



Lifelong Learning Programme

Lifelong Learning Programme

Sub-Programme COMENIUS



PREDIL

Promoting Equality in Digital Literacy

Project Number: 141967-LLP-1-2008-GR-COMENIUS-CMP

**POLISH NATIONAL REPORT
ICT, STEM AND GENDER**

Deliverable/Report

With the support of the Lifelong Learning Programme of the European Union

Work Package:	#
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Status, Version No.	Final
Due date of deliverable:	dd/mm/yyyy
Actual submission date:	dd/mm/yyyy
Start Date of Project:	01 December 2008
Duration:	24 Months
Dissemination Level:	Public/Consortium
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Financing:	Project funded by the European Commission, Lifelong Learning Programme (2009 - 2010)

This project has been funded with support from the European Commission.

This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

SUMMARY

The following report was written in the context of the Comenius project *PREDIL – Promoting Equality in Digital Literacy*. It provides an overview and information about the Polish structures and situation related to women's uptake of a professional career in the information and communication technology (ICT) sector.

Following this introduction, section 2 provides information about the structure of the Polish educational system and the educational pathways and transition options starting from preschool institutions to continuing education.

In section 3, the focus is on media education and the use of ICT in schools. Additionally, information about teacher and society education related to the interdisciplinary subject of media education is reported.

Section 4 presents data on the actual internet usage in Polish households. A focus is set in the description on differences between the Internet and computer usage behavior of the regions and between men and women.

It is worth having in mind when considering the development of the IT industry, that it is necessary to assess the quantity and development of the teaching staff (doctors, professors) in the degree programmes and the opportunities for research. The development of academic staff is described in chapter five. In this chapter we have also shown the trends in students' choices of faculties.

In the sixth chapter we have described changes and trends associated with conditions and employment in the IT sector. In the next chapter we show the average salary in the IT sector, consider the various factors affecting the differentiation of wages and provide a comparison with the national average salary.

There is a bi-media education in Poland. Its first objective is to protect the youngest users of media from its negative impact. The second objective is to direct, especially a very young user, towards the opportunities for learning or for broadening their interests through media education.

Chapter eight describes various campaigns and projects, and provides examples,

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1 Polish Educational System

The Polish Educational System it is generally divided into four areas:

- pre-primary education
- primary education
- lower and upper secondary education
- post-secondary and tertiary education

The following diagram illustrates the organization of the education system in Poland:

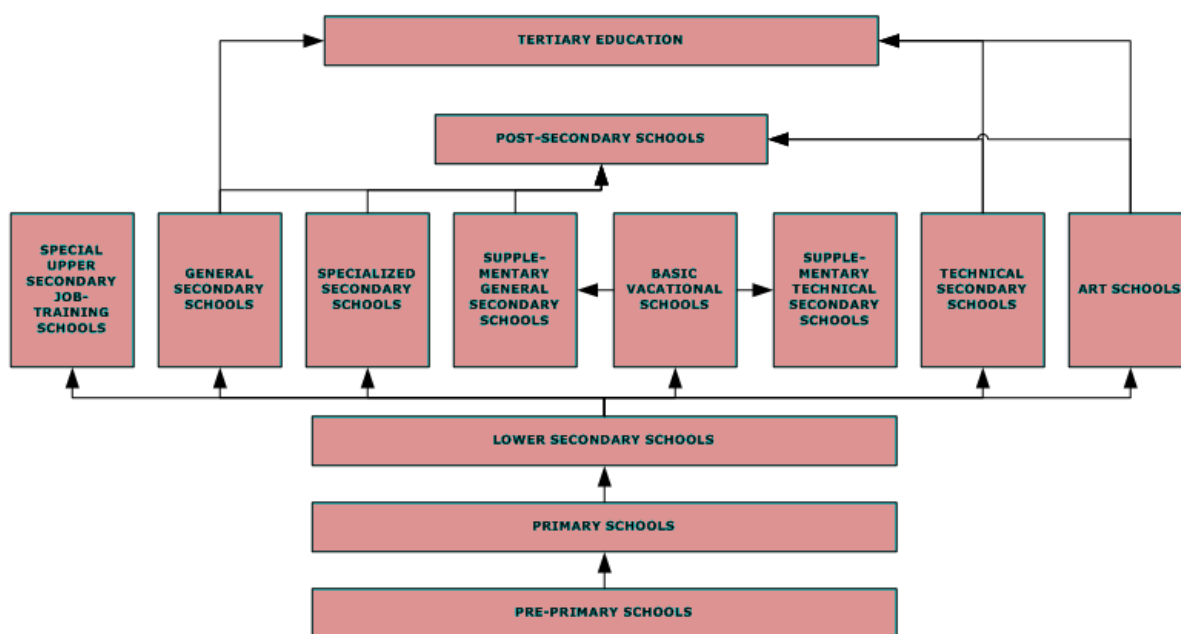


Figure 2.1. Education school level (in the 2006/2007 school year)^{1,1}

Figure 2.1 illustrates the characteristics of the Polish education system, starting from compulsory education at primary level up to continuing education after university. Included in the figure are also the voluntary pre-school (Kindergarten) and further education years.

Generally, pre-school can begin at age three, but compulsory education begins at the ages of six (in compulsory pre-school) and seven (in primary school) and ends when the pupil reaches 18 years of age. Starting in 2010 Polish Education will have a guidance program. This program of compulsory pre-school starts six-year old children and primary school will begin with seven year olds children^{1,2}.

The ages given on the left hand side display the earliest possible entry age and account for pupils with a continuous path through the education system (e.g. not interrupted by repeating a year due to low grades).

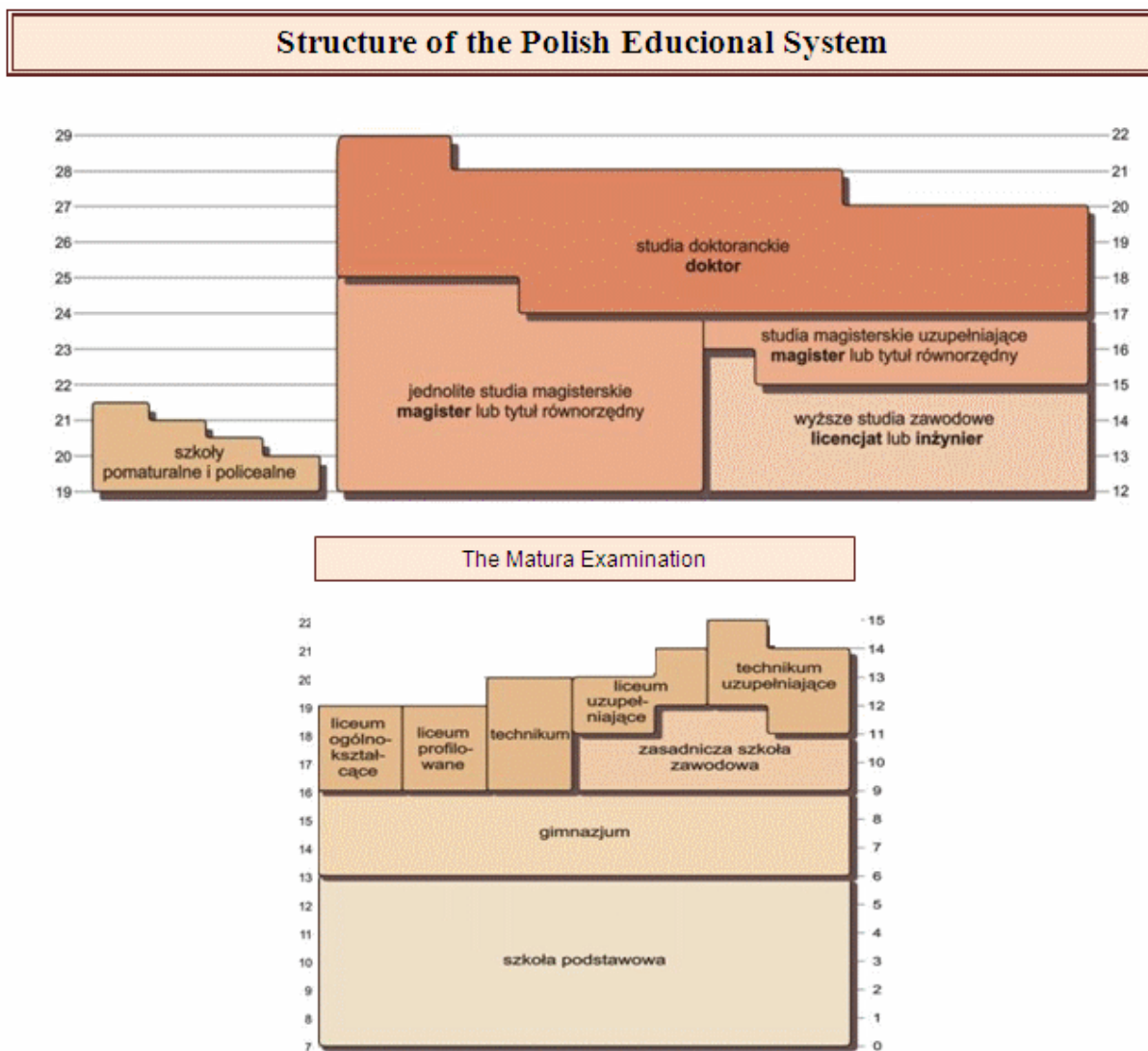


Figure 2.2 Structure of the Polish Education system in the 2006/2007 school year^{1,3}.

Annotations for Figure 2.2^{1,4,1.5}

1. The school year (for primary and secondary schools) is divided into two semesters:
 - 1) from the day of the start of lessons (the first working day of September) till the last Saturday preceding the winter holidays;
 - 2) from the Monday directly after the winter holidays till the last day of school lessons (the first Friday after the June 18).
 With respect to the winter break, it lasts for 2 weeks and there are regional variations. Each lesson lasts 45 minutes. Breaks are considered sufficient if they last at least 5-10 minutes, but no longer than 25 minutes. Pupils attend primary school five days a week, from Monday to Friday.
2. Compulsory full-time education
 - Pre-school "0" grade 6 years of age
 - 6-year primary school 7-13 years of age (szkoła podstawowa)
 - Stage 1 – integrated teaching, 7-10 years of age

- Stage 2 – teaching based on separate subjects, 10-13 years of age
- 3-year lower secondary school 13-16 years of age (gimnazjum)
 - Stage 3 – teaching based on separate subjects

3. Post-compulsory education

Types of education (Upper secondary and post-secondary education)

- General upper secondary school 16-19 years of age (liceum ogólnokształcące)
- Specialized upper secondary school 16-19 years of age (liceum profilowane)
- Technical upper secondary school 16-20 years of age (technikum)
- Basic vocational school 16-18/19 years of age (zasadnicza szkoła zawodowa)
- Supplementary general upper secondary school 18/19-20/21 years of age (liceum uzupełniające)
- Supplementary technical upper secondary school 18/19-21/22 years of age (technikum uzupełniające)
- Post-secondary school 19-21 years of age (very rarely 20) (szkoły pomaturalne I policealne)

4. A child aged 3 to 5 may receive pre-primary education, which is not compulsory, but all the six year-old children attend either kindergartens or pre-primary classes attached to primary schools, as the Ministry of National Education and Sport has introduced an obligatory 0 grade starting the school year 2004/2005 and therefore the age of beginning of the compulsory education has been lowered from 7 to 6.

In 2006/07 the attendance rate for children aged 3 to 5 amounted to 44.6%.

5. Before 1999 there was no distinction in the Polish education system between lower and upper secondary schools. The lower secondary level was included in the 8-year single structure school. In the school year 1999/2000 a new type of school, i.e. gimnazjum, was established. This school constitutes lower secondary level. The only admission requirement is successful completion of the 6-year primary school and the attainment of the primary school leaving certificate.

In lower secondary level, subject teachers have the right to choose methods of teaching, depending on the number of pupils per class and on school equipment (e.g. the number of computers or DVD and video machines).

At the end of the 3rd year of the gymnasium, an external standardized examination has been introduced.

6. The following post-gymnasium schools are open to candidates who have successfully graduated from gymnasia. The upper secondary education covers the age group 16 to 18 or 19/20.

