

Adult skills in Poland

– results of the Programme for the International Assessment of Adult Competencies (PIAAC)



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Introduction

Young Poles have similar competencies to their peers from 22 OECD countries. The results of the Programme for the International Assessment of Adult Competencies (PIAAC) show that over the past 17 years, the proficiency level of adult Poles has increased. However, there is still a lot to be done.

On 8th October 2013 the Organization for Economic Cooperation and Development (OECD) announced the results of the Programme for the International Assessment of Adult Competencies (PIAAC). The study, which was conducted in 2011-2012 in 24 countries, measured the competencies of adults in literacy, numeracy and problem solving in technology-rich environments. The assessment in Poland was coordinated by the Educational Research Institute.

The competencies measured by PIAAC are a prerequisite to function in the modern world and to attain new knowledge and skills. PIAAC provides information on, among other issues, the relationship between competencies, education and the labour market situation. The data obtained during the study enables an assessment of the quality of human capital resources. Based on this, an evaluation of the economic potential, social cohesion and identification of groups at risk of social exclusion due to their low level of skills are possible.

An analysis of the results provides a better understanding of:

- differences in skills of graduates of different types of schools,
- match between education, training and labour market,
- inequality in access to education and intergenerational mobility,
- transition from education to the labour market,
- links between the skills assessed and socio-demographic characteristics.

Who was tested and how?

PIAAC measures the competencies of adults aged 16 to 65 years, who at the time of data collection lived in the surveyed countries: Australia, Austria, Belgium (Flanders), Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Spain, the Netherlands, Ireland, Japan, Canada, South Korea, Germany, Norway, Poland, Russia, Slovakia, Sweden, the United Kingdom (England and Northern Ireland), Italy and the United States of America. A total of 166,000 persons were surveyed, including 9,366 in Poland.

It is worth noting that the study included a very diverse population, ranging from those born in 1947, who began their education in the early 1950s and entered the labour market in the 1960s, as well as those born in 1996, who started school in the twenty-first century and, in many cases, are still in education.

PIAAC interviews consisted of two parts: background questionnaire and a cognitive assessment which was either paper- or computer-based. The fieldwork in Poland was carried out from August 2011 until the first week of April 2012.

PIAAC results are shown on a scale from 0 to 500. The literacy average of OECD countries is 273 points, while for numeracy 269 points. A 50 point difference in the literacy scale is equivalent to the average effect of seven years of education (generally in OECD countries). For numeracy proficiency, this same period of education corresponds to 55 points.

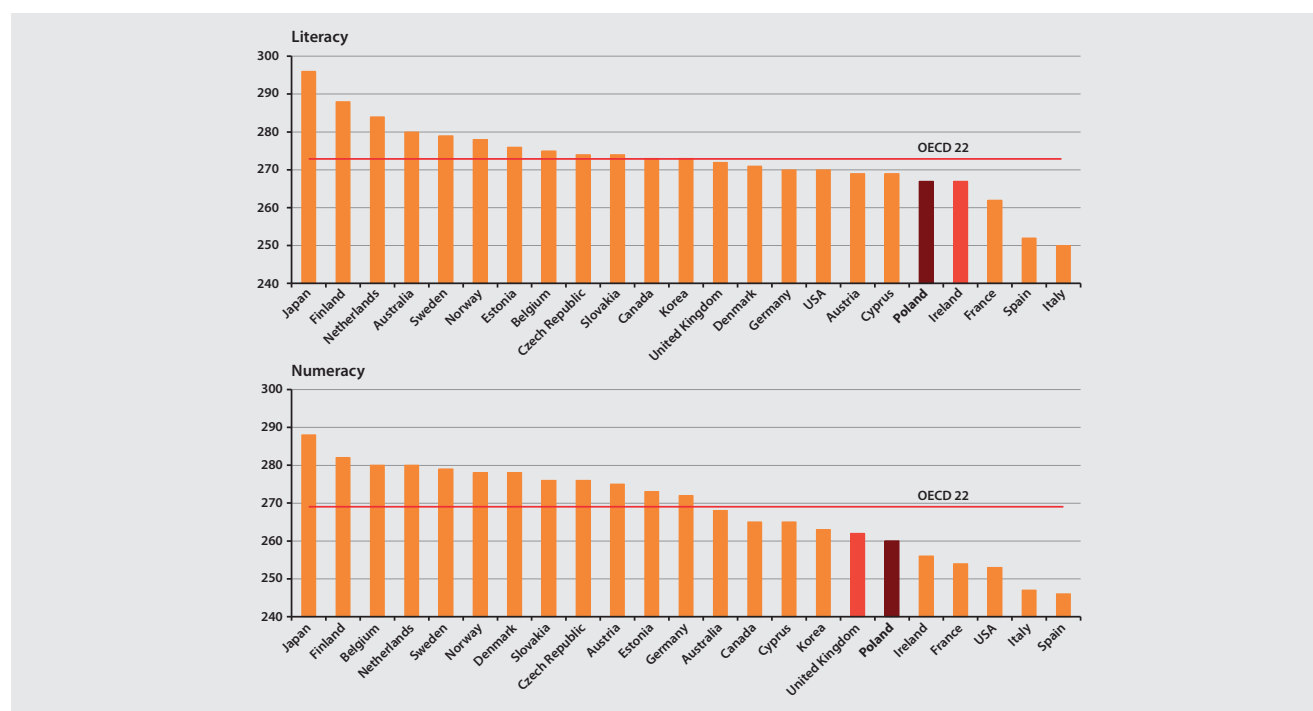
In order to facilitate interpretation of results, the scale is divided into 6 levels of literacy and numeracy proficiency (from below level 1 to level 5). The scale for problem solving in technology-rich environments has 4 levels (from below level 1 to 3).

Major findings

Japan, Finland and the Netherlands achieved the highest average scores in both literacy and numeracy. Sweden, Norway, Estonia and Belgium also scored above the OECD average in both areas. Italy and Spain had the lowest performance in both these areas (Figure 1).

The Polish score in literacy is 6 points lower than the OECD average (267 points to 273 points), and 9 points lower in numeracy (260 points to 269 points). Italy and Spain have lower outcomes in literacy, while Ireland is similar to Poland. The average numeracy proficiency of Poles is comparable to the results of the UK and better than those of Ireland, France, the United States, Italy and Spain.

