

# A Society on the Road to Knowledge

## Report on the State of Education 2010

Highlights



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**The report on the state of education 2010 "A Society on the Road to Knowledge"  
has been prepared by:**

**Content editors:**

Professor Michał Federowicz, Michał Sitek, PhD

**Secretary:**

Monika Siergiejuk

Natalia Skapietrow

**Reviewers:**

Professor Jarosław Górniak, Professor Jerzy Hausner, Professor Krzysztof Konarzewski,  
Professor Maria Mendel, Professor Henryk Samsonowicz, Professor Zbigniew Semadeni.

**Authors:**

Professor Ewa Bartnik

Professor Krzysztof Biedrzycki

Jerzy Bracisiewicz

Agnieszka Chłoń-Domińczak, PhD

Professor Jolanta Choińska-Mika

Monika Czajkowska, PhD

Mirosław Dąbrowski, PhD

Joanna Dobkowska, PhD

Professor Roman Dolata

Professor Michał Federowicz

Agata Gajewska-Dyszkiewicz

Ewelina Jarnutowska

Aleksandra Jasińska

Marcin Karpiński

Professor Maciej Karwowski

Bartosz Kondratek

Magdalena Krawczyk-Radwan

Filip Kulon

Professor Stefan Kwiatkowski

Rafał Lew-Starowicz

Joanna Lilpop

Magdalena Lipiec

Agnieszka Łączyńska

Anna Maliszewska

Ewa Matczak

Beata Michalska

Barbara Ostrowska, PhD

Katarzyna Paczuska

Rafał Pękała

Professor Rafał Piwowarski

Urszula Poziomek

Marcin Pracz

Karolina Safarzyńska, PhD

Professor Zbigniew Sawiński

Monika Siergiejuk

Sławomir Sławiński, PhD

Michał Sitek, PhD

Professor Krzysztof Spalik

Jacek Staniszewski

Klaudia Starczynowska

Małgorzata Swat-Pawlicka

Henryk Szaleniec, PhD

Magdalena Szpotowicz, PhD

Professor Urszula Sztanderska

Katarzyna Trawińska-Konador

Andrzej Walczak

Piotr Walicki

Dorota Węziak-Białowolska, PhD

Tomasz Wierzchowski

Dorota Wiszejko-Wierzbicka, PhD

Anna Wojciuk, PhD

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Dear Reader,

This publication presents the highlights of the Report on the State of Education. Its main goal is to strengthen public debate on education.

We review the research of the last decade, organise facts to show their significance and draw on findings to build a large consensus around education. Sometimes we state our views but our intention was to pose questions rather than provide definitive answers or ready solutions.

However, the title of the 2010 report "A society on the road to knowledge" reflects the view of the authors that after 20 years of transformation education is still halfway between a rigid system of the past and a flexible, dynamic system which not only adapts to the changing environment but is also the driving force behind social and economic development.

The increase in the social value of education is one of the greatest achievements of the last two decades in Poland. Its effects are evident in improved educational achievement and growing aspirations. This initial success forms the basis for future development. The authors believe that we must seize the opportunity to build on these high aspirations.

