

CURRICULA ANALYSIS IN PRIMARY, SECONDARY AND SPECIAL SCHOOLS IN N. MACEDONIA, SPAIN, AND BULGARIA, REGARDING ACQUIRING KNOWLEDGE FOR PROTECTION IN CASE OF NATURAL DISASTERS

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Abstract: In this paper we present some aspects of the formal educational system in N. Macedonia, Spain and Bulgaria, with a focus on the contents through which students gained knowledge regarding prevention, preparedness, and response in case of natural disasters. The overview of the curricula is based on an extensive desktop analysis of the existing curricula in primary, secondary and special schools in each of the selected countries. Our special focus was on three separately natural disasters - fires, earthquakes, and floods. Using the method of deduction, we singled out the subjects and topics regarding these disasters, as well as topics through which students are trained for protection in case of these natural disasters. We also present the results of the curricula analysis in this manner. The results are shown separately for primary, secondary, and special schools in each of the countries. The curricula analysis gives us an insight in the present status regarding the knowledge and skills development offered in the educational process of children and youth with and without disabilities. In general, the results of the analysis show us that although efforts are being made to provide lessons through which the pupils and the students will acquire knowledge related to protection in case of natural disasters, and although there are extracurricular activities, still there is a need for improvement of the formal educational systems in each of the three countries.

Keywords: curricula analysis, youth, children, persons with disabilities, natural disasters

1. INTRODUCTION

Education, public awareness, and training are the cornerstones of approaches aimed at reducing vulnerabilities to natural hazards. Especially because of the fact that disasters vary in nature and magnitude, and there is a need to capture knowledge, experiences of previous disasters, lessons learned and promote culture of disaster risk prevention within a community. Natural disasters can happen at any time, and when they happen at school, everyone should be prepared to handle them safely and effectively. Some natural disasters can be predicted, giving schools enough warning to evacuate or take other safety precautions, but others can happen unexpectedly or go through rapid changes that suddenly put a school in danger.² Education about disasters needs to be a part of formal educational systems and the development of appropriate knowledge, values, attitudes and habits should be encouraged from early childhood and be inclusive. It is fundamental to include vulnerable social groups such as children, youth and persons with disabilities in every stage of the disaster risk management and build stronger community resilience. Very often these groups are neglected, or the necessary attention is not provided. However, since we cannot reduce the severity of natural hazards, the main opportunity for reducing risk lies in reducing vulnerability and exposure.³ If Disaster Risk Management (DRM) legislation, drills, trainings, awareness raising activities are not inclusive, then a certain number of the affected population might neither be prepared for a disaster, nor receive emergency services after a disaster happens.

In order to explore this area, within the EU project - Prevention of Disaster ICT (PREDICT), we conducted research that was focused on the curricula analysis in primary, secondary and special schools in N. Macedonia, Spain and Bulgaria, where the institutions which participate in this project are from. Hence, some parts of the content in this paper are created in the framework of the PREDICT Project, regarding the final document for Intellectual output 1. The curricula analysis was made through the Curriculum analysis protocol, completed by each of the project partner institutions in N. Macedonia, Spain, and Bulgaria. The answers within this Protocol reflected the situation regarding the subjects and topics in the curricula through which students in primary, secondary, and special schools get familiarized with natural disasters, as well as with the measures for protection and self-protection in situations of disasters.

² Emergency Preparedness in School, 2020, available at: <https://www.accreditedschoolsonline.org/resources/emergency-preparedness-in-school/>

³ Prevention Web - The knowledge platform for disaster risk reduction, Disaster risk reduction & disaster risk management, available at: <https://www.preventionweb.net/disaster-risk/concepts/drr-drm/>

2. OVERVIEW OF THE CURRICULUM SUBJECTS RELATED TO NATURAL DISASTERS AND SELF-PROTECTION IN PRIMARY, SECONDARY AND SPECIAL SCHOOLS IN N. MACEDONIA

