

# **The teaching of science at the earliest stages of education. The Comenius project «discovering the world: developing skills through experimentation and exploration»<sup>1</sup>**

**La enseñanza de la ciencia en las primeras etapas de la educación. El proyecto Comenius «Descubrir el mundo: el desarrollo de capacidades a través de la experimentación y la exploración»<sup>1</sup>**

**Anna Widajewicz**

*Przedszkole no 34. Bydgoszcz (Poland)*

**María Ruiz del Árbol\***

*Instituto de Historia (CCHS-CSIC)*

**Ewa Tomasiak**

*Przedszkole no 34. Bydgoszcz (Poland)*

---

## **Keywords**

Science, interdisciplinarity, teacher's formation, international cooperation, Comenius

## **Palabras clave**

Ciencia, interdisciplinarietà, formación del profesorado, cooperación internacional, Comenius

---

## **Abstract**

The Comenius project *Discovering the world: developing skills through experimentation and exploration* (September 2013–June 2015) is being carried out by five cooperating countries (Poland, Estonia, Lithuania, Spain and Turkey) within the Comenius Multilateral school partnerships actions. The fundamental aim of the project is the teaching of science at the earliest stages of education (from 3 to 7 years old). This paper has the aim of presenting the project, its design, materialization and evolution. Moreover, we will stress the key role that the programme *El CSIC y la Fundación BBVA en la Escuela* has played to improve project's aims and philosophy. The paper concludes with several considerations on the development of the project and its first results. We will also stress the relevance of both the cooperation between teachers and scientists and the overall formation of teachers in science matters.

## **Resumen**

El Proyecto Comenius *Discovering the world: developing skills through experimentation and exploration* (septiembre 2013–junio 2015) se lleva a cabo gracias a la cooperación entre cinco países (Polonia, Estonia, Lituania, España y Turquía) en el marco de las acciones Comenius Multilateral school partnerships. El objetivo principal del proyecto es la enseñanza de la ciencia en las primeras etapas de la educación

.....  
\* E-mail de la autora: maria.ruizdelarbol@cchs.csic.es.

(desde los 3 a los 7 años). Este trabajo tiene como objetivo presentar el proyecto, su diseño, materialización y evolución, poniendo el acento en el papel fundamental que el programa *El CSIC y la Fundación BBVA en la Escuela* ha jugado desde sus comienzos, mejorando los objetivos y filosofía de nuestro proyecto. El artículo concluye con algunas consideraciones sobre su desarrollo y primeros resultados. Subrayaremos además la relevancia tanto de la cooperación entre profesores y científicos como la necesidad de una formación global de los profesores en cuestiones relacionadas con la ciencia.

---

## **Introduction: the origins of the project**

The project *Discovering the world: developing skills through experimentation and exploration* (the acronym of the project is «*Discovery Programme*») is funded by the Lifelong Learning Programme, under the sub-programme Comenius, in the framework of the actions known as «Comenius Multilateral school partnerships». Our project, the *Discovery Programme*, has been developed since September 2013. Thus, when writing this paper, half of the project has been already accomplished.

The main aim of the *Discovery Programme* is to explore the possibilities of the teaching of science at the earliest stages of education (from 3 to 7 years old). Through this project we want to explore the ways to inculcate the desire of discovering, questioning and experimental understanding of the world among children. Moreover, the project envisages expanding children's ability to critical and logical thinking and testing their hypothesis through several experiments. We expect it will arouse the desire to acquire the technical and scientific competence among children, which will give them the opportunity to awaken an inclination for lifelong learning and even to include research into their future options for career development.

## **Why a Comenius project about the teaching of science**

Young children are very curious, energetic, full of ideas and willing to explore the world around them. They are in the age when most of things surrounding them are new and fascinating. Nowadays in times of evolving technology, where everything is focused on passively receiving certain amounts of information, we would like to give children a chance to take active part in the process of discovering the world.

From the beginning we considered that a way of doing that was introducing the teaching of science in the early stages of education. According to previous experiences<sup>2</sup> this is the age when you can start teaching children scientific thinking through asking questions, posing hypothesis and verifying them through self-expe-

rimentation, research and exploration. Many studies<sup>3</sup> show that science teaching is an excellent tool for the global development of child, increasing its curiosity and critical abilities. Preschoolers' period is the age in which science concepts are naturally acquired; it is the critical age in which a way of thinking and a scheme of values are being formed. It is also the age when children began to socialize<sup>4</sup>.