Figure 1. PIAAC results for persons aged 16-65 years in 23 countries



Countries whose results do not significantly differ from those of Poland are shown in red.

How have the competencies of Poles changed since 1994?

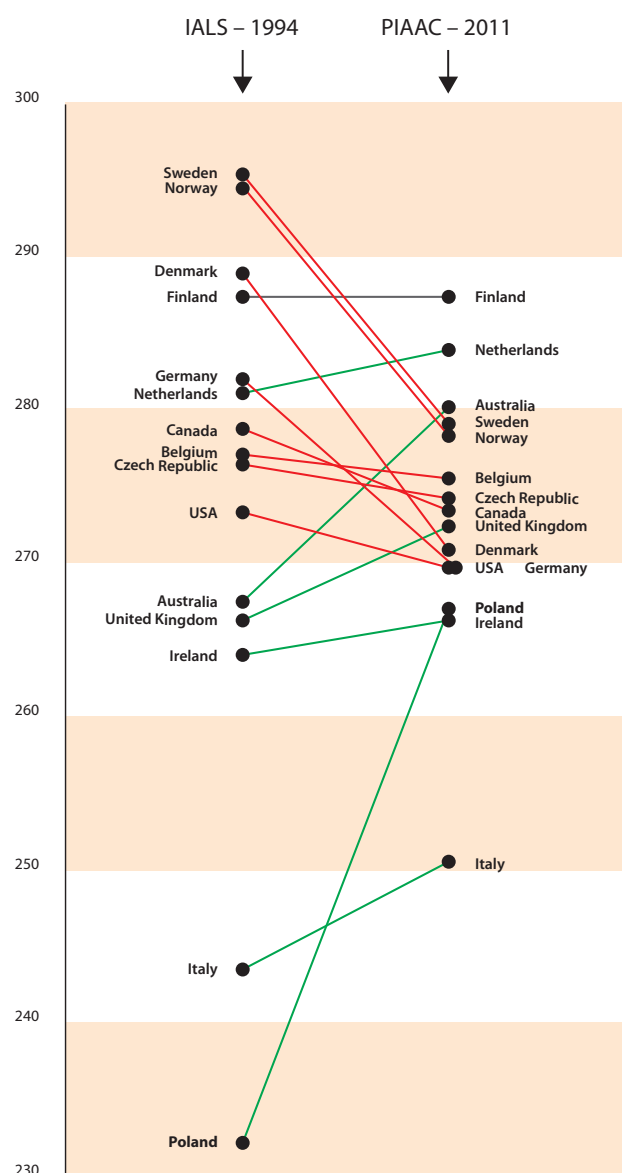
PIAAC is not the first international study measuring the adult competencies. The IALS (International Adult Literacy Survey) conducted in 1994-1998 is regarded as the first large-scale international assessment of adult competencies. Poland took part in the first round of this study in 1994, attaining results that were at the bottom of the list at that time. Only Chile and Portugal had lower average results.

The PIAAC methodology enables a comparison between PIAAC and IALS results in literacy. In the case of OECD, average results remained virtually at the same level. However, Poland noted the greatest improvement of all countries: within 17 years, a marked increase occurred among

Poles in literacy (of 35 points). In 1994, more than 40% of adults aged 16-65 years had a very low level of literacy, but by 2011, this figure had fallen to 19%. At the same time, three times as many people are now characterized by a high level of skills (from 3% in the IALS to 10% in PIAAC).

In effect, although Poland's results in both assessments are below the international average, the distance to the OECD average has significantly decreased (from 42 points to 6).

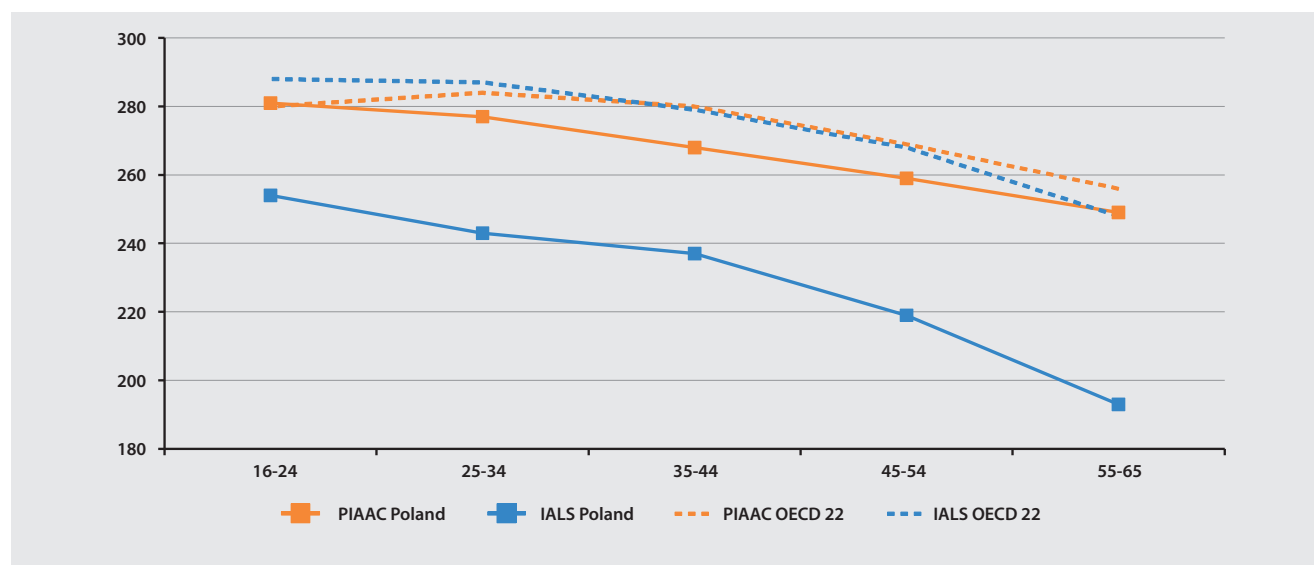
Figure 2. Results of the IALS and PIAAC studies in 15 countries



The largest improvement in literacy in Poland occurred in the 55-65 year-old age group (by 56 points compared to a 27-point improvement for the 16-24 year-old group). At the same time, this age group also showed the most pronounced decline in the percentage of people at level 1 or below. It is worth noting that the results of older people have improved on average in all OECD countries.

