The application of the Bologna Declaration in Polish technical universities

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ABSTRACT: This article presents the state of higher education in Poland over recent years, as well as the changes that have taken place as the result of economic changes in Poland. The reform of Polish education, with its influence on facilitating the transfer of students from secondary schools to further study, including technical studies, is described. The changes resulting from the transition from exclusive to mass education at the higher level, including the accreditation of studies specialisation, the introduction of a three-stage, flexible system based on the European Credit Transfer System (ECTS), in accordance with the Bologna Declaration is also presented. The recent progress of the Silesian University of Technology, Gliwice, Poland, is also detailed.

INTRODUCTION

The Bologna Declaration defines the main goals of tertiary education in Europe and was signed by 29 European countries, including Poland. Its main goal is the introduction of:

- A three-level tertiary education system.
- Comparable credit points system (ECTS), including permanent education.
- An education quality system with comparable criteria and methods.
- Comparable education requirements through *diploma supplements*.

The tertiary education system is closely connected with the primary and secondary systems. The structure of the Polish education system is illustrated in Figure 1.

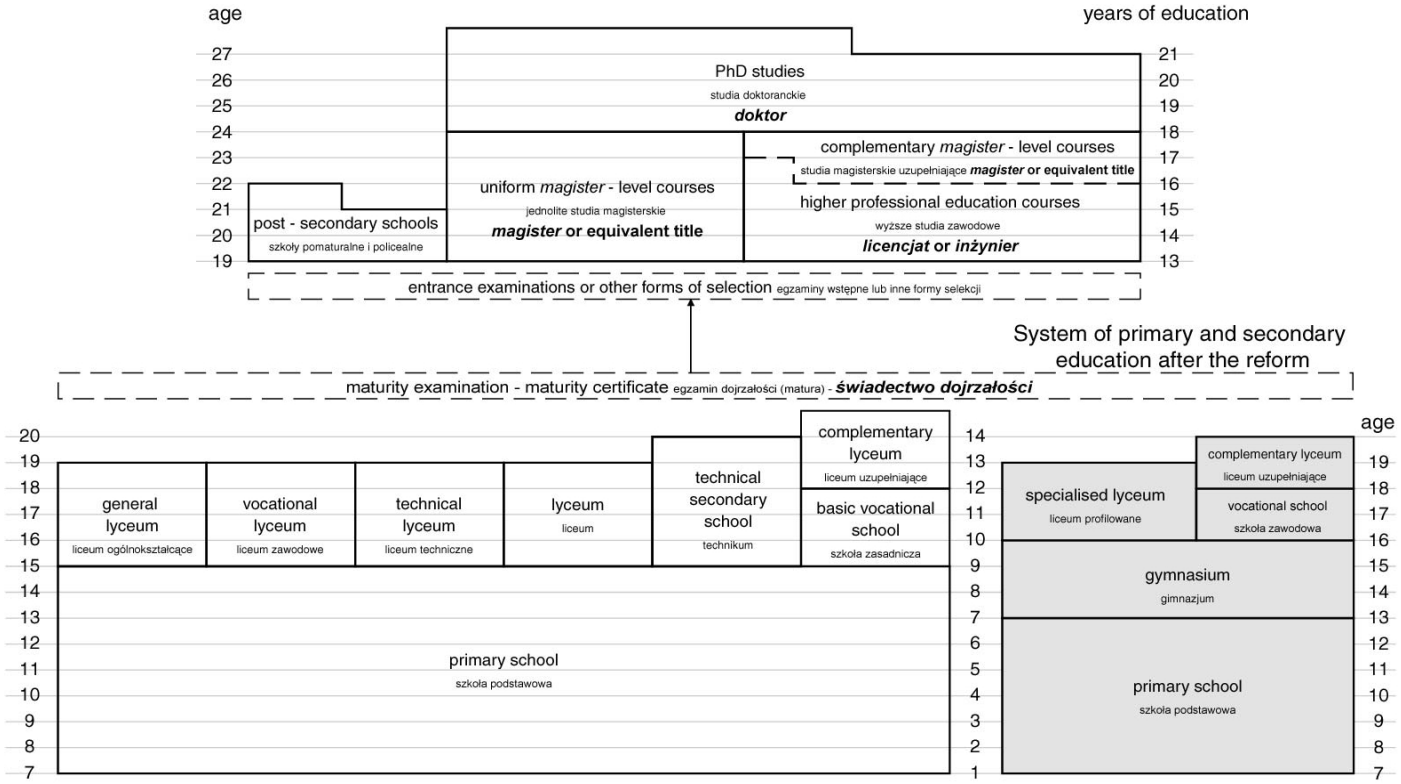

Figure 1: Structure of the education system in Poland.