**Michał Federowicz**  
Director of the Educational Research Institute

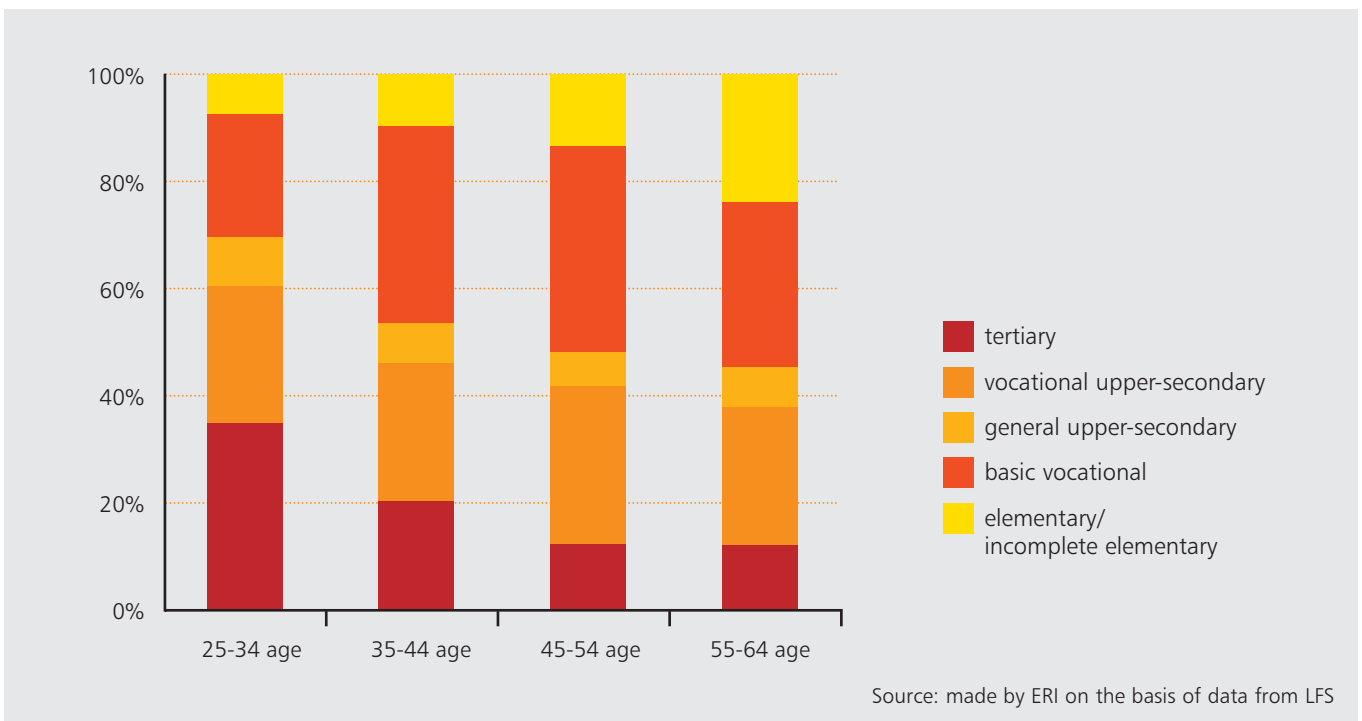
# 1. Educational attainment

The last few years have seen an educational boom in Poland. The improvement in educational attainment is among the most spectacular of the OECD countries. Between 1995 and 2009, the proportion of adult population (25-64 year-olds) who have completed tertiary education increased from 9.7% to 21.2%, whereas the percentage of people with lowest levels of education fell. To a great extent these changes are a consequence of the increased participation in higher education of youth, particularly women and city-dwellers. Changes were also influenced by 'baby boomers' that reached school age. However, the improvements can be interpreted as a process of catching-up with other developed countries. The rate of tertiary attainment in the population is still below the OECD average.

Regional and age-related differences in educational attainment are the main challenges. A strength of Polish education is the relatively low proportion of early school leavers (only 5.3%, compared with the European average of 14.4%) and adults not completing upper-secondary education (14% compared with the OECD average of 30% in 2007).

Chart 1

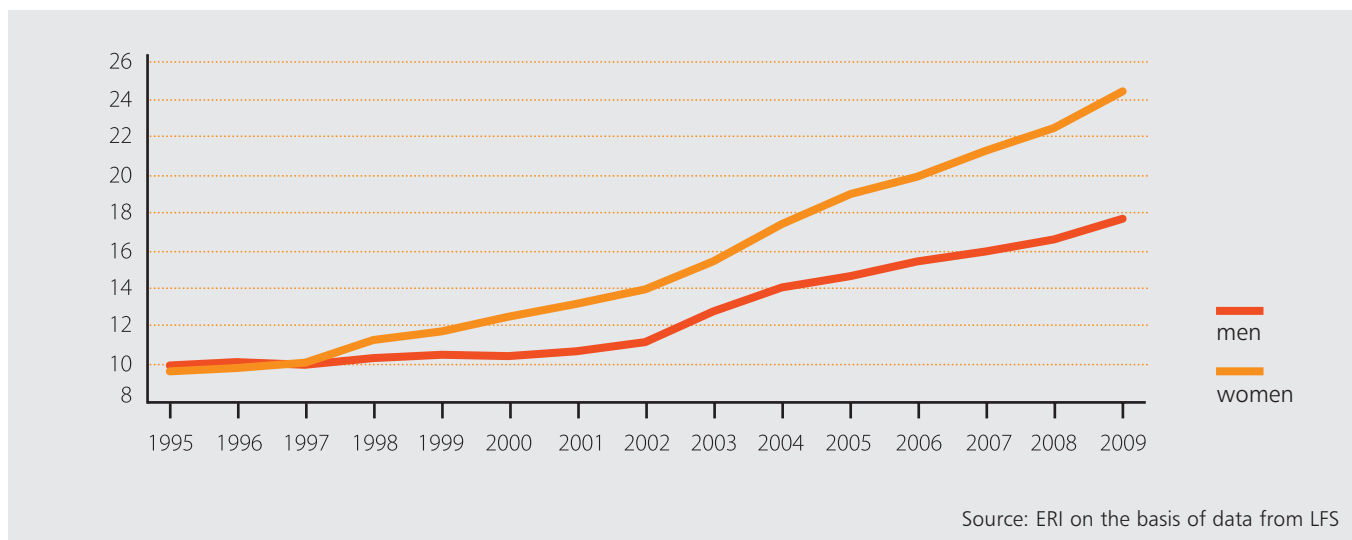
Polish adult educational attainment by age (2009)



The widening gap in tertiary attainment between men and women is noteworthy. In the mid-nineties the rate was similar (about 10%) but by 2009, the rate of adult women who had completed tertiary education reached 24% while the rate for men had dropped almost 7%. This trend may continue due to the abolition of compulsory military service.

Chart 2

Tertiary attainment of men and women in 1995-2009 (in %).



Differences in levels of education between city and rural populations are still wide but they are narrowing. For example, the tertiary attainment rate almost quadrupled in country areas (from 3.2% of the population aged 25-64 in 1995 to 11% in 2009) whereas in cities this figure doubled (13.3% and 27% respectively). There are substantial differences in the levels of education between and within voivodships. The Mazovia region had the highest adult population completing tertiary education (29.3%) while the Lubuskie and Kujawsko-Pomorskie voivodships had the smallest share (16.2%).



Overall, the proportion of people leaving the system with basic vocational education is falling, especially in urban areas. This is still the dominant attainment level for men living in rural areas. In some age groups this exceeds 60% whereas their share in the adult population is about 33% .

## 2. Participation

The second chapter is dedicated to participation in formal education. All stages of education are discussed: from early childhood education and care to tertiary education.

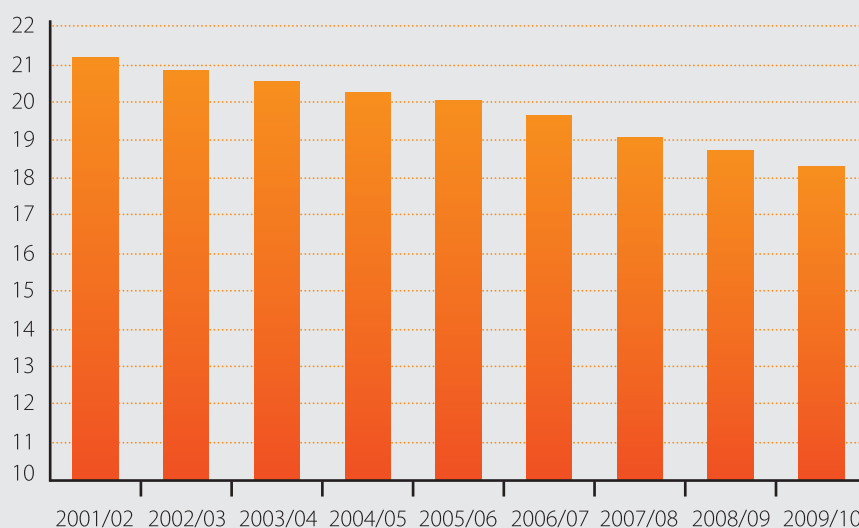
Participation in early childhood education and care is very low in Poland. The underdevelopment of formal care for children below the age of 3 results mostly from stringent official demands placed on the operation of crèches which have only recently been relaxed. Lack of reliable data and scant research concerning participation in various recognised forms of care provision are documented, as are the needs in this area.