The increase in literacy in Poland is probably related to changes in labour force participation patterns and decreasing percentages of pensioners, persons on disability pensions or those employed in industrial sectors requiring lower qualifications, i.e. the groups that on average achieve lower scores. This improvement is also influenced by civilizational changes in Poland, including better adaptation to the market economy.

Figure 3. Distribution of literacy skills in Poland in IALS and PIAAC by age group



The improvement of literacy in Poland is all the more significant because in some countries, the average adult PIAAC results are lower than the IALS results. This occurs in Sweden, Denmark, Norway, Germany and to a lesser extent, Canada, the Czech Republic and the United States.

Age, gender, place of residence – what influences our competencies?

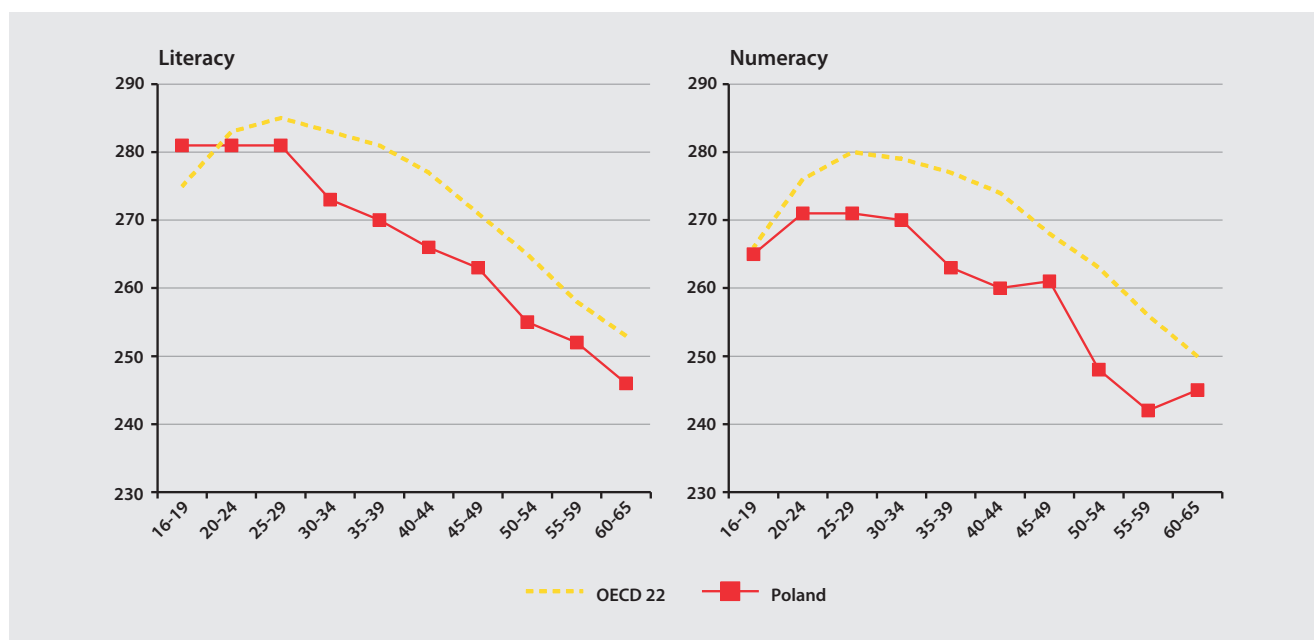
In Poland, nearly 15% of adults have low levels of literacy and numeracy proficiency, and a further 13% – in one of these domains. Almost all of these people have either low levels or no proficiency in problem solving in technology-rich environments. At the same time, 14% of adult Poles achieve very high scores in at least one of the tested skill domains.

The average proficiency level is lower among older persons. In Poland, as in other countries, a decline in the level of assessed competencies among respondents is observed from about 30 years of age. Poles aged 16-24 and 55-65 years differ by 32 points in literacy and 25 points in numeracy.

The distribution of numeracy results in Poland shows a slightly different pattern – the 20-34 year-old age group has better results than the 16-19 year-olds. Deterioration of these skills begins at about 35 years of age, i.e. later than for literacy. In the case of numeracy, the youngest (16-19 years) and oldest (60-65 years) groups have results at the OECD average level.

Differences in the level of proficiency between women and men distinguishes Poland in the international context. In Poland, women perform better than men in literacy, whereas in OECD countries, the differences are either statistically insignificant or favor men. For numeracy, no difference is seen between men and women in Poland, while in the remaining countries, men have better results on average by 12 points. Differences by gender do not change significantly with age.

Figure 4. Relationship between skills and age



The relationship between proficiency and education is very strong. People with higher education in Poland have the highest results, close to the average in OECD countries in this group. In Poland, the difference between the average performance of people with higher education and those with lower secondary education or less is 70 points for literacy and 74 points for numeracy. The results of upper secondary or basic vocational schools graduates are significantly lower than the OECD average for that group. This is all the more disturbing because the group having completed only upper secondary or basic vocational education is quite large – 56% of people aged 25-65 years in Poland.

The proficiencies measured by PIAAC are clearly different depending on place of residence. The average level of literacy and numeracy skills in large cities (population of over 500,000) far exceeds results in smaller towns and villages. In cities of more than 500,000 residents, the percentage of persons receiving low scores in literacy is 10%, whereas in rural areas – 25%. A similar relationship is found for numeracy.

The PIAAC study results indicate that both in Poland as well as in other OECD countries, parents' education has a significant impact on the proficiency of their children. Poles raised by highly educated parents are quite similar to the average results of similar groups in the OECD. However, the results of Poles whose parents completed lower levels of education are significantly worse, also in relation to the average performance of analogous groups in OECD countries.

What is known about the competencies of young Poles?

In Poland, the results of young people (16-24 years) are higher than the average results of all adults. This pattern is also observed in most OECD countries. But in Poland, the differences between the generations are among the greater ones.