Besides these ideas, other considerations were included in our Comenius project. Firstly, science concepts are fundamental for the formation of a European spirit, because science is at the basis of our culture, and it doesn't opposes to personal choices or different believes. Secondly, teaching of science for young children promotes the participation of teachers and parents in the process of learning: teachers have the responsibility of communicating and developing love for science and of preparing the children for the world they are going to live in; similarly families need to have a very active role in this process. Furthermore, attractiveness of activities included in the project will increase teachers and parent's motivation to get involved into the children's teaching process. Also advancement of children with educational special needs proceeds by the same rules as kids without special needs, giving them opportunity to participate in all project activities and helping them to stimulate their overall development<sup>5</sup>.

Furthermore, the different partners within the project pointed also other motivations in the proposal, such as:

- The project would play a great role in children integration. In previous years one of the participating kindergartens was taking part into e-twinning projects, so getting involved into a Comenius partnership would allow them to establish direct cooperation with other schools, thanks to which pupils will get better opportunity to get to know culture and customs of other countries, improve their language skills and developing their interests.
- The participation in a Comenius project would help teachers to improve their international experience and capacities for presenting and sharing new interesting ideas and experiments to their own students.
- Comenius projects are an opportunity to increase the interest of the children and their families to other nations, countries and cultures. Moreover, the background of some of the participating kindergartens is very poor (low economic level) so the project was found as a way of broaden the minds of the children and their families and increase their motivation towards this «special» international relationship.

- Participants agreed that international cooperation will also allow us to discover the rich amount of approaches and tools to improve our work with very young children. Among these abilities it was pointed out that we will also ameliorate our language skills (English and less common foreign languages), and our usage of computer technologies.
- Last, but not least, through cooperation the participating schools will perform several tasks such as experiments, art, crafts, and painting. The final products will be a way of intercultural dialogue and mutual exchange and will serve as a basis for future development and dissemination of the results of the project.

## **Origins and philosophy of the proposal**

The origin of the idea stands at the collaboration established by the CSIC<sup>6</sup> with the P34 in Bydgoszcz. As teachers, our previous concerns about the relevance for the initiation of preschool children to science encountered serious difficulties to be materialized. There was a huge amount of bibliography and books describing experiments and the way to experiment with children but none theoretical approach was known to us to be sure that this experiencing with children would be productive. The collaboration with the CSIC was crucial at this stage for the programme *El CSIC and la Fundación BBVA en la Escuela* was from the very first moment, willing to help and to be a scientific assessor of our Comenius project if funded.

During the construction of our proposal we also analyzed previous experiences and we studied the areas already explored by other Comenius projects (we did so by accessing the Comenius web page and studying, one by one, those projects related to the teaching of science). We discover that, though there is a serious concern about introducing children to science, this is done normally from the Secondary School. Also, there is a considerable gap between the proposed teaching activities and the implemented curriculum in the different European countries involved in the Comenius multilateral projects. The experience of *El CSIC y la Fundación BBVA en la Escuela*<sup>7</sup> was very valuable also in this sense, for this program insists in the integration of science teaching into the activities of the several schools involved.

Last, but not least, our concern was about understanding science in a global way, that is, integrating the interdisciplinary nature of science from the very beginning. Traditional approaches on science focus on natural sciences. However, preschool education encompasses many different aspects, combining and integrating them. Accordingly our project focuses on experimentation and science and understands these in a broad sense. Our activities are not only reduced to «traditional» areas of science such as chemistry, physics or biology but take history, archaeology, music and art under consideration as well.

## The discovery programme

### Main aims and specific goals of the project

As expressed above, the main aim of the project is to give very young children an opportunity to learn science. The project wants to inculcate the desire of discovering, questioning, and experience the world among children. They will observe processes occurring in their environment, their cause and effect relationships; they will perceive the world in a global perspective; they will expand their ability to critical and logical thinking and test their hypothesis. As already pointed, we expect that the project will give children the fundamental basis to awaken an inclination for scientific thinking and lifelong learning. Teachers and parents have an active role in the project, transmitting the necessary attitudes and knowledge to develop love for science. Within this background, the concrete objectives of the partnership are:

- To create rich database of experiments for use in educational partnerships and exchange of experiences between different institutions as a means of acquiring the technical and scientific competence.
- To expand children's abilities to critical and logical thinking, including those with special educational needs.
- To stress the need of including, in the very early phases of educational programs, the teaching of science in its whole complexity, stressing the interdisciplinary character of science (that is, including not only the «traditional» and 'hard' subjects, such as physics or chemistry, but also the social and human sciences, such as art, music, history, archaeology).
- To widening the horizons of experience science in the educational community (teachers, pupils, parents).
- To promote equality between girls and boys, men and women, by involving them equally in the different planned tasks. The project choose relevant male and female figures of European science (Marie Curie, Albert Einstein etc.). That aims to confront the traditional view of male scientist in education and career among children.
- To enrich teachers competence to teach science at very early stages of education.
- To have better knowledge and use of Internet technologies (e-mail, skype, Power Point, websites).
- To promote the learning not only English but also other, less common foreign languages.