THE TRANSFORMATION OF POLISH EDUCATION

In recent years, Poland has undergone a necessary transformation of the educational process; this covered all stages from primary schools to higher education. The previous model was based on compulsory education at eight-year elementary school. After that, students could continue study at a four-year secondary school, five-year technical secondary school or two-year vocational school. Both secondary and technical schools finished with a final exam, which allowed students to enter universities. The vocational school did not offer such an opportunity because they were mainly affiliated with large factories or companies and provided training for future skilled workers.

Ten years ago, 70% of students left vocational schools, so only 30% of youngsters had the opportunity to study further. On the other hand, a great number of young people who completed their education at secondary schools or technical secondary schools or two-year post-secondary schools, started work. Hence, a relatively small number of young people decided to study. The high school education rate of the 19-24 year-old generation in 1990 was only 12.1%.

Because of this later drive for knowledge, the proportion between students taught in vocational schools and grammar schools, technical secondary schools changed rapidly. Towards the end of the 1990s, as much as 70% of students took their A - level final exams and only 30% attended vocational schools. A different approach to the role of education demanded some substantial but necessary organisational changes, which resulted in introducing the *Reform of Education*. This reform involved mainly primary and secondary schools. A three-stage system was introduced and consisted of:

- Six-year elementary school.
- Three-year grammar school (obligatory for all youths).
- Three-year profiled secondary schools, where about 80% of young people are provided with education. The remaining 20% are to attend two-year vocational school to be trained for different jobs.

The educational system in Poland gives students the opportunity to study at the following types of schools:

- Universities;
- Universities of technology;
- Pedagogical high schools;
- Agricultural high schools;
- Universities of economics;
- Medical high schools;
- Physical education high schools;
- Universities of art.

Until 1993, the government financed high schools, which carried out an equal syllabus for both MSc and PhD courses. Given the significant growth in interest in higher education, private high schools were established that offered courses in economics, management and foreign languages at the BA level.

At the moment, there are 120 state high schools and 191 private high schools. There are about 1,020,300 students studying at state high schools, while there are about 400,000 students in private high schools (see Figure 2).

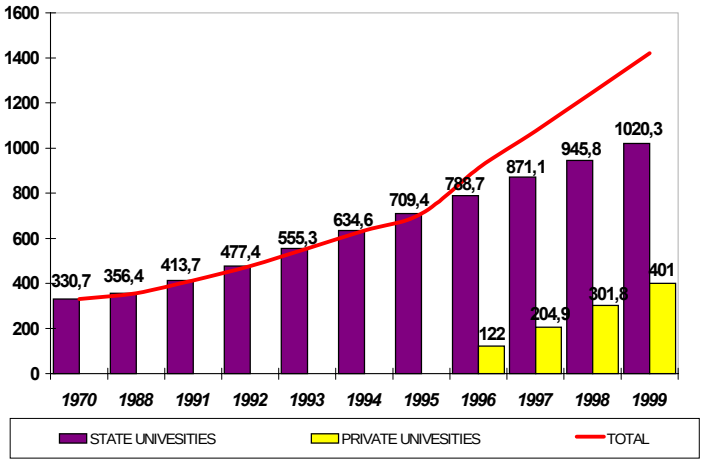

Figure 2: Dynamic of growth in number of students at state and private universities.

Figure 3 shows the distribution of students in the Polish education system. The greatest number of students attend the 17 universities in Poland, including the oldest: Jagiellonian University with its tradition spanning over 600 years. There is also the youngest: Warmińsko-Mazurski University, which was founded in 1999.

According to a recent survey, young Polish people, unlike their counterparts in Western Europe who favour university education as such, prefer to get a *real* profession by studying at a technical university.

