

## The Romanian Higher Educational System – before and after the Bologna moment. Case study of a Romanian university

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### Abstract

*The article represents part of a wider research initiative that aims to follow the main structural changes that happened within the Romanian universities determined by the implementation of the Bologna Process.*

*The literature review consists in the description of the main turning points of the Romanian Higher Education System in the post-communist period, with two distinct subchapters: one that refers to the pre-Bologna period and one on the post-Bologna period until present day. We follow the main legislative changes and their effects on the Romanian Higher Education System, structural modifications, external influences, even on student number evolution.*

*The second part of the paper is a quantitative analysis of the evolution of four selected bachelor programs from a Romanian University, starting ten years before the Bologna Process implementation until present day. Using document analysis, we follow two main parameters: the number of teaching hours for each program and the number of disciplines for each program. The aim of the research is to identify the changes that occurred within the selected programs in the investigated period, with emphasis on the Bologna Process implementation moment (2005).*

*The data show that each of the programs selected had particularities on the evolutions of their curriculums, some differences can be noticed between pre and post Bologna periods. Due to the fact that all the bachelor programs were restructured after the Bologna moment into 6 semesters from 8 in all of the analyzed programs, we had expected to find clear decrease in the number of teaching hours per program and the number of disciplines per program, but, surprisingly, this was not a general tendency.*

**Keywords:** Bologna Process, higher education system, curriculum

### Introduction

The aim of the current paper is to follow the main structural changes that happened within the Romanian universities determined by the implementation of the Bologna Process.

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The literature review consists in the description of the main turning points of the Romanian Higher Education System in the post-communist period, with two distinct subchapters: one that refers to the pre-Bologna period and one on the post-Bologna period until present day. The main legislative changes and their effects on the Romanian Higher Education System are followed, with their structural modifications, external influences, even on student number evolution.

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## **1. Romanian higher education in the post-communist period**

Higher education has seen a major increase since 1990, which continued up to 2007. This evolution was due to changes in Romanian Higher Education System after the Revolution from 1989, the establishment of many state universities, the establishment of private universities as well as the very large increase of students studying at higher education institutions (Dănăcică, Belaşcu, & Ilie, 2010).

### **1.1. The pre-Bologna period:**

Tertiary education in Romania has become mass education. The Ministry of Higher Education in Romania has stated that in 1990 Romania had 56 state and 28 recognized private universities.

This process is closely linked to a phenomenon that later influenced the evolution of higher education systems in Europe, namely its massification and internationalization, which generated the need to ensure the quality of education processes and gave rise to the establishment of independent quality assurance agencies in higher education. This opened new opportunities for universities to demonstrate, outside the national context, that they offer quality study programs that are certified and reliable.

According to the National Institute of Statistics, the number of students enrolled in higher education has significantly increased between 1990 and 1999, more than 2 times (INSSE, 2022). Based on the same publication the number of universities increased from

186, in 1990, to 632, in 1999 (INSSE, 2022). Also, the number of teaching staff grew by 101% (Miroiu et al., 1998) following the evolution of tertiary education at national level.

During this period, the major objectives of educational reform at university level were: (1) Development of a coherent framework of educational policy; (2) Entice foreign partners to finance education; (3) Adoption of educational laws and legal regulations; (4) Restructuring higher education system to cope with new social, political and economic needs (Reisz, 2006).

The World Bank undertook the first explorative mission to help the government's endeavors to improve the education system between 1991 and 1993. Experts from the Institute of Education, together with officials from the government and experts from the World Bank, conducted an institutional and procedural plan for a systemic reform of the pre-university education system in Romania. The reform of the Romanian education system started between 1994-1995, before the new Law of Education was regulated. The new law came into force in September 1995, but there were some Regulatory requirements, and it was amended in 1997. The first reform initiative began in October 1994 and was co-financed by the World Bank and the Government of Romania. In 1995 the second major reform program started with funding from the European Union - Phare and was aimed at restructuring vocational / vocational education (OECD, 2000).

Until 1996, the Romanian Ministry of Education implemented part of the objectives of the educational reform, namely: curricular improvement by updating the lists of subjects according to labor market requirements, changing teaching methods, organizing international conferences by universities, provide faculties with modern equipment. It was also during this period the number of private universities increased. Later, from 1997 to 1999, these objectives were completed with: gradually improving access to academic education, improving the quality of scientific research and higher education, deconcentrating the academic and financial governance of higher education by growing academic sovereignty and institutional responsibility and enhance relations between universities and the business community. Higher education in Romania has undergone multiple transformations since the 1990's as a result of the complete change of the country's political and governing system. „This transition from a totalitarian, centralized to a democratic regime has meant overcoming a number of obstacles” (Curaj et al., 2015).

Along with updating the legislative framework, a number of specialized institutional bodies were created, in order to help the Ministry of Education implement the regulatory reforms - “National Commission for Authorization, Accreditation and Academic Evaluation which deals with the authorization/accreditation of higher education” (Nicolescu, 2002).

Romania had one of the smallest number of students in Europe, reported to 100,000 inhabitants. In 1995 Romania had around 1,400 students/100,000 inhabitants, compared to other European countries in which there were reported more than 1.500 students (for example in Hungary), almost 2.000 in Poland, more than 3.000 in the United Kingdom and France, over 4.000 in Norway (UNESCO, 1998).

An important step towards restructuring Romanian education system was the Bologna reform, in 1999 Romania signed the Bologna Declaration (Curaj et al., 2015). The Bologna Declaration is the result of increased competitiveness between European higher education bodies and the universities from the rest of the world (Nokkala, 2012).