The lack of places in pre-schools is still a significant problem, particularly in rural areas. Their reduction was most severe from the mid-1980s to 1993. Since then the situation has been improving slowly. This has been reflected in the steady improvement in the enrolment rates of 3-5 years-olds. In 2009, 64% of four-year-olds and 81% of five-year-olds were enrolled in pre-schools. This is low compared to other European countries and the target set in the Europe 2020 strategy.

Due to lower numbers of children born we have fewer schools with lower class sizes. Pupils attending primary schools in the school year 2009/10 made up only 72% of the 2001/02 population. The number of schools is 88% of the 2001/2002 level. In lower secondary schools number of pupils was 76% of the 2001/2002 level. Surprisingly, the number of lower-secondary schools increased in this period by 12%.

### Chart 3

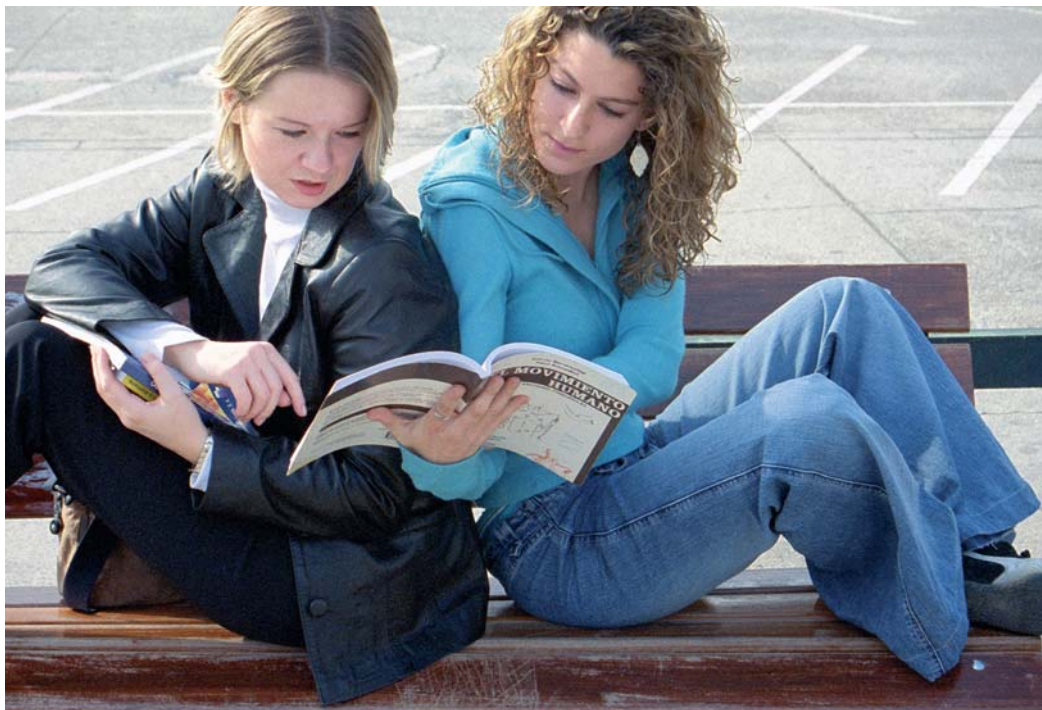
#### The average number of pupils per form in a primary school for children and young people (excluding special schools) in the years of 2002-2010



Source: ERI on the basis of data from CSO, Education in the school years 2001/2002 - 2009/10 (excluding special schools)

We have also faced substantial changes in upper-secondary education. In school years 2002/2003 and 2003/2004 numbers finishing basic vocational schools fell dramatically and numbers finishing the general lycea increased.

Similar changes were also observed in schools for adults. In the school year 2001/2002 slightly above 40% of adult students of upper-secondary schools attended general lycea and the remaining attended vocational schools, basic vocational schools and technical schools. In the school year 2009/2010 as many as 80% of adult students attended general lycea. At the same time the share of adults in the population of upper-secondary pupils increased. In 2009, almost one quarter of students in the general lycea attended schools for adults. Most of the general lycea (74%) are private but they are subsidised from public funds. These schools do not provide vocational education and only 25% of their students pass the matura exam that opens the way to higher education. One may, therefore, doubt whether the investment of public funds is in this case effective.



Since 1989 the number of students in Poland has increased fivefold which made the Polish higher education sector the third largest in the European Union. An important role in the expansion of tertiary education has been played by the private sector which in 2009 accounted for as many as 34% of the total number of students. Increase in the number of students was not followed by an increase in higher education teachers who often combine jobs in different institutions.