The educational system in N. Macedonia is decentralized and the management of the primary and secondary schools is under the municipal jurisdiction. The Bureau for Development of Education under jurisdiction of the Ministry of Education and Science is creating educational plans and programs for preschool, elementary, secondary, specialized education, adult education, and education for children with special needs.⁴ Primary education is in duration of nine years, free of charge, and compulsory for all children aged 6 to 15. Secondary education is divided into general secondary education in duration of four years and vocational education (vocational Schools) in duration of two (vocational education of two years), three years (vocational education for professions) or four years (vocational technical education). The educational system also comprises of the children with disabilities who are enrolled in schools for special education or within the regular teaching process depending on the preferences of the students and their parents.⁵ There is a separate curriculum for special schools. Disability through a comprehensive support system taking into account the individual needs of the pupil, professionalism of the school leadership, elimination of any policy opportunities influences, establishing a system of pupil organization and participation, promoting apprenticeships and changing the way they take an internship, external measures of pupil achievement to improve the educational process (international and state checks), support pupils participation at international competitions in the field of mathematics, informatics and natural sciences, promoting the health of pupils through the so-called "tandem teacher", i.e. the teaching of physical and health education will be realized by a pair made up of a physical education teacher and primary school teacher.⁶

2.1. Overview of the curriculum subjects in primary schools

In Macedonia, primary schools' curricula content in almost each grade includes subjects and topics which basically cover the causes, basic characteristics, and consequences from the occurrence. However, there is no subjects via which the pupils get familiarized with the protection and rescue measures as preventative and operative measures or with the means and equipment used during natural disasters.

Separately, regarding protection in case of fires, earthquakes, and floods, the question has been addressed in second grade within the subject Society, where the topic "My home" contains a lesson "Elementary disaster prevention" through which pupils, among other, get familiarized with the terms of these natural disasters. There is also an optional subject Life Skills, which can be chosen in any grade from 6th to 9th, and within which, through the topic "Safety and Prevention", pupils, get familiarized with the terms of natural disasters. Additionally, in fourth grade, one of the learning objectives of the subject Science is the pupils to become fully aware of how human actions impact on the environment, and to get familiarized with the terms regarding pollution, ecological disasters and oil spills, and also the terms regarding earthquakes, volcanic eruptions, and tsunamis. In sixth grade, within the subject Geography, there is a topic "Earth's lithosphere" that broadens pupils' knowledge concerning volcanoes, earthquakes, and tsunamis. However, there are no specific teaching points for practicing self-protection in case of fire, earthquakes or floods as natural disasters. Hence, the knowledge of self-protection could be gained only within Life skills education through the topic Safe behaviour in the environment, where pupils learn how to use the services of protection and security institutions, as well as through the Simulation drill for practicing protection and rescue in the scope of extracurricular activities, which is a legal obligation for primary schools. There are also planned activities for the annual school program including all students and staff. These extracurricular activities also refer to a First aid competition.

2.2. Overview of the curriculum subjects in secondary schools

In secondary schools there are several topics regarding the basic features of natural disasters, and prevention or protection measures, covered in the following compulsory and elective subjects: Geology, mining, and metallurgy, Geography - magmatism, seismology, Sustainable buildings and energy efficiency, Power plants - first aid for injuries at work, Traffic Engineering, Transport, and Logistics - traffic culture, Health care professional - practical teaching, Help with various injuries, etc. In addition, on the classes for practical work, depending on the vocation,

⁴ North Macedonia, Special Education Needs Provision within Mainstream Education, 2018, available at: https://eacea.ec.europa.eu/national-policies/eurydice/former-yugoslav-republic-macedonia/special-education-needs-provision-within-mainstream-education_en

⁵ Eurydice - Republic of North Macedonia Overview, available at: https://eacea.ec.europa.eu/national-policies/eurydice/content/former-yugoslav-republic-macedonia_en

⁶ North Macedonia - National Reforms in School Education, 2020, available at: https://eacea.ec.europa.eu/national-policies/eurydice/content/national-reforms-school-education-42_en

students learn how to behave in the workplace; how to learn the regulations on occupational safety and health; how to use protective and safety equipment; how to maintain personal and workplace hygiene.

