TAUGHT TIME IN COMPULSORY EDUCATION SCIENCE CURRICULUM IN EUROPEAN COUNTRIES COMPARED TO TAUGHT TIME IN ALBANIA

Dr. Tidita Abdurrahmani[1] , MA Ed. PhD. Candidate Nazmi Xhomara[2]

Head of Institute for Educational Development- Tirana, E-mail: abdurrahmanitidita@yahoo.com

Education Specialist, Institute for Educational Development & Part Time Lecturer, University of Tirana, Social Sciences Faculty,E-mail: nxhomara@yahoo.com

Abstract

Science curriculum has an important role for students in acquiring knowledge, skills, attitudes and values, as well as to deepen their knowledge at higher levels of education. Based on generated data it results that science curriculum taught time is less than that of language and mathematics. European mean science curriculum taught time is close to science curriculum taught time foreseen in the Albanian teaching plan.European mean science curriculum taught time in the first grades of primary education is more than science curriculum taught time foreseen in the Albanian teaching plan; European mean science curriculum taught time in the lower secondary education grades is less than science curriculum taught time foreseen in the Albanian teaching plan.

1. Introduction

Curriculum is defined as: (1) action plan or written document, (2) field that deals with student experiences, (3) linear or nonlinear system, (4) academic and theoretic study field, (5) subjects (Ornstein and Hankins, 2003).

Science curriculum is an important part of student formation with knowledge, skills and attitudes. Science curriculum in most cases includes subjects such as physics, chemistry, biology and earth science (Eurydice, 2011). In some countries besides the above mentioned fields there are integrated knowledge and skills from technology and health education

According to Eurydice (2011) science curriculum teaching and learning in most European countries start in the first grade of primary education. In our country science curriculum teaching starts in the third grade of primary education as a subject called "Dituri natyre" (Knowledge on the nature) (IZHA, 2011). What's the weekly science curriculum taught time in different European countries? What's the ratio of weekly science curriculum taught time to other curriculum fields taught time in European countries and in Albania? These are some of the research questions this paper will provide answers to.

2. Methodology

2.1 Official documents review

Research methods include official documents review, i.e. overview of curriculum documents of European education systems as well as Albanian written science curriculum. European curriculum documents refer to Eurydice publications (2012); meantime Albanian science curriculum includes written curriculum of dituri natyre (knowledge on science), physics, chemistry, biology, and earth science subjects, current teaching plan as well as draft teaching plan of compulsory education.(IZHA, 2011).

2.2 Typology and interpretative analysis

Besides official documents review of European and Albanian curriculum documents, the second method used in the research was the content typology and interpretation analysis in comparative level of findings and differences.

2.3 Limitations

The paper focuses on science curriculum taught time only. The paper does not provide results of applied curriculum in the teaching process. It also does not analyze influence of variables on written or applied science curriculum in the teaching process.

3. Findings

3.1 Degree of weekly taught time distribution in European countries compared to distribution in Albania

The average number of school days in a school year in compulsory education in European countries is 185 school days or 37 school weeks (Eurydice, 2012). In Albania the number of school days in a school year in compulsory education is 180 school days or 36 school weeks, 35 of which are teaching weeks and 1 is the extracurricular activities week. Denmark,

Italy, Netherlands and Liechtenstein have 200 school days; meanwhile Bulgaria, Latvia and Lithuania have from 155 to 195 school days in a school year.

The average taught time across European countries according to Eurydice (2012) is generally spread over 5 days per week. Taught time in Albania is the same, i.e. 5 days per week. In France it is only 4 teaching days per week. In Italy many schools have classes over 6 days per week. Some Länder in Germany also have a six-day school week with school on two Saturdays per month.

In the majority of cases the duration of a class or school period in European countries according to Eurydice (2012) varies from 40 to 55 minutes. Taught time in minutes per class in Albania is 45 minutes.

Average European total week classes according to Eurydice (2012) is 247 classes, compared to 222 classes currently developed in Albania and from 224 week classes foreseen in the Albanian draft teaching plan.

The difference (247- 224) of 23 classes per week between European mean and Albania comes from the difference of (47.5 min. - 45 min.) 2.5 minutes per class. If we multiply this figure with 224 classes per week it equals 560 minutes that converts into (560 min. /45 min.) 12. 4 classes of 45 minutes. If we add 12.4 classes (224 + 12 = 236) to the total per week it results that the difference from the European mean is 11 classes (247- 236), a difference within standard rating and deviation from the mean is 4.45% of the total.

Below there is a table and chart description of distribution of taught time per week in European countries and in Albania.