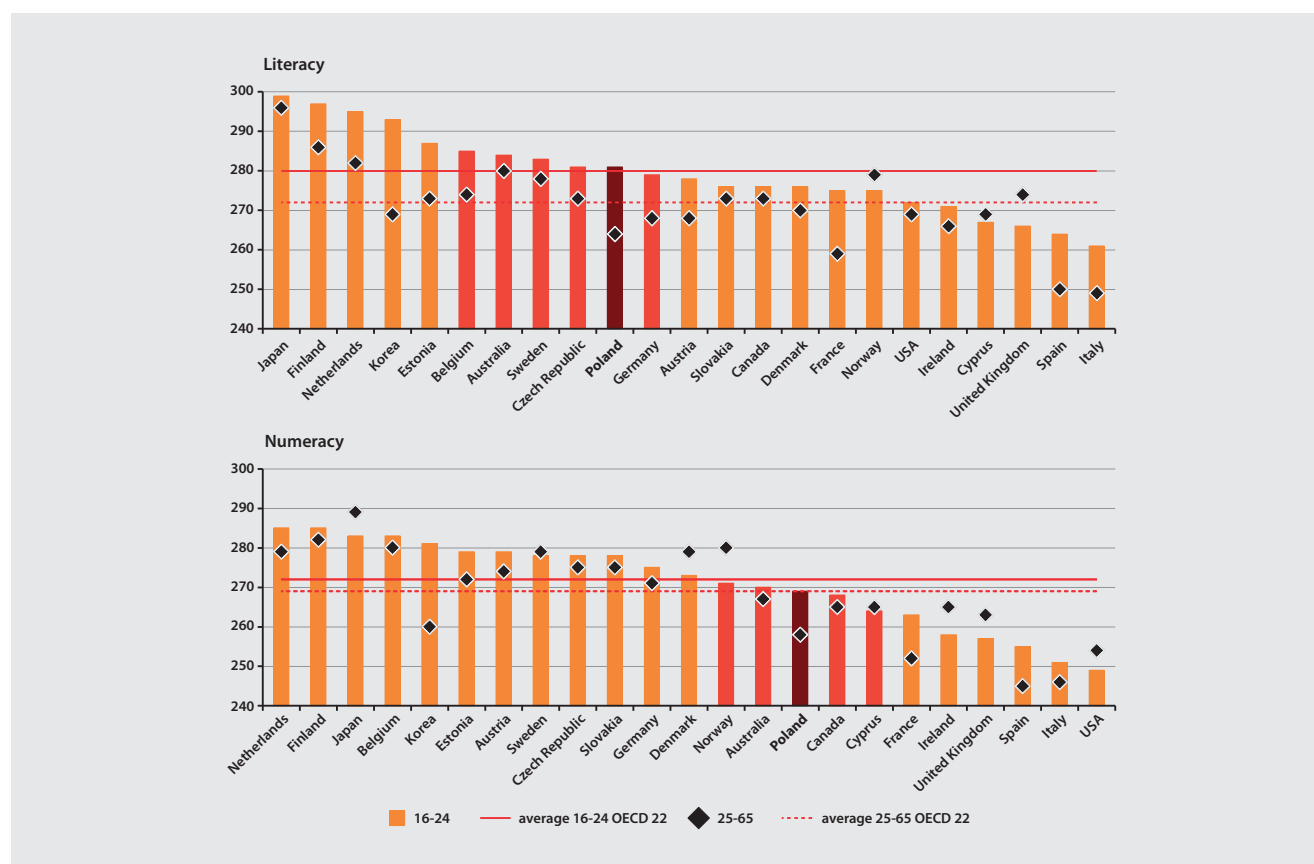
The difference between the results of Poles aged 16-24 and 25-65 years is 17 and 11 points in literacy and numeracy respectively. A similar distance between young adults and the remaining population in PIAAC results is also found in France, and is greater only in Korea (a difference of

24 and 21 points). Younger persons also score relatively better in southern Europe – Spain and Italy – but these countries still have among the lowest results of all the countries studied.

PIAAC results show that there are countries where the average performance of young people is lower than those who are at least 25 years of age. Among them are the United Kingdom and Norway (both in terms of literacy and numeracy), as well as Denmark, Japan and the United States (for numeracy).

The results of young Poles in literacy and numeracy (281 and 269 points respectively) are very close to the average performance of young people in all OECD countries (280 and 272 points).

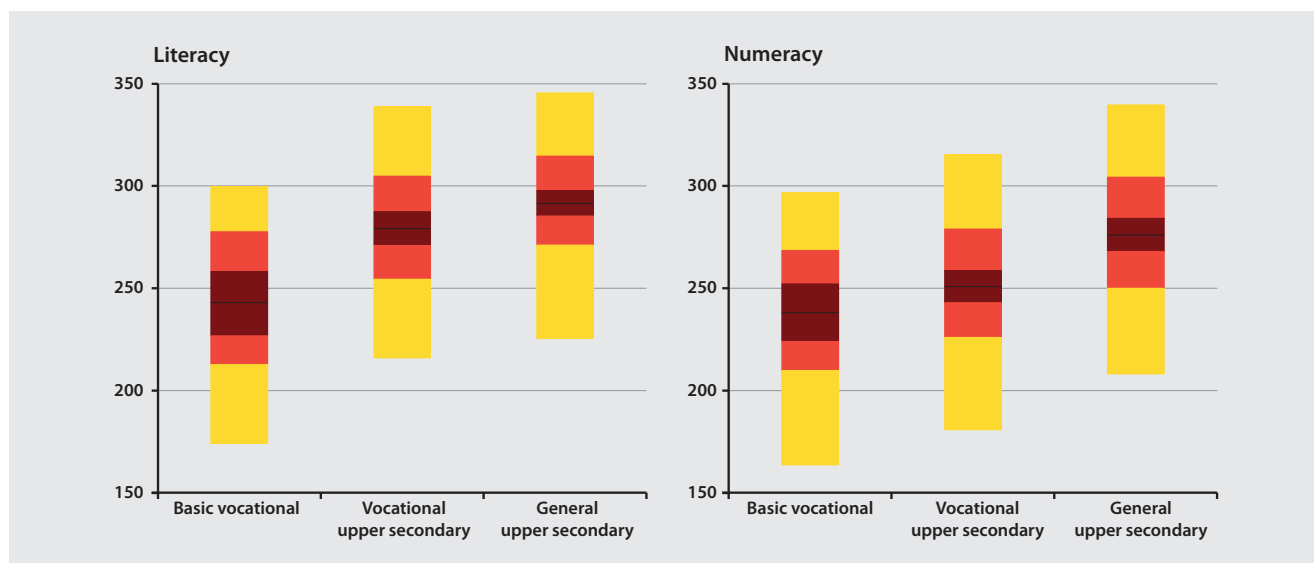
Figure 5. PIAAC results of persons aged 16-24 years and 25-65 for 23 countries



The red color indicates the countries whose results do not significantly differ from those of Poland (for the population aged 16-24).