7. The distribution of the type of school per 2007 taken as a national average is as follows

- General and specialized upper secondary schools - 52.9%
- Technical and vocational upper secondary schools - 25.1%
- Basic vocational schools - 12.3%

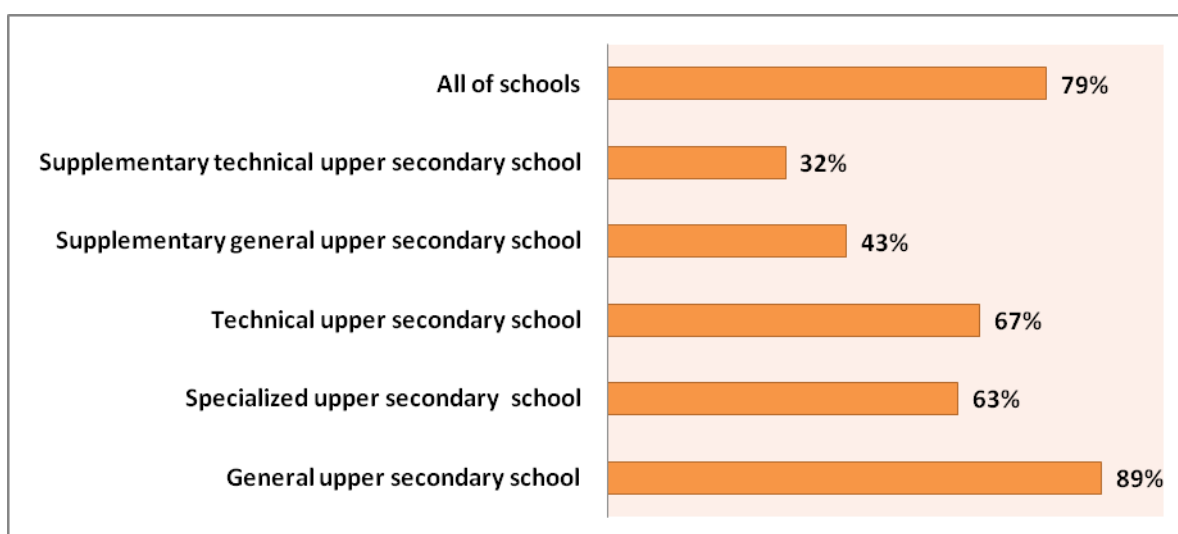
8. At the end of upper secondary technical education pupils may sit for the Matura examination, a new external national examination, which is compulsory only to

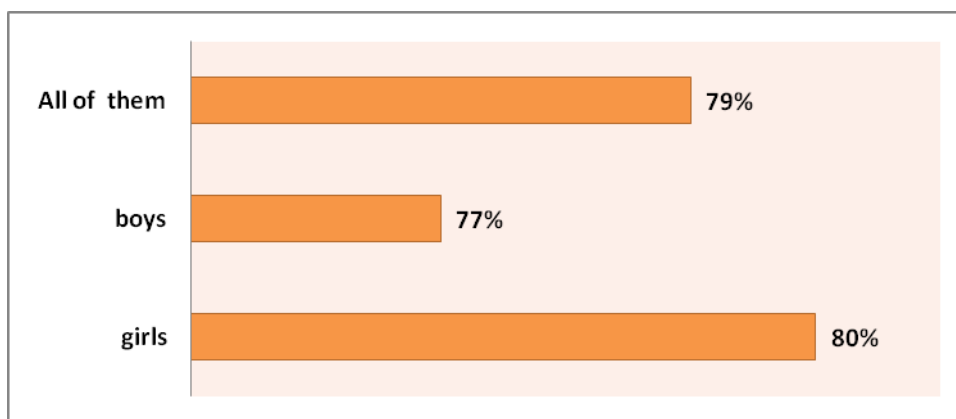
receive the Matura certificate and to gain access to higher education. Until 2004 at the end of the vocational preparation, pupils were evaluated by means of a compulsory vocational examination. Its content and the level of requirements were defined by each school. Success in the theoretical and practical parts of this examination, relating to the occupation, gave entitlement to the respective vocational school leaving certificates and the title of skilled worker. At the end of the upper secondary technical education pupils were evaluated by means of a compulsory vocational proficiency examination.

9. The Matura examination necessary for admission to higher education. Post-secondary school (maximum 2.5-year) – this institution enables people with secondary education to obtain a vocational qualifications diploma upon passing of an exam.
10. The following types of state higher education institutions can be found: universities, technical universities, agricultural academies, schools of economics, teacher education schools, medical academies, maritime schools, academies of physical education, artistic schools, theological schools, higher vocational schools, military schools, and internal affairs schools. There also exist non-state higher education institutions including higher vocational schools.
11. Higher vocational education lasts from 3 to 4 years and finishes with the vocational qualification diploma and the title of Bachelor or Engineer which gives access to the job market or to extended higher studies (the second cycle studies) and obtaining the title magister or equivalent. Uniform master degree studies at the universities and other university-type institutions last from 4.5 to 6 years. They finish with the university higher education diploma. Master degree holders can apply to do a doctorate (the third cycle studies).

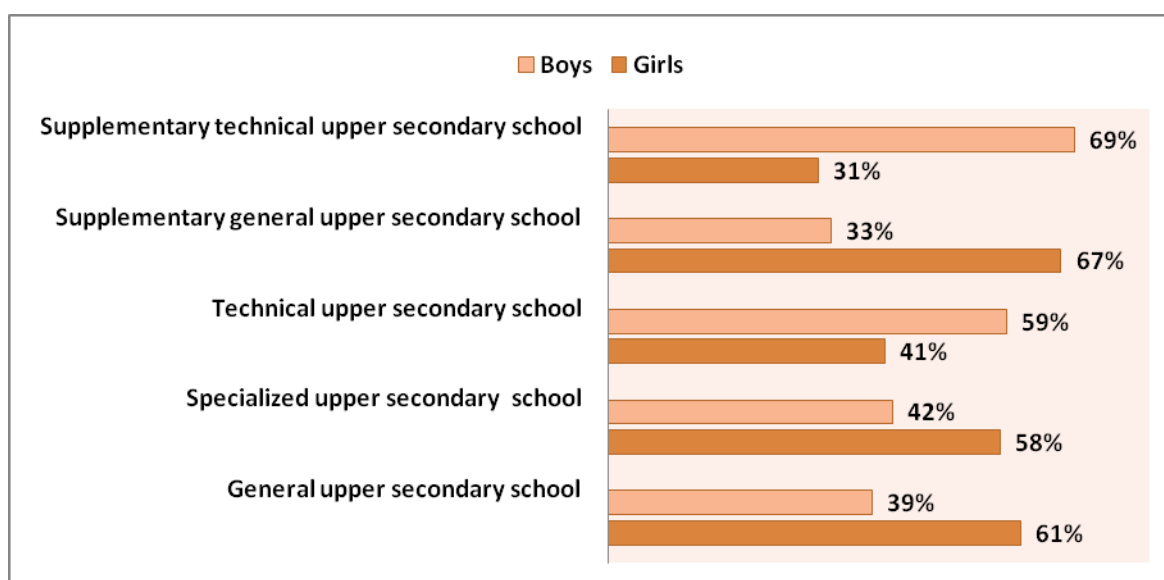
1.1 Differences in the Polish educational system

The above diagrams illustrate results of the Matura examination, which explain the different educational pathways that pupils can follow generally (in 2008)





The above diagram illustrates the different educational pathways of boys and girls (in 2008).



2. Media Education in the Polish School Curriculums

Definition and main idea of media education and media literacy

“Media education is an engagement with the world in which in we live” *Robert Ferguson*

Media Literacy is concerned with helping learners develop critical understanding of the nature of mass media, the techniques they utilize, and their impact on society. More specifically, media literacy has to do with education whose primary objective is to increase students’ understanding and enjoyment of media, facilitate understanding of how the media produce meaning, how they are organized, and how they construct their own reality—all this while keeping in mind the skills and knowledge necessary to

create media products. Media Literacy has also been defined as the ability to access, analyze and produce communication in a variety of forms.^{1.6}

During the second half of the last century, the omnipresence of television forced formal educational systems to think about incorporating it into curricular development. Audiovisual media, and especially television, were addressed from two basic perspectives:

- Contents of television programmes were considered to have a great impact (generally negative) on students' education.
- Audiovisual language, television, video and other audiovisual media were shown as resources which facilitated teaching and learning processes.^{1.6}

Basic content does not focus on traditional media (press, radio and television), their way of creating meaning and their presence in our lives. Content on new technologies currently being proposed to educational centres is more related to the use of the computer and the internet. More importance is given to practical content areas to the detriment of critical thinking and reflection.^{1.6}

Media education and media literacy in Polish schools

In Poland there are many web site designed to inform parents and teachers of media education. One of such services is the Media Education: <http://www.edukacjamedialna.pl>. The aim of this service preparation of children and young people for creative and evaluative media reception. Another goal of these services is to give information, on how to reach valuable and least harmful media.

In Poland many campaigns and projects designed to protect pupils against the negative influence of the media have been implemented, in particular for the Internet. These actions have a nation-wide character. In primary schools, lower secondary school and upper secondary school there are educational lessons, in which teachers with pupils can discuss issues related to media education.

Objectives of media literacy and media education

Primary school

- Preparing to do independent searches for needed information and materials.
- Preparing for competent reception of the information disseminated by the media.
- Preparing for an aware and responsible use of the means of mass communication (television, computers, newspapers, etc.).
- Shaping an attitude of respect for Polish cultural heritage in relation to global mass culture.

Lower secondary school

- Preparing to be able to use the various sources of information.
- The ability to segregate the information and its critical reception. Identification of the needs of readers.

- Preparing for self-education work and using media as tools for intellectual work.
- Moulding of an attitude of respect for Polish cultural heritage in relation to global mass culture.

General upper secondary school, Specialized upper secondary school, Technical upper secondary school

- Preparing for self education through competent acquisition and elaboration of information from different sources.
- Understanding the nature and role of media in modern civilization.
- Maintaining cultural identity in the globalization of culture.
- Gaining the skills of communication and critical reception of the content of media messages.
- Maintaining the proper distance and critical attitude towards information relayed by the media.

2.2 Legal regulations

In Poland, media education entered into the general education programme on the basis of education reform in 1999. In the Core Curriculum, which determines the extent and character of subjects of general education in schools, there is a path of education entitled: "Media education and media literacy". The content of the path may be implemented as part of various subjects, or as an individual educational activity. The Core Curriculum provides the implementation of media education in primary school, lower secondary school and upper secondary school. Based on the assumptions made in The Core Curriculum there are created curriculum, methodological guides and handbooks. One of the first syllabuses has been developed by M. Kałolewicz and J. Pielachowskiego (1999). However, the Polish Society for Educational Technology and Media, together with the publishing company eMPi2 have published a quarterly pedagogical journal entitled "Media Education", dedicated to the theory, methodology and practice of educational media since 1996.

Currently there is in force a document: The Regulation of 26 February 2002 by the Minister of National Education and Sport on The Core Curriculum for Pre-school and General Education (Journal of Laws No. 51 from 2002, item. 458). There is also an important document entitled: The Regulation by the Minister of National Education and Sport of 12 February 2002 on Outline Timetables for Public Schools (Journal of Laws No. 15 from 2002, item. 142). Article 2 paragraph 5 point 3 of the Regulation provides that the school authorities are allowed to determine the number of classes in the educational pathways which contain the package of important content and skills with reference to educational aims. Implementation of the educational pathways may be done in the teaching of subjects or units, referred to article 3 paragraph 10 or as separate classes.

The Regulation by the Minister of National Education and Sport dated on 9th of April 2002 relates to conditions of innovative and experimental activity conducted by public schools and institutions (Journal of Laws No. 56 from 2002 item. 506).

2.3 Information and communication technology in media education

The Council for Informatics and Media Education was established on 17.06.2008.

The aim of media education is to prepare pupils to use the media as tools in intellectual work, communication and learning. This aim can be defined as a technology because it involves the acquisition of competencies - knowledge, skills and efficiency in use of the devices, especially the acquisition of skills to use the most advanced technologies.

The second objective of media education is to provide a conscious and critical reception of media messages. This relates to the competencies of message recipients which should be defined as cultural and pedagogical.

The British Film Institute developed a proposal for a media education program for children in early years at school, entitled "Primary Media Education "(1989). It is assumed that the main objective of media education should be to develop critical thinking skills of children towards the media, which is best achieved through analysis and production of media messages. The Education Program is organized around six key questions.

- 1) Who is communicating and why? (Media Institutions).
- 2) What are the types of media, sorts and categories? (typology of media).
- 3) How are the media designed and made? (technology, media creation)
- 4) How do you know what it means? (language of media)
- 5) Who receives the media and what is the effect? (media recipient)
- 6) What kind of contents are presented by media? (media content)

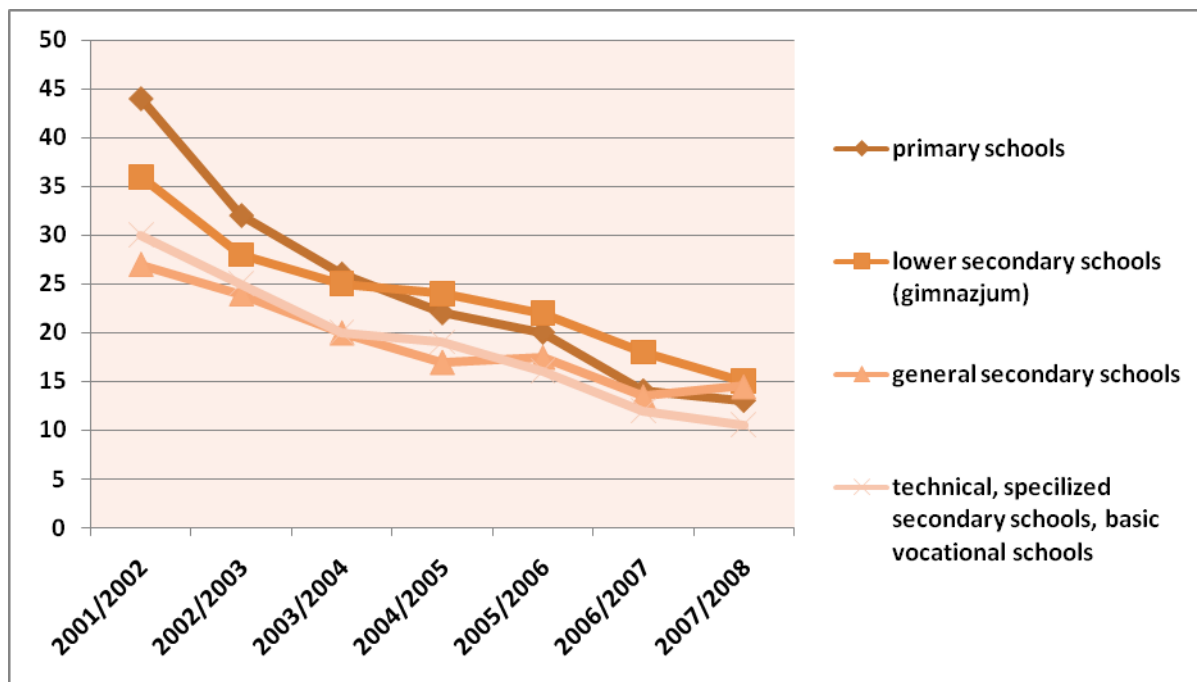
In Poland, e-Learning is a tool which is frequently used for teaching and learning media education (see example ^{1.13}). In addition, a lot of universities offer postgraduate studies in media education (see example ^{1.141.151.16}).

