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FACTORS DETERMINING EDUCATIONAL SYSTEMS AT HIGHER EDUCATION LEVEL IN POLAND AND CHOSEN COUNTRIES

Abstract

Nowadays, education determines one's social and material status. In countries belonging to OECD, indexes showing the share in labour market increase along with educational level, and income generated by employed persons are inextricably connected with education they have received. Knowledge-based economy requires an increase in expenditure on education, which makes one more affluent (measured in terms of extra pay) and is favourable to the entire economy¹. The article is an attempt to present the importance of issues relating to education, and tertiary education in particular. The paper includes the analysis of chosen determinants and scholarisation rate measuring tertiary education in Poland and certain countries. Furthermore, tertiary education system in Poland in the period from 2000 to 2006 will be analyzed and currently functioning educational systems will be subject to criticism.

Key words: I21 - Analysis of Education, Higher Education Research Institutions

Introduction

Investment in education, development of human capital, as well as research and development are considered issues important to a country as information collected and processed in this way gives rise to a new quality of knowledge and contributes to scientific, organizational and technological progress. OECD indicates that there is a direct relationship between long-term economic growth and the development of educational potential. The examination of factors influencing economic growth allows for stating that in the majority of OECD countries at least half of GDP per capita growth results from greater work output. Work output may increase in several ways but human capital also plays a significant role as a factor determining the pace of technological progress. It is estimated that long-term influence of one additional year of education on economic production in OECD countries stands at 6% (Education, 2004).

Determinants shaping educational systems in chosen countries

On the assumption that increase in expenditure on education will affect society's affluence, proper educational system should be applied. This system ought to be adjusted to Great Charter of European Universities (so-called Bologna Declaration²) and to new educa-

¹ The development of knowledge and abilities influences not only labour quality but may also bring about additional benefits, social in nature. For educated society is healthier, participates in public matters, and is less likely to commit a crime.

² Bologna Declaration, issued in June 1999, initiated necessary changes aimed at creating European Higher Edu-

tional rules laid down by information era. Sources of its financing will be a major problem in the future.

Civilization development requires changes in educational system. In industrial era, qualified employees possessing factual knowledge were needed, which led to the creation of modern educational system. This system is characterized by mass character of education. The following three levels (stages) may be distinguished in the development of mass education system (Marek, 2004):

1. elite which is characterized by the fact that pre-school, secondary and tertiary education was elite in nature, only primary education level was egalitarian,
2. elite-egalitarian which is characterized by the fact that primary education level was still egalitarian in nature. Yet primary education was obligatory whereas pre-school and secondary education have become common. On the contrary, tertiary education was still elite in nature,
3. egalitarian which is characterized by the fact that pre-school, primary, and secondary educational levels are egalitarian in nature, and tertiary education is not elite any more but is becoming egalitarian as well. Changes in tertiary education observed in developed countries indicate that in the future this educational level will acquire mass character in more and more countries. Hence, tertiary education is going to become common just as primary and secondary education.

Knowledge-based economy requires changes in educational systems that should be connected with adjustment to Great Charter of European Universities, which is supposed to guarantee the quality of education via (Czubakowska, 2004):

1. distinguishing two stages of tertiary education, i.e. a three-year bachelor degree studies and a two-year master degree studies,
2. attaching a supplement to the diploma in which specific information about graduate's education is included,
3. introduction of ECTS (European Credit Transfer System) which enables a student to receive credit for classes that he/she has attended at some other University (e.g. abroad).

It should also be emphasized that only 0.6% of Polish students study abroad whereas as far as western Europe is concerned, on average 2.3% of students take up study outside their home universities. There are five countries, namely France, Germany, Great Britain, Australia, and the USA, which enrol 73% of all foreign pupils and students from OECD countries. Taking OECD states into account, the majority of foreign pupils and students (in absolute numbers) come from France, Germany, Greece, Japan, Korea, and Turkey. With reference to the remaining countries, the greatest number is represented by pupils and students from China, India, and south-east Asia (Raport Education, 2003).