In the Bologna Declaration, ministers expressed their intention to: adopt a system with easy-to-read and comparable grades; to implement a system based mainly on two main study cycles (Bachelor and Master); to create a transferable credit system (ECTS); to support the teachers, students, researchers and administrative staff mobility; and to promote quality assurance.

The participation of countries that are not members of the Bologna System has decreased since 2010 (Asderaki, 2018). This shows the importance given, possibly diminished in some cases, by the non-member states to this forum. The events stopped at a political dialogue. Events stopped at a political dialogue. No set of recommendations similar to the EEA's internal work plans has been created, except for a statement of shared principles and values and the recognition of changes and challenges in higher education.

## **1.2. Bologna Process Values and the contemporary Romanian Higher Education System**

Before 2005 (before the Bologna Process was put into practice) higher education in Romania was organized into programs of study of 4-5 years (finalized by a bachelor's degree diploma), Colleges of 3 years and in-depth studies of 1-year, complementary master studies of 1-2 years and doctoral university studies – without a limited study period. Complementary master studies were intended for bachelor's degree graduates who wanted to gain knowledge in another field/ profile (Damian, Blaj, & Sturza, 2005).

Before the Bologna Process was implemented, educational disciplines for bachelor's degree programs were distributed into four years of study, were the first and second year were considered basic, thus forming the foundation of the four years study cycle (Sadic & Diogo, 2015). After the Bologna Process was put into practice these disciplines were redistributed, some remaining at the bachelor's degree programs, some being moved to master's degree programs as optional or alternative disciplines.

Starting with the academic year 2005-2006, Romania, as part of EHEA, has reorganized higher education by introducing a three-cycle degree structure (Matei, Cristache, Marin, & Rotaru, 2017). Furthermore, Romanian education has seen liberalization of its first study cycle and its transformation into mass higher education and opened a pass to internationalization of study programs (Korka, 2009).

Some of the main objectives of the Bologna Process were: „(1) Adopting a system of diplomas that is easy to read and compare; (2) Adopting the two main study cycles; (3) Establishing a credit system; (4) Encourage mobility; (5) Encourage European cooperation in quality assurance; and (6) Encourage the European dimension in higher education” (Garben, 2011).

Later, the Prague Communiqué (Communiqué de Prague, 2001) introduced three new priorities, referring to lifelong learning, the essential role of students in institutions of higher education and the promoting the attractiveness of European Higher Education Area. These were followed by the Berlin Communiqué (Berlin Communiqué, 2003), that completed with the inclusion of a third cycle (doctoral studies) in the structure of the higher education system and emphasized the synergy between the European Research Area (ERA) and the European Higher Education Area (EHEA).

According to the European Higher Education Area (FQ-EHEA) qualifications framework, the first cycle will have a minimum of three years with a range of 180-240 credits (Kozma, Rébay, Óhidy, & Szolár, 2014), while master's degrees should have from 60 to 120 ECTS credits.

Every two or three years Ministers responsible for higher education from the signatory countries meet to assess progress on mutually agreed objectives and to agree on priority actions for the next period. Decisions are made by consensus. Although these decisions are essential for advancing the Bologna process, they are not legally binding for the countries.

According to this higher education reform (since 2010), in The European Higher Education Area, it should be facile for students to relocate in another country in order to continue studying or seek employment. EHEA should provide „Europe with a broad, high-quality and advanced knowledge base and assure further development of Europe as a stable, peaceful and tolerant community” (Council of Europe, 2022). Ministers of education of the countries involved in the process have adopted several documents, but (as international treaties are usually not binding) these are not legally binding. Therefore, each country and their higher education community has the free will to approve the principles of the Bologna Process, even though „the effect of *international internal pressure* should not be underestimated” (West, 2019).

The goal is not to have the one single higher education system in all European countries. The balance between unity and diversity is one of the most valued features in Europe. The Bologna Process seeks to make it simpler for people to participate in mobility programs (West, 2019), from one education system to another, therefore seeking to build bridges. Therefore, the specific nature of each education system should be maintained even if education systems became similar. Otherwise, if the system would be the same, going elsewhere to study will make no point.

The "translation" of one system to another should be facilitated within the Bologna Process, and therefore contribute to increasing the students and academics mobility and increasing employment across Europe.

Between 2005-2010 Romanian Higher Education System was reorganized according to the Bologna Declaration, In March 2005 the Minister of Education and Research issued Order no. 3714 regarding the introduction of the Diploma Supplement in the certification of graduating a cycle of university studies (The Romanian Government Web Page, 2005). The European Transferable Credit System becomes mandatory in Romania, with all its

components, starting with the academic year 2004/2005 according to Order of the Minister of Education and Research no. 3617/2005 issued on March 16th, 2005. This period is characterized by a decline in students in public institutions caused by the university system homogeneity.

Five years after The Bologna Process was introduced in Romania, ANOSR (ANOSR, 2009), the main student organization in Romania states that the program regarding student mobility was not sufficiently developed, the result being unsatisfactory from this point of view, and internal mobility is almost nonexistent.

The main challenges for a student wishing to study for one or two semesters in partner country within the ERASMUS program are related to financial incentives, including loans and grants for students, the financial aspect being often one of the informal criteria in the selection process. In addition to this not to be neglected aspect, there is the problem of recognizing competencies obtained abroad when the student returns home, in proportion of 38% of students having problems recognizing or equivalenting the credits obtained under the mobility program (ANOSR, 2009)

In 2011, the Romanian education system legislative framework was entirely revised, and has passed through several amendments and completions, improving new strategies for alignment to the European strategy and standards regarding the Education System (Matei et al., 2017).

Between 2005 – 2013 a slight drop in the number of public universities and of private universities was noted (Table 1).

