SELECTED ASPECTS OF ADULT EDUCATION IN THE CONTEXT OF THE CHANGING LABOUR MARKET IN POLAND

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Abstract

The development of continuing education contributes to the creation of the global society, which entails great changes in everyday life and in the area of professional work. The global labour market poses high demands to its participants. An individual's responsibility for one's own education, knowledge and competences is constantly increasing. An academic degree confirmed by competences gained is becoming a desired value.

This article is an attempt to show the essence of continuing education in the context of the demands of the today's labour market in Poland.

Keywords: lifelong education, knowledge-based economy, labour market, continuing education

Introduction

The development of science and technology, numerous transformations of political, economic and social nature taking place on the local, regional as well as global scale create new conditions for the life and work of man. The knowledge-based economy (KBE) which has evolved as a result of these phenomena promotes technological development, innovativeness and competitiveness as well as makes the importance of human capital ever more appreciated. Progress implies the ability of being able to use knowledge in practice, which requires the presence of an individual equipped with

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knowledge and wisdom. Consequently, the demand for highly qualified employees, capable of permanent self-development keeps growing.

This imposes on man the necessity of incessant development, which involves expansion of their knowledge, improvement of the already held skills and acquisition of completely new qualifications. The only way to successfully cope with these challenges is to invest in oneself through continuing education. These days it is no longer possible to learn 'once and for all' or 'once for a lifetime', in particular, as we are witnessing an enormous acceleration in knowledge, with the body of knowledge being not only constantly enriched but also depreciated.

The idea of continuing education meets and caters for the demands faced by individuals of today. Influencing human development in an intentional, planned and rational way, it strives to enable man to find and occupy the right place in the ever-changing reality. Thus, continuing education is a process spread over time, over different stages of a person's life. It is work intertwined with education or education intertwined with work. In the Brussels memorandum we can read: 'Education and training lasting all life are the best way of facing the challenges brought about by changes? 450 years ago, a Polish pedagogue, Szymon Marycki, pointedly remarked: 'At no age should you be embarrassed that there is something you do not know because the love of learning and engaging with it is not limited to school years but ends with the end of life.² These days, lifelong education occupies a crucial place in the national and international policy, in particular in the policy of the European Union. The role of education in the world of today is emphasized in the report of the International Commission for Education for the 21st century headed by Jacque Delors prepared for the UNESCO and entitled 'Education: there is treasure hidden in it'. The report refers to four pillars of knowledge:

- to learn to know;
- to learn to act;
- to learn to coexist with others;
- to learn to be.

The development of continuing education favours the emergence of a global information society which entails profound changes in both everyday life and professional work. The global labour market forces its participants to meet its high requirements. Individual responsibility for the quality of education, for the knowledge and competences held keeps growing. A diploma of a higher education institution supported by competences gained becomes a highly desired asset.

¹ Memorandum on continuing education, Brussels 30 October 2010.

² Szymon Marycki, Marycjusz Maricius (1516-1574) from Pilzen: writer, humanist, pedagogue. Lecturer at Cracow Academy, in Padua and Bologna.

This article is an attempt at showing the essence of lifelong education in the context of the requirements of the today's labour market in Poland.

1. Changes in the Polish labour market – an outline of the problem

Until 1989 the Polish economy had been based on central planning. It was a bureaucratic, command and control system, based on two principles '[...] specification of the object and deadline for the implementation of a social goal and unlimited accessibility to resources to be used in its implementation.' The economy was based on two sectors – public and non-public. The public sector included the public and the cooperative subsectors. The share of this sector in total employment amounted to as much as 70%. The non-public sector comprised private agriculture – 20% of employment and crafts, small industry and enterprises with foreign capital – 9% of employment.

The employment policy was closely subordinated to the economic policy and goals of the day.⁴ The constant pressure on the implementation of the plan resulted in the accumulation of labour resources in plants (pools of the labour force). This generated an increase in production costs and overemployment, which, however, was of no importance to the decision-makers of the time. What was important was to ensure a workplace for every citizen. Apart from guaranteeing a workplace to every citizen, the socialist state provided its citizens with free-of-charge healthcare, free-ofcharge education, organized employee holidays, summer and winter holiday camps for children. The employer also performed protective functions. Distribution was common of some social benefits such as car vouchers, vouchers for radio and television electrical appliances; purchase of cheaper food products or potatoes for the winter; free-of-charge theatre and cinema tickets, family picnics. Actions of this kind were to ensure job safety and level economic differences. Work was the right and the privilege of citizens irrespective of the quality or level of their qualifications. Wages varied, first of all, depending on the economic sector. Their level determined on the negotiation-merit basis was related to the branch of employment rather than the productivity of work or the actual assessment of the value of work. Workers employed

³ M. Danecka, *Bezrobocie i instytucje rynku pracy*, Instytut Studiów Politycznych PAN, Warszawa 2005, p.28.