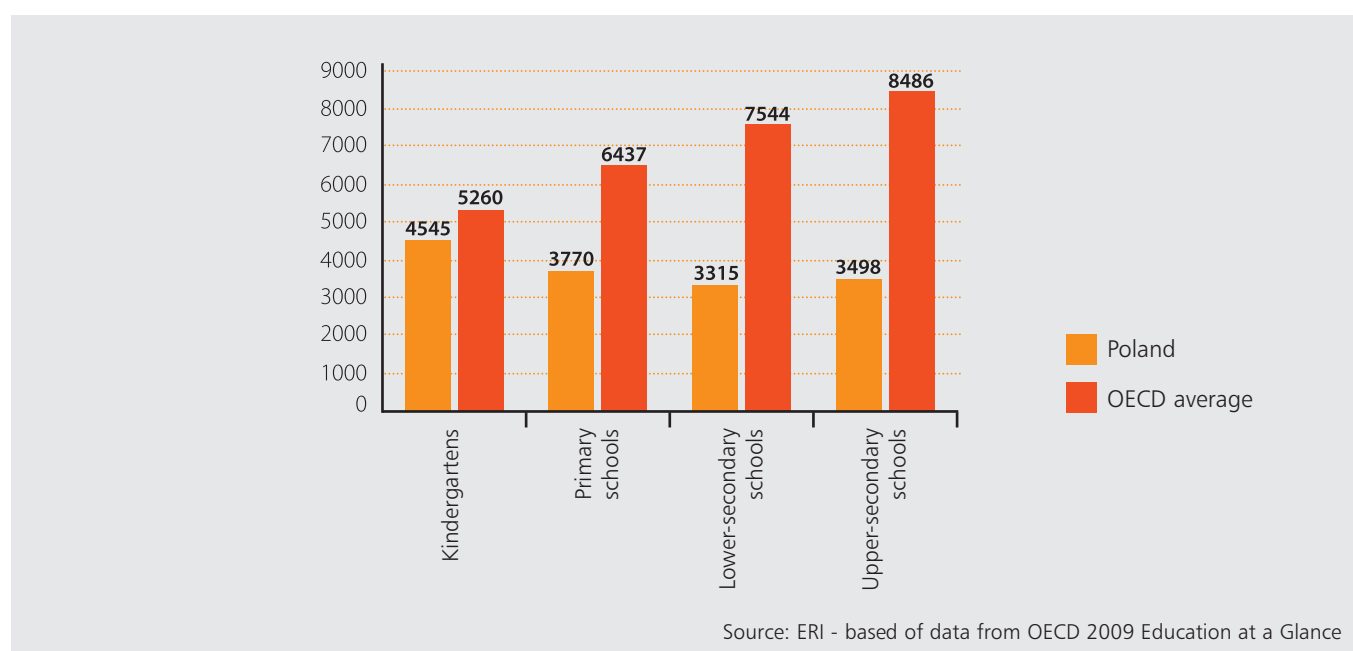
More than half of students study part-time and 58% of them pay tuition fees. Most of these students choose low-cost courses such as social sciences, education and business studies. The contact hours for part-time courses are only 60% of that of full-time studies which is below the standard in other countries and raises questions about quality.

### 3. The financing of education

In 2007 total expenditure on education (pre-schools and schools, excluding higher education) amounted to 5.7% of the gross domestic product (GDP) which corresponds to the average for all OECD countries. Contrary to the situation in the OECD, the higher the level of education the lower the per capita spending. It is 86% of the OECD average for pre-schools, 59% for primary schools and 41-44% for lower and upper-secondary schools.

Chart 4

#### Expenditures per one pupil (in USD, according to the parity of purchasing capacity)



Financing of education is the responsibility of local government which receives subsidy for this purpose. This subsidy is inadequate for the lowest tier of local government (gmina), especially taking into account financing of pre-school education and its expansion which is not subsidised from the central budget. In the middle tier of local government (poviats) this subsidy is often excessive and the surplus is used to finance areas other than education.

The proportion of private expenditure on educational institutions (from pre-schools to upper-secondary schools) is below the OECD average. It is known, however, that private expenditure is growing. Differences in private expenditure influence equality with respect to access to quality education.

In 2005, expenditure on higher education amounted to 1.3% of GDP (out of which 0.9% was public). Since 2005, public expenditure on higher education has fallen steadily (by more than 11%). While the share of public expenditure in the GDP is comparable to the OECD countries per student expenditure is lower. This is explained by the relatively young Polish population and the proportionately greater number of students.



In addition to inadequate provision of finance for running courses, we also note the lack of incentive to adjust courses to the demands of the labour market, lack of quality requirements as part of funding agreements and unfair competition between institutions for funds.



## 4. Education and demographics

The fourth chapter refers to demographic changes and their influence on education. They result primarily from birth rate trends. In the coming years the number of people in the youngest age groups will fall whereas the number of elderly will increase. Implications for the educational system are substantial. According to forecasts, the number of children under the age of 2 will drop by one-third by 2035, aged 3-5 by one-quarter and in the age group 6-14 by about 15-16%. Student numbers will be at a level of two-thirds of today's.

The next few years will bring a temporary increase in the number of children born after 2005 and entering the school system. This is a direct result of the increased birth rates during the baby-boom of the 1980s. This will require increasing the number of places in pre-schools.

The trends in the regions will vary. The Mazovia region will not experience a decline in the number of pupils by 2035; quite the opposite, an increase is expected in the next few years, whereas Świętokrzyskie and Lubelskie will lose up to 30% of their student populations.

It will be necessary to adapt all types of schools and pre-schools not only to the new age profile of the population but also to the changing labour market. Reduction in labour resources will need to be compensated by increases in productivity. Therefore, the task of education is to prepare the future workforce with a high degree of professional effectiveness and adaptability.

The average age of teachers will increase due to aging of teachers and the limited possibilities for early retirement. It will be necessary to create more attractive employment conditions in order to guarantee an inflow of the best possible graduates to the profession.

Demographic change will also affect the level of educational expenditure. Resources released for demographic reasons may be used for investments in the quality of education at all levels.

## 5. The quality of education

This chapter focuses on pre-school and early school education and learning outcomes in the education of Polish language, mathematics, history, science and foreign languages.

International large-scale assessments, such as the OECD Programme for International Student Assessment (PISA), have shown that the quality of education in Poland improved in the last decade. However, they also revealed the need for change in a wide range of areas.

Effectiveness of pre-school education is primarily determined by uptake and duration. Paradoxically, children from disadvantaged backgrounds who would benefit most from pre-school education are less likely to participate in it. That is why the task of increasing enrollment rates in pre-school is a key challenge.