The level of proficiency among students attending different types of schools varies. Students of other types of basic vocational schools have significantly lower scores than students of upper secondary schools – in the case of literacy, the difference is nearly 50 points. However, groups are found throughout the assessed countries, which is probably due to the fact that youth with lower levels of competencies are those who end up attending vocational schools. It is worth noting, however, that about 25% of pupils in basic vocational schools have higher numeracy scores than 50% of their cohorts in upper secondary schools.

Figure 6. Distribution of scores among pupils aged 16-19 years by type of school



This figure shows the 5th, 25th, 75th and 95th percentile and the mean, together with the confidence intervals, for the proficiency distribution in selected groups.

Differences in proficiency are also found at higher levels of education. Upper secondary school graduates who continued on to higher education institutions have an almost 30 point advantage in average competency level scores than those who completed their education with secondary school. These differences are smaller for upper secondary vocational school graduates. However, differences in skills scores between persons ending their education at the secondary level and learners in post-secondary non-tertiary schools are small.

The PIAAC results confirm the existence of inequalities in access to higher education – those whose parents have a low level of education take up studies more rarely, even if they have a high level of competence.

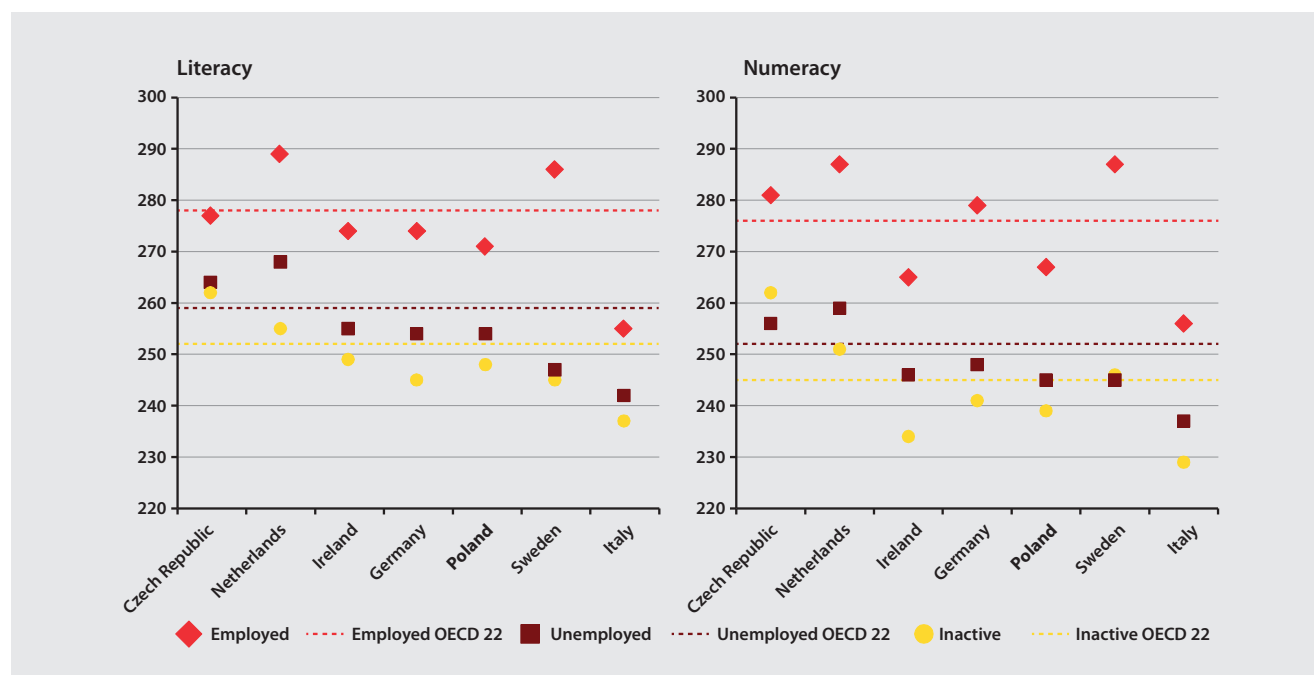
Polish students are a diverse group – students studying pedagogy or in teacher training have the lowest scores, while the best scorers are those in the fields of health and social services, life sciences, mathematics and computer science (a difference of 20-30 points). The skill level of Polish students is insignificantly smaller than the level of students from the remaining OECD countries (3 points for literacy and six points for numeracy). The differences in the average scores of students studying different fields are analogous for Poland and the OECD countries.

Competencies on the labour market

In all the countries participating in the study, the employed had higher levels of literacy and numeracy proficiency than the unemployed or economically inactive. The difference between employed and those who are inactive in Poland is 23 points in literacy and 38 points in proficiency level.