Data on the number of students indicates that changes are more dynamic. In 1990 indexes showed that in European countries the number of students graduating from higher education institutions tended to drop in comparison with the USA, Canada or Australia. Currently, these trends are subject to change, particularly in some European states, e.g. Great Britain, and some Scandinavian countries. In these states over one third of young people receives higher education. It is estimated that at present every other young person in OECD countries takes up study at the university (or other higher education institution) (Education, 2004).

education Area (EHEA) until the end of 2010, and offering a wider and comprehensive range of educational programmes of a high quality as well as making graduates more attractive on the labour market. These changes are supposed to make college degrees received in particular European countries comparable as well as adjust educational systems to the needs and requirements of European labour market. Such actions will allow for increasing the competitiveness of educational offer for European and non-European students.

In New Zealand, Finland, Sweden, Poland, and Australia index expressing the participation in tertiary education amounts to over two thirds. Hence, expenditure on education needs to be increased. In 8 out of 22 OECD countries, expenditure on education does not keep up with a growing number of students. As a result, expenditure per one student attending higher education institution has been falling since 1995.

Such actions may bring about unfavourable effects as these issues relate to education received by persons active professionally. For, increase in the number of graduates among young people that occurred 10 years ago has at present influence on c.a. 25% of young people at productive age (Education, 2003). Taken world perspective into account, increase in the number of persons aged 25-34 who have higher education is observed in the majority of countries. This tendency is even more dynamic in Belgium, France, Ireland, Spain, Norway, Great Britain, as well as Australia, Canada, and Korea. What is more, a ten or more per cent growth has been recorded since 1991, which is almost the growth observed in the United States.

At the beginning of the 90's, about one fifth of highly qualified persons aged 25-34 lived in Great Britain and Germany. During another years, minor change in the figures analyzed could be observed in Germany. Yet, in Great Britain persons who have higher education constitute almost 1/3 of the entire population. Situation in Germany was caused by difficulties in promoting common access to tertiary education which resulted in implementing reforms aimed at replacing one-stage university system lasting five or six years with diploma system consisting of many stages.

Indexes discussed are used to measure higher education that involves not only university degrees but also many other kinds of diplomas of lower rank. Diplomas of higher education are very popular in Japan which is reflected in a high index expressing the number of persons who have graduated from higher education institutions.

The analysis of scholarisation rate of tertiary education

Scholarisation rates measure the universality of education. Gross scholarisation rate is a ratio of the number of persons (expressed in per cents) at particular educational levels (regardless of age) to the size of population (state on 31st December) in the group described as corresponding to educational level analyzed. By contrast, net scholarisation rate is a ratio (percentage) of the number of students at a particular educational level (in a particular age group) to the size of population defined just as in the case of gross scholarisation rate (GUS, 2005).

The development of higher education in chosen countries indicates that in 1960 higher education was elite in nature. Gross scholarisation rates amounted to several per cents, only in the United States it stood at 32% and in Canada at 16%. Last decades of the 20th century were characterized by a rapid development of higher education. In many countries tertiary education is not elite any more and has become egalitarian in nature. High degree to which higher education develops is found in (apart from the United States) Finland, Norway, New Zealand, and Sweden. It was in Finland that gross scholarisation rate of higher education increased the most spectacularly from 7.4% in 1960 to 83.0% in 1998 (so by 75.6 percentage point). It is doubtless that dynamic development of tertiary education contributed to economic successes of this country. (Marek, 2004)

Knowledge-based economy is not advanced in Poland. Intensive development of this economy is a chance for diminishing the development gap between Poland and developed countries. Speeding up the scholarisation of tertiary education is one of significant factors here. Scholarisation rate increased almost fourfold (from 12.9 in the academic year 1990-1991 to 48.9 in the academic year 2005-2006) during last fifteen years. This fact resulted from a

growing number of students graduating from secondary schools (all types) who continue their education in higher education institutions (Table 1).

Table 1. Scholarisation rate in state higher education institutions in the period from 2001 to 2005.

Year	2001	2002	2003	2004	2005
Gross scholarisation rate	43.6	45.6	46.4	47.8	48.9

Source: own compilation: Główny Urząd Statystyczny, Ludność według płci, wieku, województw, podregionów, miast i gmin. Stan w dniu 31.XII.2001 (2002, 2003, 2004, 2005 r.) Warszawa 2002 r., s. 4.