The transfer of six-year-olds to schools will release places in pre-schools for younger children. At present, six-year-olds are subject to compulsory school education in 14 out of 27 countries in the European Union, whereas in eight countries it is compulsory for children younger than six. Seven-year-olds go to school in five countries (Bulgaria, Estonia, Finland, Lithuania and Sweden).

We can see the need to pay more attention to personalised instruction in early education and all subsequent stages. This is understood as involving children in group work during standard classes, observing their performance and assessing individual strengths and weaknesses. This, however, requires proper preparation of teachers, providing them with tools for this work as well as conducive classroom conditions, e.g. departing from the traditional division into classes and lessons.

Research shows that Polish pupils are better at reading literary than factual texts and they are better at interpreting texts than searching for information. The problem is that children are taught Polish on the basis of texts selected mainly from their textbooks. As a result they do not often read and analyse longer literary and practical texts. Not all 12-13 year olds can interpret a relatively short text; in the primary school leaving exam of 2009 only about two thirds of all pupils were able to do this.

The results of OECD PISA study have shown that Polish pupils are quite good at searching for information in a text, interpreting data from a table and simple tasks requiring reflection

and judgement – in that respect they are, on average, better than their peers in other OECD countries and there has been significant progress in this area. Their results are, however, worse in tasks requiring their own justification or arguments – in these areas there is no progress, although the results are close to the OECD average.

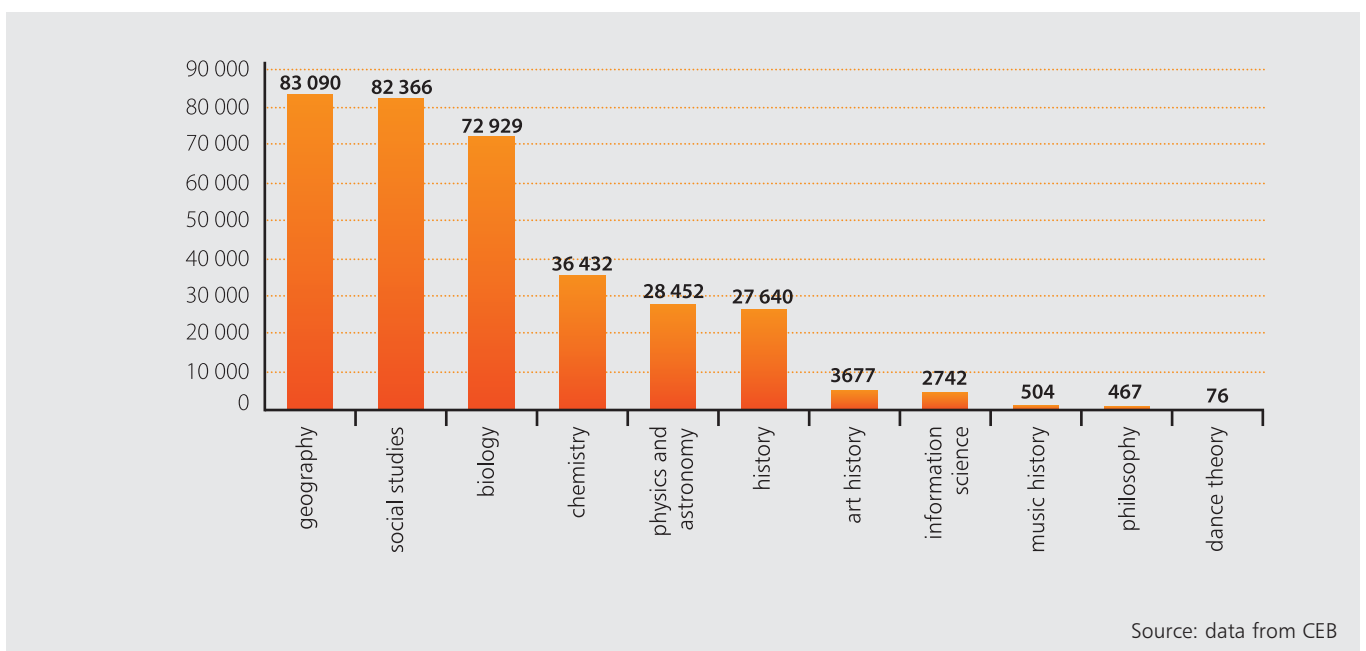
The number of pupils choosing history at the matura exam has been falling alarmingly. It seems that perceived difficulty and unpredictability of the exam is one source of the problem. Even well-prepared students can have problems with topics tested in the exam. Of importance are also entrance requirements set by tertiary institutions which influence pupil choice of examination subjects. We are also seeking deeper causes of this presumed decrease in interest in history which may be related to the way the curriculum used to be organised at different stages of education.

With reference to mathematics, we draw attention to a major problem with the quality of teaching. For example, research conducted among third-grade pupils suggests that teachers focus excessively on providing ready algorithms that pupils are supposed to memorise and use. This inhibits the development of reasoning ability.

It can be said with satisfaction that there are fewer underperforming 15 years-olds in science than in other OECD countries (13.2% and 18% respectively). However, the share of high-achievers is considerably lower than in the OECD. Improvement in the quality of science teaching requires not only change to the core curriculum but also teaching methods. As many as 52% of Polish pupils claim that they have never, or almost never, been told to devise an experimental method to solve a problem (in OECD the answer 'yes' was given by 37%).

**Chart 5**

**Selection of additional subjects by secondary-school leavers in 2010**



Starting from 2009, learning of a second foreign language has become compulsory at the lower-secondary level. At present children start learning their first foreign language at the age of 6-7 whereas three years ago they started at the age of 10. For 93% of pupils their first foreign language is English.

