

Continuous Learning: The Solution to Stay on Digital Labour Market

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ABSTRACT

The labour market is constantly changing due to the development of technology. Technology is expanding as the need for data processing, analysis, and use increases. Technology not only becomes more skilled than man, but also urges him to live faster. Technology makes economic processes easier and faster. The human resource will assume the role of orchestrator of technology, but in order to do so, it must be available to learn permanently. The case study will focus on describing the main benefits of continuous learning for the workforce. For employees, the accumulation of new knowledge gives them the opportunity to improve their skills. For the unemployed, continuous learning gives them the opportunity to get hired. Therefore, we will identify whether employees are more interested in continuous learning. Additionally, we will identify whether the occupation that employees have influences the rate of participation in continuous learning. As the labour market is placed in the context of industrialisation 4.0, it is necessary to talk about continuous learning in the direction of digitalisation. In the digital economy, it is important that the workforce has at least a basic knowledge of technology in order to keep their job. Technological unemployment occurs precisely because the human resource is exceeded by the new demands of the workplace. Thus, we will identify the level of digitisation at the European level but also the way in which the population has acquired digital skills. We will also highlight the fact that the share of people with ICT skills and knowledge is higher in the case of employees than in the case of the unemployed. The purpose of the paper is to present comparatively the benefits that continuous learning has for both a person who already has a job and a person without a job, but also the impact that the industrial revolution 4.0 has on continuous learning.

KEYWORDS: *continuous learning, lifelong learning, digitalisation, labour market*

JEL CLASSIFICATION: *I25, J24, J62, J82*

1. INTRODUCTION

From birth, man learns. At first, he learns by imitating those around him, by rehearsal, and by playing. Subsequently, the man enters the formal education system, which he leaves at a certain point. Then there is the transition to the labour market. For some people, the moment of leaving the formal education system is also the end of the learning process. For others, the moment of leaving school is the real moment when they start learning things that are good for their career or good for life, in general. However, all of these aspects must be correlated with the historical context in which we live.

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We are in the so-called age of speed, in which technology takes over the reins of everyday life. The company carries out its activities in an alert way, and everything around us changes with the speed of light. The economy is in the process of digitising to become more efficient. Every economic sector is trying to keep up with new technologies. The labour market is still in a transition from the industrial age to the digital age, because not all countries in the world have embraced technology, but this is only a matter of time. Thus, these major changes we are dealing with in today's society indicate that human resources must make efforts to maintain their relevance in the labour market. The hypothesis we start from is that lifelong learning is the main way we remain relevant to the labour market.

In the first part of the paper, we will identify the detailed benefits of lifelong learning, as described by other researchers. We also want to find out whether employed and unemployed people behave differently in terms of participation in lifelong learning. In addition, we will observe which occupation is the most active in lifelong learning. As the demand for knowledge, at least minimal, of the use of ICT resources is undeniable in the digital age, we will analyse the employability of people with such knowledge. Finally, we will identify the factors that influence the participation rate in education and training.

2. LITERATURE REVIEW

Lifelong learning is a continuous process of formal or informal learning and development that does not have a definite beginning and end (Jain & Martindale, 2012). The lifelong learning process can be done in a group or individually. Lifelong learning is considered a basic aspect of an organisational culture that brings various benefits such as job satisfaction, or can help the employee or organisation easily adapt to new changes in the economy (Chanani & Wibowo, 2019). In the digital age, due to the increasing complexity of technology, inline training has become quite used. Inline training involves stopping work at work to discover new ways to perform tasks effectively (Alterman & Krisler, 2018). Therefore, creating an organisational culture based on lifelong learning can lead to increased productivity, increased organisational profit, and also increased employee value.

Lifelong learning can help the human resource adapt to the continuous changes of society, obtaining employment opportunities that ensure higher salaries, and last but not least, personal fulfilment (Laal, 2012). It is very important to note that lifelong learning ensures intellectual flexibility, which is much more important than actual knowledge of things (World Economic Forum, 2018). If in the past learning was conditioned by a series of barriers such as financial, demographic, technological, social, environmental, or democracy (Laal & Laal, 2012), now the resources are very varied and easily accessible to all. Adults may not be motivated enough to learn new things, but education has made learning more attractive by implementing modern and effective learning methods that show adults how knowledge can be applied „here and now” (Vaganova et al., 2020).

Last but not least, education has been shown to have a positive impact on quality of life, helping people feel relevant to society, regardless of age (Escuder-Mollon, Esteller-Curto, Ochoa, & Bardus, 2014). Furthermore, for older people, lifelong learning ensures optimal functioning of cognitive function (Pappas et al., 2019), thus allowing relevance in the labour market to continue until old age.