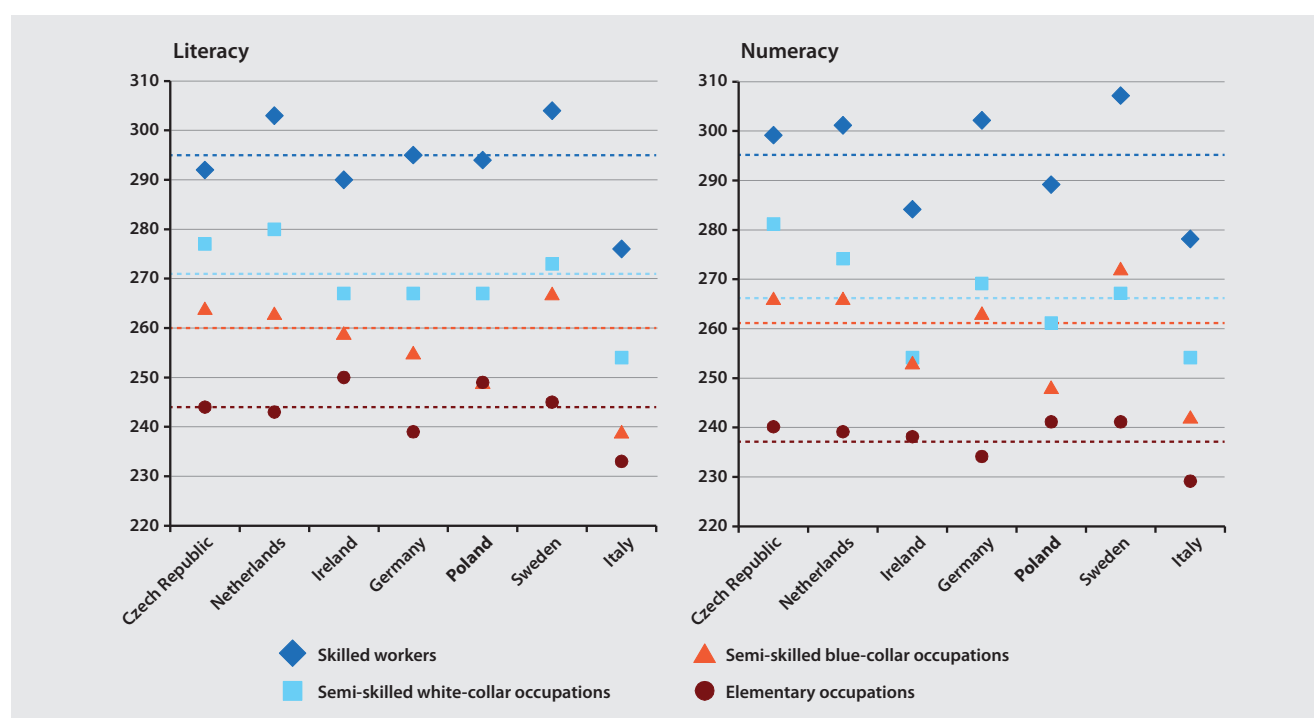
PIAAC results also suggest that the competencies of large groups of individuals are not fully utilized. Many persons who are not employed, especially those who have been without a job for no longer than two years, have high levels of skills. Longer periods of inactivity on the labour market are linked to a decrease in competence.

Figure 7. The average performance of persons aged 25-65 years by labour market status in selected countries



Comparing the level of proficiency by place and type of work shows that in Poland, skilled workers (according to the ISCO classification of occupations) score well in relation to the other countries. The performance of persons in semi-skilled occupations is below average in both literacy and numeracy compared to analogous groups in OECD countries.

Figure 8. The average performance of the employed aged 25-65 years by occupation in selected countries



The occupational categories represent those of the ISCO international classification. The dotted line indicates the OECD average for successive occupational groups.

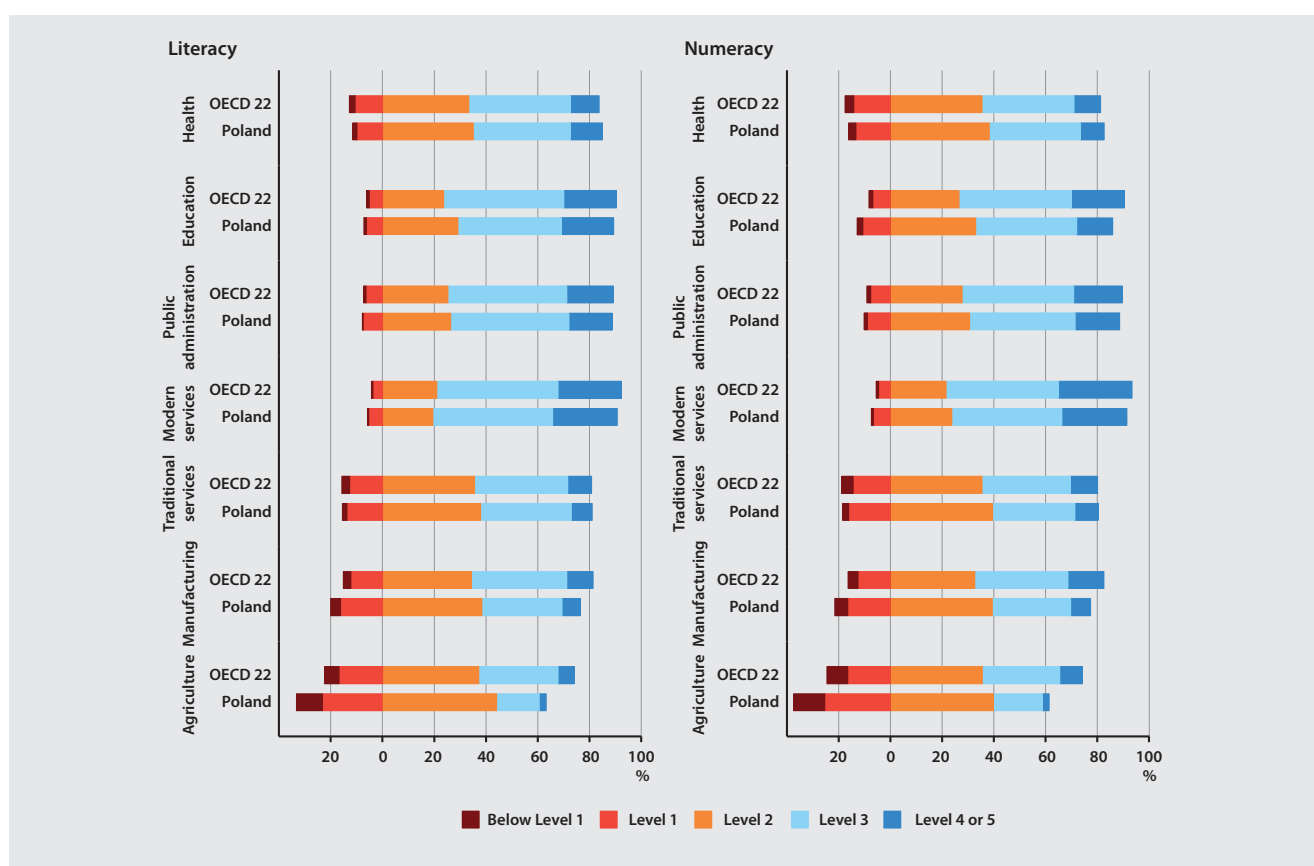
It is worth noting that generally in OECD countries, the level of education influences the likelihood of obtaining and maintaining jobs and wage levels to a greater extent than attained levels of skills, particularly among young people. In Poland, the role of education is even more important than in most OECD countries. At the same time, almost 1/3 of workers in Poland believe that their jobs could be done with a lower level of qualifications.