With the computer's help there are also ready teaching aids. First of all multimedia programs are popular (eg, Encyclopedia of the Cosmos, Encyclopedia of the Universe, How it works) as well as the Internet. These sources allow the user to prepare a colorful file which illustrates the material of discussion in class, patterns of experience, curiosities of design solutions as well as biographies of famous scientists. The computer finds application in the preparation of various games which support the learning process.

From year to year the number of computers has grown in all types of schools (except those schools for the disabled). The number of computers with Internet access has also grown. In the school year 2007/2008 in primary schools the number of computers with Internet access has increased compared with the previous school year by 16.0%, in lower secondary schools - by 12.2%, in general secondary schools - by 10.1%, and in vocational schools - by 41.0%. In the school year 2007/2008 in 1 elementary school (excluding schools for the disabled) there was an average of 14.2 computers (in the previous school year - 12.3), including 12.0 computers with Internet access (respectively: in cities - 19.8 and 17.6, in the countryside - 12.0 and 9.7). There were 12 students per computer, and 1 computer with Internet access per 15 students (respectively in the cities - 17 and 20, in the countryside -9 and 11 students).

These data show that the average urban primary school had more computers, but due to the smaller amount of pupils in schools in the country, the "queue" of students who

were waiting for access to the school computer was almost two times shorter than in the city.



Number of pupils per computer in 2001-2008 ^{1.10}.

Every year there has been growth in the number of computers in all types of schools (excluding schools for the disabled). The number of computers with Internet access has also increased. In primary schools the number of computers with Internet access in the school year 2007/2008 increased by 16.0% in comparison with the previous school year; in lower secondary schools - by 12.2%; in general secondary schools - by 10.1%, and in vocational schools - by 41.0% .

A higher level of computerization was registered in lower secondary schools. In the school year 2007/2008 in 1 lower secondary school (excluding schools for the disabled) there was an average of 15.2 computers (in the previous school year - 13.7), including 14.5 computer with Internet access (respectively in the cities -- 17.8 and 17.1, in the countryside - 12.8 and 12.1). There were 15 students per computer, and 15 students per computer with Internet access, (respectively in the cities - 17 and 18, in the countryside -12 or 13 students). In the school year 2007/2008, 72.2% of general secondary schools had computers (excluding schools for the disabled), in urban areas - 73.8%, in rural areas - 56.1%. Computers with internet access were recorded in 72.0 % of schools, in urban areas - 73.6%, in the countryside - 55.6%. There was an average of 24.5 computers per general secondary school (excluding schools for the disabled), including 23.7 computers with Internet access (in the previous school year, respectively 21.5 and 20.9). In the school year 2007/2008 in general secondary schools there were 12 students per computer (in cities -12, in the countryside - 8). There were 12 students per computer with access to the Internet. In vocational schools, and technical schools (excluding schools for the disabled) in the school year 2006/2007 there were an average of 14.2 computers per school (in the previous school year - 9.7), including 13.3 with Internet access (respectively in urban areas- 14.3, in

the countryside - 13.8). There were 12 students per computer, and 13 students per computer with Internet access.

No.	Name of program	Website address
1	Interkl@sa - polski portal edukacyjny	www.interklasa.pl
2	ProgramEdukacyjno-Rozwojowy Społeczeństwa Informacyjnego "Polska-Europa-Polonia"	www.waw.org.pl
3	Interszkola	www.interszkola.pl
4	Multimedia in Teaching	www.kana.gliwice.pl/siemens-dydaktyka
5	SzkolaNET - The school of creativity	www.szkolanet.pl
6	Nationwide computer competition	www.intersiec.pl
7	OpenOffice in every school	www.ux.pl/edu/
8	Flash for school	www.flashdesigner.pl/edukacja

Register of non-governmental programs supporting educational media. ¹²

2.4 Teacher education for media education and media literacy

Teacher education^{1.1}

Education within the framework of regular studies:

Master level uniform 5 year studies or combination of 3 year bachelor level + 2 year master level studies, include at least 345 hours of pedagogical-psychological courses and at least 165 hours of courses in didactics of the chosen major and 60 hours in the chosen specialty.

Teachers' practice lasts 130 hours independently of the organization of the study program. During practice, a teaching candidate should carry out individually 30 hours of teaching.

Education within the frames of a pedagogical course:

For those who have a master's degree, however without the pedagogical courses, e.g. graduates from technical universities, it is obligatory to take an additional pedagogical course to be able to work as a teacher. This course contains 270 teaching hours on pedagogy, psychology and teaching methods as well as teacher practice. There are however no subjects related to gender issues. Some aspects might appear during the psychology course.

Active teachers can choose various supplementary training programs:

- **Qualification improvement courses**, frequently intended for managerial school staff.
- **Study programs** for teachers and managerial school staff at the bachelor, master or postgraduate level. Offered both in the form of weekend or evening programs.
- **Journals and pedagogical magazines** for teachers published by teacher training centers, teacher associations or ministerial units.
- **Organizations for teachers**, like foundations, associations, teacher clubs, frequently addressing one domain (e.g. association for mathematics teachers). They frequently offer supplementary training courses or workshops for their members.

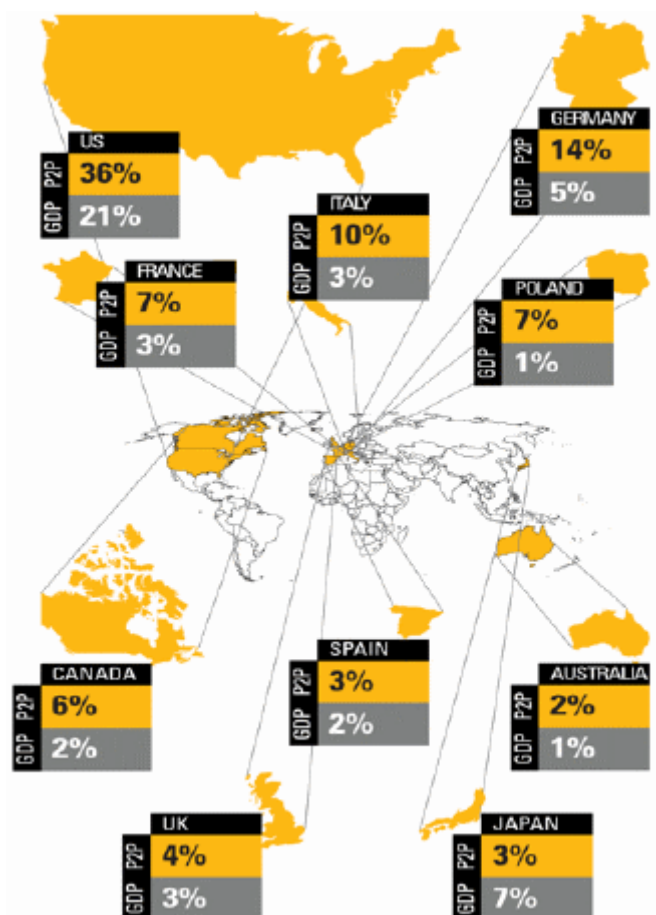
Teacher's and parent's education for media education and media literacy

Media education in Polish schools is a task and challenge for teachers who often search for materials, ideas, and sometimes also to keep track of what is new in the field. An interesting proposal to use scenarios are lessons on media education, which can be found at <http://biblioteka.oeiizk.waw.pl/scenariusze.html>.

Moreover there are 1.5 year Postgraduate Studies of Media Education or different courses or e-learning courses available for teachers⁷.

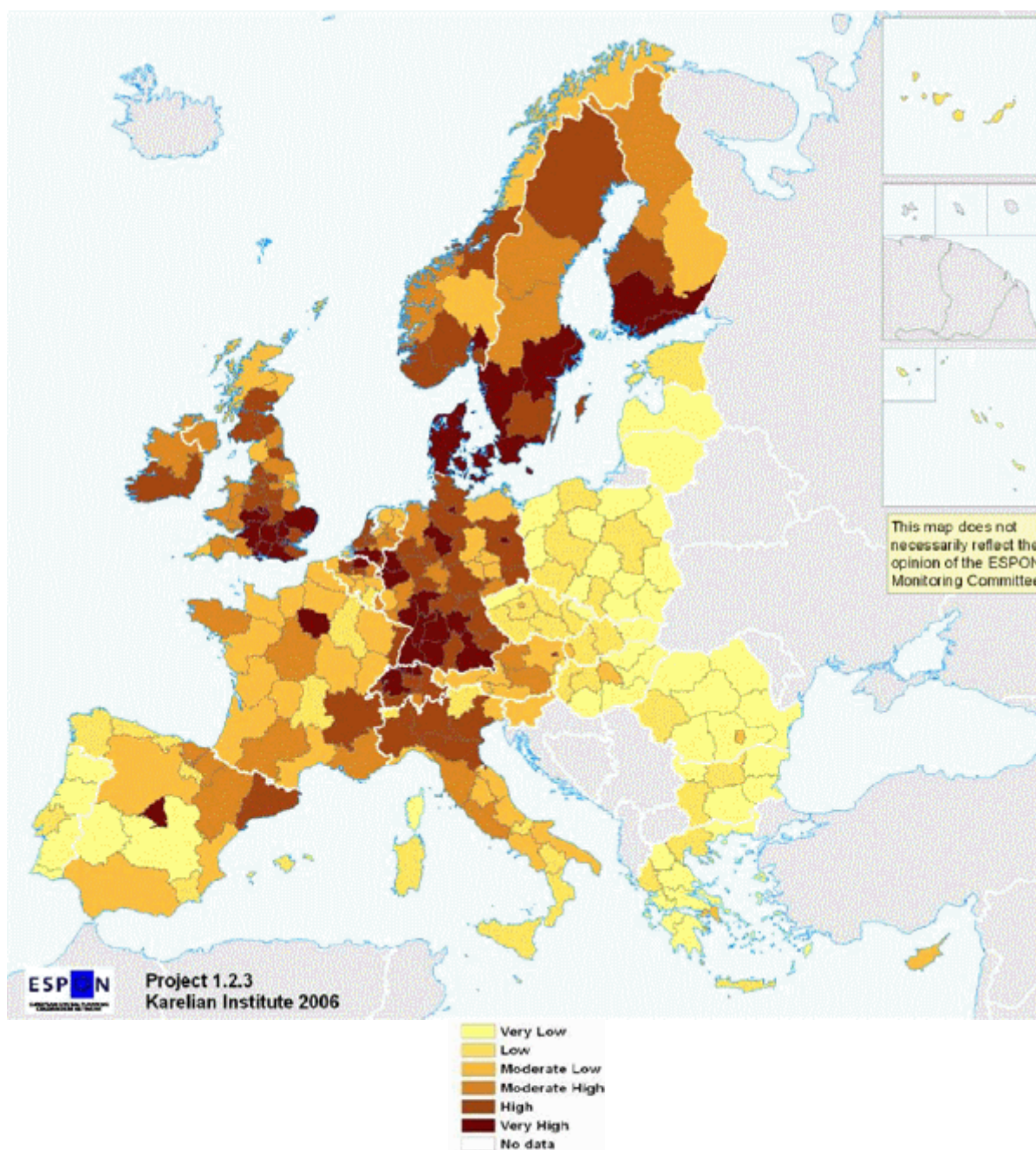
3 Internet Usage in Polish Households

In 2004 Poland was one of ten countries with the highest share in global file-sharing (P2P), but received low and very low ratings for factors contributing to an information society.