*Table 1. Number of universities in Romania*

	2005/20	2010/20	2012/20	2013/20	2014/20	2015/20	2016/20
	06	11	13	14	15	16	17
Higher- education al instituti ons, from which:	103	108	107	103	101	98	96
public	56	56	55	55	55	55	55
private	47	52	52	48	46	43	41

**Source:** HG nr. 376/2016, with subsequent amendments; Higher Education. UEFISCDI Report 2016-2017.

The decreasing trend of higher education institutions is linked to the number of students that has decreased in recent years. Thus, the number of students registered at universities in the undergraduate cycle in 2016/2017 has decreased significantly in recent years: compared to the corresponding values in 2011/2012, the decreases were over 10% in state higher education and over 60% in the private higher education.

Romanian education policies are in line with the European Commission and member state's initiative on the progress of education systems in order to achieve the European Union's priority objective in terms of developing a knowledge-based economy (Matei et al., 2017).



In Romania student participation to Erasmus program compared to the EU average, remains quite low (General Directorate for Education, Youth, Sport and Culture, 2011).

Most attractive fields of study for foreign students are health and social sciences, business and law. At the opposite end are teacher training programs or science programs, mathematics and Computer Sciences. Romanian schools of medicine draw a relative high number of foreign students, mostly due to the low study fees in comparison to other countries (Georghiou et al., 2015).

Internationalization of higher education requires measures from the universities, such as: development of curricula, introduction of more courses in English, measures to promote international study programs to make the educational offer known to students from other countries. In 2017, 5.4% of the total of students enrolled in state universities were foreign students (6,890 students in the EU and EEA and 18,132 students in non-EU countries). They came from 121 countries (27 EU / EEA countries and 94 non-EU countries). Most of these students were enrolled in undergraduate programs (Stancu, 2016).

At governmental level, mobility funds should be increased, and certain financial support schemes should be provided for students wishing to study in another country. In recent years, Romanian higher education institutions have made significant efforts to promote internationalization, but Romania still has a very low mobility ratio among EU countries. Half of the students who have come to Romania in mobility in recent years come from the following countries: France, Turkey, Italy and Spain. One third of the incoming mobilities are in the fields of: business administration, language and literature, mechanical engineering, medicine and modern applied languages. One third of the outgoing mobilities are in the fields: medicine, geography, language and literature, business administration, architecture and visual arts (Stancu, 2016).

Since 2006 The Ministry of Education prepared an annual report in which are underlined: the national admission systems and their impact on the attendance of different social groups in university education and graduation rates; the way countries are classified classifying the countries according to the admission criteria applied; a set of proposals for recommendations for public policies in the field. In order to increase equal access to university education and ensure the autonomy of higher education institutions, the ministry, through its subordinate structures, conducted an analysis of higher education admissions systems and made proposals to increase equal access to university education and ensure the autonomy of educational institutions. (Ministry of Education, 2021) In recent years, a major emphasis has been placed on the requirements of employers and the development of students' skills in relation to them. Thus, institutional partnerships were established in order to organize internships for students, internships and volunteering (Broek et al., 2017)

Starting with 2014 The European Commission started a cross-national analysis regarding education and training benchmarks in which is monitored also the professional career of graduates and the improvement of the quality of information on the activities

of graduates, as well as the lifelong learning after initial education. And also a great importance has been put on the career guidance of young people. They are advised in choosing their studies. In many cases, they choose their profession to please their parents and to be on trend, without considering their own skills. This has led in recent years to an increase in dropouts after a year of college (Education and Training Monitor, 2014)

Some strategic priorities of higher education starting with 2021 are (Publications Office of the European Union, 2021):

- a) Ensuring a legal framework for a better functioning of higher education system;
- b) Supporting students and implementing social programs by providing scholarships to students from disadvantaged groups, improving accommodation conditions, strengthening material base, building student dormitories, improving counseling centers and career guidance;
- c) Quality assurance by improving performance standards and increasing competitiveness;
- d) Correlating study programs with the needs of employers through implementation of joint projects between universities and companies as well as the insertion of graduates on the labor market;
- e) Internationalization of higher education by developing programs in foreign languages, increasing mobility, continuing cooperation with EU member states, SEE-states and third country states;
- f) Developing and integrating an education information system by collecting reporting data on various platforms (ANS, ESOP, INS, RMUR, etc.);
- g) Encouraging lifelong learning by training and developing lifelong learning programs in line with the needs of the labor market;
- h) Autonomy, transparency, decentralization, and accountability - ensuring the academic freedom to manage programs and research.

There are currently more than 45 states included in the European Higher Education Area (EHEA). These countries are implementing reforms in higher education based on common values - such as academic autonomy, free mobility of students and staff etc. (EDU, 2019)

The Ministry of National Education organized, between April 4-5, 2019, in Bucharest, the Meeting of the Bologna Follow-Up Group/BFUG). In this context, the Ministry of National Education emphasized the role of the Bologna Process in the development of higher education and its evolution in the 20 years since the adoption of the Bologna Declaration (1999) (EHEA, 2019)

## **Methodology**

Our research interest is to find out what the main changes produced by the Bologna Process within the Romanian Universities. The data presented in this article is part of a wider initiative that will analyze these changes from multiple perspectives: macro changes in the universities' structure, changes at the level of faculties and departments,



changes in the curricula's, changes from the perspective of the teachers, changes from the perspective of the students. Multiple qualitative and quantitative instruments will be implemented: document analysis, both quantitative and qualitative, questionnaires and in-depth interviews.