The objectives mentioned above are related to the main subject that we intend to address through this project, that is how to stimulate cognitive development among young children, more and more threatened by the passive reception and sometimes uncontrolled assimilation of information (TV, internet). The objective is to push young children to be self-critical and to get a logical thinking, awake their curiosity about the world, questioning reality, by encouraging them (and their parents) to pose hypotheses, verify them and solve problems.

To achieve the objectives our project focus on experimentation (see below), as the axis of the different tasks designed and basis for collaboration and communication. Experiments are articulated into different areas of science (i.e.: magnetism related to physics; excavation related to archaeology). Science is based on creativity and independence of criteria and our project is inspired by the activity of scientists, its way of seeing the world, its procedures and its language. Basic in the strategy of the project is that we rely on the experience and expertise of several scientists specialized in the teaching of science at the early stages (as pointed above, our main reference is the work of *El CSIC y la Fundación BBVA en la Escuela*).

## The social background: the partners

As stated above, the *Discovery Programme* is being carried out by five cooperating countries. The collaborating countries are Poland, Estonia, Lithuania, Spain and Turkey. All of them are engaged with the public teaching of children between the ages of 3 and 7 years old.

The coordinator of the program is the Kindergarten no 34<sup>8</sup>, a public institution situated in the suburbs of Bydgoszcz. Bydgoszcz is a city in northwestern Poland, the eighth biggest of the country (**Image 1**). The kindergarten receives Polish and foreign children from 3 to 6 years old (at present there are children from Bulgaria, Spain, Estonia, Slovenia, Korea and Belarus attending the kindergarten) and it has several groups in which children are studying English as a second language on the basis of educational innovation<sup>9</sup>.



**Image 1.** View of the Kindergarten no. 34 (P34).  
At the window on the entrance there is the comenius display.

The team from Estonia belongs to the Asunduse Kindergarten<sup>10</sup>. This school is located in close proximity to one of the best known and prettiest places in Tallinn: Kadriorg. Children from 2 up to 7 years attend this kindergarten. Teachers are using mostly Step by Step teaching method: adults are creating different options for children activities by rearranging group rooms in daily basis. Children have been given opportunity to be creative and individual and they have possibility to make choices according to their skill and interests.

The Spanish team is led by the Colegio Público Beriain (Public School Beriain)<sup>11</sup>. The school is located in a small village, 10 minutes-drive from Pamplona, the capital city of the Navarra region. The school hosts around 300 children whose age ranges from 3 to 12. They belong to different social backgrounds and cultures (Spanish, south-American, Arabian, African). The school is bilingual, which implies that some areas are taught in English. In addition the children have the option of choosing a third language: Basque. There are 6 groups in the kindergarten (from 3 to 5 year old). In each class there is a Spanish and an English teacher.

Yıl Zübeyde Hanım Anaokulu is the Turkish partner<sup>12</sup>. The school is situated in the center of Tokat province. With 200 students, the pupils are aged between 3 and 6 years. The school aim is to develop students' cognitive, social-emotional, language and self-care skills. There are both economic and cultural differences among the students. During education training with the help of Comenius project, an important task is to make students gain awareness of respect to different cultures.

The fifth participant in the project is the Kėdainių lopšelis-darželis «Žilvitis», from Lithuania<sup>13</sup>. Kindergarten «Žilvitis» is a heart of cultural society and a center of social work of the micro-district at Kedainiai. The educational process is organized according to the programme which was certified by the Republic of Lithuania. The kindergarten works in the trend of artistic education of children and plays the decisive role in the rendering to of values of the ethnic culture to children. A big attention is being given to fortify children's health also to the communication which families. This kindergarten had a previous experience in a project of the Lifelong Learning Programme<sup>14</sup>.