Country	Share in in global file-sharing	Share in global Domestic Product	Gross
US	36%	21%	
ITALY	10%	3%	
GERMANY	14%	5%	
FRANCE	7%	3%	
CANADA	6%	2%	
SPAIN	3%	2%	
UK	4%	3%	
AUSTRALIA	2%	1%	
JAPAN	3%	7%	
POLAND	7%	1%	

10 countries with the highest share in global file-sharing (P2P) - 2004. ¹⁷



Coefficient of the Information Society

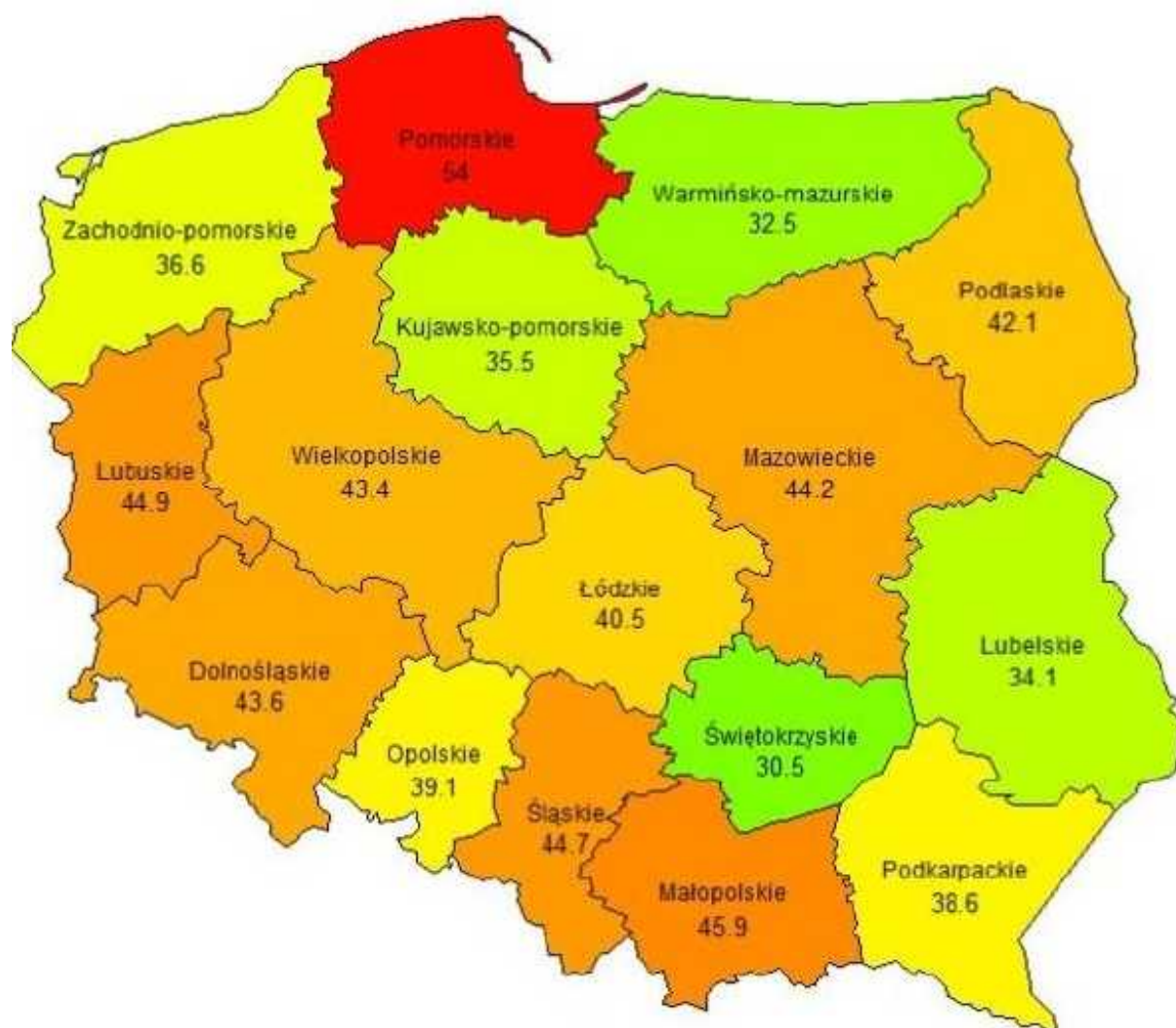
In 2007 more than half of Polish households (54%) owned at least one computer. Within three years, the number of households with computers had increased by 2 200 000, and the highest increase occurred in 2006-2007- about one million households.

The results of research conducted in 2007/2008, the object of which was the use of information and communication technologies in households and by individuals, showed an improvement how well-equipped household were with computer hardware and progress in access to the Internet and use of this network:

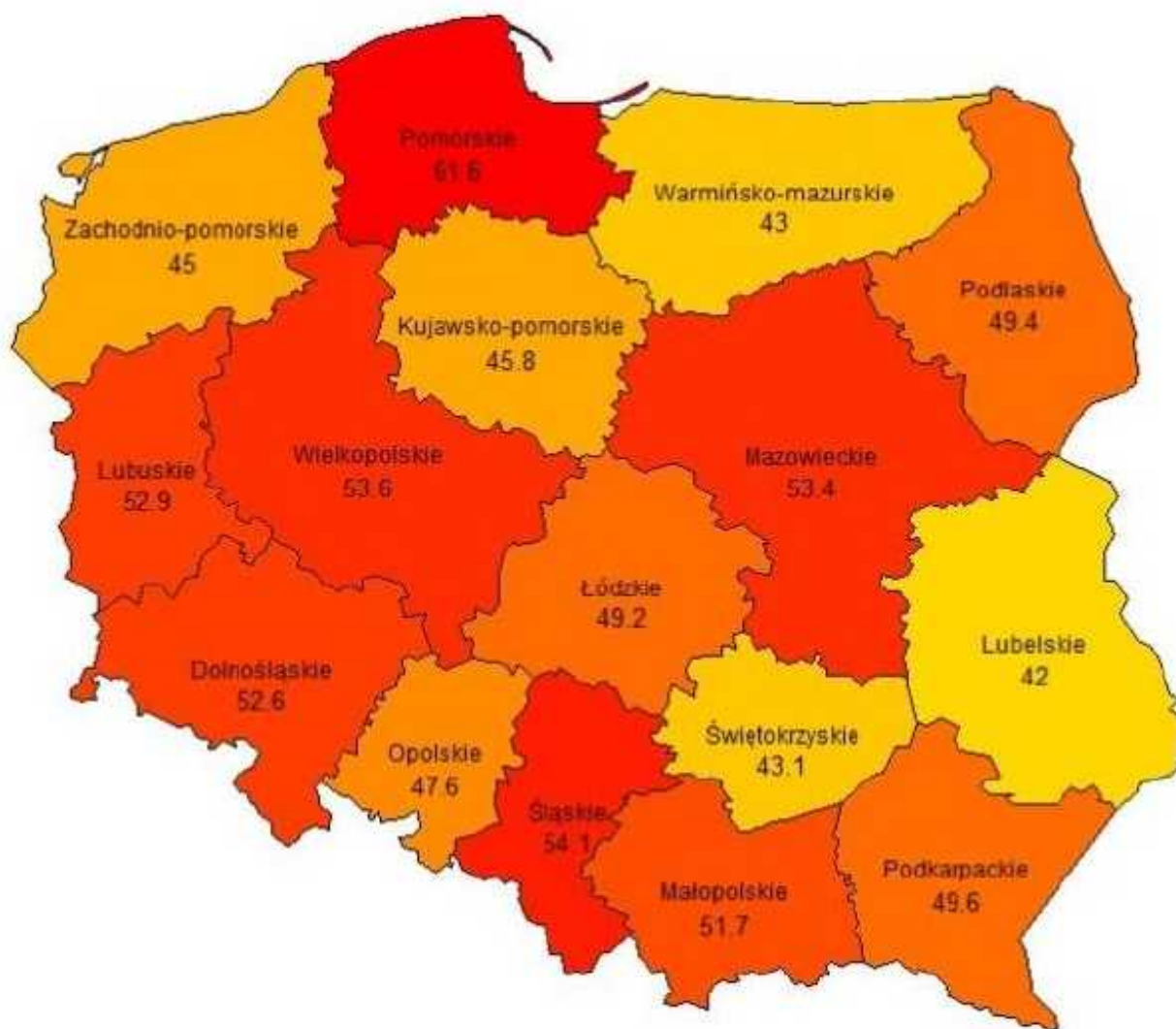
- 59% of households have computers
- 48% of households have Internet access
- 38% of households have broadband connections

- half of the population between 16 and 74 years old regularly (at least once a week) use a computer
- 44% regularly use the Internet
- Polish people most often use computers and Internet at home
- Their main objects of using the Internet are: to check e-mail, to search for information about goods and services, and participation in chats and forum discussions
- Dynamic growth of Internet banking
- Polish households spent on ICT over 11 billion PLN in 2007
- There is slower growth of Internet shopping than in the previous year
- The average value of Internet purchases remained at a similar level as in the previous year

The number of households owning a computer and Internet access is growing steadily.



Internet access in 2007 (% of households)



Computer access in 2007 (% of households) ^{1,9}.

	2006	2007	2008
Cities over 100 000 people	52,9%	60,0%	64,0%
Towns under 100 000 people	46,4%	54,8%	59,6%
rural areas	36,4%	46%	52,8%

The percentage of households equipped with computers (classified by) ²⁰

1.

AGE	All	16-24	25 - 54				55 - 74		
2008	29056399	5122136	15504592	4927862	4777609	5799121	8429671	5096260	3333411
	100,0%	17,6%	53,4%	17,0%	16,4%	20,0%	29,0%	17,5%	11,5%

2.

AGE	All	16-24	25 - 54				55 - 74		
2008	13872217	267058	7467524	2402250	2299030	2766244	3732636	2381287	1351349
	100,0%	19,3%	53,8%	17,3%	16,6%	19,9%	26,9%	17,2%	9,7%

3.

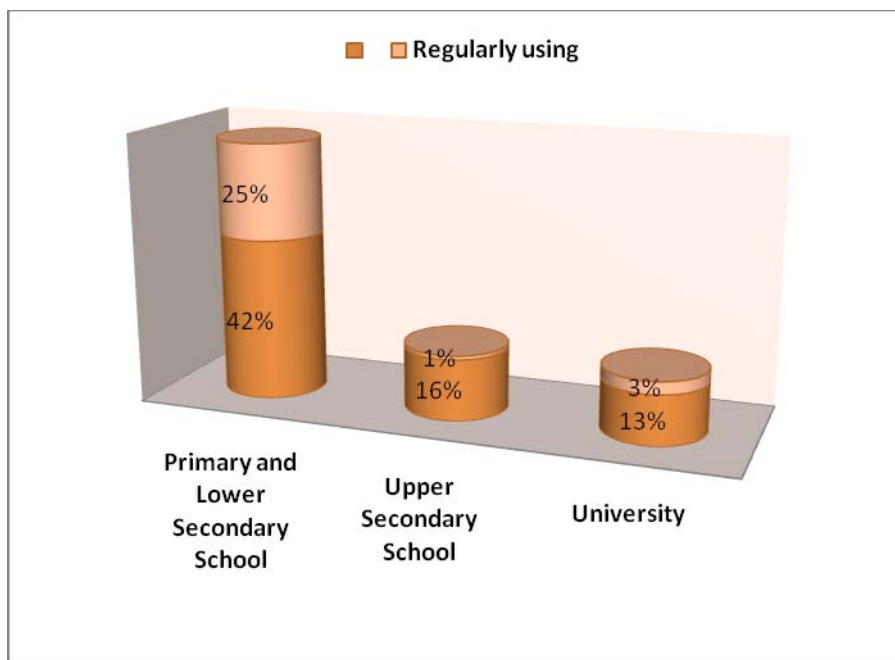
AGE	All	16-24	25 - 54				55 - 74		
2008	15184182	2450078	8037069	2525612	2478579	3032877	4697035	2714973	1982062
	100,0%	16,1%	52,9%	16,6%	16,3%	20,0%	30,9%	17,9%	13,1%

The percentage of people using the Internet (by age) 1. All, 2. Men, 3. Women

Minor differences, of up to 3 percentage points in 2007, appear between men and women , in the number of regular computer users , and among people with primary education or lower secondary and upper (6 percentage points).

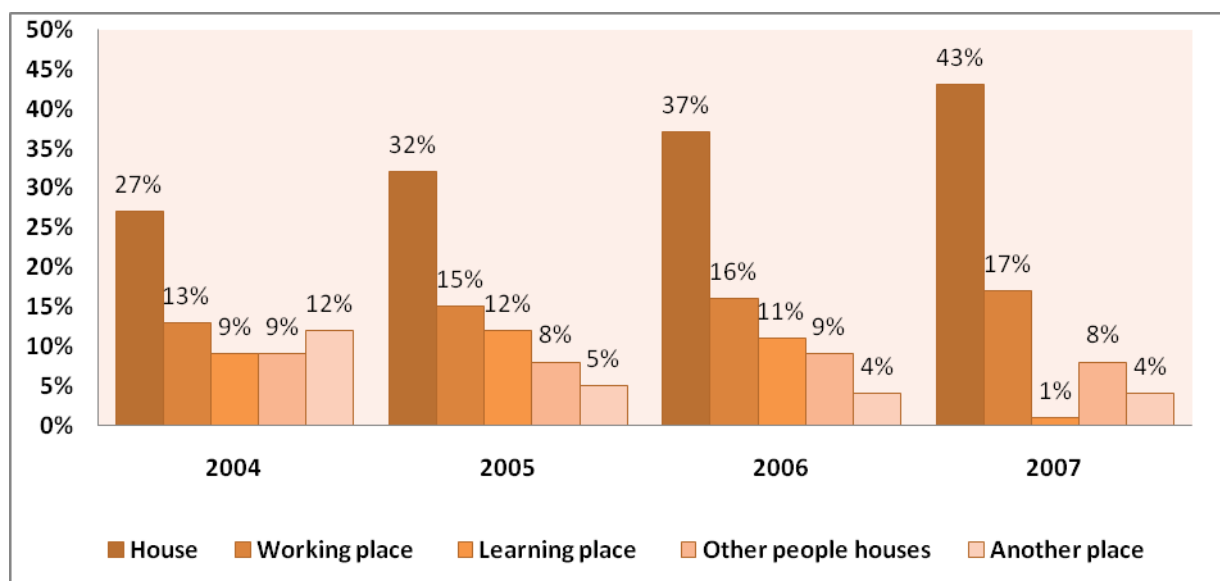
While data showing differences in the use of computers between men and women are fairly consistent, there is apparent a small disparity related to education: the proportion of people with lower education (36%) is slightly lower than those with secondary education (42%) because among the 6.5 million inhabitants of Poland aged 16-74 with primary or lower secondary education are:

- 2.1 million students who have not finished high school, technical college or vocational school yet. In this group the percentage of regular computer users reaches 95%,
- 4.4 million people who left education at this level. Among these, the percentage of regular users is only 6% .