The range of systems of studying offered by state and private schools has become wider. Almost all higher education institutions provide students with extramural, evening, and extension studies. Therefore, it may be stated that the rise and dynamic development of non-state tertiary education as well as developing extramural and evening educational systems are main changes that took place during the last decade. As far as Poland is concerned, the development of knowledge-based economy will require further widening the offer from secondary and higher education. It is also necessary to facilitate the access that young people from poor families have to education through devising proper system of tax relieves and social benefits (Marek, 2005).

In recent years, tertiary education in Poland has been characterized by a huge increase in the number of students and a great diversification of higher education institutions. It should be emphasized that the increase in the number of students is mainly connected with a considerable influx of evening and extramural students in state institutions. Larger number of secondary schools graduates and a greater percentage of persons who declare they will continue their education and enter higher education institutions result in a growing number of the 1st year students and a growing percentage of students aged 19-24, which is reflected in scholarisation rates. (tabela 1).

The research conducted by Central Statistical Office (GUS) in 2006 showed that the following factors determined society's education in Poland: knowledge treated as investment for the future that will provide employee with better job and job security, possibility for professional development, higher earnings, and greater professional mobility.

Scholarisation was a phenomenon particularly evident during last several dozen years. The development of industrial society has a profound influence on increase in this index. Knowledge is considered main and single factor determining the development of industrial society that could replace capital and labour successfully. It is a specific asset of a firm that is elusive and difficult to copy, that no one else has, and which gives competitive advantage.

Important factors determining the development of knowledge-based economy are as follows: education, R&D expenses, financial-educational and legal systems favourable to the development of high technology and high-risk investments, and the creation of infrastructure facilitating and speeding up the transfer of knowledge (Borkowska, 2003). In Poland in the period 2000-2006, the share of investment outlays increased from 17.0% to 18.7% in the total of R&D expenses. In 2006, the largest percentage of investment resources was represented by higher education institutions and constituted 38.7% of the total of R&D expenses incurred on investments made in this sphere (GUS, 2007).

Educational system and educational level of society are inextricably connected with economic development and competitiveness of a particular country. Changes in educational

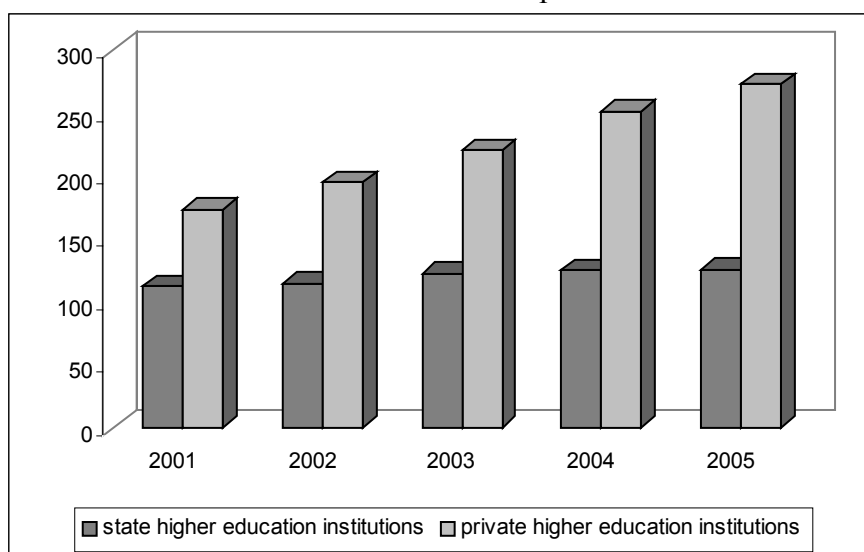
system are much slower than changes in technological progress. Therefore, in many countries, and particularly in developing and developed ones, educational initiatives and educational reforms are undertaken. These initiatives and reforms aim at preparing people to function in information society and knowledge-based economy in a better way since their early years.