The change in interest regarding tertiary education has not only come about due to the newly created opportunities for making money in a free market economy, opening the Polish borders for imported products, but also from the release of tremendous social energy involved in the activity of the Solidarity Trade Union. Furthermore, the decreased popularity of university education was also spurred by the erroneous conviction prevailing in Polish industrial circles: that industrial production could be sustained for a long time just on the grounds of the technology at hand.

Polish industry was not interested in new technologies and, consistently, there was a decreasing demand for engineers. Fortunately, in the face of the new economic reality, it turned out that the better educated people were, the more chance they had to get a better job.

At the same time that the market was stabilising, it was more and more difficult to make fast and easy money. Since then, a rapid growth in the popularity of university education has been evidenced; the number of university students has increased from 400,000 in 1990 to 1,400,000 to date. This trend has also been observed at the Silesian University of Technology (SUT), Gliwice, Poland, where the number of students has trebled (see Figure 4).

The Silesian University of Technology

The Silesian University of Technology is one of the biggest technical universities in Poland. It consists of 11 faculties that offer courses in 29 engineering disciplines covering almost all industrial interests. More than 28,000 students are being educated. Of this figure, there are 7,000 students enrolled in evening courses.

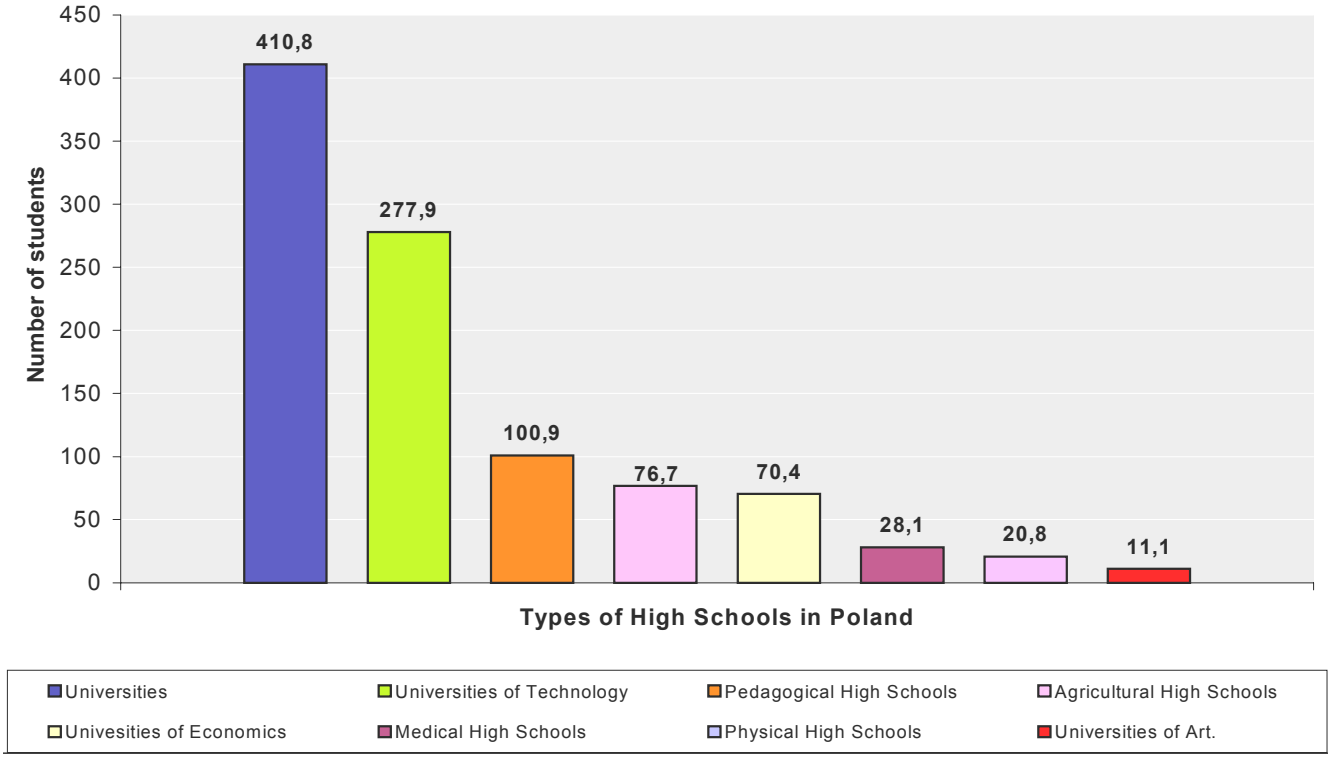

Figure 3: The number of students at state universities (as at end 2000).