People who use the computer regularly among the general population

According to education, with the exception of people who are students in 2007



Users of computers (by the place of use)

	2004	2005	2006	2007
All	35	40	43	46
Sex				
Men	36	41	45	48
Women	33	39	41	45
Age				
16 - 24	70	79	83	87
25 - 34	45	52	60	66

35 – 44	33	42	47	52
45 – 54	25	29	31	34
55 – 64	13	16	16	18
65 – 74	3	3	3	4
Education				
Primary schools, Lower secondary schools	31	34	34	36
Upper secondary school	30	35	38	42
University	72	77	80	82
Activities				
Pupils and students	84	92	92	95
Workers	47	54	59	60
Self - employed	23	32	35	44
Unemployed population	22	22	27	32
Pensioners and jobless	10	9	11	12
Pace of residence				
Cities	47	53	55	58
Towns	38	41	45	48
Countries	21	29	31	35

People who regularly use the computer (in %) ^{1.21}

4 ICT and STEM at University

A university degree can be seen as entrance ticket to a career in the IT sector. The qualification level is quite high and the majority of employees in the IT sector graduated either a university or technical university. This development refers to teacher training, too.

Human resources for science and technology in 2007^{1.22}

The number of students in higher education schools was 1937.4 thousand at the end of 2007 (56.4% women) and it was 0.2% lower than in the previous year. There was a period of growth between 1991 and 2006. After that, during the year 2007, the number of people who were granted PhDs was reduced to 5616 and it was 7.5 % lower in comparison with the number of PhDs obtained in the previous year. In 2007, the number of granted postdoctoral degrees decreased to 771 and it was 10.3% lower than in the last year (according to the fall of 9.9% in 2006). In 2007, women represented 49.2 % of all persons who have received a doctoral degree and 32.2% of those receiving postdoctoral degrees. After a decline in 2006 (of 21.1%) 585 people were awarded the title of professor and it was about 47.4 % higher than in the previous year. The number of women who have been granted the title of professor was about 43.5% higher than in 2006 and it totalled 155 (in comparison to 108 in 2006)

Titles of professor and scientific degrees awarded in 2000 – 2007

Specification	2000	2003	2004	2005	2006	2007
Title of professor	470	578	521	503	397	585
number of women	111	155	138	136	108	155

Scientific degree						
Habilitated doctor (HD)¹	829	803	934	955	860	771
number of women	240	258	292	344	278	248
Doctor (PhD)	4400	5460	5722	5917	6072	5616
Number of women	1832	2563	2704	2931	2997	2760

Source:

2000 - data of the Chancellery of the Republic of Poland and the Information Processing Centre,
 2003 - 2004 - data of the Chancellery of the Republic of Poland and the Ministry of National Education and Sport,
 2005 - 2007 - data of the Chancellery of the Republic of Poland and the Ministry of Science and Higher Education.

Number of habilitated doctor's (HD) degrees awarded in 1990 – 2007

Specification	1990	1995	1999	2000	2001	2002	2003	2004	2005	2006	2007
In absolute terms											
Total	973	628	915	829	755	923	803	934	955	860	771
Men	765	457	645	589	533	674	545	642	611	582	523
Women	208	171	270	240	222	249	258	292	344	278	248
In %											
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
Men	78,6	72,8	70,5	71,0	70,6	73,0	67,9	68,7	64,0	67,7	67,8
Women	21,4	27,2	29,5	29,0	29,4	27,0	32,1	31,3	36,0	32,3	32,2

Source:

1990 - data of the Scientific, Technical, and Economic Information Centre
 1995 - 2002 - data of the Information Processing Centre,
 2003 - 2004 - data of the Ministry of National Education and Sport,
 2005 - 2007 - data of the Ministry of Science and Higher Education.

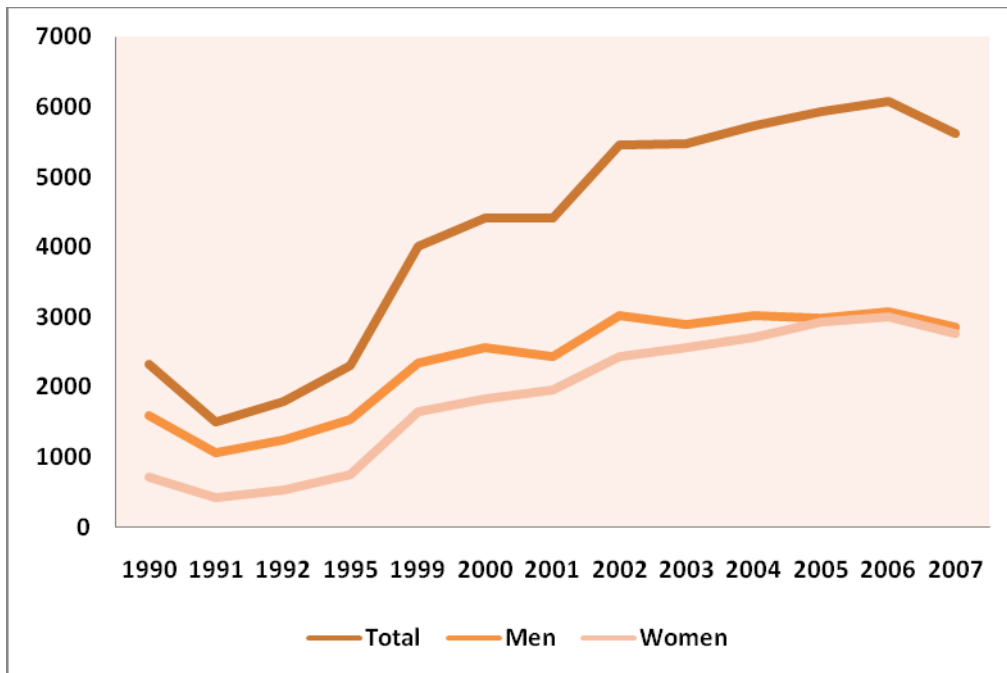
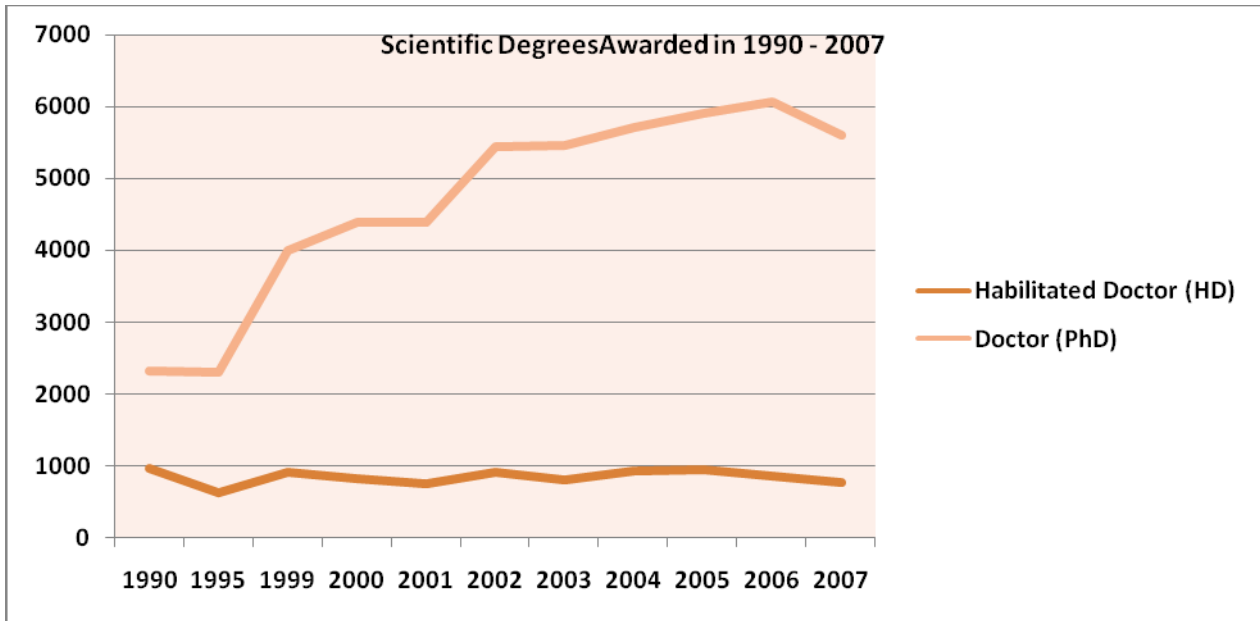
Number of doctor's degrees awarded in 1990 – 2007 by gender

Specification	1990	1991	1992	1995	1999	2000	2001	2002	2003	2004	2005	2006	2007
In absolute terms													
Total	2324	1500	1800	2300	4000	4400	4400	5450	5460	5722	5917	6072	5616
Men	1607	1071	1260	1537	2345	2568	2443	3016	2897	3018	2986	3075	2856
Women	717	429	540	763	1655	1832	1957	2434	2563	2704	2931	2997	2760
In %													
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
Men	69,1	71,4	70	66,8	58,6	58,3	55,5	55,3	53,1	52,7	50,5	50,6	50,9
Women	30,9	28,6	30	33,2	41,4	41,7	44,5	44,7	46,9	47,3	49,5	49,4	49,1

Source:

1990 - data of the Scientific, Technical, and Economic Information Centre
 1995 - 2002 - data of the Information Processing Centre,
 2003 - 2004 - data of the Ministry of National Education and Sport,
 2005 - 2006 - data of the Ministry of Science and Higher Education.

¹ The habilitated doctor's degree (HD) which is higher than a doctorate (second doctorate), is peculiar to Poland. The degree is awarded on the basis of an appropriate dissertation and is necessary for obtaining the title of professor and a professorial post in scientific institutions.



Number of titles of professor by gender and field of science, 2007

Field of science	Total	Men	Women
In absolute terms			
Total	585	430	155
Natural sciences	125	96	29
Technical	07	99	8
Medical	135	80	55
Agricultural	74	54	20
Social & humanities	144	101	43
In % field of science = 100			
Total	100,0	73,5	26,5
Natural sciences	100,0	76,8	23,2
Technical	100,0	92,5	7,5
Medical	100,0	59,3	40,7
Agricultural	100,0	73,0	27,0
Social & humanities	100,0	70,1	29,9
gender = 100			
Total	100,0	100,0	100,0
Natural sciences	21,4	22,3	18,7
Technical	18,3	23,0	5,2
Medical	23,1	18,6	35,5
Agricultural	12,6	12,6	12,9
Social & humanities	24,6	23,5	27,7

Source: data of the Chancellery of the President of the Republic of Poland.

Scientific degrees awarded by gender and field of science, 2007

Field of science	Scientific degrees					
	habilitated doctor (HD)			doctor (PhD)		
	total	men	women	total	men	women
In absolute terms						
Total	771	523	248	5616	2856	2760
Natural sciences	137	94	53	927	425	502
Technical	128	103	25	997	719	278
Medical	140	78	62	1057	473	584
Agricultural	80	52	28	397	168	229
Social & humanities	286	196	90	2238	1071	1167
In % field of science = 100						
Total	100,0	67,8	32,2	100,0	50,9	49,1
Natural sciences	100,0	68,6	31,4	100,0	45,8	54,2
Technical	100,0	80,5	19,5	100,0	72,1	27,9
Medical	100,0	55,7	44,3	100,0	44,7	55,3
Agricultural	100,0	65,0	35,0	100,0	42,3	57,7
Social & humanities	100,0	68,5	31,5	100,0	47,9	52,1
gender = 100						
Total	100,0	100,0	100,0	100,0	100,0	100,0
Natural sciences	17,8	18,0	17,3	16,5	14,9	18,2
Technical	19,0	19,7	10,1	17,8	25,2	10,1

Medical	13,0	14,9	25,0	18,8	16,6	21,2
Agricultural	11,9	9,9	11,3	7,1	5,9	8,3
Social & humanities	33,8	37,5	36,3	39,9	37,5	42,3

Source: data of the Ministry of Science and Higher Education.