Table 1: Total taught time distribution by grades and per week in European countries and in Albania

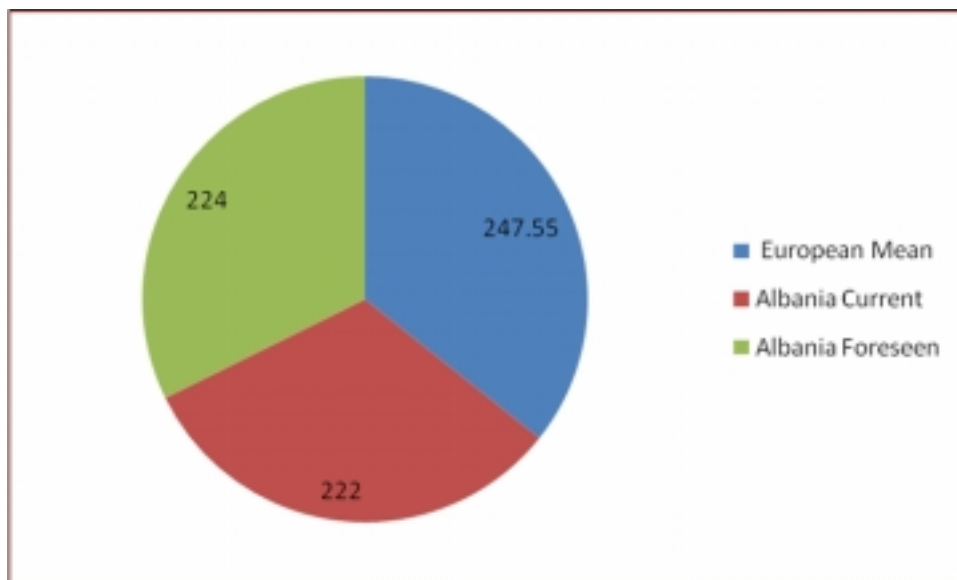| No	Grades	1	2	3	4	5	6	7	8	9	Total Taught time
1	European Mean	23.5	24.28	25.7	26.3	27.8	28.75	30.06	30.45	30.7	247.55
2	Albania Current	20	20	22	23	23	27	29	29	29	222
3	Albania Foreseen	19	19.5	22	24	24.5	27	28	30	30	224

Chart 1: Total weekly taught time distribution in European countries and in Albania

3.2 Degree of distribution of weekly science curriculum classes in European countries compared to their distribution in Albania

The number of weekly science curriculum classes in different European countries is different. Below there is a table description of weekly science curriculum classes in compulsory education in different European countries and in Albanian current and foreseen teaching plan.

Table 2: Number of weekly science curriculum classes in compulsory education in different European countries and in Albania

No.	Country	Total
1	Austria *Volksschule + Allgemeinbildende Hörere Schule*	25.605
2	Austria *Volksschule + Hauptschule+ Polytechnische Schule*	21.508
3	Bulgaria	21.098
4	Cyprus	18.845
5	Denmark	26.629
6	France	21.508
7	Germany *Grundschule + Gymnasium*	24.068
8	Germany *Grundschule + Hauptschule*	11.539
9	Germany *Grundschule + Realschule*	18.265

10	Greece	25.673
11	Ireland	9.4225
12	Latvia	20.245
13	Lichtenstein *Primary + Gymnasium*	36.973
14	Lichtenstein *Primary + Oberschule*	37.963
15	Lichtenstein *Primary + Realschule*	37.963
16	Lithuania	21.644
17	Luxembourg	20.552
18	Malta *Primary + Junior Lyceum*	18.811
19	Malta *Primary + Secondary*	18.845
20	Portugal	42.094
21	Romania	26.595
22	Albania- current	26
23	Albania- foreseen	26
24	Slovakia	23.078
25	Slovenia	33.661
26	Spain	16.284
27	Turkey	21.917

Source: Eurydice

Based on generated data, it results that the number of weekly science curriculum classes varies from 16 classes per week in Spain up to 37 classes per week in Lichtenstein. This means that there are 21 classes per week difference between minimum and maximum values. Meanwhile the number of weekly science curriculum classes in Albania has a medium value of 26 classes per week.

3.3 Degree of science curriculum classes per week compared to other curriculum fields in European countries and in Albanian foreseen teaching plan

Interesting figures come out if we compare the number of science curriculum classes per week to other curriculum fields. Below there is a chart description of the ratio between the number of science curriculum classes per week to other curriculum fields in European countries and in Albanian foreseen teaching plan.