General description of State Higher Education Institutions in Poland in the period 2001-2005

Over recent years higher education institutions have widened their educational offer both in the scope of forms and content. In 1991, apart from the fact that full-time, evening, extramural, extensive, and postgraduate studies were available at state higher education institutions, the number of non-state institutions, educational offer of which was wider and wider, increased. The article presents the analysis of state higher education institutions in the period from 2001 to 2005.

In 2001, state institutions represented only 113 (Chart 1) out of 287 of all higher education institutions in Poland (including institutions of administrative divisions of national defence and internal affairs and administration). Over 70.7% of the total of students attended state institutions (GUS, 2006). In the academic year 2000-2001 there were 114 state institutions registered. In the following year, this number increased to 115 and 1106.8 thousand persons attended these institutions, which represented over 70.1% of the total of students. Then state institutions constituted 123 out of 344 of all higher education institutions. The number of students attending the former amounted to 1203.5 thousand which represented over 70.3% of all the students. Taken the academic year 2004-2005 into consideration, 377 higher education institutions were registered out of which 125 were state ones. There were 1271.1 thousand students who attended state colleges which constituted 70.6% of all the students. Finally, in the academic year 2005-2006, 126 out of 400 were state institutions. In this period, the number of students attending state higher education institutions of all types amounted to 1306.2 thousand which represented 70.6% of all the students and this percentage increased by 2.6% compared to the previous year, and in the academic year 2001-2002 the number of students rose by 298.8 thousand (by 22.9%). With respect to the academic year 2006-2007, there are 147 state institutions so far.

Chart 1. Higher education institutions in Poland in the period 2001-2005.



Source: own compilation: Główny Urząd Statystyczny, Szkoły wyższe i ich finanse w 2004 r., Warszawa, lipiec 2005 r., s. XVI, XVII.

The greatest number of students attended universities at which the number of students increased by the year in the period examined (Table 2). Taking particular academic years into account, 392.2 thousand students attended universities in 2001, and this number increased by 96.7 thousand in 2003. Furthermore, there were 519.8 thousand students in 2005 and so this number increased by 2.2% compared to the previous year, and increased by 127.7 thousand compared to 2001. State technical universities were also chosen by a large number of students. In 2001, this number amounted to 277.4 thousand students and in the fifth year of the research it amounted to as many as 332 thousand students. This fact implied that the number of students attending technical universities increased by 54.6 thousand persons (by 16.4%) in the period 2001-2005.

Table 2. Students attending higher education institutions by types of institutions.

Specification	Students in thousand				
	2001	2002	2003	2004	2005
Universities	392.2	423.6	488.9	508.4	519.8
Technical Universities	277.4	308.2	324.0	344.3	332.0
Agricultural Universities	76.5	83.7	89.4	96.5	102.1
Economic Universities	69.9	72.6	75.3	76.0	76.6
Pedagogical Universities	100.8	107.6	91.2	94.7	92.0
Medical Universities	27.1	28.4	31.7	37.7	41.0
Academies of physical education	20.8	22.1	22.9	23.7	24.8
Artistic high schools	10.9	11.7	12.0	12.9	13.2
Higher vocational schools	11.7	25.6	43.3	62.6	79.4

Source: own compilation: Główny Urząd Statystyczny, Szkoły wyższe i ich finanse w 2001 r., Warszawa, lipiec 2002, p. 2, ..., Szkoły wyższe i ich finanse w 2005 r., Warszawa, lipiec 2006, p. 2.

With reference to state higher education institutions, the smallest number of students attended art schools in which only 10.9 thousand students were registered in 2001, and this number increased to 13.2 thousand in 2005. The number of students attending Academies of physical education amounted to 20.8 thousand in 2001 and 24.8 thousand in 2005 respectively.

Nowadays, almost all types of state higher education institutions offer (apart from free full-time studies) paid evening, extramural, and extension studies. In 2005, the number of full-time students amounted to 744.6 thousand and represented c.a. 57% of all the students attending state higher education institutions (Chart 2).