The relationships between the sector of the economy, occupation and the competencies of Poles

In Poland, persons working in the service sector achieved similar results to the corresponding group in the OECD. Employees of Poland's industrial sector recorded lower than OECD average scores for the skills assessed by PIAAC. A 13 point difference was found in numeracy, and a 9 point difference in literacy.

These differences are not as distinct as for agriculture, where alarmingly low scores are noted. In the group of agricultural workers, more than one out of three persons has a low level of proficiency in literacy and numeracy – at level 1 or below. Just under 3% reach level 4 or 5. The average skills of people working in agriculture are found to be lower than those who are economically inactive.

Figure 9. The performance of the employed aged 25-65 years in Poland and the OECD by type of business activity



The grouping of activities is based on the ISIC classification.

Looking more closely at PIAAC results by the sectors, we see that the highest performance were exhibited by persons working in the service sectors related to "modern services" (i.e. knowledge-intensive activities): information technology, finance, insurance, communications, advertising, marketing, real estate, tax advising and accounting. This group achieved an average score

of 299 points in literacy and 295 in numeracy. Both results are comparable to the average performance of people working in these industries in OECD countries participating in the PIAAC study.

The relatively high scores of educational sector employees (school teachers and academics, early childhood educators) and public administration employees in Poland should also be noted. Their scores were about 10 points lower than those achieved by the employees in “modern services” and did not differ from the results of corresponding groups in the OECD. An exception to this is the numeracy result of educational sector workers, which amounted to 17 points less than “modern service” employees, and was also found to be significantly lower than the OECD average of persons in the same sector.

Those working in the services described here as “traditional” (trade, transportation, hospitality, catering, security, cleaning) achieved results similar to the average for all employed in Poland and close to the OECD average for persons employed in service sectors.

How do our competencies influence earnings?

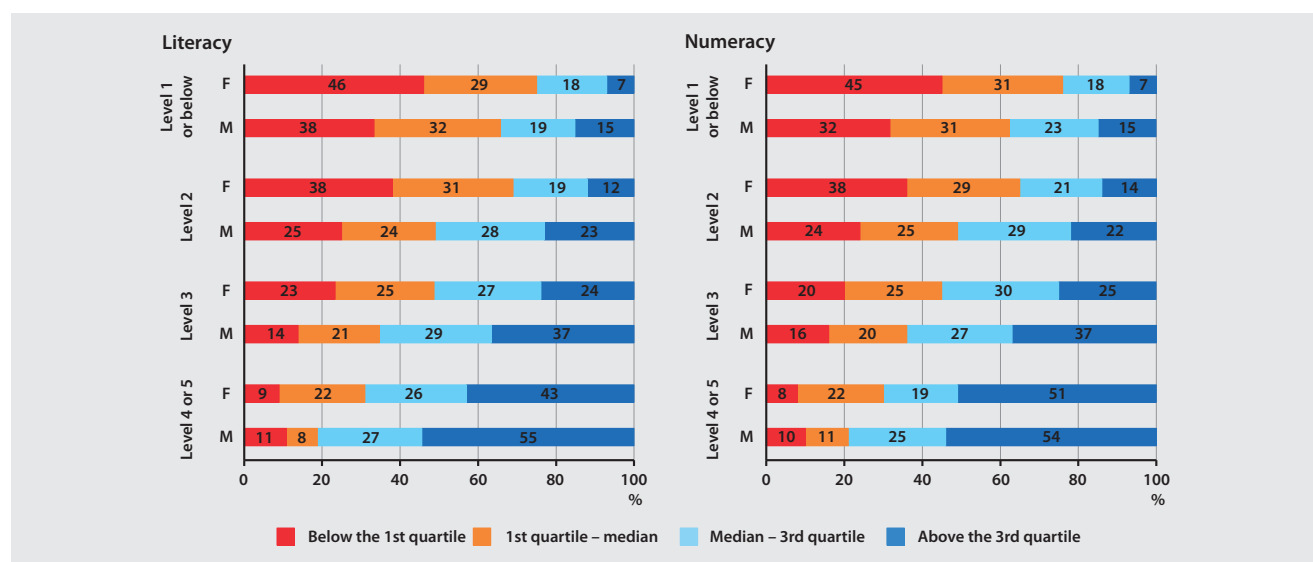
A correlation between the level of competencies and wages was observed. Among persons with skills at level 1 or below, over two-thirds have lower than average incomes in the country. On the other hand, every fourth person in the group at level 4 or 5 was found to be among the top wage earners in the country.

However, the higher earnings of men with the same proficiency level as women confirms the presence of a gender wage gap in the labour market.

Poland, like the Czech Republic, Sweden, Slovakia and Estonia, is characterized by small differences in income related to skill levels, unlike the United States, where this difference is large.

It should also be noted that according to PIAAC data, even Poles at level 4 or 5 earn less or comparably to persons with the lowest levels of skills in the countries of Western Europe and the United States.

Figure 10. Distribution of income of the employed aged 25-65 years in Poland for proficiency levels by gender



Income distribution was estimated on the basis of the monthly income of wage earners and self-employed persons.

Problem solving in technology-rich environments

In addition to proficiency in literacy and numeracy, the PIAAC assessed proficiency in problem solving in technology-rich environments (PSTRE). These competencies are defined as the ability to use the digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks.

The PSTRE competencies were measured only for respondents who solved PIAAC cognitive items on the computer. In Poland, 23.8% of adults refused to take the computer-based assessment (compared to the OECD average of 10.2%), the highest percentage among countries participating in the study. In addition, 19.5% of respondents reported no experience with a computer and 6.5% failed a test of basic computer skills (using a mouse, typing on a keyboard, selecting text, using drag and drop function), despite having declared that they had computer skills. As a result, only 50.2% of the total number of respondents completed the assessment in this domain (compared to an average of 75.6% in OECD countries).