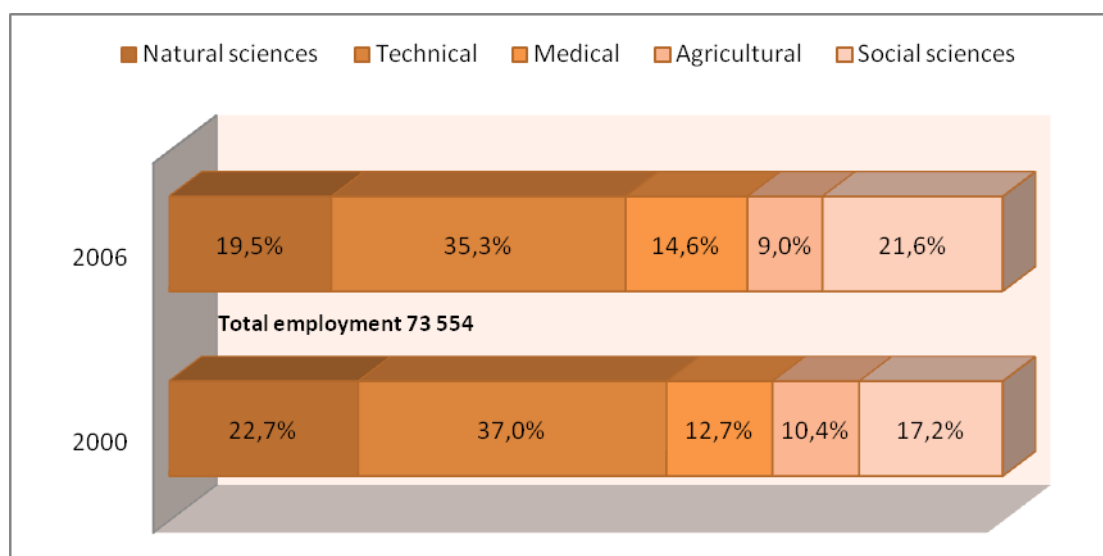
Participants of doctoral studies by study system, gender and field of science, 2007

Field of science	Grand total	Of which women	Study system			
			day		weekend	
			total	of which women	total	of which women
Total	31814	16271	21498	11408	9473	4452
Natural sciences	4837	2559	4450	2364	295	167
Technical	5218	1547	4291	1396	867	135
Medical	2996	1862	2462	1619	499	228
Agricultural	1692	1035	1340	884	341	149
Social & humanities	17071	9268	8955	5145	7471	3773

Source: data of the Ministry of Science and Higher Education.

Data regarding employment in R&D activity include exclusively persons employed directly in this activity (or providing direct services for R&D) and spending at least 10 per cent of their normal working time on R&D. The number of persons engaged in R&D is expressed in full-time equivalents (FTE). One FTE equals one person-year spent on R&D.

Structure of employment² in research and development activity by field of science

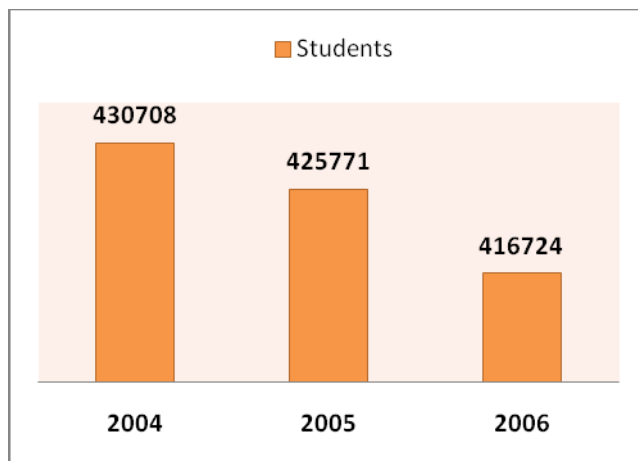


² Employment in full-time equivalents

At the beginning of the academic year in 2007/2008, the 1937.4 thousand students studying at all types of universities and higher education schools represented a 0.2% decrease from the previous year. Women accounted for 56.4% of all students. Additionally, 501.6 thousand people have started education at the first academic year, and it was 14.1 thousand more than in the previous year, including non-public schools, with 9.8 thousand students more than in previous years.

In the first year of studies there are the most people in the economic and administrative specialization (115.9 thousand people, which is 10.2 thousand more than in the previous year). This group represents 23.1% of all students in the first year. According to the 2006/2007 academic year, there has been a decreasing interest in social courses (2.4 thousand students less have started these studies) and in IT (a decrease of 1.3 thousand people), and engineering and technical Studies (a decrease of 0.8 thousand). The total number of students has also decreased in these specializations. In the academic year of 2007/2008 270.1 thousand people have studied social specializations (3.9% less in comparison with the previous year), computer science - 95.2 thousand (6.5% less), engineering and technical fields- 132.6 thousand (5.2% less).

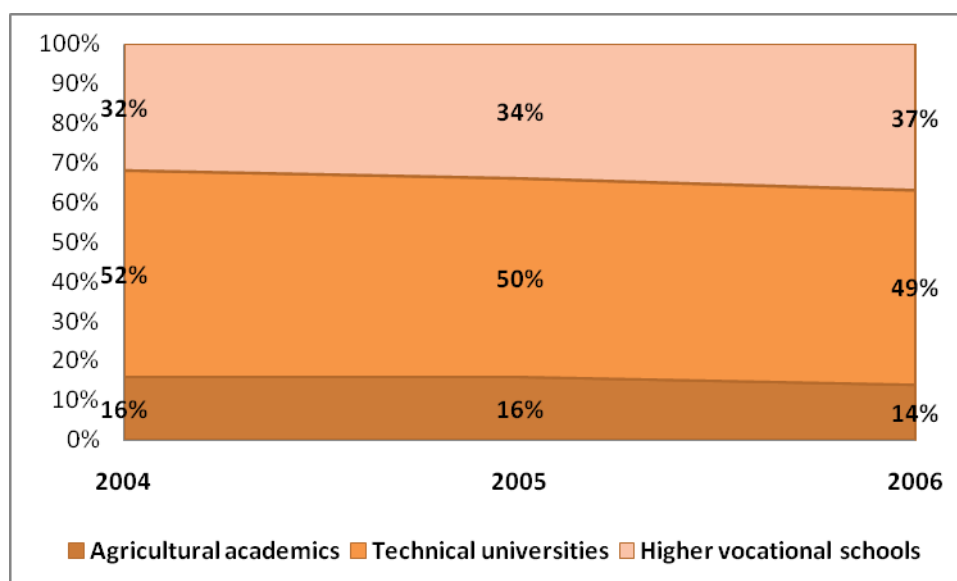
In particular, it is noted that during the last 3 years in Poland the number of students on technical, mathematical and statistical and physicist courses was 3.2 % lower in comparison to 2007.²⁵



The number of student at the technical specialization, mathematical and statistical specialization, and physics specialization in Poland²⁵

In technical universities, agricultural academies and higher vocational schools in Poland there are more students, and more graduates than the number of students and graduates of technical, mathematical and physics specializations.

In Poland the need to change these negative trends has been recognized. It is one of the reasons why the aim of the third priority of the country's development strategy 2007-2015 (employment growth and improving its quality) is an increased number of graduates in mathematics, natural sciences and engineering from 15% to 25% in the period from 2005 to 2015.



Share of various types of students (technical, agricultural, vocational) in the total number of students of higher education in Poland. ²⁵

The most popular faculties of study in 2007/2008 - first – cycle programs and long-cycle programs, according to the total number of candidates (10 thousand and more) were :

1. Pedagogy 37 490
2. Law 31 827
3. Management 27 707
4. Economics 22 026
5. Administration 21 014
6. International Relations 19 553
7. Computer science 18 890
8. Philology: specialization: Philology of English 17 998
9. Tourism and recreation 16 746
10. Sociology 16 682
11. Construction 16 179
12. Political Science 16 143
13. Psychology 14 961
14. Polish philology 14 172
15. Biotechnology 13 127
16. Environmental protection 11 301
17. European Studies 10 945
18. Finance and Accounting 10 804
19. Physiotherapy 10 634

The division according to the type of tertiary education ²⁶

General

Higher Education Institution

Study forms Type of schools	2007/08 schools	2006/07	2007/08	2005/06	2006/07
		students		graduates	
		in thous.			
Total	455	1941,4	1937,4	394,0	410,1
full-time programmes	x	950,4	940,2	167,4	182,1
part-time programmes	x	991,1	997,2	226,6	228,0
Universities	18	550,5	538,2	115,9	115,7
Technical universities	22	318,9	310,6	55,7	55,2

Study forms Type of schools	2007/08 schools	2006/07	2007/08	2005/06	2006/07
		students		graduates	
		in thous.			
Agricultural academies	8	92,0	89,7	16,6	19,1
Academies of economics	95	406,2	410,8	88,0	94,0
Teacher education schools	17	117,4	110,3	32,7	31,4
Medical academies	9	53,1	56,1	9,9	10,7
Merchant marine academies	2	10,5	9,9	2,4	2,0
Physical academies	6	29,0	28,7	5,7	6,5
Fine arts academies	21	14,9	15,4	2,8	2,8
Theological academies	16	10,7	11,0	2,7	2,5
Academies of the Ministry of National Defence	5	11,7	12,4	1,8	1,6
Academies of the Ministry of the Interior and Administration	2	2,1	2,3	0,5	0,4
Other higher education institution	234	324,5	342,0	59,4	68,1
higher vocational schools	192	244,5	262,3	42,0	49,6
other non-public	42	80,0	79,7	17,4	18,5

STUDENTS AND GRADUATES OF HIGHER EDUCATION INSTITUTIONS

Fields of education	2006/07	2007/08		2005/06	2006/07
	students			graduates in thous.	
	total in thous.		of which females in %		
Total	1941,4	1937,4	56,4	394,0	410,1
Education science and teacher training	236,9	233,3	71,9	59,9	61,7
Arts	23,1	25,6	64,2	3,7	3,8

Humanities	175,1	171,0	71,5	33,1	34,0
Social and behavioural science	280,9	270,1	63,9	57,8	61,5
Journalism and information	18,3	19,4	67,8	3,7	3,8
Business and administration	437,8	445,3	60,4	106,9	106,3
Law	59,0	59,5	54,7	8,2	7,7
Life sciences	40,2	39,0	67,3	9,2	9,5
Physical sciences	32,2	30,8	58,4	6,1	6,5
Mathematics and statistics	16,0	15,6	61,4	3,3	3,6
Computing	101,8	95,2	9,7	17,2	16,9
Engineering and engineering trades	139,9	132,6	17,4	21,3	22,2
Manufacturing and processing	60,6	61,7	41,0	8,7	9,8
Architecture and building	58,7	62,6	33,7	8,3	9,4
Agriculture, forestry and fishery	39,3	37,6	50,8	6,3	7,4
Veterinary	4,4	4,5	64,6	0,6	0,6
Health	102,8	112,8	75,4	19,1	22,5
Social services	0,1	1,0	89,5	-	-
Personal services	67,2	72,2	62,3	12,9	14,7
Transport services	16,0	16,8	12,5	2,3	2,4
Environmental protection	27,8	26,6	42,5	4,5	5,1
Security services	3,4	4,2	23,3	0,9	0,8

5 Work conditions in the IT sector

USE OF COMPUTERS AND THE INTERNET

In general in Poland, 95% of firms have been using computers, 36% of their employees have been using computers at least once a week.

93% of companies and 28% of their employees have been using computers with Internet access. Computers were in common use in large and medium companies. Among small businesses 94 % have been using computers, including 91% computers with Internet access. 58% of the companies have had access to a local area network - LAN. Every fifth company has had a wireless LAN. LAN, intranet and extranet were most common in large and medium-sized enterprises, while small businesses used them less frequently. Differences between large and small companies came up to 33 percentage points with reference to the usage of intranet. Extranet has been used in large enterprises three times more often than in small ones.^{1.19}

Enterprises	Enterprises have					
	Computers	Internet access	Local Area Network		Internet	Extranet
			Total	Wireless		
Total	95	93	58	23	26	7

Small companies (10 - 49 employees)	94	91	51	19	22	6
Medium companies (50 - 249 employees)	99	99	81	33	37	11
Large companies (250 and more employees)	100	100	96	53	55	19

Enterprises using computers and selected networks in 2008 (percentage of companies with more than 10 employees) ^{1,19}

In 2008 in Poland, more than half of enterprises (59%) had broadband Internet access. Practically all large companies (95%) and 53% of small businesses have broadband.