3. METHODOLOGY

The main indicator used in the analysis is the percentage of participation in education and training (last 4 weeks) by the status of the labour market (EUROSTAT, 2021a). Thus, we will analyse using ANOVA if there are differences from a statistical point of view between employed and unemployed people, from the perspective of lifelong learning. Moreover, in the case of employees, we will test, using ANOVA, whether the participation rate in education and training differs depending on the occupation. For the comparative analysis, we will also use the indicator 'the share of people with education in the field of ICT by the status of the labour market' (EUROSTAT, 2021b). Furthermore, to build the digital profile at the European level, we used the indicator 'the share of active people who have more digital skills than the basic ones' (EUROSTAT, 2021c) and indicators that show the ways people can obtain ICT skills (EUROSTAT, 2021d).

To identify the factors influencing the participation rate in education and training (last 4 weeks) of people active in the labour market, we will make a linear regression model. The explanatory variables considered representative are: the share of people whose job has changed as a result of technological developments and the share of employees who have a higher level of education (tertiary education levels 5-8). The indicators were measured at the level of 2018, for the states for which the information was available. All data used in the case study were extracted from the Eurostat website and processed in Excel. ANOVA analyses were performed in Excel, the regression model was generated in the IBM SPSS Statistics software, and the maps were generated in the GeoDa software.

4. RESULTS

To address the hypothesis that lifelong learning is the main way in which human resources remain relevant to the labour market, we will analyse the indicator that shows the participation rate in education and training (in the last 4 weeks), of active people on the labour market aged between 25 and 64 years old. The European average in terms of the share of adults participating in education is very low (around 11.1% in 2018), indicating a low interest in lifelong learning of active people on the labour market. Finland and Denmark are at the top of the ranking in terms of participation in active adult education, and at the opposite pole are Greece and Croatia with participation rates below the European average. We can still see the difference between employed and unemployed people in terms of participation in education and training. In 2018, among the 23 states analysed, the lowest participation rates in education and training of employed persons were registered in Croatia (2.3%), Greece (4.3%), Hungary (6.4%), Cyprus (6.5%), and Poland (6.7%). In the first analysis, we notice that the most unmotivated states are the former communists. The problem of the communists was not the lack of concern for education, but the restriction of critical and flexible thinking. Here, more than 30 years after the fall of the communist regimes, there are still states affected by ideology. On the other hand, among the countries with high shares of employees who participated in education and training, are Finland (30%), Denmark (23.3%), Estonia (21.5%), the Netherlands (20.6%), and France (20.5%). If we analyse in more detail the employed people, but from the perspective of their occupation, we notice a significant difference between the ISCO-08 groups (Table 1).

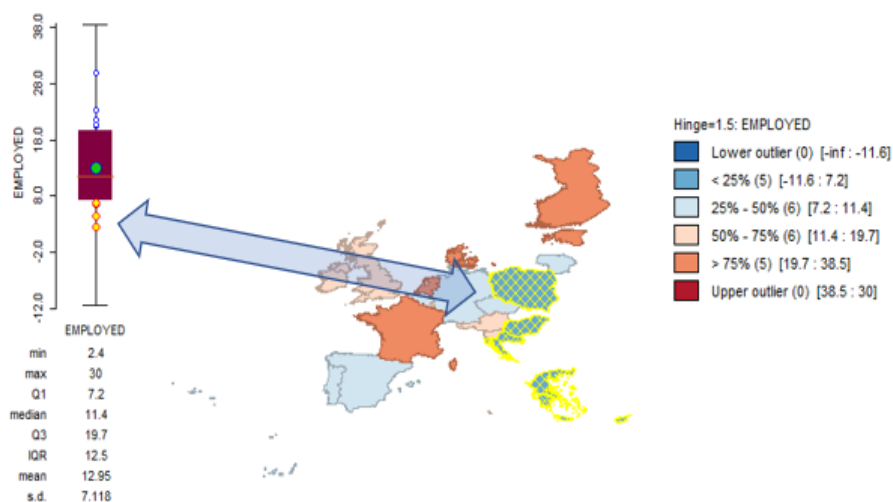


Figure 1. Countries with a low participation rate in education and training (last 4 weeks) for employed persons (25-64 years old)