⁴ M. Bałtowski, M. Miszewski, *Transformacja Gospodarcza w Polsce*, Wydawnictwo naukowe PAN, Warszawa 2006, pp. 56–57.

in the heavy and extraction industry held a privileged position in the labour market. There was a system of nomenclature, which meant that the economy as a whole was subordinated to the political apparatus. Appointment to the majority of executive positions required party recommendation. Education or professional experience were not taken into account which ultimately led to the widespread incompetence of higher level office workers ('mediocre but faithful').

The systemic transformation commenced in 1989 brought about radical changes in all spheres of life: political, social and economic. The introduction of the democratic system, the transition from the centrally planned economy to the free market economy as well as the broad reforms undertaken were the driving force of the new Polish economy. The Balcerowicz plan passed by the Sejm was to fight hyperinflation and build the foundations of the market economy. Discussions and controversies over the assessment of the Balcerowicz plan have continued in Poland till today because one of its consequences was a wave of bankruptcies, which affected Polish enterprises and massive shedding of workers. Many enterprises which used to be the bastions of 'Solidarity' in the 1980s were closed down or taken over. Subsidies, previously guaranteed by the state, were limited or completely terminated. What followed in the mid-90s was a massive economic degradation of households due to the unemployment and fall in income. The transformation also affected the labour market and, consequently, the professional and social structure. There was a transfer of employment from the sphere of production to the sphere of services. New professions appeared in marketing, banking, insurance, advertising and consulting. The new services based on technological progress and the latest technological achievements changed the demand for employees - for their qualifications and education. The transition of industrial societies to postindustrial societies, in which knowledge and information are the decisive development factor and education is the source of power, created the foundations for the era of a new economy, the so-called knowledge-based economy.

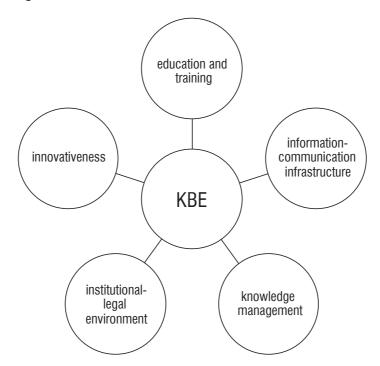
2. The essence of the knowledge-based economy

Technological progress, development of advanced IT and telecommunications technologies, increase in the importance of human capital, innovativeness and competitiveness constitute the characteristic features of the new economy – knowledge-based economy (KBE).

The knowledge-based economy contributes to the growth of competitiveness between economies – the competitiveness of some economies in relation to others. There are five pillars of the knowledge-based economy distinguished, namely:

- institutional-legal environment;
- innovativeness;
- information-communication infrastructure;
- education and training as a source of qualified workers;
- knowledge management at the organization level.

Figure 1. Basic KBE pillars



Source: the author's own elaboration.

There is no one single definition of knowledge-based economy to be found in the literature on the subject. All the existing definitions contain a set of features which should characterize the new economy.

The most frequently quoted definition of knowledge-based economy is the definition given by the World Bank, according to which 'a knowledge-based economy is an economy in which knowledge is created, assimilated, transferred and effectively used by enterprises, organizations, individual people and communities, favouring fast economic and social development'. The Organization for Economic Cooperation

⁵ Gospodarka oparta na wiedzy. Perspektywy Banku Światowego, A. Kukliński, (Ed.), Biuro Banku Światowego w Polsce, Komitet Badań Naukowych, Warszawa 2003, pp. 195, 326.

and Development (OECD) defines knowledge-based economy as 'an economy basing directly on the production, distribution and utilization of knowledge and information'. According to Andrzej Koźmiński 'a knowledge-based economy is an economy in which many enterprises which base their competitive edge on knowledge operate', while Roman Przybyszewski defines KBE as 'an economy driven by knowledge, that is an economy in which knowledge – outlays and body of knowledge – become an important determinant of the rate of economic growth.'