The question of fires has been addressed in the subject Sustainable buildings and energy efficiency, where students learn how to handle fire extinguishers properly through practical exercises. Within Geology, mining, and metallurgy, students learn how to use a fire extinguisher according to the rules. Similarly, in the subject General geology, practical work, students learn how to use a fire extinguisher according to the rules.

Regarding protection in case of earthquakes, within the subject Geography - magmatism and seismology students get familiarized with the causes of earthquakes, elements of earthquakes, as well as the consequences thereof.

The conducted analysis showed that in secondary schools in Macedonia there are no specific teaching points related to floods, as well as to practicing self-protection in case of floods. Consequently, some aspects of the knowledge regarding self-protection in case of floods could be gained only on the classes for practical work depending on the vocation, where they learn how to use protective and safety equipment in general.

2.3. Overview of the curriculum subjects in special schools

Special high schools in Macedonia are vocational, and programs refer to mechanical technicians, textile technicians, and physiotherapists, assistants in horticulture, assistant bookmakers, and assistant locksmiths. The contents related to different kind of danger are included in classes of practical work - Workplace safety. On these classes, students apply collective protective measures; they learn about possible sources of danger in factories; they also learn how to use personal protective equipment and the necessary security measures for personal protection; they learn how to adhere to rules at the workplace; they apply ways of storing waste and rules of orderly maintenance at the workplace. Schools' self-protection plans include at least one fire drill per year where Fire action protocols and earthquakes action protocols are included. Outside of the curriculum, all special high schools in Macedonia organize activities in coordination with the Red Cross, health organizations, and NGOs on related topics.

3. OVERVIEW OF THE CURRICULUM SUBJECTS RELATED TO NATURAL DISASTERS AND SELF-PROTECTION IN PRIMARY, SECONDARY AND SPECIAL SCHOOLS IN SPAIN

Educational competences in Spain are shared between the General State Administration - Ministry of Education and Vocational Training, and the authorities of the autonomous communities - Departments for Education.⁷ Basic education is compulsory and free of charge in publicly funded schools. Upper secondary education is also provided in secondary schools. It lasts for two academic years, usually between the age of 16 and 18. The schools develop the curriculum through didactic plans, which have to take into account the pupils' needs and characteristics.⁸ The education system in Spain arranges the necessary resources for pupils with temporary or permanent special educational needs in order to achieve the objectives established within the general program for all pupils; therefore, teaching is adapted to these pupils' needs.

3.1. Overview of the curriculum subjects in primary schools

In Spain, the primary school's curricula provide basically familiarization with the terms of natural disasters' basic features, prevention, and protection measures, as well as response protocols. There are no specific teaching points related to fires, earthquakes, and floods, aside from topics containing basic content about all natural disasters. Training in self-protection in case of disasters is not part of the curricula, whereas certain concepts of injury and small accidents prevention mainly derive from the practice of sports. The schools' self-protection plans include at least one fire drill per year. The protocols for action against fires, floods, seismic risks, and tsunamis are included in this drill. Madrid, through the Decree 89/2014 of July 24th, has been the first autonomous community in Spain which incorporates content such as risk prevention, safety care, and action in emergencies or self-protection in the face of emergencies or disasters.