With the data presented below we follow the curriculums of four bachelor programs within a Romanian university, using quantitative document analysis, the aim being to extract the changes that were implemented in the general structure of those programs, and more specifically the evolution of the number of disciplines and the number of total hours dedicated to direct educational activities. Our study case university being a comprehensive one, we have selected the four programs from different domains: one social sciences program (SS), one natural sciences program (NS), one economic sciences program (ES) and one physical education program (PE).

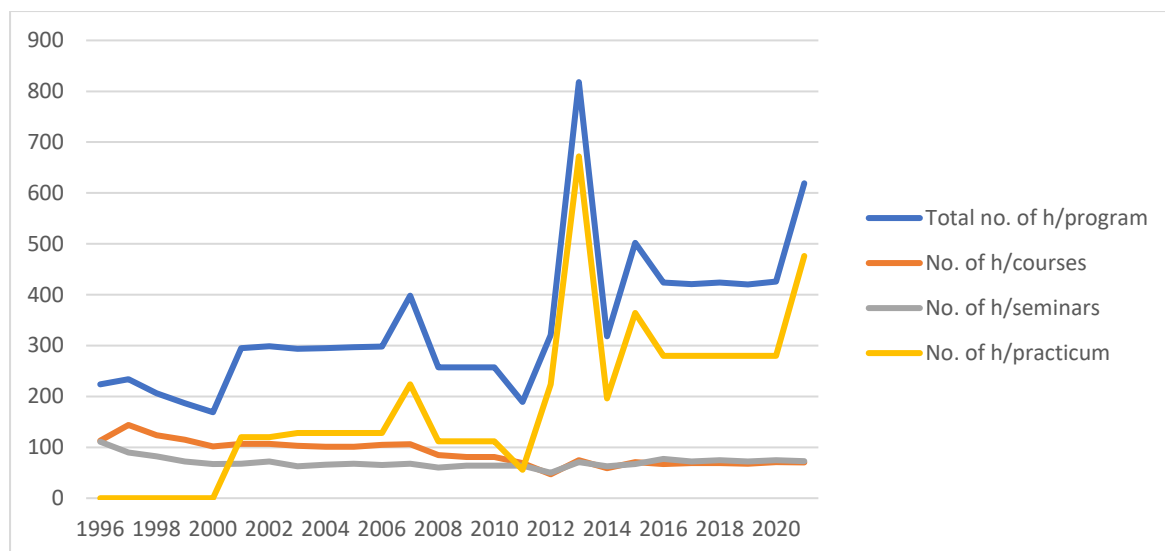
The two variables taken into consideration within the quantitative analysis were: (1) the number of hours per program (split into total number of hours per program, total number of hours for courses, total number of hours for seminars and total number of hours for practicum activities), and (2) the number of disciplines (split into the total number of disciplines per program, the number of mandatory disciplines, the number of optional disciplines and the number of facultative disciplines).

The timeline taken into consideration is 10 years before the Bologna Process was implemented in Romania (1995 or 1996) and the present (2021). Both sets of data presented below resulted from the archive of the curriculums of the four programs.

### **Changes in the curriculum structure after the Bologna Process - a Romanian university study case**

First, we have analyzed the evolution of the number of hours dedicated from direct didactic activities. The data was collected by year and the direct didactic activities were collected as the total number of hours per program, the total number of hours for courses, the total number of hours for seminars and the total number of hours for practicum activities.

*Figure nr. 1. Evolution of the number of hours dedicated on didactic activities, SS program*



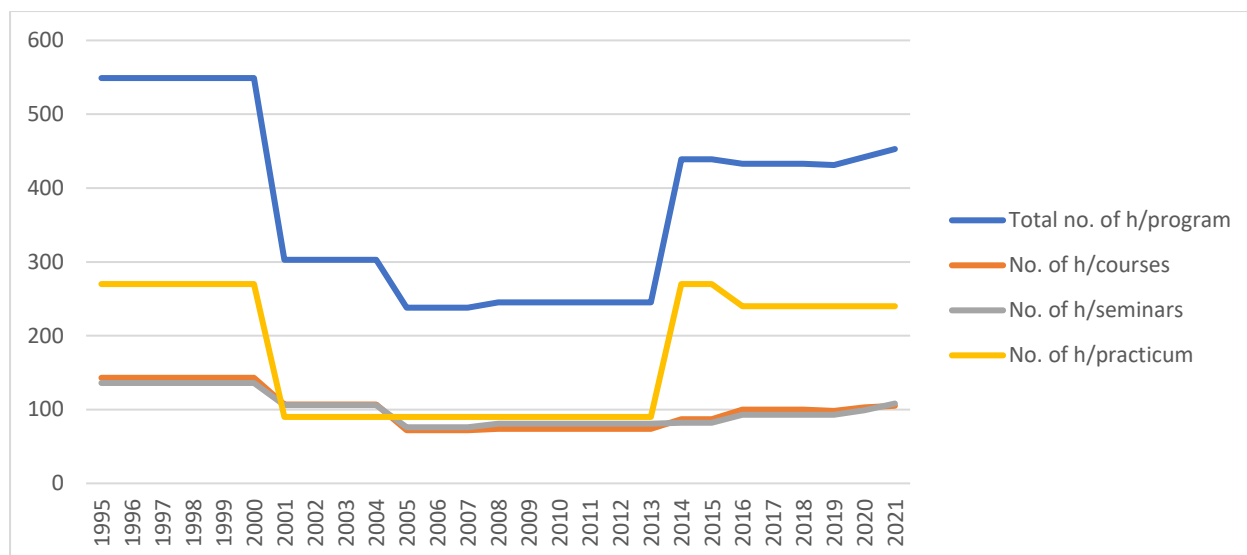
Source: elaborated by the authors

Within the Social Sciences program analyzed (SS), in regard to the evolution of the number of hours, it can be observed that it started with higher numbers of course and seminar hours in 1996-1997 and continuously but slowly dropped the number of hours on these two categories, with small variations, but there are no significant differences in pre and post Bologna periods, even if the number of study years changed from four years to three in 2005.