Source: own creation in GeoDa software

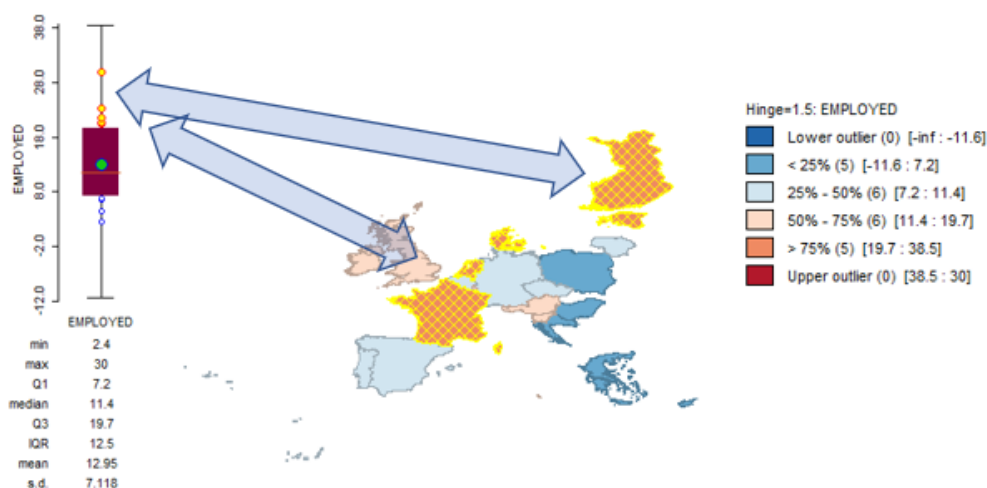


Figure 2. Countries with a high participation rate in education and training (last 4 weeks) for employed persons (25-64 years old)

Source: own creation in GeoDa software

Table 1. Descriptive statistics for participation rate in education and training (last 4 weeks) by occupation

Groups	Count	Sum	Average	Variance
Managers	31	578,9	18,67	102,81
Professionals	35	704,2	20,12	140,50
Technicians and associate professionals	33	506,6	15,35	81,68
Clerical support workers	33	398,2	12,07	65,91
Service and sales workers	34	380,2	11,18	66,14
Skilled agricultural, forestry, and fishery workers	12	124,1	10,34	59,91
Craft and related trades workers	32	218	6,81	26,50
Plant and machine operators and assemblers	30	200,6	6,69	23,32

Source: own creation in IBM SPSS Statistics software

Thus, professionals and managers are more interested in lifelong learning (Table 2). These are also the segments of the labour market interested in new opportunities, professional advancement, and higher salaries.

Table 2. ANOVA analysis for participation rate in education and training (last 4 weeks) by occupation

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	5601,27	7	800,18	10,97	5,88E-12	1,74
Within Groups	16923,66	232	72,95			
Total	22524,93	239				

Source: own creation in IBM SPSS Statistics software

The least interested in the additional study are those in the category 'Plant and machine operators and assemblers'. Paradoxically or not, people with higher education are more interested in lifelong learning than those with lower education.

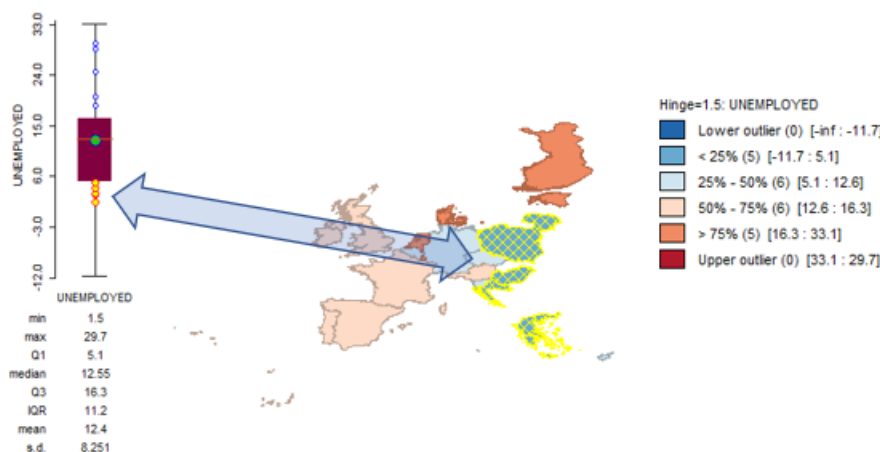


Figure 3. Countries with a low participation rate in education and training (last 4 weeks) for unemployed persons (25-64 years old)

Source: own creation in GeoDa software

We also observed the participation rate in lifelong learning in the case of the unemployed. The situation does not change significantly, the countries with the lowest participation rate in education and training adults being Croatia (2.4%), Greece (4.3%), Hungary (6.6%), Poland (6.7%) and Lithuania (7.2%).