According to economists, the new economy is characterized by the following features:

- a high percentage of GDP allocated for scientific research, information and telecommunications services, which results in an educated society and high social awareness of the need for continuous education and application of the gained knowledge in practice;
- well-developed infrastructure and growth of the importance of these branches
 of industry which are based on advanced technologies, increase the productivity of labour and value added per one employee;
- mutual trust between entities operating in the market, the safety of transactions, regulated legal system;
- adjustment of the educational market to the needs of the ever-changing labour market which allows for high utilization of human capital resources;
- creation of favourable conditions for the development of entrepreneurship and innovativeness;
- low level of inflation and stability of public finances;
- domination of intangible capital as a factor of technological changes;
- fast rate of technological changes;
- large and steadily growing role of ICT technologies.⁷

Knowledge-based economy is a stage in the development of societies following the industrial age. What constitutes the core of the new economy are actions aimed at streamlining the process of production by creating and applying knowledge and information, introduction of innovations and new solutions, and, first and foremost, proper application of the knowledge held in the economy. This has a crucial influence on the labour market. Knowledge-based economy entails growth in demand for highly qualified, mobile, flexible employees, ready for permanent self-development.

⁶ A. Koźmiński, *Jak zbudować gospodarkę opartą na wiedzy?* [in:] *Rozwój polskiej gospodarki. Perspektywy i uwarunkowania*, G.W. Kołodko, (Ed.), Wydawnictwo Leon Koźmiński WSPiZ, Warszawa 2002, p. 155.

⁷ S. Borkowska, *Gospodarka oparta na wiedzy. Wyzwania dla Polski a rozwój zasobów ludzkich*, [in:] *Najlepsze warunki zarządzania kapitałem ludzkim*, A. Ludwiczynski, (Ed.), Polska Fundacja Promocji Kadr, Warszawa 2002, p. 11.

In knowledge-based organizations every workplace becomes more knowledge-consuming. There is a need for specialization in several domains. Readiness for changes is indispensable. Table 1 gives a comparison of the essential features of the industrial economy and the knowledge-based economy.

Table 1. Comparison of the essential features of the industrial economy and the knowledge-based economy

Features	Industrial Era	Knowledge Era
Basic resource	capital	knowledge
Employees' qualifications	specialization in one domain	specialization in several domains
Power	dependent on the position held in the organization	Dependent on the skills and knowledge possessed
Style of management	commands and control	participatory, coaching
Organization culture	based on obedience	based on confidence
Utilization of the latest technologies	important	indispensable
Dominant sector	heavy industry	services, information processing
Education	formal pre-professional	continuing education
New growth elements	human capital	social capital

Source: Wojciech Bizon, http://panda.bg.univ.gda.pl/~bizon/materialy/W2%20Istota%20GOW.pdf

Knowledge-based economy is one of the main elements of the Lisbon strategy – a long-term, ten-year programme for the development of the European Union (EU). The aim of the Lisbon strategy is to make the EU the 'most competitive and dynamic, based on knowledge economy in the world, capable of sustained development, creating a larger number of workplaces and characterized by greater social cohesion.'8

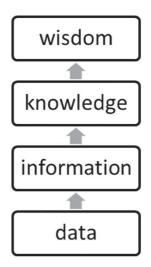
3. Knowledge in the new economy

Knowledge plays an enormous part in the development of the new economy. It is the factor which allows utilizing the potential of products and services purchased in the market to a full extent. Good application of knowledge in practice raises the effectiveness of the economy as a whole but also the standard of living of the population. To put it simply, it can be said that it is the computer, the Internet and biotechnology that are the 'engines' of the new economy, its 'fuel' being undoubtedly knowledge.

⁸ Biała księga 2003, Part II: Gospodarka oparta na wiedzy, Gdańsk – Warszawa 2003, p. 6.

The literature on the subject distinguishes four phases of knowledge processing, namely: data, information, knowledge and wisdom. There is a specific dependence between these notions, which is shown in Figure 2.

Figure 2. Four phases of knowledge processing



Source: the author's own elaboration on the basis of R. Przybyszewski, *Kapitał ludzki w procesie kształtowania gospodarki opartej na wiedzy*, Difin, Warszawa 2007, p. 23.

- Data are the simplest objects, basic information units.
- Information is the data having any significance.
- Knowledge is the processed and experience-enriched information.
- Wisdom is the ability to use knowledge in practice.
 Knowledge can be divided into codified (open, public) and non-codified (hidden, silent):
- codified knowledge is the organized, systematized knowledge, recorded, for instance, in books, lexicons, studies, reports, the Internet, easy to transfer and spread; this knowledge can be easily separated from its owner;
- non-codified knowledge is an element of human capital, it is the knowledge incorporated in people, their minds, experience, talents; this knowledge is inseparable from its owner.