Enterprises	Internet access by analog modem (ordinary phone line), or digital, type: ISDN	Broadband Internet access			Wireless Internet access (ex. GSM, GPRS, UMTS, etc.)
		Total	the access in a technology DSL, (xDSL, ADSL, SDSL, etc.)	different types of broadband Internet access (eg. cable television network, PCL)	
Total	42	59	49	16	25
Small companies (10 - 49 employees)	43	53	43	13	19
Medium companies (50 - 249 employees)	38	77	67	22	38
Large companies (250 and more employees)	39	95	79	51	63

Types of Internet access in companies in 2008 ^{1,19}

THE TOTAL AMOUNT OF EMPLOYEES

Economic activity of the population aged 15 and more

Specification	2005	2006	2007	
	annual averages			IV quarter
POPULATION in thous.	31258	31356	31392	31402
Men	14902	14938	14909	14901
Women	16356	16428	16483	16502
Economically active person	17161	16938	16859	16986
Men	9362	9283	9234	9273
Women	7799	7655	7626	7713
Employed person	14116	14594	15241	15538
Men	7809	8081	8403	8553
Women	6306	6513	6838	6985
Unemployed person³	3045	2344	1619	1448

³ Persons aged 15 - 74

Men	1553	1202	831	720
Women	1493	1142	788	728
Economically inactive persons	14097	14427	14533	14416
Men	5540	5655	5675	5628
Women	8557	8773	8858	8789
ACTIVITY RATE⁴ in %	54,9	54,0	53,7	54,1
Men	62,8	62,1	61,9	62,2
Women	47,7	46,6	46,3	46,7
Urban areas	54,2	53,5	53,4	53,8
Rural areas	56,0	54,9	54,2	54,6
EMPLOYMENT RATE⁵ in %	45,2	46,5	48,5	49,5
Men	52,4	54,1	56,4	57,4
Women	38,6	39,6	41,5	42,3
Urban areas	44,1	45,8	48,2	49,0
Rural areas	47,0	47,8	49,2	50,2

It is worth adding that (in 2005), most women with higher education could be found in Warsaw and Krakow - over 34 % of the women in these cities. In other cities, the percentage of well-educated women has been about 28 %. Enterprising women, the owners of private businesses, came mainly from Poznan (6% of female residents) and Warsaw (5% of female residents).³¹

Working women are better educated than men. In 2005, 68.2% of working women and 49.3% of working men had a university degree or secondary education.³²

The results of the National Remuneration Study (conducted by Sedlak & Sedlak in 2008) have shown that the programmer's job is mainly done by men - only 7 % of respondents were women. Specialists in the creation of codes are young people (83% of respondents did not exceed 30 years of age) who live in large cities (75% of employees in this sector are from cities with populations over 299 thousand). Most programmers (75%) declared a knowledge of at least one foreign language.

Among IT companies, Motorola and IBM Poland are those who support employment and development of women in the IT industry.

It should be noted that among the students of polytechnics, women presented a negligible percentage. For this reason there are a small number of female engineers aged 40 or 50 years. According to data from the Statistical Office gathered in the first quarter of 2008, the total number of men (aged 15-64) with higher education in the fields of science, mathematics, computer science, engineering, manufacturing processes and construction is 759 thousand. In comparison, there are only 344 thousand women and most of them (230 thousand) are educated in science, mathematics and computing, as preparation to become teachers of these subjects.

Currently, the situation is changing. Depending on the faculty, women represent a significant share of students, or even the majority. For instance in 2008, 32% of the over 20 thousand students at the Technical University of Gdansk were women. As a result of this trend, in a few years the engineering profession, even in such "male" fields as construction, may be so "male" no longer.³³

⁴ The activity rate is calculated as the share of the economically active person (total or in a given group) in the population aged 15 and more (total or in a given group)

⁵ The employment rate is calculated as the share of the employed (total or in a given group) in the population aged 15 and more (total or in a given group)

6 Section Title level 1

Remunerations in IT and other sectors – general data

Data of remunerations were analyzed for four management levels: employee, specialist, manager and director. Differences in the level of remunerations in the IT sector decline with higher levels of employment. There is the biggest difference between the amount of salary at the lowest level: employee and specialists. Specialists earn more than half in comparison with employees as positions of rank. The difference between the earnings of directors and managers is only 27%.

The second regularity is the increase in the variable part of total remuneration in wages with an increase in the level of management. For workers their bonus is approximately 12% of the total wages, while the variable pay of the Director is 18%.²⁷

Level	basic remuneration (median)	total remuneration (median)	the increase regards to the previous level (%)	share of variable part to the total remuneration (%)
Employee	3 000	3 500	-	12
Specialist	4 500	5 300	51	15
Manager	6 000	7 500	41	16
Director	7 800	9 500	27	18

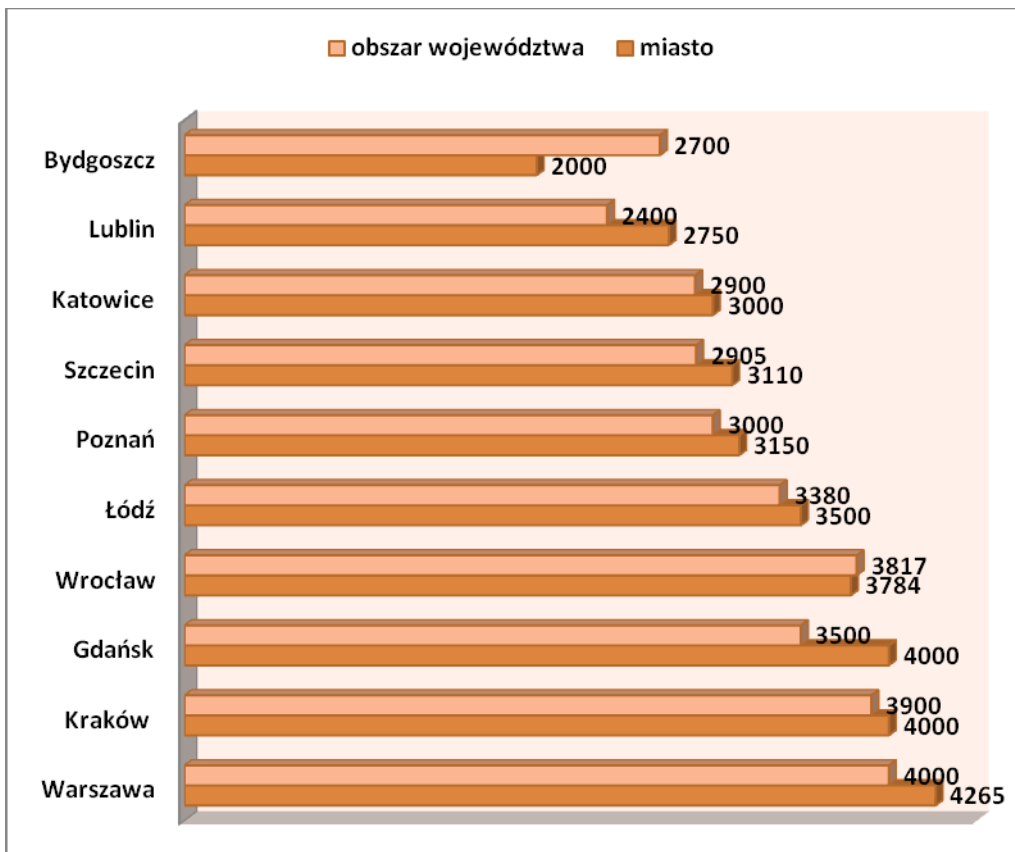
The remuneration of IT specialists in the IT sector²⁸

Remunerations of IT specialists in companies from sectors outside IT quite significantly differ from the salaries in the IT sector.

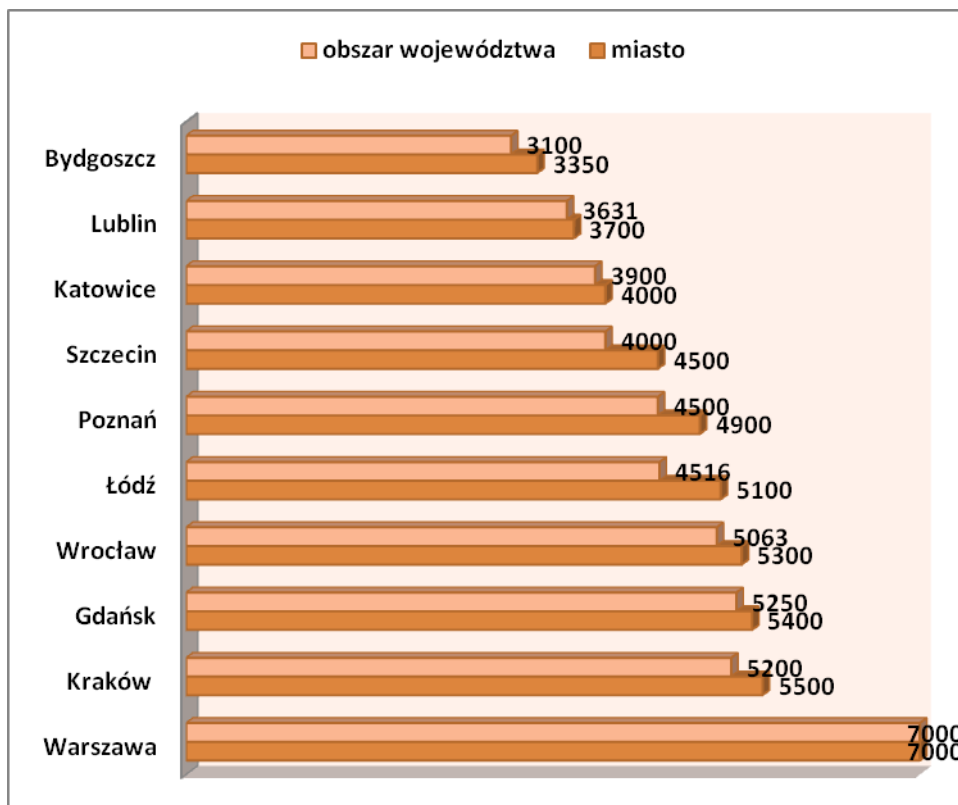
Level	basic remuneration (median)	total remuneration (median)	the increase regards to the previous level (%)	share of variable part to the total remuneration (%)
Employee	2 300	2 777	-	12
Specialist	3 675	4 500	62	16
manager	6 000	7 000	55	18
Director	11 000	13 750	96	21

The remuneration of IT specialists in other sectors²⁸

Another important factor has an influence on the level of salaries: the place of residence. IT specialists with the highest remuneration are in Warsaw. There is also a dependence between remuneration levels of IT specialists employed in provincial capitals and remuneration levels of IT specialists employed outside the capital of the province.

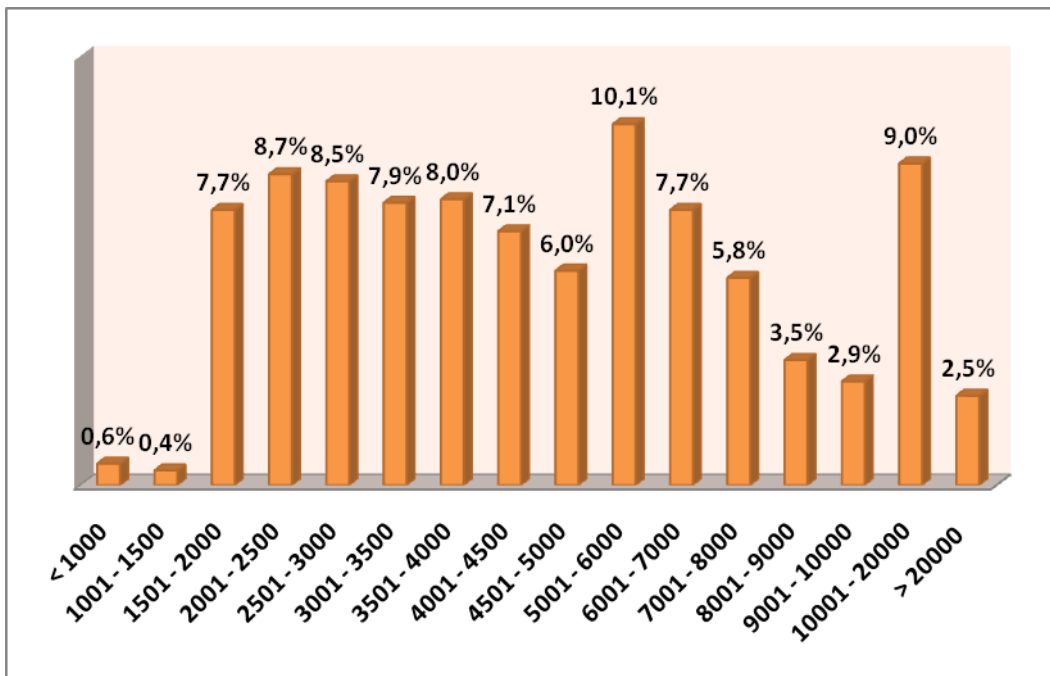


Remuneration of employees in the IT industry in cities with over 300 000 inhabitants ²⁷

