & Metcalf, 2008).

When discussing a person's participation in the labour market and the type of employment contract, in the scientific discourse, links become apparent with the employment protection legislation system in individual countries. Low protection on temporary contracts gives employers more flexibility and allows wage adjustments to achieve certain productivity faster (Broecke, 2015).

Conclusions

Analysis of the main parameters, which show how a person is participating in the labour market, suggests there is a link between a person's literacy and their working status, type of employment contract, managerial responsibilities, and economic sector.

In all the countries examined, literacy among the employed is higher than that of the unemployed, regardless of whether they are full-time or part-time.

Literacy is linked to the type of employment contract: the literacy of persons working without a contract is different from that of persons working with a contract: depending on the country and type of literacy, it is either significantly higher or significantly lower than for persons with a fixed-term or indefinite contract.

In all of the countries examined, the level of literacy among managers is significantly higher than that of non-managers.

Literacy is linked to the type of economic sector, but these links vary from country to country and between different areas of literacy.

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