Analysing the distribution of the participation rate in education of unemployed adults, we notice that the highest shares are found in the countries: Luxembourg (29.7%), Denmark (28.6%), Finland (24.7%), Estonia (20.1%), and the Netherlands (18.6 %). Thus, we can say that the interest in participation in education and training of employed people does not differ significantly from that of the unemployed (Table 3). Official data published by Eurostat show that people with knowledge in the field of ICT have an employment rate of 93% (EUROSTAT, 2021b). This aspect strongly supports the need to restructure the methods of learning and vocational training, in the direction of digitalisation. Furthermore, at the European level, between 2015 and 2019, approximately 30% of people active on the labour market have at least basic digital skills (EUROSTAT, 2021c). The main ways to acquire ICT skills, in addition to the formal education system, are free courses, courses paid for by individuals, courses offered by the state, or those offered by the employer (Figure 5).

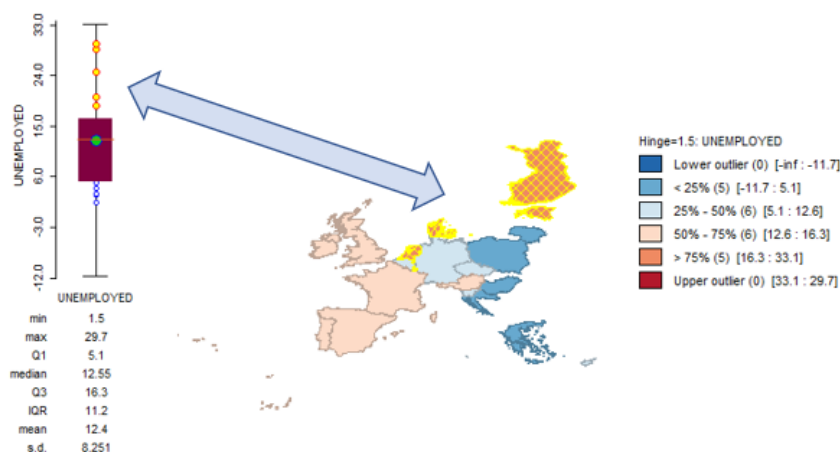


Figure 4. Countries with a high participation rate in education and training (last 4 weeks) for unemployed persons (25-64 years old)

Source: own creation in GeoDa software

Table 3. ANOVA analysis for participation rate in education and training (last 4 weeks) by labour status

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	2,40	1	2,40	0,04	0,84	2,82
Within Groups	2628,18	44	59,73			
Total	2630,57	45				