The category that had a great fluctuation during the analyzed period and influenced greatly also the total number of hours of the program was the practicum. The figure no.1 shows that the program started with no clear practicum activities, changed that in 2001 when clear allocation of practicum hours is made in the curricula. The first generations after Bologna are characterized with an increased number of practicum hours, then in 2011 there is a drop again, followed by a strong tendency of increased practicum hours. From 2016 until 2020 there is a stable but high number of practicum hours followed again by an important increase.

It is remarkable that even if the pre-Bologna curriculums were structured in four years of study, the mean of the period for the total number of hours per program (244 hours) is significantly lower than the mean from the post-Bologna period (390 hours). The main reason for this difference is the increased number of practicum hours introduced within the program.

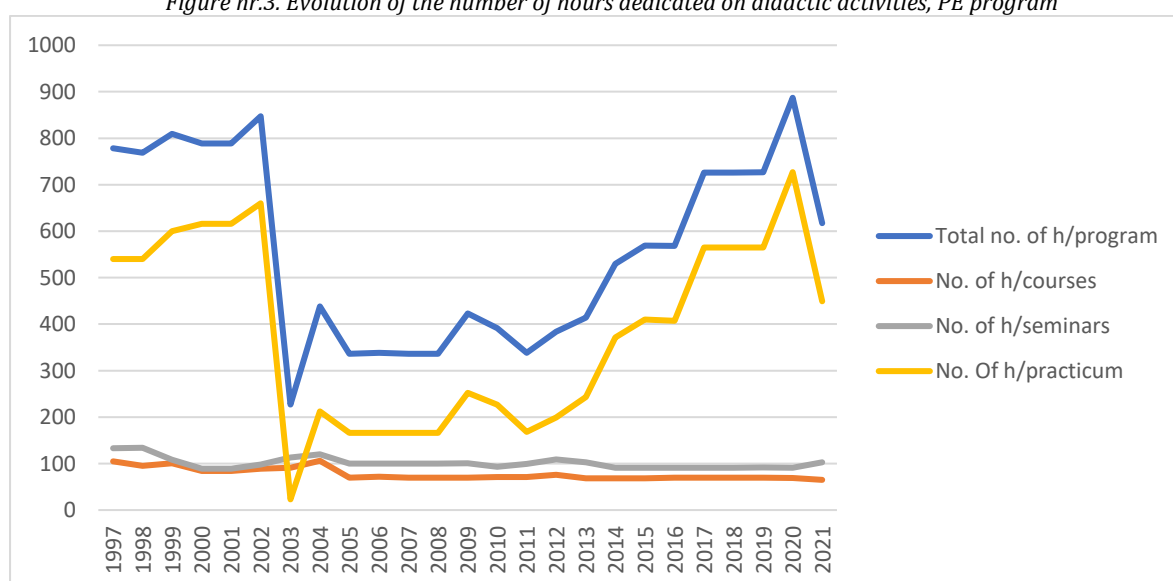
Figure nr.2. Evolution of the number of hours dedicated on didactic activities, ES program



Source: elaborated by the authors

The Economic Sciences program (ES) analyzed had a slightly different path during the investigated period. The total number of hours dedicated to direct didactic activities was high and constant during 1995-2000, with an important decrease between 2001-2004, mainly due to less practicum hours included in the program. The 2005 moment is also characterized by a decrease of the total number of hours, but in this case the number of practicum hours remained the same as before and the number of hours dedicated to courses and seminars were lower. The immediate post Bologna period is characterized by relatively stable curriculums from the total number of hours perspective, from 2014 an important increase of the practicum hours also determining an important increase of the total number of hours per program. Comparing the means of the total hours per program in the pre and post Bologna periods, the post Bologna period has significantly less hours in the ES program (334, compared to 460 in the pre-Bologna period).

Figure nr.3. Evolution of the number of hours dedicated on didactic activities, PE program