3.2. Overview of the curriculum subjects in secondary schools

In Spain, in the basic secondary school curriculum, dispersed elements, mainly of a preventive nature, are included in the contents of the subjects Geology and Earth and environmental sciences. The subject Geology provides students with knowledge, among other, regarding the main natural risks, as well as key values of the prevention campaigns and self-protection measures. Self-protection in fires is learned through at least one fire drill per year, organized according to schools' self-protection plans. There are also other one-day activities that centres organize in coordination with fire-fighters. Students acquire knowledge related to earthquakes via the subject of Geology, where they evaluate seismic risk and learn where earthquakes originate from and which effects they generate. Within the

⁷ Eurydice - Spain Overview, 2018/19, available at:
https://eacea.ec.europa.eu/national-policies/eurydice/content/spain_en

⁸ European Agency for special needs and Inclusive Education, 2020, available at:
<https://www.european-agency.org/country-information/spain>

subject Earth and environmental sciences, students also get familiarized with the methods of predicting and preventing geological risks and related geological risks, including damages they produce. Self-protection in case of earthquakes is learned through the same subjects, as well as through the abovementioned drill, which among other protocols also includes the protocols for actions in case of seismic risks.

There are no specific topics related to floods, and self-protection in case of floods is learned via an annual drill, which includes the protocols for actions in case of floods.

3.3. Overview of the curriculum subjects in special schools

There are no separate curricula for special schools in Spain, and the regular school program is adapted to the needs of pupils and students with disabilities. The education system arranges the necessary resources for pupils with temporary or permanent special educational needs in order to achieve the objectives established within the general program for all pupils.

4. OVERVIEW OF THE CURRICULUM SUBJECTS RELATED TO NATURAL DISASTERS AND SELF-PROTECTION IN PRIMARY, SECONDARY AND SPECIAL SCHOOLS IN BULGARIA

Pre-school and school education system in Bulgaria includes kindergartens, schools, personal development support centres, and specialized service units, and provides for education according to state educational standards.⁹ Children and students with special educational needs are taught on integrated basis in schools. School education is mandatory from age of 7 or 6 to the age of 16. In 2002, changes were introduced in the Law regulating the integrated training of children and pupils with special educational needs in pre-schools, general education schools and vocational schools. Law on Integration of People with Disabilities regulates the Ministry of Education and Science commitments to provide 'integrated training' for learners with disabilities in pre-school and school, as well as arrangements for secondary schools related to the admission and training of learners with disabilities.¹⁰ The principles of autonomy of state and municipal high schools, secondary, and specialized schools are supplemented, including the right to make agreements with state higher schools on joint training in subjects and/or modules for the acquisition of specialized and/or vocational training in second high school stage, as well as the way to settle their financial matters.¹¹

4.1. Overview of the curriculum subjects in primary schools

In Bulgaria, according to the primary schools' curricula, the 1st to 4th grade program contains 4 lessons, and 5th to 7th grade program 5 lessons on how to react in case of emergencies, disasters, fires, earthquakes, as well as first medical aid, including a topic on Traffic Safety. Practical training in self-protection is also included in the curriculum of Health Education area - 4 or 5 lessons on how to react in case of emergencies, disasters, fires, earthquakes, as well as first medical aid, including a topic on Traffic Safety. Extracurricular activities are also envisaged in the curriculum, as national student competitions for youth fire brigades, as well as a national children's drawing competition "I saw the disaster with my own eyes". There are no specific teaching points related to fires, earthquakes, and floods, except those relating to basic ideas, main characteristics, and consequences referring to natural disasters in general. However, the simulation evacuation is organized twice a year (at the start and the end of the school year). There are also training centres for increasing the populations' preparedness for reaction in case of flood, and 5-day training (theoretical and practical) is conducted for children from 3rd to 5th grade.

4.2. Overview of the curriculum subjects in secondary schools

In secondary schools, students acquire knowledge related to fires, earthquakes and floods through the subjects Geography and economics, Man and society, Man and nature, the textbooks of which contain sections or separate lessons on different natural disasters. During classes, topics on Civil Protection are taught throughout the year and each topic contains the sub-topics regarding the nature and characteristics of a natural disaster or accident, the causes of occurrence, etc. Teaching points for practicing self-protection are included from 8th to 10th grade (five lessons on how to react in case of disaster) and from 10th to 12th grade (three lessons on how to react in case of disaster). Outside the curriculum, there are training centres for increasing the population's preparedness for reaction in case of flood. Moreover, by act of the Bulgarian Ministry of Interior, schools are obliged to conduct a simulation evacuation twice a year – at the start of the school year and the end of the school year.