Another division was proposed by A. Lundval and B. Jonson. They distinguish four types of knowledge from the point of view of their importance for the knowledge-based economy:

- *know-what*, which refers to factual, codified, easily transferrable knowledge;
- *know-why*, which refers to the understanding of the rules governing the world, the organization, the understanding of the laws of nature, etc.;

- know-how, which is the ability to perform specific tasks, this knowledge is protected in the organization, access to it is made difficult, it cannot fully become a public good;
- know-who, which means the ability to determine which people have the indispensable knowledge and skills, this knowledge concerns also the ability to cooperate and communicate.
- S. Tom complemented the above division introducing four additional spheres of knowledge:
- know-when, which signifies the ability to determine the best timing for specific changes to be introduced;
- know-which, which refers to the ability to recognize and specify weaknesses of, for instance, an organization;
- know-where, that is the knowledge which tells us where to seek new solutions, markets, etc.;
- know-between, that is the knowledge of the links between individual elements of, for instance, an organization or markets in which the organization operates.⁹
 Knowledge encompasses all the spheres of life, flows among and between them.

The body of knowledge keeps being enriched and also depreciated. Our times are characterized by an enormous acceleration in knowledge. Ever more organizations base their development on efficient and effective knowledge management. This implies enormous changes in the labour market. The demand for workers is changing. The demand for highly qualified workers is increasing. What counts is not only having education but also having the ability to constantly adjust the knowledge possessed to the growing requirements of the labour market. Therefore, it is absolutely necessary to keep expanding and updating the possessed knowledge.

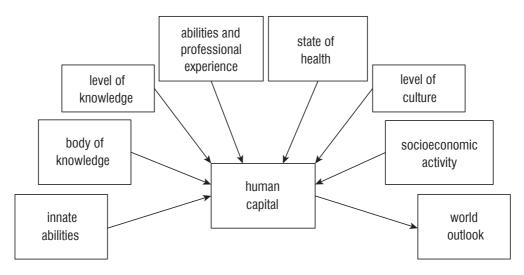
4. Human capital in the knowledge-based economy

The role of human capital keeps growing in the process of creating a knowledge-based economy. Human capital can be viewed in a narrow or broad sense. Seen in its narrow meaning, human capital is identified with the level of education of an individual. Considered from its broader perspective human capital includes '[...] all the psychophysical features of the individual such as innate talents, body

⁹ R. Przybyszewski, *Kapitał ludzki w procesie kształtowania gospodarki opartej na wiedzy*, Difin, Warszawa 2007, pp. 22–23.

of knowledge possessed, cultural level, socio-economic activity, world outlook, etc., all of which have a direct impact on the productivity of work and are inseparable from the individual as a measure of these values [...]. In contrast, R.S. Domański defines human capital as 'the body of knowledge, skills, health and vital energy contained in a society. This body is given by the genetic features of a given population once and forever but it can be increased by means of investments known as investments in man: in people, in human capital, in human life. In

Figure 3. Features of human capital



Source: the author's own elaboration on the basis of W. Florczak, *Kapitał ludzki a rozwój gospodarczy*, [in:] *Gospodarka oparta na wiedzy*, W. Welfe, (Ed.), Polskie Wydawnictwo Ekonomiczne, Warszawa 2007, p. 112.

Human capital is characterized by man's ability to learn and to translate the knowledge possessed into practice. In the knowledge-based economy human capital is considered the most important resource of the organization. It has an enormous influence on the image, efficiency and competitiveness of the firm. In the knowledge-based economy era, education has become fundamental to growth. Investments in education and other forms of human capital development are of key importance to economic development. What constitutes the new quality of human capital is educated and highly qualified staff.

¹⁰ W. Florczak, *Kapitał ludzki a rozwój gospodarczy*, [in:] *Gospodarka oparta na wiedzy*, W. Welfe, (Ed.), Polskie Wydawnictwo Ekonomiczne, Warszawa 2007, p. 112.

¹¹ R.S. Domański, Kapitał ludzki i wzrost gospodarczy, PWN, Warszawa 1993, p. 19.