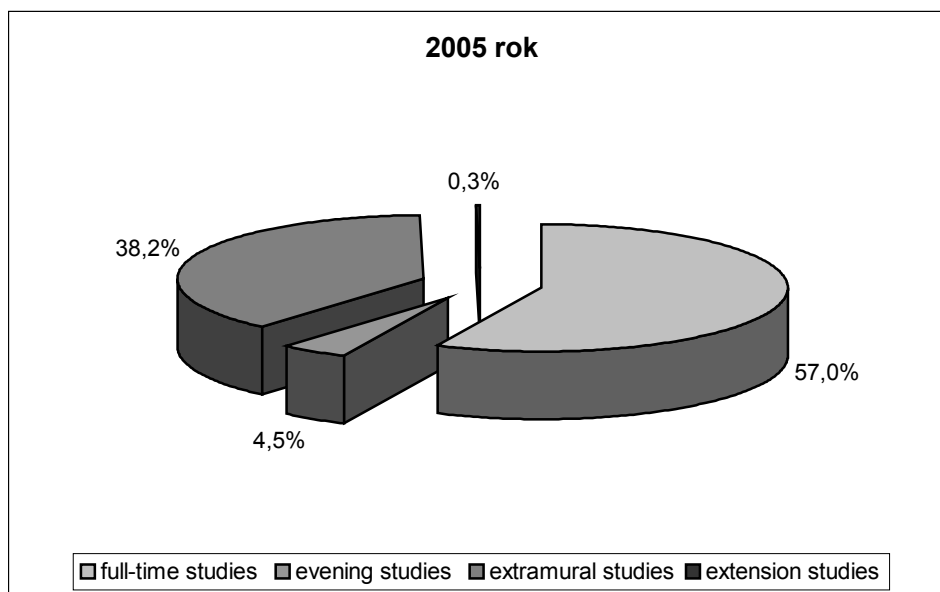
On the whole, there were 498.6 thousand extramural students, 59.8 thousand evening students, and 3.3 thousand attending extension studies. Altogether they constituted 43.0% of all the students attending state higher education institutions in Poland. The number of full-time students increased by 201.5 thousand persons, extramural students by 90.1 thousand, and the number of students attending evening students rose by 8.4 thousand compared to 2001 (Chart 3). On the contrary, the number of persons attending extension studies dropped by 1.1% in 2005 in comparison with 2001 (from 4.4 thousand to 3.3 thousand students).

The development of state higher vocational schools in the period 2001-2005

Treaty on the European Union (as stated by Amsterdam Treaty) obliges Community to meet the following requirements:

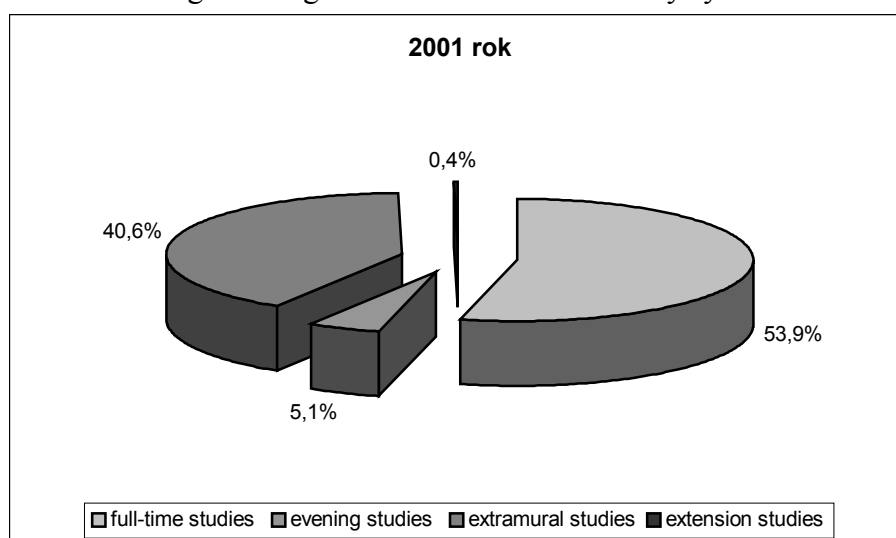
- develop education quality (with reference to content and organization of education systems) through supporting the actions taken by Member States and respecting their cultural and language diversity,
- adopt training policy in order to support actions carried out by certain states. Education and training are objectives that European Commission undertook to fulfill at European Union level. Section responsible for carrying actions in this scope is DG XXII – *Education and Culture*. Community policy aims at safeguarding the investments in human resources, as well as developing qualifications, creativity and adaptive abilities of EU citizens.