4.3. Overview of the curriculum subjects in special schools

⁹ Eurydice - Bulgaria Overview, 2018/19, available at: https://eacea.ec.europa.eu/national-policies/eurydice/content/bulgaria_en

¹⁰ European Agency for special needs and Inclusive Education, (2018), available at: <https://www.european-agency.org/country-information/bulgaria>

¹¹ Bulgaria - National Reforms in School Education, 2020, available at: https://eacea.ec.europa.eu/national-policies/eurydice/content/national-reforms-school-education-9_en

In Bulgaria, the abovementioned subjects and lessons in the curriculum for secondary schools are applied equally for the pupils and students with disabilities. According to the Law on Integration of People with Disabilities, the Ministry of Education and Science is obliged to provide ‘integrated training’ for children and pupils with disabilities in pre-school and school, as well as arrangements for secondary schools related to admission and training of learners with disabilities.

5. CONCLUSION

The results of the analysis conducted regarding curricula in the primary, secondary and special schools have indicated that in primary schools in N. Macedonia although there are subjects which basically cover the reasons for natural occurrences, basic characteristics, and consequences thereof, there are no specific teaching points for practicing self-protection in case of fires, floods or earthquakes as natural disasters. Hence, the knowledge of self-protection in these natural disasters could be gained only within the Life skills education, as well as through the Simulation drill for practicing protection and rescue. Furthermore, there are no specific teaching points related to fires, earthquakes or floods in primary schools in Spain, except the topics that contain basic features, prevention, protection, and response in case of natural disasters in general. Hence, fires, earthquakes, and floods protection are taught and learned via at least one fire drill per year that includes protocols for actions against fires, floods, and seismic risks. Finally, in primary schools in Bulgaria, several lessons are envisaged in each of the grades where pupils learn how to react in case of emergencies, disasters, fires, earthquakes, etc. There are also extracurricular activities, children’s drawing competitions, trainings, simulation evacuation, etc.

In this regard, it is worth concluding that improvement of the formal education system in primary schools in each of the countries regarding protection and self-protection is necessary, particularly by expanding the current curricula with subjects and topics related to training in situations of disasters, separately for fires, earthquakes, and floods. Thus, the countries will empower inclusive access participation of children and pupils in disaster prevention, preparedness, and response.

On the other hand, for the secondary schools, the general conclusion regarding teaching points in each of the three countries is that, as in primary schools, efforts are being made to provide lessons through which the students will acquire the knowledge related to disasters and self-protection in case of disasters. Various extracurricular activities as drills, competitions, evacuations, and other project activities, are also conducted. However, we identified the same gaps as in primary schools, and we recognized the need of improvement of the formal education system in secondary schools. Hence, it is recommended to expand the curricula with compulsory subjects providing teaching and learning strict and precise procedures for protection and self-protection in case of fires, earthquakes, and floods. We suggest providing inclusive access and participation of youth in disaster prevention, preparedness, and response. Regarding persons with disabilities, in N. Macedonia there are separate curricula for special high schools according to which, among other topics and activities, students learn how to apply collective protective measures and how to use personal protective equipment and the necessary security measures for personal protection. Fire and earthquake protection in special schools is learned also within the annual Fire drill.

On the other hand, in Spain and Bulgaria, in special schools there are no separate curricula for students with disabilities, and consequently these students get familiarized with the different kinds of disasters and self-protection in situations of disasters through the current subjects within the curricula in ordinary schools.

In this regard, improvement of the formal education systems is recommended regarding self-protection, by expanding the curricula with compulsory subjects that provide teaching and learning of the procedures for self-protection particularly and separately in case of fires, earthquakes, and floods. We also suggest providing inclusive access and non-discriminatory participation of pupils and students with disabilities in disaster prevention, preparedness, and response in accordance with their abilities and special needs.

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