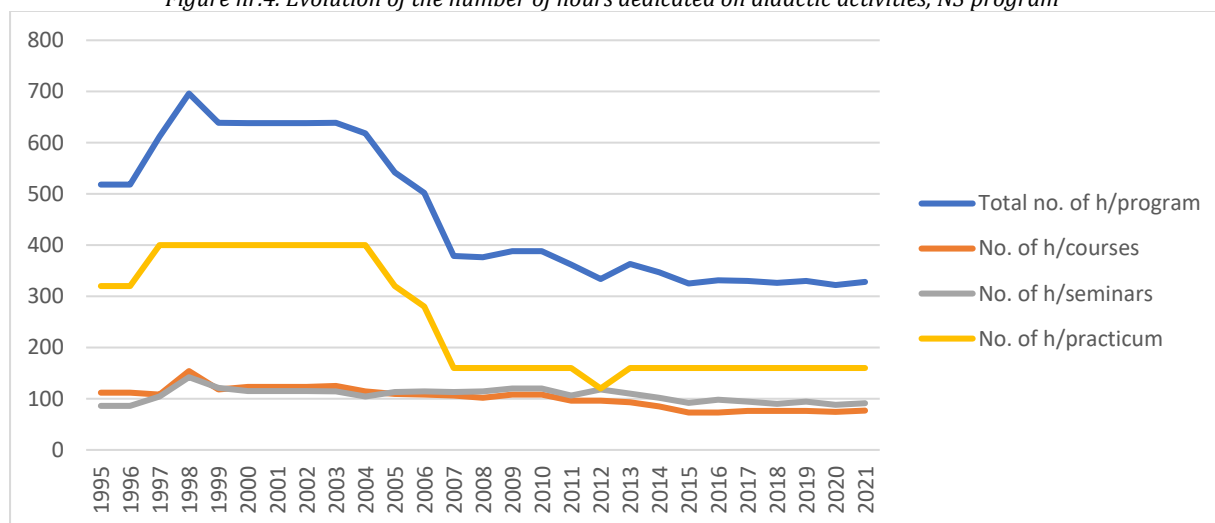


Source: elaborated by the authors

The Physical Education program (PE) has registered important variations of the total number of hours per program. The pre-Bologna period was mainly characterized by high numbers on all categories (courses, seminars, and practicum hours). A transition period started in 2003, when due to the decrease of practicum hours to almost a third, the total number of hours per program was also diminished to one half of the before period. The 2005 moment brought a relative stable period on the number of hours per program until 2013 when a constant increase in practicum hours generated important differences in the total number of hours per curricula, a peak being registered in 2020, when the program had a total number even higher than in the pre-Bologna period (887 hours per program). The 2021-2022 academic year registers a tendency of decline.

Even if there are important differences in the number of courses (pre-Bologna mean – 94, post-Bologna mean – 69) and seminars (pre-Bologna mean – 110, post-Bologna mean – 96), the most important influence on the dynamic of the curriculum from the perspective of the total number of hours was influenced by the high variation of practicum hours.

Figure nr.4. Evolution of the number of hours dedicated on didactic activities, NS program

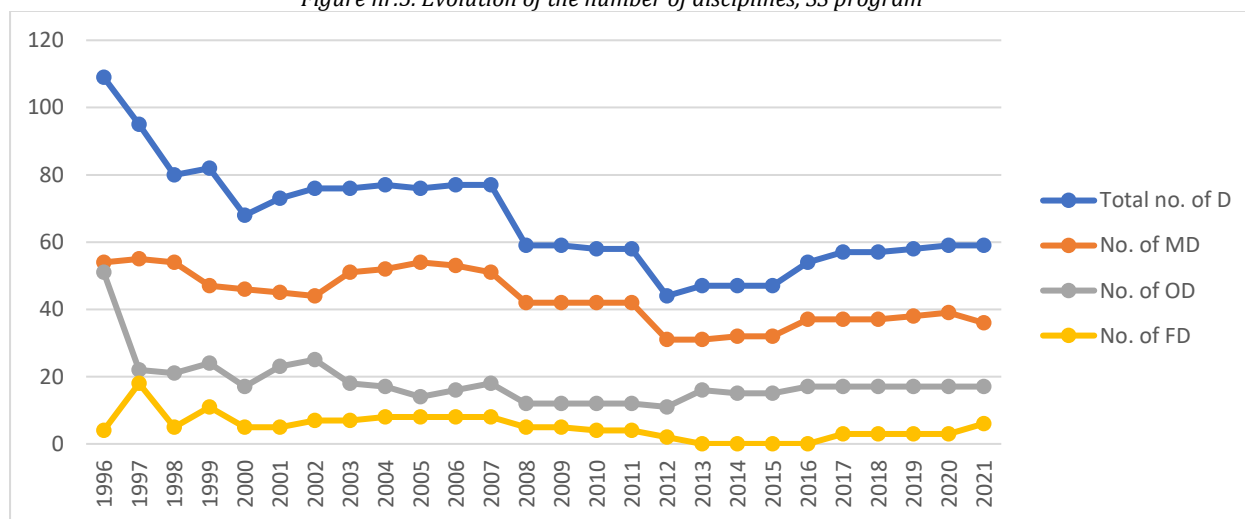


Source: elaborated by the authors

The most linear evolution in regard of the number of hours from the curriculum was observed within the Natural Sciences program (NS). The pre-Bologna period registers significantly more hours per program, than the post-Bologna period (pre-Bologna mean – 615, post-Bologna mean – 369), mostly influenced by the reduction of the numbers of semesters from 8 to 6 and consequently the reduction of the total number of practicum activities (pre-Bologna mean – 384, post-Bologna mean – 174). The Bologna moment (2005) registered a transition period until 2007, followed by a stable period until present within the NS program.

The second part of the analysis investigates, for the same selected bachelor programs and in the same timeline, the number of disciplines in the curriculums, following the total number of disciplines per program (D), the number of mandatory disciplines (MD), the number of optional disciplines (OD) and the number of facultative disciplines (FD). Probably, for the non-Romanian readers, a clarification needs to be made here: optional disciplines are a list of disciplines from which the student must choose a minimum number to have the minimum of 30 ECTSs and facultative disciplines are those that are offered for the student but are over the required minimum ECTSs and the student has the freedom to attend or not.