5. Socioeconomic properties of the labour market of today

The educational system plays a leading role in today's economy. It is closely correlated with the labour market. The increase in the importance of the level of education, qualifications and professional competences has an enormous influence on the system of education. It is these factors that determine one's status in the labour market of today, professional position, level of pay, possibilities for professional development as well as job security. Substantive, interpersonal and social competences are believed to be of strategic importance. Modern organizations expect of their employees a high level of competence, ability, creativity, ability to assimilate new knowledge (to learn) and self-development. This ensues from the belief that the company's efficiency, effectiveness and competitiveness depend, to a large extent, on the human capital they possess. The labour market of today is characterized by transformations resulting from technological progress, modern organization of work, internationalization of production processes, tough competition. The most important changes in the labour market include:

- servitisation of the economy (transfer of employment from production to services);
- the decrease in the number of workplaces for low qualified staff;
- the shift in employment from physical to brain work;
- evolution of professions and specializations;
- the emergence of new professions and specializations as a result of the development of new (IT and telecommunications) technologies;
- introduction of advanced techniques and devices in order to eliminate routine work;
- the increase in the importance of the work of high-class specialists (managers, engineers, surveillance officers);
- departure from 'lifelong jobs';
- departure from narrow specialization in a given domain in favour of specialization in numerous domains;
- increased dependence of the position and status of the employee on the labour market on the education, qualifications and professional competences held;
- diversification in the pay level depending on the qualifications possessed (cafeteria for executive staff and high-class specialists);
- continuing self-development as a new form of professional activity in the process of knowledge management.¹²
 - These changes force the education system to adjust to the present conditions.

¹² R. Przybyszewski, op.cit., pp. 191–192.

6. Changes to the Polish educational market

Universal and equal access to education, obligatory education to the age of 18, parents' freedom to choose schools for their children other than public ones are guaranteed to citizens by the Constitution of the Republic of Poland (Art. 70). Since the 1990s, higher education in Poland has been undergoing enormous transformations. A crucial change to the Polish educational market was introduced by the Law of 12 September 1990 on higher education, 13 which regulated the functioning of higher education institutions. The law referred to allowed for some educational services to be payable. This created grounds for the development by state higher education institutions of a system of evening, extramural and postgraduate studies. The law provided also for the development of different forms of study in non-public higher education institutions. The system of Master's degree studies was diversified through the introduction of a two-tier system of education – 1st level studies conferring the title of a Bachelor or Engineer and 2nd level Master's degree studies or uniform Master's degree studies conferring a Master's degree, a Master Engineer's degree or an equivalent title of a Medical Doctor, dentist or veterinary surgeon. The law resulted in the emergence in Poland of the best-developed system of non-state education in Europe. Since 1998, under the Law of 26 June 1997 on vocational higher education institutions, vocational higher education institutions have been developing. At present, they can confer only the title of a Bachelor or an Engineer. In 2005, a new Law of 27 July 2005 on higher education came in force. The law constituted a step forward towards regulating the Polish higher education-related legal framework and created conditions for the adjustment of the Polish education system to European standards.

7. Poles' educational activity

The dynamic development of non-public higher education institutions, economic and social changes after 1990, development of the new knowledge-based economy, growth in the importance of human capital have undoubtedly contributed to a change in the attitude of the Polish society to gaining knowledge. Over the past years Poland has witnessed a significant increase in the number of students.

 $^{^{13}\;}$ DzU 1990, nr 65, poz. 385 z późn. zm. (Journal of Laws, No. 65, item 385 with amendments).

In the academic year 1990/1991 higher education institutions were attended by approximately 400,000 students and in the year 1997/1998 already over a million studied at state and private higher education institutions. By comparison, ten years later, in the academic year 2006/2007, out of 448 higher education institutions in Poland 130 were state schools with 1,301,031 students and 315 – private institutions with 640,300 students. At present, in the academic year 2017/2018, there are 457 higher education institutions, including 131 state ones and 326 private ones, teaching in total approximately 2 million students. What should be stressed at this point is that the increase in the student population is largely due to the growing number of evening or weekend students in public and in particular non-public schools.

The universality of education is measured with the enrollment index. It can be calculated gross or net. The gross enrollment index is the percentage ratio of all the people studying at a given level in relation to the total population (acc. to the state as of 31 December) of people at the age nominally assigned to this level (higher education 19–24 years of age). The net enrollment index is the percentage ratio of students at the nominal age of education at a given level (19–24) to the total population of people at the age nominally assigned to this level (19–24). Over the past eighteen years the enrollment index in the higher education witnessed a fourfold increase. In the academic year 1990/1991 the gross enrollment index was 12.9, while in the academic year 2017/2018–52.7.