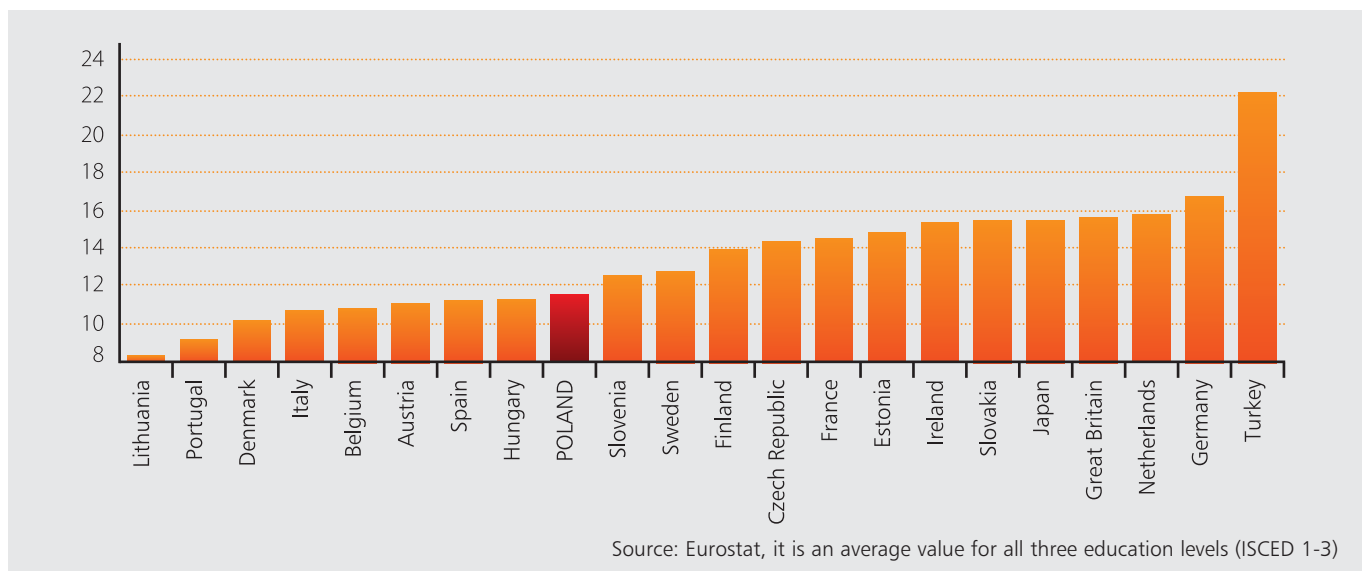
In all the areas of teaching discussed above the new core curriculum may play a significant role in improving the quality of education.

## 6. Teachers

In Poland there are 660 000 teachers which is more than 10% of all teachers in the European Union. Due to lowering number of pupils the number of teaching jobs is falling (but more slowly than the number of pupils) whereas the number of people employed as teachers is growing. Poland has one of the lowest pupil-teacher ratios in the European Union. The number of teaching hours is also one of the lowest.

Chart 6

### The number of pupils per one teacher in selected countries (2008)



As in most countries, the teaching profession in Poland is female dominated (81% of all teachers are women) whereas men take up managerial positions in education disproportionately more often.

Teachers earn less than members of other professions with gross monthly salary of just more than 3,000 PLN.

The average teacher is 40 years old and the average age is rising, as in other OECD countries. Until 2008 the average retirement age for teachers was lower than for other professions. After modifying the retirement regulations the average age will most likely increase.

Over the last 20 years the level of teacher education has significantly increased. Practically all teachers (97%) have university education (compared to 58% in 1992). This is the effect of growing educational aspirations in society, the increased accessibility of higher education and changes in the formal requirements regarding teacher qualifications.

However, the quality of teacher education is not monitored. Education received during college does not prepare students for the multitude of problems a teacher may meet in his or her professional life.

Whilst uptake of opportunities for professional development is relatively high in Poland these opportunities themselves are of short duration and limited effectiveness. Quality of development training for members of the profession has not been monitored and participation is mostly motivated by promotion prospects. More than half of those working in the profession have already reached the top of the career structure.



## 7. Education and social cohesion

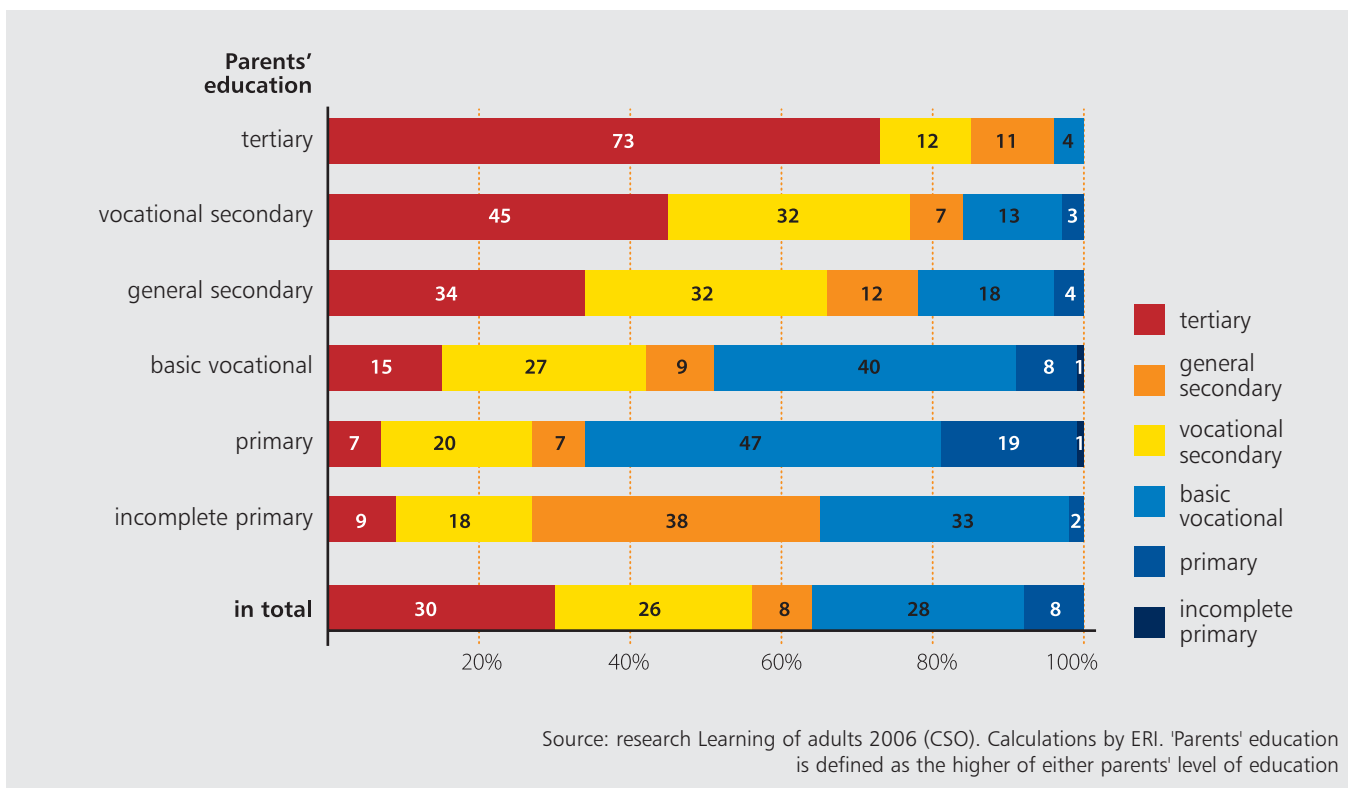
For the last two decades, in Poland, as in many European countries, the income differentials have grown and poverty levels have increased. Schools not only have to cope with increasing diversity of pupils but also promote equal opportunities, providing everyone with key competences and minimising the influence of social background on schooling.