Chart 2. Students attending state higher education institutions by systems of studies.



Source: own compilation: Główny Urząd Statystyczny, Szkoły wyższe i ich finanse w 2005 r., Warszawa, lipiec 2006, p. 2.

Chart 3. Students attending state higher education institutions by systems of studies.



Source: own compilation: Główny Urząd Statystyczny, Szkoły wyższe i ich finanse w 2001 r., Warszawa, lipiec 2002, p. 2.

In this context, in November 2005 European Commission accepted the White Paper entitled “*Teaching and learning: towards the learning society*” which included potential actions that could be taken as a response to the 21st century challenges in the scope of education and training. On May 29, 1997, Commission issued communication about initiatives introduced that would accomplish the objectives formulated in the White Paper. One of main initiatives was to create so-called Second Chance Schools which aimed at reintegrating young people who finished their education and did not acquire any qualifications or receive training. This project was carried out in cooperation with certain ministries of particular Member States.

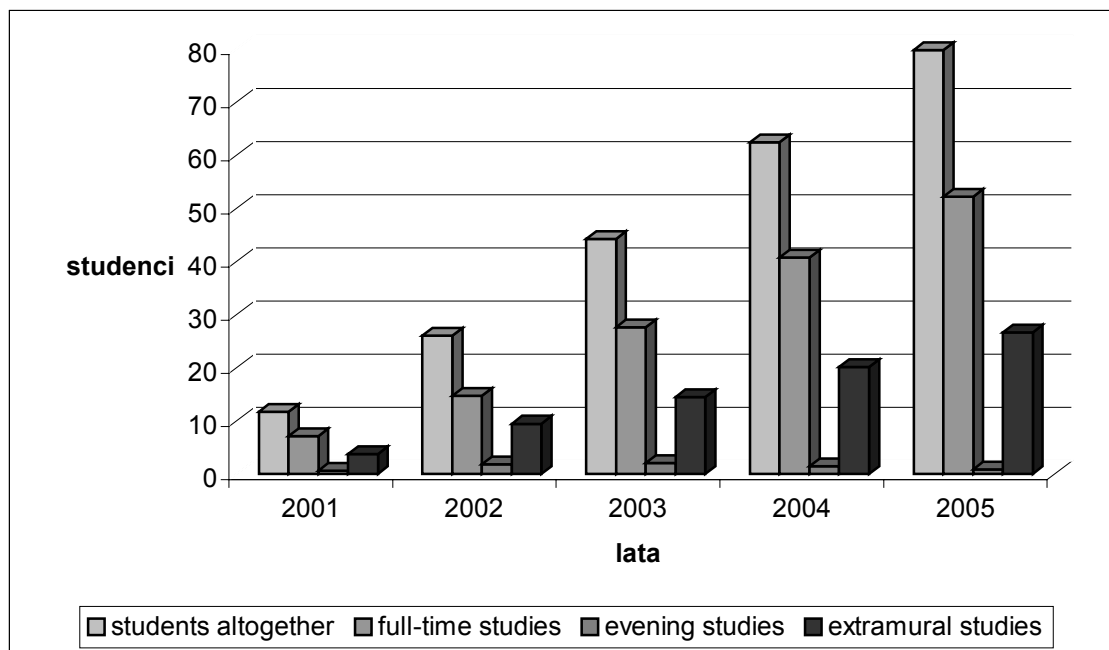
After summit in Florence (June 1996), Commission adopted the plan of actions aiming at introducing information technology into schools. Commission has introduced a number of initiatives since 1997, and particularly a one-week help at school programme – *Netd@ays Europe* – and European competition in the scope of devising the best multimedia products. The week is European Commission initiative that popularizes the use of new technologies at schools and improves knowledge of possibilities offered by the new media as far as education and culture are concerned.

In 1996, the Green Paper was accepted. It referred to barriers to international mobility, and presented potential solutions to these problems. European Parliament proposed the creation of European student card so that students could migrate freely.