Table 3: Number of science curriculum classes per week compared to other fields in European countries and in Albanian foreseen teaching plan

No	Curriculum fields	Grades	1	2	3	4	5	6	7	8	9	Total
1	Literacy	European Mean	7.53	7.25	7.03	6.35	5.26	4.8	4.2	4.15	4.01	50.6
		Albania Foreseen	8	8	6	5	5	5	5	5	5	52
2	Foreign Language	European Mean	1.97	1.65	2.34	2.34	2.8	3.12	3.21	3.09	2.93	23.45
		Albania Foreseen			3	3	3	3	3	3	2	20
3	Mathematics	European Mean	4.44	4.46	4.57	4.57	4.29	4.23	3.96	3.94	3.67	38.14
		Albania Foreseen	4	4	4	4	4	4	4	4	4	36
4	Natural Sciences	European Mean	1.41	1.77	2.27	2.56	2.29	2.69	3.49	4.6	4.39	25.47
		Albania Foreseen	1	1	1	2	2	3	4	6	6	26
5	Social Sciences	European Mean	1	0.96	1.27	1.69	2.41	2.82	3.29	3.3	3.67	20.41
		Albania Foreseen	1	1	1	2	2	3	5	5	5	25
6	Arts	European Mean	2.55	2.56	2.69	2.62	2.87	2.8	2.29	2.09	2	22.48
		Albania Foreseen	2	2.5	3	2	2.5	3	2	2	2	21

Based on the overview, it results that in general the number of science curriculum classes per week is smaller than the number of literacy and mathematics curriculum classes per week in European mean as well as in Albanian foreseen teaching plan.

The number of total science curriculum classes per week in European mean (25.47) is close to the total science curriculum classes per week in Albanian foreseen teaching plan (26).

The number of science curriculum classes per week in the European mean in the first grades of primary education (1.41; 1.77; 2.27: 2.56) is larger compared to the number of science curriculum classes per week in the Albanian foreseen teaching plan (1; 1; 1; 2).

The number of science curriculum classes per week in the European mean in the grades of lower secondary education (3.49; 4.6; 4.39) is smaller compared to the number of science curriculum classes per week in the Albanian foreseen teaching plan (4; 6; 6).

3.4 Integrated science versus science in its own right

In all of the European countries according to Eurydice (2012), except Lichtenstein and Turkey, science starts in the first grade and the same occurs in the Albanian draft teaching plan.

In almost all of European countries, science starts as an integrated subject in primary education and as a subject in its own right in physics, chemistry, biology in lower secondary education.

In only seven countries: Belgium – French & Flemish community, Italy, Luxembourg, Iceland, Norway and Turkey science is taught as an integrated subject both in primary education and lower secondary education.

4. Conclusions and recommendations

4.1 Conclusions

Based on comparative analyses of science curriculum taught time in European countries compared to Albanian foreseen teaching plan, the following conclusions result:

- Mean number of school days in a school year in compulsory education in European countries is 185 days or 37 weeks; in Albania there are 180 school days or 36 weeks: 35 weeks of teaching and one week of extracurricular activities.

- In European countries in general there are 5 teaching days per week, the same situation as in Albania.

- In most cases a teaching class varies from 40- 55 minutes; in Albania the duration of a teaching class is 45 minutes.

- European mean of total classes per week is 247 teaching classes; in the Albanian foreseen teaching plan there are 224 teaching classes per week with a converted difference of 11.2 teaching classes that is within comparative rating.

- The distribution or percentage rate of European mean based curriculum fields including science curriculum is very close to Albanian foreseen teaching plan.

- Science curriculum taught time is less than literacy and mathematics taught time in European mean as well as in Albanian foreseen teaching plan.

- The number of total science curriculum classes per week in European mean (25.47) is too close to the total science curriculum classes per week in the Albanian foreseen teaching plan (26).

- The number of science curriculum classes per week in the European mean in the first grades of primary education is larger compared to the number of science curriculum classes per week in the Albanian foreseen teaching plan.

- The number of science curriculum classes per week in the European mean in the grades of lower secondary education is smaller compared to the number of science curriculum classes per week in the Albanian foreseen teaching plan.

- In all European countries, except Lichtenstein and Turkey, science starts in the first grade similar to the Albanian foreseen teaching plan.

- In almost all European countries, science curriculum starts as an integrated subject in primary education and as a subject in its own right in lower secondary education.

4.2 Reccomendations

The following recommendations resulted based on the generated conclusions:

- Educational institutions should increase the number of school days from 180 up to 185 days in a school year, or from 36 weeks up to 37 teaching weeks in order to be at the same trend with the European mean.

- Educational institutions should increase the number of teaching classes per week from 224 up to 236 teaching classes creating the possibility of applying the European mean.

- Educational institutions should increase the number of science curriculum teaching classes from 26 up to 30 teaching classes because in the Albanian foreseen teaching plan in grades 1- 6 a part of taught time of science curriculum belongs to the subject of geography.

- Educational institutions should increase the number of science curriculum teaching classes in the first grades of primary education in order to make it comparative to the European mean.

- Educational institutions should decrease the number of science curriculum teaching classes in the grades of lower secondary education in order to make it comparative to the European mean.
- Science curriculum study should start in the first grade of primary education in order to be at the same trend with almost all European countries.
- Science curriculum should be studied as an integrated subject in grades 1- 6, and as a subject in its own right such as physics, chemistry, biology in grades 7- 9 in order to be at the same trend with almost all European countries.

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