## **Working plan and organization of the activities**

The project is articulated into different actions and activities, with their corresponding periods of realization and deadlines. The main work within the project is the realization of experiments in several chosen areas: water, magnetism, plants, colours, archaeology, air, sculpture, sounds, and magnifying glass. These thema-

tic areas articulate the work of the partners during, at least, one week every two months. Besides the conduction of experiments in several areas other important linchpins for the progression of the project are:

- Working meetings: five working meetings are planned within the project (to date Estonia, Spain and Poland have been the hosts of these meetings).
- Working on a famous figure (male and female) from the scientific field of every country within the project.

The project implies also dissemination activities, such as the webpage, or a periodic newsletter for parents.

All partners have equal number of tasks and every single task has the same value to the project. The coordinator of the project is constantly in touch with other responsables at partner schools. However each partner has an equal voice in all final decisions.

The cooperation is based mainly on electronic communication (e-mail, skype, and website) though, as stated above, regular visits were planned within the project. Whole cooperation is conducted according to the planned schedule approved for the project and monitored through a chart of tasks (created by all partners) to make work more efficient.

Every contact person at each school is responsible for organizing the work inside their institution, and coordinating the process of preparing and sending materials to be shared with other schools as well as showing the rest of the staff and pupils the ones received from other partners mostly through the website.

## **Development of the project**

The project started on September 2013. According to the approved programme the first two months (September and October 2013) were devoted to its launching. Two contemporary actions were done. First of all, equipping the libraries of the partner schools with books and other material related to the research and experiments appropriate for young children. A chest of treasures was created in every school, with materials, utensils and tools required for children's self-experimentation to awake their interests in science. Secondly, a first dissemination of the project was established. Essential to that has been the posting of a website with information about the project and the creation of a newsletter for parents and local community informing them about planned activities related to our Comenius project. Also, the schools



organized several presentations of the project. Crucial at this stage was the elaboration of a chart of tasks presenting every planned action for each partner to make a clear picture of tasks and months in which they take place.

A linchpin of this early stage was the visit of M.<sup>a</sup> José Gomez, coordinator of the program *El CSIC y la Fundación BBVA en la Escuela* to Bydgoszcz. During her stay a session of formation about magnetism was organized (**Image 2**). It was divided in two parts: a theoretical one, with the contents and the rationale of a class on magnetism for young students; and a practical one, in which teachers could experiment to have better understanding of tasks related to the phenomenon of magnetism. It was attended by teachers from several kindergartens in Bydgoszcz and by the person in charge of the Board of Trustees<sup>15</sup>. This lecture was crucial, for two important issues raised from the very beginning of our project:



**Image 2.** Photograph of the formation session of M.<sup>a</sup> José Gómez at P34.

- The formation of teachers is basic in the teaching of science.
- Teaching science is something more than to make experiments with children. That is, without a rationale and specific objectives, oriented by experts, experimentation with children has no sense, or even it is a waste of time.

With these ideas in mind the first meeting of the project, organized by the Estonian partner was held in Tallinn in November 2013. This meeting was very important: it was the first time the partners had met. The basic organization of the project was settled and exchanging of previous experiences made the meeting very fruitful.

## The organization and articulation of activities within the project

Since that first meeting, the development of the project has been articulated around several activities. To date the subjects developed at every partner school have been water (December 2013–January 2014), magnetism (February 2014–March 2014), colours (May 2014–June 2014), archaeology (September 2014–October 2014), air (November 2014–December 2014). Further work in other areas will be developed in 2015 (sculpture and sounds).

The activities have a similar structure whether the subject is air, magnetism or archaeology. Previously to the development of the activities in the classrooms teachers research the area, discuss the activities and experiments that could be done, and decide which one they will conduct with children. During a selected week (every country decides their own dates) different experiments are conducted in the institutions of participating countries. All the performed actions are documented and described (with a written description, photos, and video). After the experiments children are requested to perform works of art associated with the things they have learnt (**Images 3 and 4**).



**Image 3.** Image of the development of one of the experiments about magnets.

Performed activities are posted on the web site of the Comenius project, and also a glossary of terms in partners' native language related to every area is created and posted on the same website. Moreover, at the end of the project, a booklet with selected experiments (5 for each area) by different partners will be published and disseminated through the web.



**Image 4.** Experiencing with water.

Besides these activities, twice during the project (March 2014 and May 2015) the countries work with a famous male and female character, a relevant person in the science development —each country chooses on their own. Poland, as an example, has already worked on Nicolas Copernicus and is planning to work on the figure of Marie Skłodowska-Curie.