The past years have also witnessed a clear change in preferences in the choice of the field of study. Studies in the field of economics and administration, sociology and pedagogy-related subjects still enjoy great interest. This is not a situation favourable for the development of knowledge-based economy. What gives a chance of fast economic development of a country is an increase in the share of people with education in engineering, technical and IT fields. A number of programmes have been launched to encourage school graduates to study at technical and agricultural universities. A positive phenomenon, of benefit to the Polish society, is the progressive growth in the number of postgraduate students. In the era of the new knowledge-based economy it is absolutely necessary to invest in oneself, to raise qualifications, to seek new knowledge and to specialize in several domains.

8. Continuing education in Poland

In the development of contemporary societies enormous importance is attached to the continuing education of an individual. Lifelong education has become an

integral element of national as well as international policy. Improved and expanded qualifications of an individual translate into their higher innovativeness and higher labour productivity as well as higher competitiveness of the economy and acceleration of the economic growth rate, which in consequence leads to an improvement in the standard of citizens' living. The time we live in is characterized by a revolution in science, technology and information. The expectations of employers as regards employees are changing. The demand for highly qualified, mobile, flexible employees capable of requalification, improvement and self-development keeps growing. Requalification is a process of raising formal qualifications and theoretical complementation of professional qualifications, finishing with obtaining a pertinent certification – a certificate or a diploma. The improvement consists in systematic updating, deepening and expanding of knowledge and skills as well as general and professional abilities. The need for professional improvement is forced by the permanent development of science and technology. Self-development is a lifelong process of extended and expanded education enriching both the intellect and the personality of the individual in compliance with their ideological, social, professional and individual needs. In the process of self-education its goals gain power and momentum. Reaching a higher level of awareness, the learner often re-evaluates and modifies his/her goals. In combination with school and out-of-school education, self-development becomes a form of continuing education and contributes to continuous personality improvement. Continuing education signifies a state of learning which extends from one's birth to the end of one's days. The essence of continuing education lies in its intentional, planned and rational impact on man's development at every stage of one's life. Continuing education encompasses all and any forms of purposeful education undertaken in a continuous way which, irrespective of its contents, level or methods, allows complementing school education (formal education) and raising the level of knowledge, skills and competence in non-school forms (non-formal education) or self-development (informal education).¹⁴ What has dominated educational practice is formal education, that is a system of education leading from kindergarten to university. Technological progress, development of advanced IT and communications technologies, growth in the importance of human capital contributes to an increase in the importance of non-formal education – courses, training – and informal education (self-development), i.e. individual learning in order to gain knowledge or improve skills. Very limited attention is still given to incidental education being the result of everyday human activity, influence of the environment and the omnipresent media.

¹⁴ Cz. Kupisiewicz, *Podstawy dydaktyki ogólnej*, PWN, Warszawa 1998, pp. 66–70.

Conclusion

Changes in the labour market of today, unemployment being the consequence of inadequate professional qualifications, development of the knowledge-based economy and the increase in the importance of human capital are the factors generating a need or even a necessity for people to pursue continuing education. In order to avoid lagging behind and to keep pace with the changing reality people must learn all life long. This task is facilitated by the global access to information and knowledge irrespective of time or place. New IT technologies let us learn at any time and in any place. They allow making use of world and local, rich and commonly accessible sources of information. The educational system also has a wide offer as regards the choice of education, while the dynamic development of non-public higher education institutions significantly broadens the very access to education (in particular, higher education).

Research shows that the share of Poles in continuing education is still unsatisfactory. In spite of the fivefold growth in the number of students in the year 2017 (2 m) in comparison with the year 1990 (400 000) we still take part in the higher stages of education too rarely – over 64% of the population in the 25–64 age group did not participate in any form of education. The roots of this situation are numerous but the reasons most frequently given by respondents include: a lack of need, a lack of the will to learn, absence of motivation, absence of funds or a lack of time. It can thus be concluded that what seems to be missing in Poland is the awareness of the need for permanently updating and expanding knowledge. This refers in the first place, to people with low education and qualifications. Research shows that the participants already having high qualifications prevail among people benefiting from continuing education (48.5%).

In light of the information presented, it is of key importance for further possibilities of the development of the Polish economy to convince the society that the education once gained will not last for the whole life. To make this need more evident, it seems important to promote the benefits which result from having high qualifications and for creating (improving) the mechanism of facilities indispensable and helpful (e.g. financial facilities) in access to knowledge, science and ultimately to continuous, multifaceted development of man, economy and society.

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