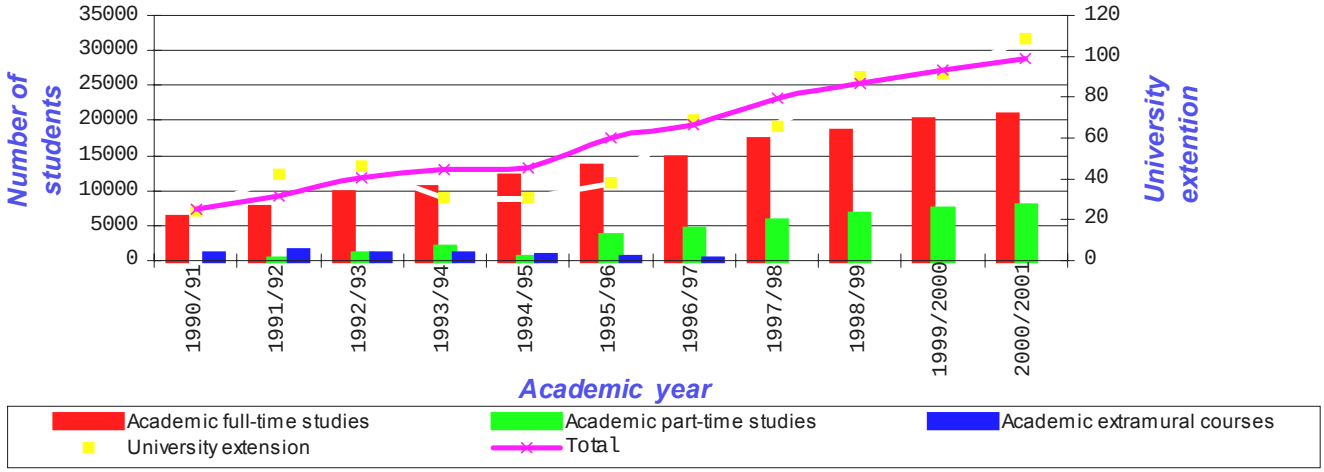

Figure 4: The number of students at the SUT from 1990-2001.

Figure 5 illustrates the growth in the number of PhD students at the SUT, numbering over 700 in 2000. There are 1,900 teaching staff, including over 300 full-time professors, employed at the SUT who do research work. The combination of these factors produces huge research and didactic potential.

The SUT has an important role in the restructuring processes; it offers courses in 29 engineering disciplines, of which 22 are in different areas of science, practically covering the whole field of industrial interest. First and foremost, the SUT provides well-qualified engineering staff for the expanding automotive industry, food manufacturing and processing industry, banking sector and other fields of economic activity. At the same time, representatives of the University participate in important decision-making bodies and thus exert a strong influence on the directions in the development of the region. Cooperation with industry and close contact with local governments permits the fast translation of their needs into the process of university teaching and improves the quality of university education.

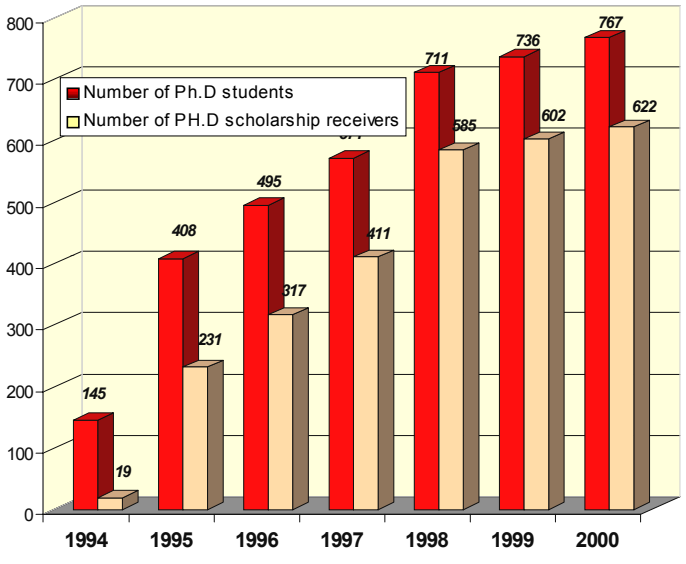

Figure 5: Growth in the number of PhD courses at the SUT.