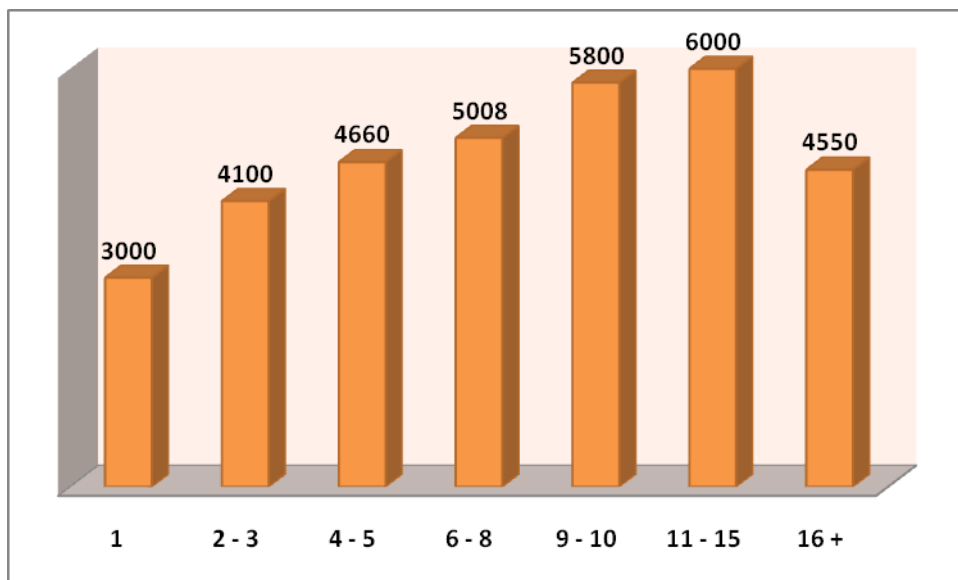


Remuneration of IT specialist in cities with over 300.000 inhabitants ²⁷

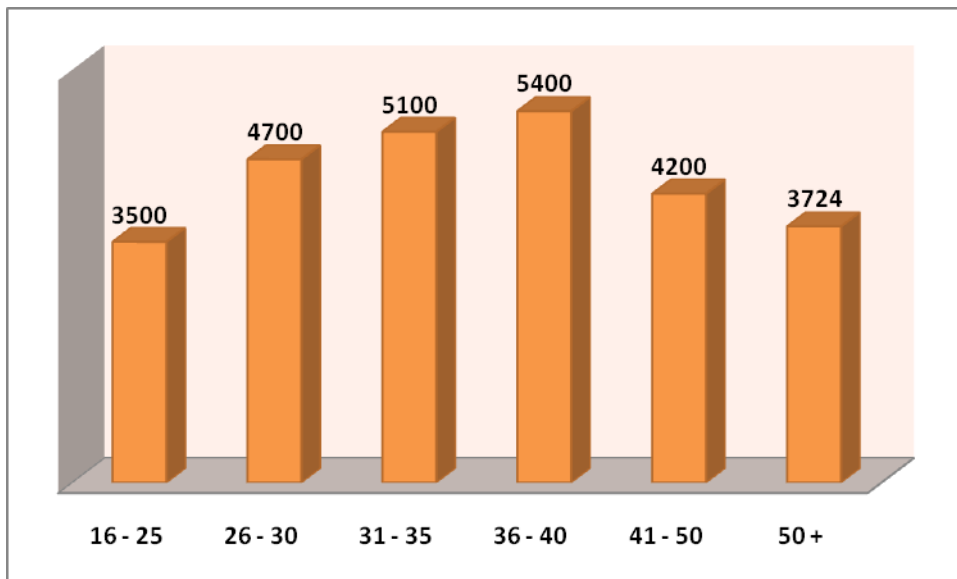
The average of remuneration amounted to 2691.03 PLN in 2007 in Poland. Staff of IT departments are a very well remunerated group of people.



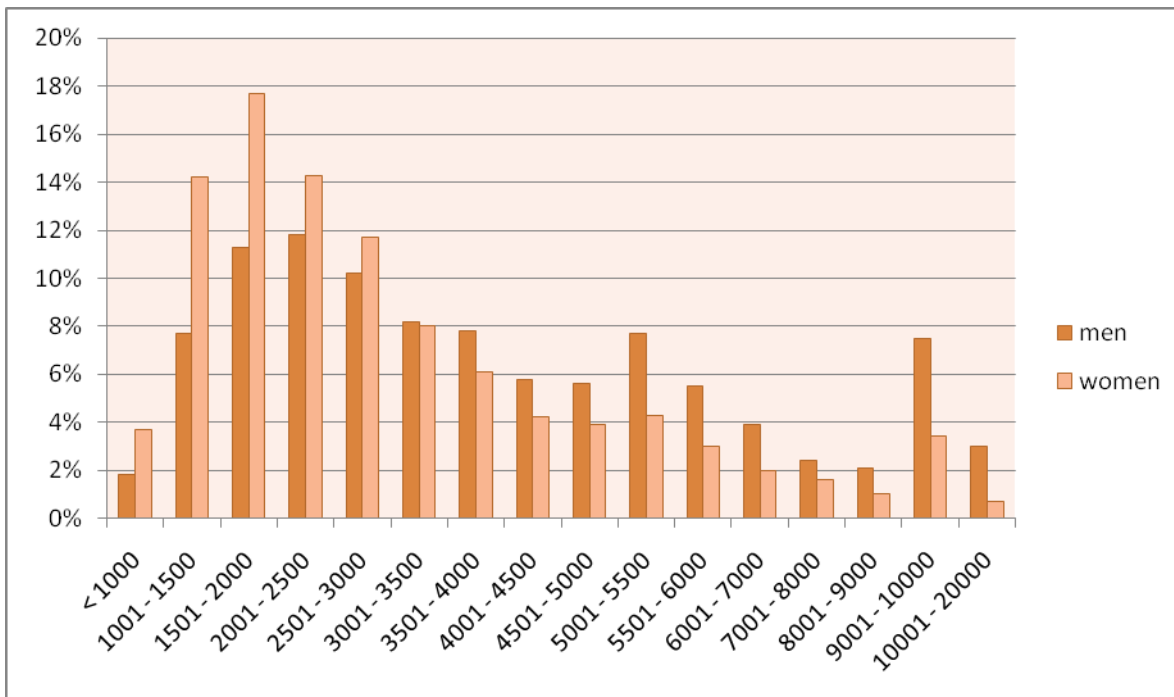
Division of earnings in the IT sector in 2007²⁹



Correlation between remuneration in the IT sector and seniority²⁹



Correlation between remuneration in the IT sector and age²⁹



Correlation between remuneration and sex²⁹

sex	10% earn below	25% earn below	median (PLN)	25% earn over	10% earn over
man	2 000	2 900	4 500	7 000	11 000
woman	1 700	2 500	3 800	6 000	8 700

Correlation between earnings in the IT industry and sex²⁹

Sex determines the amount of earnings to a large extent. This is confirmed by research conducted among employee in IT departments. As shown in Table 4 the median salary

for men is 4 500 PLN, while the median salary for women - 3 800 PLN. Men earn 18.42 % more than women. It should also be noted that 10% of men achieved a relatively high remuneration in excess of 11 000 PLN. The same percentage of women from IT departments has remuneration in excess of 8 700 PLN.

Type of company	10 % earn below	25 % earn below	median	25 % earn over	10 % earn over
Budgetary sphere and municipal entities	1 526	1 947	2 600	3 750	5 500
Company of State Treasury	1 700	2 355	3 400	5 188	8 000
Private company	2 100	3 100	4 800	7 430	11 500
independent business activity	2 400	4 195	6 000	9 000	15 000

Salaries in the IT departments with reference to the type of company ²⁹

Employees of IT departments have the highest income (6 000 PLN) when they are self-employed. People employed in private enterprises earn 20% less (4 800 PLN). The median salaries for workers employed in state-owned companies is 3 400 PLN, what is 30% more than the median salaries of people employed in the public sector and municipally. A detailed analysis of salaries in the IT departments with reference to the type of company is enclosed in Table 9. It is noteworthy that 10% of workers in the budgetary sphere have an income in excess of 5 500 PLN, while the same percentage of people with their own business earns more than 15 000 PLN.

7 Networks, Initiatives, Projects, Associations

This chapter shows the opportunities to learn about media literacy. In addition, it describes the projects and campaigns relating to PREDIL.

Exemplary books about media educations

In Poland there are a lot of books about media education, for example Books by Polish authors:

- Bartosz Danowski, Alicja Krupińska, **Dziecko w sieci**
- Adam Lepa, **Pegagogika mass mediów**
- Dariusz Doliński, Bogusława Błoch, **Ukryte sensy zachowania. Rozmowy o wywieraniu wpływu i reklamie**
- Krzysztof Łuszczek, **Nowoczesna telewizja czyli bliskie spotkania z kulturą masową**
- Małgorzata Łobacz, **Telewizja szanse i zagrożenia wychowawcze**

Books by other authors

- Serge Tisseron, **Dziecko w świecie obrazów**

- Thomas Feibel, **Zabójca w dzieciennym pokoju. Przemoc i gry komputerowe.**

Exemplary Websites about media education for teachers and parents

- <http://www.opiekun.com/>
- <http://www.microsoft.com/poland/athome/security/children/kidsonlinetips.mspix>
- <http://www.reporterzy.info/>
- <http://www.krrit.gov.pl/bip/Edukacjamedialna/tabid/310/Default.aspx>
- <http://presscafe.eu>
- <http://multikulti.edu.pl>
- <http://komputerwedukacji.blogspot.com/>

Exemplary films

- [Wirtualne uzależnienie](#)
- [Zagrożenia dla dzieci i młodzieży a edukacja medialna](#)
- [Bezpieczeństwo dziecka w Internecie](#)
- [Zasady bezpieczeństwa w Internecie](#)
- [Jak dziecko może natknąć się na szkodliwe treści w Internecie?](#)

Related projects

- **Safer Internet**

http://www.ft.kei.pl/projekty_realizacji/bezp_inter/safer_1a.html

The project "Safer Internet - Raising Awareness" developed by Turlej Foundation will constitute a multi-stage undertaking, its key objective being drawing public attention to menaces resulting from free and unconstrained access to potentially harmful Internet content. At present, the Internet constitutes an unlimited source of information and communication. It has become a powerful learning tool. However, along with these benefits, the Internet may also pose a menace to youths and their healthy development, by exposure to content regarded as violent, pornographic, hate-filled, racist or generally offensive; and getting into contact with individuals who may jeopardise the safety of children and the whole family. Inappropriate content is easily accessible on-line so it is very likely that children will stumble upon it at some point. At the time of intensive development of modern technologies, it is of key concern to guarantee appropriate and safe Internet use, and to set up an operative controlling mechanism.

- **Nowe Horyzonty Edukacji Filmowej**

<http://www.edukacja.nowehoryzonty.pl/edukacja/index.do>

The project „Nowe Horyzonty Edukacji Filmowej” developed by FRESE, Kreatywność i innowacje and MEN is a project to enable children and young people's interaction with the cinema (both classic and contemporary art), to deepen their knowledge about the art of film, developing and preparing their sensitivity for self-awareness, and dealing

with culture. New Horizons Education Through Film draws young viewers into the art of film, while completing their school education.

- **Edukacja medialna w społeczeństwie wiedzy**

<http://www.dodn.wroclaw.pl/medialna/index.htm>

Silesian Center for Teacher Training and Pedagogical Information together with the Department of Education of Journalism and Communication at the University of Wrocław, since March 2005, have conducted the project "Media education in the knowledge society", funded by the European Social Fund.

- **III edycja szkoleń Canal+ dla nauczycieli**

<http://satkurier.pl/news/43984/iii-edycja-szkolen-canal-dla-nauczycieli.html>

In 2007, the company CANAL + Digital, in cooperation with the Center for Civic Education, has launched a series of training courses for teachers of secondary schools under the program of media education - MediaStarter, which are organized in regional centers of teacher training. During the two editions, nearly 500 teachers from Poland have attended the workshop.

Trainees acquire practical knowledge and skills needed to teach in the field of media education. Within the framework of the workshop there are conducted exercises, analysis of the materials contained in MediaStarter program, and discussions on issues related to media education. Each participant of the meeting receives a script and a CD with the program. Everyone who is interested in the project MediaStarter can download the program from www.mediastarter.pl or order teaching materials, free of charge. In such a case please contact the Office of MediaStarter.

Educational campaign for children and youth

- Konsumentkie ABC (www.konsumentkieabc.pl)
- Stop Cyberprzemocy (Saferinternet.pl)
- Dzień Bezpiecznego Internetu (<http://www.saferinternetday.pl>)
- Filmoteka Szkolna (www.filmotekaszkolna.pl)
- Moja Pierwsza Komórka (<http://www.mojapierwszakomorka.pl/index.php>)
- Bezpieczne media (<http://www.bezpiecznemediata.tp.pl>)
- Bezpieczeństwo w sieci – elementarz dla całej rodziny (<http://www.upclive.pl/dzieci/>)
- Dziki las Internetu (<http://www.wildwebwoods.org/popup.php?lang=pl>)
- Kampania STOP cyberprzemocy (http://www.saferinternet.pl/wiadomosci/inauguracja_kampanii_stop_cyberprzemocy.html)
- Kampania Dziecko w sieci (Kampania Dziecko w sieci)

8 Conclusion

In Polish schools attention is being paid to the possibility of media education. There is a need to protect children from bad influences of media and to teach them how to use media. At the same time it is possible to observe the impact of media education on the ability to think independently and develop interests. For teachers, parents, and other

groups responsible for education and upbringing there are prepared information materials, training and postgraduate studies. There are also campaigns with media education as an aim.

Both legal regulations and the increase of the number of computers and Internet access allow the development and use of media education in schools. The number of Poles who have a computer and Internet access is constantly increasing, and thus the possibility of self-learning and development at home is also growing.

Universities have been observing a temporary decrease in the number of people who have been receiving academic degrees, including degrees in technology. It is worth knowing, that compared to earlier years the development of academic staff is still high. The percentage of scientists employed in technical and science courses has also decreased.

A lack of data makes it impossible to verify the interest of women in science and technical fields. It is considered that financial factors have given rise to overcome stereotypes associated with employment in IT sectors. In addition, many organizations promote women in IT sectors, including to managerial positions. Constant increases in remuneration in the IT sector causes the intensification of interest in the relevant directions (computer science is in seventh position as regards the most popular direction of study).

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