Figure nr.5. Evolution of the number of disciplines, SS program

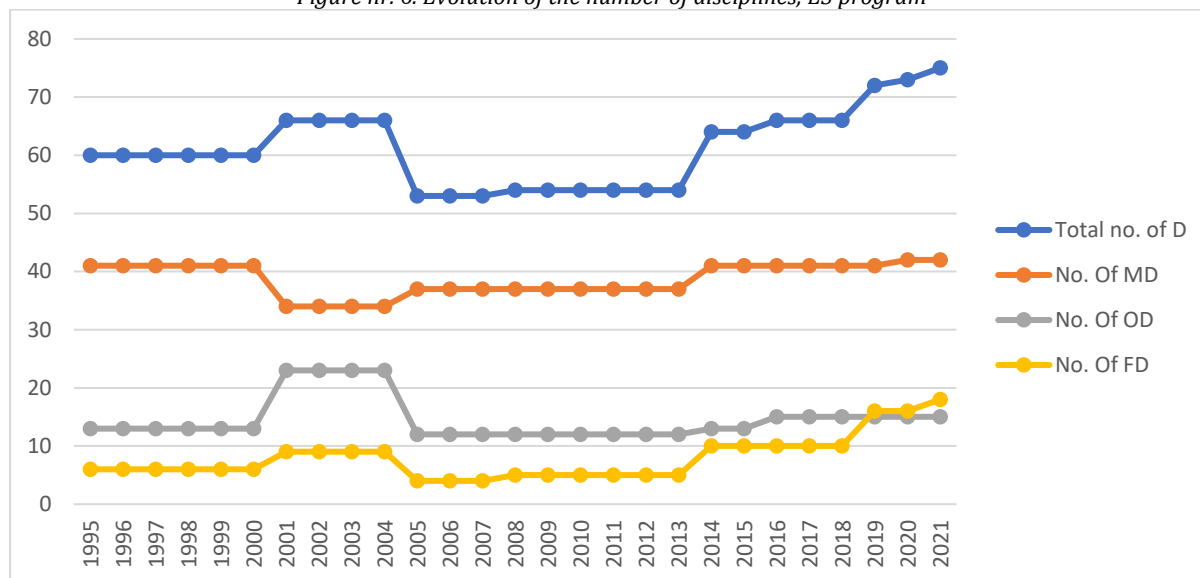


Source: elaborated by the authors

Figure no. 5 shows the evolution of the number of disciplines for the SS program. Regarding the total number of disciplines, an almost constant decrease in numbers can be noticed, only the last period (from 2016 to present) being a period of growth from this perspective. The comparison pre and post Bologna shows clear differences from this perspective (pre-Bologna mean of the total number of disciplines – 81, post-Bologna mean of the total number of disciplines – 58), this being explained easily by the reduction of the total number of semesters.

The MDs follow almost in parallel the evolution of the total number of disciplines, the ODs, excepting 1996 when their number was high, have a relatively stable evolution, and for the FDs the pre-Bologna period was instable, with high variations from generation to generation, and after it can be noticed a tendency for decreasing their number in the curriculum, except in the last year from the analysis (2021), when their number grow again

Figure nr. 6. Evolution of the number of disciplines, ES program



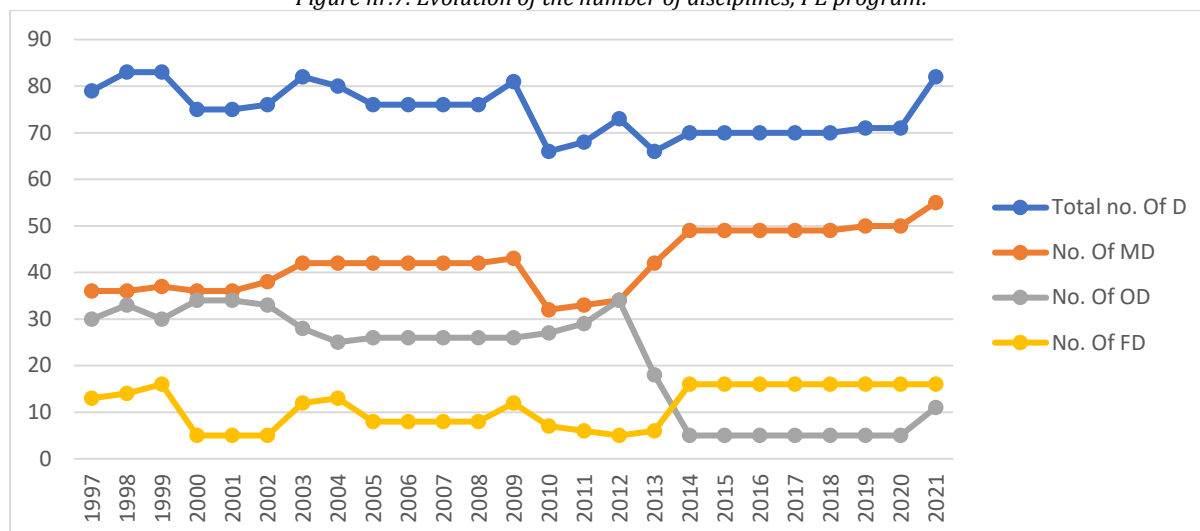
Source: elaborated by the authors

In the case of the ES bachelor program, the evolution of the total number of disciplines pre and post Bologna is different. The 1995-2000 period is characterized by constancy, followed by a noticeable increase during 2001 and 2004. The Bologna moment is characterized by a clear reduction of the number of disciplines (from 66 to 53). The following years (until 2013) are stable from the perspective of the total number of disciplines. The 2014 curriculum registers an important increase, the total number of disciplines being again at the peak level of the pre-Bologna period. After this moment, the tendency of growth is constant, the 2021 curricula having considerably more disciplines than the peak of the pre-Bologna period (75 compared to 66). The evolution is interesting, mainly because the bachelor program was adapted to the Bologna structure of 6 semesters, instead of 8 before 2005.

The evolution on type of disciplines has also some particularities in the case of the ES program. The 1995-2000 period is characterized by constancy in the numbers of the different types of disciplines. From 2001 until 2004 the curriculum registers an interesting evolution that determined the decrease of the MDs and the increase of both the ODs and FDs. The Bologna moment had the opposite effect, increasing slightly the MDs and decreasing consistently the ODs and FDs. The 2005-2013 period is stable in all the three categories and from 2014 a tendency of growth on all types of discipline is notable. The last period (2018-2021) had an important growth in FDs at the curricula level.