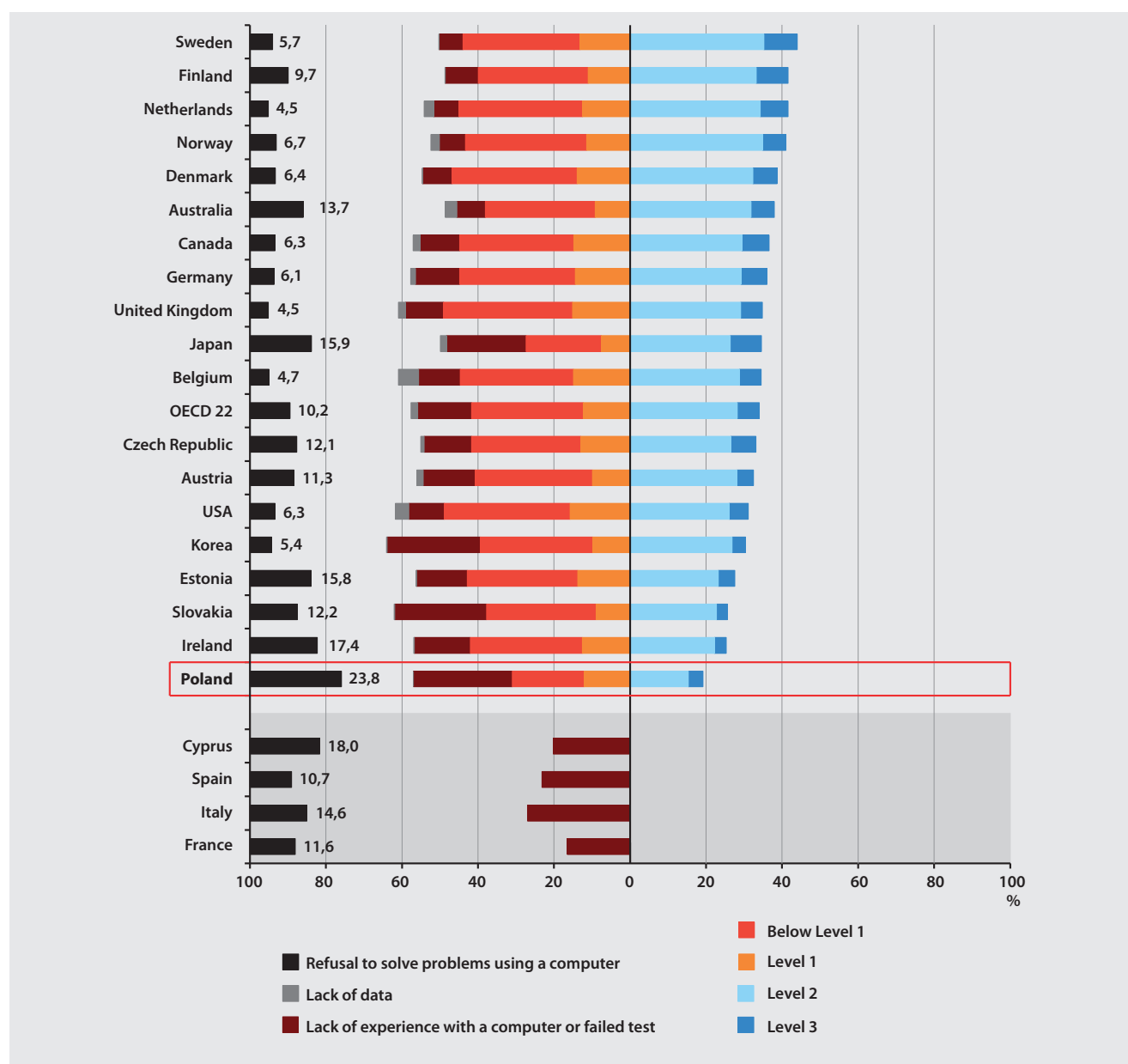


Poles' proficiency in problem solving in technology-rich environments is the lowest among the countries that conducted this part of the assessment. Only 19% of Poles have a high level of ICT proficiency (level 2 or 3) in comparison to the 34% OECD average. The Scandinavian countries and the Netherlands are at the forefront, where more than 40% of the population is highly skilled in this domain.

The ability to solve problems in a technology-rich environment is strongly differentiated by age, education, place of residence and labour market status. 38% of young people (16-24) in Poland have a high proficiency in PSTRE, whereas with older adults (aged 55-65), the figure is only 3% (11% in the OECD). About 37% of people with higher education score at level 2 or higher, compared to 2% of those with the lowest educational level. Urban dwellers perform better than rural residents. In cities with a population of over 500,000, the percentage of persons with the lowest skill level (i.e. below level 1 or failed the test) is at least 22%, whereas in rural areas – at least 46%.

PSTRE proficiency is also differentiated by gender, but not to such a large extent as age or place of residence. In Poland, 21% of men achieved level 2 or 3 proficiency, while among women, this figure was 18%. In total, the same proportion of women and men in Poland took the computer-based assessment (50%).

Employed Poles use computers at work less frequently and less intensively than in other countries (46% never use a computer as compared to 30% in OECD countries). However, employed Poles have significantly higher proficiency levels than their unemployed colleagues: 20% of the employed compared to 5% of inactive persons have a high level of PSTRE proficiency.

Figure 11. Proportion of persons aged 16-65 years by level of proficiency in problem solving in technology-rich environments

Although proficiency scores in PSTRE are decidedly higher for young people (16-24 years) in Poland than the results for older generations, they do poorly in comparison to their cohorts in OECD countries – 38% have a high level of proficiency in PSTRE as compared to an average of 51% in OECD countries.

The PIAAC assessment results show that there is a group also among young Poles who lack basic computer skills. It can be estimated to be at least 7.6% (those who failed the test of basic computer skills or reported no experience with computer), but an additional 12.4% refused to participate in computer-based problem solving. This group most rarely uses ICT in their daily lives and work, meaning that their refusal may be due to their low level of proficiency in this area. ■

The Educational Research Institute

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The Institute conducts in Poland major large-scale international assessments including the PIAAC, PISA, TALIS, ESLC and SHARE. The Educational Research Institute's projects include large scale European Social Fund projects: "The development of terms of reference for the implementation of the National Qualifications Framework and the National Qualifications Register for lifelong learning", "Quality and effectiveness of education – strengthening of institutional research capabilities", "Development of methodology for education value-added assessment" (EVA), "Conditions for differentiation of external examinations results".

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