The results of the PISA study confirmed that the introduction of lower-secondary schools and the extension of the common cycle of general education have created favourable conditions for social inclusion. Between 2000 and 2009 improvement was noted in PISA reading scores both among high and low achievers. Social inclusion is also supported by implementation of the principle of personalised instruction emphasised in the new core curriculum. Similarly, a positive role is played by greater emphasis on teaching key competences in vocational schools.

Research shows that social background is strongly related to school outcomes. For example, among young people from families in which at least one parent had completed tertiary education about 73% attained higher education. For children of parents who attained at most basic vocational education these chances are reduced to 13%.

Chart 7

### Education of people aged 25-34 according to their parents' level of education



The influence of social background is also clearly visible in the transition between lower-secondary and upper-secondary schools. Choice of basic vocational schools is to a large extent determined by parents' education. As a result pupils from disadvantaged backgrounds and with a low level of basic competencies are concentrated in this type of school. Therefore, there is little opportunity for schools to take action to compensate for these differences.

Quality early childhood education is a very effective instrument in equalising educational opportunities. Those with the most to benefit from pre-school education do not receive it when participation is low.

Gender differences can be observed in reading ability with boys performing worse at all stages. There are also marked differences in education choices made by boys and girls at the upper-secondary and tertiary education levels. In general, girls are more successful at school than boys. They are also more likely to graduate from universities. However, women's educational achievements do not translate into their situation in the labour market.

The unfavourable situation of the disabled in the labour market has, to some extent, its origin in educational practice. Participation in special schools for many of them reduces opportunity to acquire skills and develop attitudes necessary to do well in adult life. There are limited opportunities for the disabled to participate in upper-secondary and tertiary education.



Some changes to the educational system have been introduced in order to make education more widely available to immigrants and national minorities. Although these groups are a small percentage of Polish pupils their proportion will increase in the future.

An analysis of programmes carried out in Poland for the prevention of exclusion of children and youth shows that measures aimed at improving children's well-being and preventing their social exclusion are to a large extent dispersed which makes them less accessible and may lead to the inefficient use of resources.

## 8. Education and the labour market

Education has a substantial impact on employment prospects. Whether a given person is a sought after worker and readily employable is determined by many factors. They include not only the level and field of study but also mastery of key competences and other important competencies such as the ability to work in a group or creativity. The essential factor is whether the supply of qualifications responds to the demands of the labour market.

People who have not attained upper-secondary education experience the worst situation in the labour market followed by those who completed only upper-secondary general education. People with low levels of educational attainment in Poland cope less well than