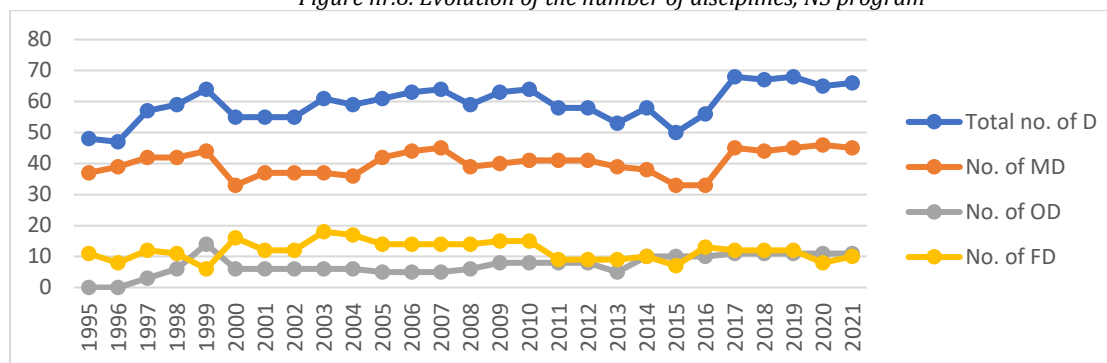
Figure nr.7. Evolution of the number of disciplines, PE program:



Source: elaborated by the authors

The PE bachelor program has also a different evolution compared to the first two analyzed, from the perspective of the number of disciplines. As shown in figure no.7 the total number of disciplines had some variations during the investigated period, but the transition from pre to post Bologna period was stable. But when we look at the different types of disciplines, we notice periods of high variations. In relation to the MDs, the 1997-2000 period was stable, a growth being noticed between 2001 and 2009, followed again by a stable period until 2009, here including the transition period. In 2010, the number of MDs dropped, a process of growth following until 2014 (from 32 to 49), growth that exceeded the pre-Bologna period. The last period was stable, only the 2021 curricula increased the number of MDs noticeably. The historical of the ODs is different, starting with high numbers and small variation in the 1997-2004 period, continuing with a stable period that began at the Bologna implementation moment. The 2012 curriculum registered growth in the number of ODs, followed with a significant drop until 2014 (from 34 to 5). The last period had constant low number of ODs, only in 2021 growing to 11. The FDs had also a different path, starting with growth between 1997-1999, than an important drop between 2000 and 2002. Growth is noticeable in 2003 and 2004, followed by a relatively stable period from the Bologna implementation moment until 2013, with a peak in 2009. From 2014, the number of FDs grew significantly from 6 to 16 and remained stable until 2021.

Figure nr.8. Evolution of the number of disciplines, NS program



Source: elaborated by the authors

The NS bachelor program had also an interesting development in the investigated period. From the perspective of the total number of disciplines per program, there are a multitude of short time variations, without noticing something specific at the moment of the Bologna system implementation. The mean is slightly higher in the post-Bologna period (61 compared to 56). Only the last period, starting from 2017 seems to be stable in the variation of the total number of disciplines.

The number of MDs follow closely the line of the total number of disciplines, but the variations are not as abrupt. The ODs have strong variations in the pre-Bologna period, followed by longer stable periods with some variations in the post-Bologna period. The FDs have variations until 2000, when they have a stable path with a growth tendency until present.

## Conclusions

The document curriculum content analysis shows very different path of evolution for all the four bachelor programs investigated.

Considered the first variable – the number of hours per program, the most predictable program, with no important variations was the Natural Sciences program, that had, as expected, proportionally lowered the number of total hours once the changes were made from 8 to 6 semesters in the Bologna system. Also, the Physical Education program had an almost similar path, but with more visible variations, especially in the practicum hours, that influenced implicitly the total number of hours per program. The Economic Sciences bachelor program, even if it registered a lower mean in the post-Bologna period, due to the high numbers of practicum hours, the differences were reduced. The most unusual evolution is at the Social Sciences program, where the mean of the total hours is higher in the post-Bologna period, mainly due to the important increase of the practicum hours.

As a general conclusion from the number of hours variable, the tendency was, as expected, of reducing the total number of hours per program, but because the accent was on increasing consistently the number of practicum hours, the differences were mainly not proportionate with the reduction of the bachelor program general structure. The

focus on practicum hours shows that the adaptation to the labor market demands represented a priority of all programs in the post-Bologna period.

Looking at the second variable - the number of disciplines, the tendency to reduce the number of disciplines at the Bologna system implementation start was noticed at two of the programs (Social Sciences and Economic Sciences), the other two not being affected importantly by the change from this perspective. Even if the Bologna Process implementation was characterized by lower numbers of disciplines, in the last few years (mostly after 2015), the tendency of growing the number of disciplines can be observed in all the bachelor programs taken into the analysis. In the Natural Sciences program, for example, the mean of the total number of disciplines results as higher than in the pre-Bologna period. Especially the facultative disciplines show growth, demonstrating that in the last years the curriculums are design in a more customizable manner, in order to permit the students to choose disciplines that are of interest and that can form also transversal competencies.

The presented data is, as we've stated before, part of a more complex research initiative, and clearly as it is, having limitations. Further bachelor programs should be analyzed, in parallel with the masters' programs. The curriculum should be analyzed also from a qualitative perspective, investigating what specific disciplines were introduced or extracted from the curriculum etc.

The general conclusion at this stage is that different programs developed differently in the investigated period, some being more than other influenced by the Bologna system implementation, but some structural changes can be noticed: the growth of practicum hours and the growth of the facultative disciplines mainly.

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