External Influences on Polish Education

Another aspect impacting Polish education involves the recent changes in the whole Polish economy. In this context, the priority seems to be more focused on subjects that are more aware of economic calculations and the necessity to manufacture goods that can be sold on the market.

According to an opinion poll carried out with employers, apart from knowledge (general knowledge in particular), a graduate should be characterised by the following traits:

- Creativity.
- Ability to work with people.
- Willingness to analyse and develop knowledge and skills already accumulated.
- Ability to speak foreign languages and use computers.
- Knowledge involving the fundamentals of economics and marketing.

The creation and development of such qualities requires that the whole education process is approached in a totally different way. Assuming (according to data published by the British Audio-Visual Society) that an average student can remember:

- 10% of what he/she has read.
- 20% of what he/she has heard.
- 30% of what he/she has seen.
- But 80% of what he/she has said himself/herself.
- As much as 90% of what he/she has said and done at the same time.

New educational methods should be focused on principles where students solve the problems by themselves. In new teaching programmes introduced now at universities of technology in Poland the emphasis is placed on the collective elaboration of problems and discussion at seminars. Through establishing numerous contacts with industry and local authorities, students are presented with real work environments that they may encounter in their future careers. Training courses are also organised where students collectively solve real problems. The programmes are supplemented with economic and humanising elements.

For many years, Polish students were not sufficiently motivated to learn foreign languages. This, together with the ineffective system of foreign language tuition in schools, contributed to their poor level of foreign language acquisition. Therefore, apart from regular compulsory language courses at the university level, students may attend additional language courses sponsored by industry. Hence, a considerable number of students can take advantage of international student exchange programmes, such as *SOCRATES*, or they can continue their studies abroad.

New possibilities for student exchange between universities has created serious problems connected with curriculum and methods of teaching congruity in different countries. The creation of European Credit Transfer System (ECTS) allows for the determination of the amount of work taken up by a student, not only at the home university, but also can reflect the commitment to the learning process at other universities. In this way, the introduction of such a system facilitates student exchange between universities. As such, all technical universities in Poland have introduced the uniform, flexible, three-stage system based on ECTS.

The introduction of the diploma supplement will form an additional element, which, apart from the graduation diploma, will give broader information on the graduate, his/her university and the education system in Poland. Recently, the Ministry of National Education in Poland has been working out a uniform pattern for the supplement. This supplement will be piloted first at a few universities, including the SUT.

Another issue here is the creation of mechanisms that will ensure the proper quality of education at the higher level in a situation when higher education is no longer destined for the privileged only, but covers at least 40% of the youth.

Accreditation

It seems that introduction of a general system of accreditation would be a good solution to this problem. As yet, no state office dealing with accreditation issues has been established, although the need for one is widely discussed.

Realising that internal self-evaluation of particular courses is a necessity, universities have voluntarily opened accreditation boards. Two years ago, the University Board of Accreditation was set up and the Conference of Rectors of Technical Universities in Poland set up the Accreditation Board of Technical Universities this year. Other types of universities are also preparing to set up this kind of board.

The Accreditation Board of Technical Universities aims at:

- Improving the quality of education.
- Creating clear and univocal procedures for the evaluation of conditions and the methods of education and studies curricula, including the systems used in other countries, especially in the European Union (EU).
- Establishing conditions that facilitate the domestic and international exchange of students.
- Promoting studies that comply with high quality standards.

The Accreditation Board of Technical Universities operates by the accreditation of courses of studies, setting standards that include the following elements:

- University mission.
- Qualification and the number of staff.
- Organisation of didactic processes.
- Students.
- Didactic infrastructure.
- Administrative services of a university.
- The system of assurance of education quality.
- Domestic and international cooperation.
- Characteristics of research.

The Cracow Charta, which was signed on 1 October 2000 by all rectors of universities, consolidates beneficial changes in Polish higher education.