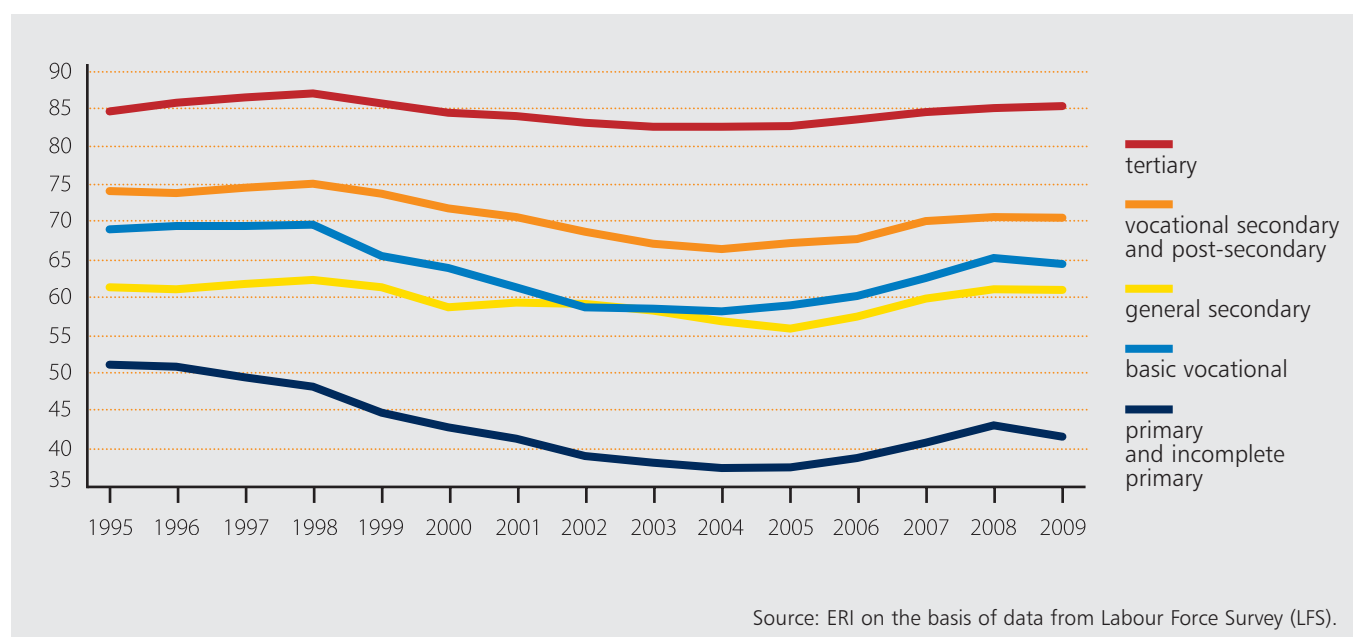


similar educational groups in the OECD countries. This is visible in the high rate of unemployment. Those with the lowest level of qualification are also exposed to a greater risk from fluctuations in the labour market due to economic instability. This also manifests itself in more frequent breaks in employment and a shorter working life.

The advantages of tertiary education are reflected in longer economic activity, a very low rate of unemployment and high salaries.

**Chart 8**

**Employment rate for people aged 25-64, according to their level of education in 1995-2009**



Earnings are to a large extent dependent on educational attainment. The rate of return from education in Poland is relatively high. This is in particular the case of tertiary education. In 2008, earnings of those with tertiary education were more than double of those with primary education. In general, differences in earnings between education groups are among the highest in OECD. However, differences in earnings between upper-secondary schools leavers and those with lower levels of attainment are relatively small, compared to the situation in other countries.

The earnings advantage of tertiary graduates increases with years of experience stabilising only in the case of people with around twenty-years' work experience. Professional experience plays a particularly significant role for men.

Earnings in the public sector are less differentiated which is mainly due to relatively rigid pay schemes. The public sector, unlike the private one, attaches less weight to type of degree.



The situation of youth in the labour market in Poland is worse in comparison with other age groups, although it improved steadily in the period of 2000-2009. However, it still remains unfavourable in comparison with the EU average. For example, the unemployment rate in Poland is about three times higher for young people than the rest of the labour market. Tertiary graduates and graduates with vocational qualifications can find a job more easily and the job is more often related to their subject of study. People concluding their studies after upper secondary general education and post-secondary education have more difficulties finding employment and more frequently have jobs unrelated to their qualifications.

In the case of graduates the position of women in the labour market is relatively worse than that of men. This is due to many factors. They include difficulties in combining starting a career and having a family life (including motherhood) and incompatibility of skills to employers' needs (for example, fewer women study technical subjects). Employers perceive employing young women as risky due to their fears about losing them as a result of having children.

Combination of studies and a career is relatively rare in Poland in comparison with EU countries. As a result of this, as well as extended periods of study, young people enter the labour market increasingly late.

## 9. Mathematics 2010

Chapter 9 is dedicated to teaching mathematics which after 27 years has been reintroduced as an obligatory part of the matura exam. This change was made in order to raise the standards of teaching, to provide better preparation for graduates to study science and technology and, as a result, to increase the number of candidates for studies in these fields.

An analysis of the performance of students participating in the first compulsory mathematics exam has shown that the exam did differentiate between the students taking the basic exam and those who chose the advanced level for whom it was not very difficult.

Young people attending general lycea and technical schools have a good



mastery of the skills acquired at lower-secondary level. However, the organisation of mathematics instruction in technical schools does not support the development of these skills. School leavers from general lycea performed better than those from technical schools, giving those leaving technical school less chance to study at top universities. The implementation of the core curriculum in upper-secondary schools should change this trend.

Teachers of the first three grades of primary schools are poorly prepared to teach mathematics. They have studied pedagogy, in which it is not common practice to emphasise mathematics and mathematics teaching. The result is that in the first three years of primary school mathematics is often taught badly and pupils imitate procedures given by the teacher, without understanding them. If pupils are discouraged from mathematics at this teaching stage it is difficult to remedy the situation in subsequent years.

The most urgent task is to raise the standards of teaching mathematics in the first three years of primary school. They should include not only curricular changes that have already been made but also, most importantly, improve teacher training for early-school education and in-service training for existing teachers.



## DICTIONARY OF ABBREVIATIONS

- CEB - Central Examination Board
- CSO - Central Statistical Office
- ERI - Educational Research Institute
- GDP - Gross Domestic Product
- ISCED - International Standard Classification of Education
- LFS - Labour Force Survey
- OECD - Organization for Economic Co-operation Development
- PISA - Programme for International Student Assessment

## **The Educational Research Institute**

is an institution with almost a 100-year tradition. Its main task is to conduct basic and applied research in education. Most importantly research, analyses and development work are carried out for implementation into national education policy and practice.

The Institute employs more than 130 researchers specialising in education: sociologists, psychologists, educationalists, economists, political scientists and representatives of other scientific disciplines – outstanding specialists in their respective fields who have a wide spectrum of experience, including scientific research as well as teaching, public administration and activity in non- profit organisations.

The Educational Research Institute is carrying out two large-scale projects co-financed by the EU from the European Social Fund: “Quality and effectiveness of education – strengthening of research capabilities” and “The development of terms of reference for the implementation of the National Qualifications Framework and the National Qualifications Register for lifelong learning”.

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### **Educational Research Institute**

ul. Górczewska 8, 01-180 Warsaw  
tel. +48 22 241 71 00 | [ibe@ibe.edu.pl](mailto:ibe@ibe.edu.pl) | [www.ibe.edu.pl](http://www.ibe.edu.pl)

Media patron:

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