Since 1997 Community programmes relating to education, training, and young people have been gradually made accessible to East European countries (Hungary, the Czech Republic, and Romania) and Cyprus. Subsequently, the programme was made available to Poland and Slovakia, and then to Latvia, Estonia, Lithuania, Bulgaria, and Slovenia.

In Poland, higher vocational schools have been functioning since 1998 (Dz. U. nr 96 poz.590, 1997). Education lasts at least 6 semesters there, and graduates receive bachelor’s degree or engineering degree. In 2001, almost 11.7 students attended state higher vocational schools (including 7.2 thousand full-time students) (Chart 4).

Chart 4. Students attending state higher vocational schools by system of studies.



Source: own compilation: Główny Urząd Statystyczny, Szkoły wyższe i ich finanse w 2001 r., Warszawa, lipiec 2002, p. 2 (...), Szkoły wyższe i ich finanse w 2005 r., Warszawa, lipiec 2006, p. 2.

Extramural students constituted 30.8% (and hence represented the largest number), and students attending evening studies constituted 7.4% of all the students attending state higher vocational schools. Extension studies are not available there. In 2005, the number of young people who entered higher education increased over sevenfold compared to 2001 and amounted to 52.2 thousand in the last year of the research. The number of extramural students increased by 22.6 thousand (i.e. sevenfold as well), and the number of evening students rose only by 166.

Currently functioning educational systems – criticism

Data presented does not provide explicit information about the best educational system. However, it allows for determining the spheres in which investments in human capital will be made and introducing gradual improvements to functioning systems. What is more, data collected enables one to make comparison thanks to which particular countries may monitor their progress and hence stimulate progress in educational systems.

Quantitative changes in education may be assessed as positive, yet it is difficult to find ideal educational systems in modern economies, systems that would be responsive to all needs of knowledge-based era (information, knowledge-based economy).

For educational systems are criticized for the following aspects (Inwestowanie w pracownika, 1996):

- slight sensitivity to changes occurring in socio-economic environment which is connected with the fact that the structure of education institutions is made bureaucratic and from traditional approach toward education as a relatively autonomic domain, as differentiated from practical activity,
- specialist education connected with the fact that academic circle is traditionally attached to the status based on acquiring expertise or developing knowledge in a particular field,
- introducing certain material and make sure one has assimilated it, instead of developing one's learning skills or acquiring new knowledge,
- issues relating to the development of interpersonal abilities (cooperation, conflict resolution) are not taken into account in educational programmes,
- low degree of internalization in the process of teaching certain norms, i.e. creativity, responsibility, aspiring to achievements, which ought to become main elements of new organizational culture.

Educational systems are constantly evolving so that ideal and new solutions could be found. New educational order will have to be adjusted to knowledge-based economy in a better way. This order will involve both properly modified traditional educational system and well-developed educational system (outside school) applied to meet the needs of labour market.

Conclusion

Having considered the above data, the following changes in the educational environment of companies could be suggested:

1. The state has to take education into account if it desires to be thought of as a knowledge-based economy. It should definitely determine the range of financial support for the above-mentioned strategic areas and attempt to stimulate private sector to participate in this intention.
2. We ought to aim at constant improvement of educational system adapted to modern systems functioning in the UE mainly by strengthening the egalitarian system.

3. The main attention should be directed to university education and then it will be possible to equalize educational systems and scholarisation rates following the example of the EU leaders. It will also be possible then to estimate expenditures per every student.
4. Knowledge transfer and abilities play a significant role in higher education. We should aim at combining traditional education with entrepreneurship in order to increase the competitiveness of Polish graduates on the national and EU labour markets. Additionally, international cooperation should be intensified for the reason that collaboration between research and development institutions in Europe and worldwide leads to the transfer of knowledge.
5. The economic development of Poland is equally meaningful because only then it will be possible to finance education and create favourable conditions for the growth of companies and new work places.

The OECD analyses indicate a direct relation between long-term economic growth and growth of educational potential. Assuming that increasing expenditure on education will affect the wealth of the society, it would be reasonable to run an educational system which is adapted to new educational rules created by the age of information. Nonetheless, indicating the financial sources of support will be one of the biggest problems in the future.

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