Source: own creation in IBM SPSS Statistics software

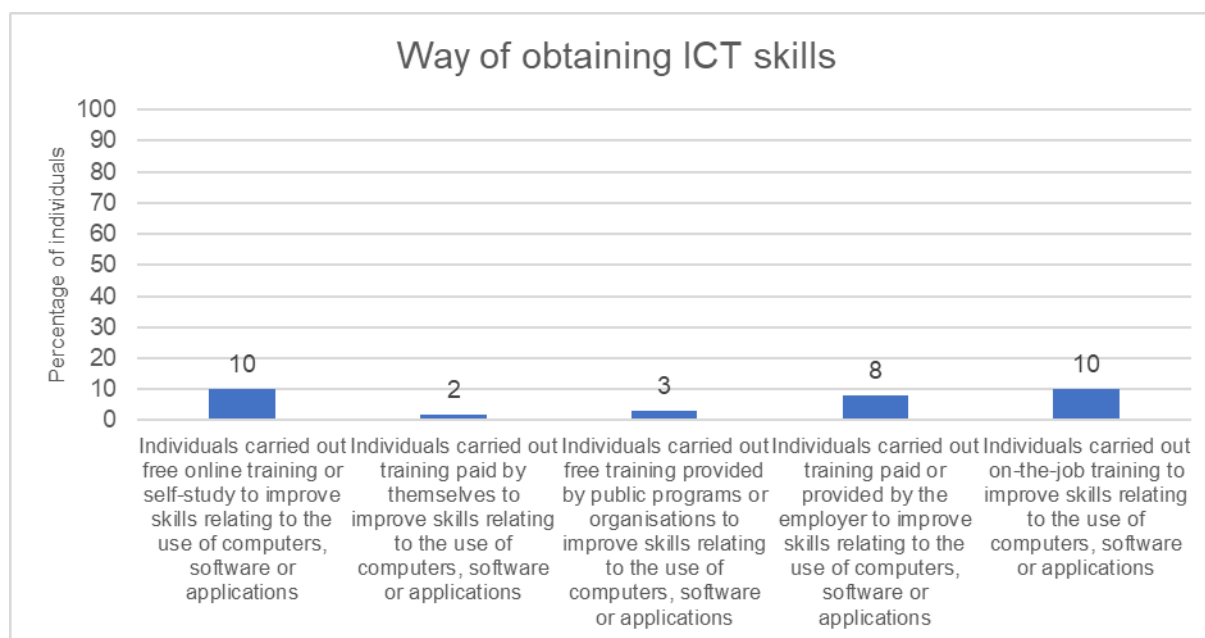


Figure 5. Percentage of individuals grouped by way of obtaining ICT skills

Source: own creation in Microsoft Office Excel software

Of the learning methods presented above, free online training and in-line learning at work have the highest share, about 10%.

Thus, lifelong learning in the digital age can be determined by several factors, but those who care must refer to the level of education of employees, but also to changes in the digitalisation of the labour market. Next, we will determine the factors of linear regression factors that influence the participation rate in education and training of the active population on the labour market. The explanatory variables in this case are the share of employees with a high level of education and the share of individuals in work tasks that have changed as a result of digitisation.

Table 4. Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0,889	0,790	0,774	3,6440448	2,839

Source: own creation in IBM SPSS Statistics software

It can be seen in Table 4 that the model has a rather high explanatory power, approximately 88.9%. This aspect shows that 88.9% of the variation in the participation rate in education and professional training is explained by the share of people with a high level of education, but also by the share of employees whose jobs have changed as a result of digitalisation. The model is statistically significant, as can be seen in Table 5, where the Fisher test is calculated ($p\text{-value} = 0.00 < \alpha = 0.05$).

Table 5. ANOVA analysis for checking validity of the model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1299,16	2	649,58	48,92	0,00
	Residual	345,26	26	13,28		
	Total	1644,42	28			

Source: own creation in IBM SPSS Statistics software

It can be seen in Table 6 that the two explanatory variables are statistically significant. According to the Wald test, the null hypothesis of the test (which states that the coefficients of the variables are zero) cannot be accepted for a confidence level of 95%.

Table 6. The least squares method output for checking validity of the coefficients

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-8,733	3,079		-2,84	0,01
	Employees with High Education Level	,249	,091	,268	2,74	0,01
	Individual's main job tasks changed as a result of the introduction of new software or computerised equipment	,841	,110	,749	7,67	0,00

Source: own creation in IBM SPSS Statistics software

Also, based on Table 6, the equation of the estimated regression model can be determined. Therefore, the estimated regression model can be seen in Equation (1), where \hat{y} is the estimated value of the participation rate in the education and training of people active in the labour market, x_1 represents the share of employees with a high level of education, and x_2

represents the share of individuals whose workloads have changed due to the introduction of computer equipment.

$$\hat{y} = -8.733 + 0.249 * x_1 + 0.841 * x_2 \quad (1)$$

We notice that when the share of employees with higher education increases by one percentage point, the participation rate in lifelong learning increases by 0.249 percentage points. Similarly, if the share of people whose jobs have been impacted by technology changes increases by 1 percentage point, the share of participation in education and training increases by 0.841 percentage points.

5. CONCLUSIONS

Lifelong learning keeps us relevant in the labour market and keeps us relevant in society as well. The speed with which the economy and society are changing forces us to keep up with these changes. The knowledge gained during the school years will not help us at some point. What I learnt at one point will become expired information. In fact, the workforce must not accumulate more information than robots, but must learn to think flexibly and be able to adapt to new situations. Cognitive skills can only be trained through lifelong learning. Every segment of the labour market can have a purpose to learn. The unemployed learn to get a job that will ensure their subsistence. Employees learn not to lose their jobs, to adapt to new things, or to promote in their careers. Even if the skills held by human resources give him job security, there is always room for development and streamlining of activity.

The digital age requires new knowledge; with every new software or computer equipment that has appeared. The European average does not have a large share of people with more digital skills than basic ones. As the formal education system does not provide the necessary digital skills, there is a division of people according to the interest in lifelong learning. Although it seems bizarre, people with higher education are constantly learning and looking to develop. The case study clearly shows that higher education employees are more likely to participate in education and training. Furthermore, the likelihood that a person has participated in education and training is directly proportional to the likelihood that he or she has undergone a structural change in the job as a result of changes due to technology.

The social and economic environment in which we operate and in which we live changes day by day under the influence of technology. Robots can very easily take the place of the workforce because their informational capacity is very high, compared to that of a man who is limited in this regard. The only way for a person to remain relevant in the labour market is to learn continuously. The future of the labour market is guaranteed for lifelong learners (World Economic Forum, 2019).

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