Two other meetings (in Spain, April 2014 and September 2014 in Poland) were organized. An intermediate evaluation was done in Poland. June 2014 was chosen for an open day display in the different partner schools.

These activities within the project are of course integrated into ongoing activities at different partners' schools. In fact, the activities described are carried out regularly throughout the school year. However, ways to bring the children closer to the animate and inanimate nature around them are different. In every country there is a need for a flexible model of education tailored to individual needs and abilities of children (pupils) especially in the field of technical and scientific skills, which have the potential to guide the development of children in their future careers. All partner institutions are interested in enrichment of these methods, because they ensure children's development, foster scientific interests and show that learning can be great fun.

## **The internal evaluation of the project development**

Each partner school is responsible for developing and direct evaluating their activities. However, in each report (one report for activity) each partner must specify its methods and procedures, by the design of an evaluation form addressed to teachers, parents and the local community. The evaluation form relates to every experience developed with the children and also includes their views.

The coordinator of the project (Poland) is the responsible for the development of a synthetic approach to the different evaluation forms proposed and will create a unified evaluation form which, once approved by the partners, will serve as main basis for evaluation and will allow results to be compared and shared. In any case, and to avoid processing the enormous amount of data, samples of the different participating schools will be used to produce the reports on the activities.

An intermediate evaluation has been done at the meeting at the end of the first year of project (during the meeting held in Bydgoszcz, September 2014) and has provided enough criteria to allow the project to be adjusted for the second year according to the outcomes of the evaluation process.

The final evaluation will be done at the end of the 2nd year (June 2015) and will focus in the achievements as well as in the difficulties we have encountered. A balance about the degree of achievement of the main goals will be presented as well what the participants (teachers, kids, parents, scientists) have learned during the project. This will allow suggesting future ways of cooperation and use of results.

The outcomes of evaluation procedure (partial activities evaluation, intermediate and final) will be available at the web page of the project and at the webs of the participating schools providing evidence of the work done. Also, as mentioned above, a booklet with the synthesis of the project results will be edited.

## Concluding comments

Nowadays we are at the time of increasing awareness of the benefits of teaching science to very young children. Programmes such as the Spanish *El CSIC y la Fundación BBVA en la Escuela* or the French *La Main la Pate* have been leaders in such enterprise. Our project wants to contribute to this efforts by developing practical experiences that will serve as an inspiration and as an example for other teachers. We expect that the results of this project will be taken by other European schools as example of good practices that can be disseminated as such. In fact our cooperation work includes development of common working methodologies, production of practical resources for teaching, implementation of a cooperation network between the schools of our countries.

During the first year of our project we have identified different benefits of teaching science to kids. We have noticed that experimentation is an appropriate bridge to join the different and distinctive groups of our local communities, such as families, teachers, scientists, students. Moreover, the partnership and cooperation activities are already having a high direct impact in all participants of the project.



**Image 5.** Teachers at P34 magnet formation session.

In the case of the participating institutions, they share a common project, but they deal with different social, economic and educational realities. Travelling and cooperating is enriching individual school experiences. Schools exchange good practices. The project is giving an added value to the activity of the schools and thus more prestige.

The internal cooperation and coordination of the staff is also being improved through the involvement in the project (**Image 5**). The project is providing more formation to the teachers, who are enriching their curriculum vitae and experience. Also, it is of course an opportunity to meet interesting people and travel out of their frontiers.

The impact of the project in the children is great. We can point to several appreciations:

- Children broad their horizons gaining knowledge of science. This promotes their desire to explore the world on their own (making them more active).
- They are able to understand and conceptualize better the mechanisms of cause and effect relationships that occur in their environment (making them more critic).
- They gain the confidence to challenge the reality, which will result in their further cognitive development (making them more independent).
- Kids with special needs are integrated into the activities, supporting their development through different experiments and discoveries (breaking barriers). In some of the partner schools it was observed that hyperactive children are better integrated in the classroom during the realization of the experiments (they are more focused on the task than during normal lessons).

However, some difficulties arose during the development of the project. The most important of these is the lack of formation of the teachers in science teaching. Some of the activities —for which we had not any scientific assessment— were prepared without a theoretical background and experiments (aims and procedures) were chosen following our intuition. This was the case —in our P34 kindergarten— when preparing the activities related to the area of colours. In that specific case we had problems to decide if the experimentation with children should be focussed more on mixing colours (colour formation) or on issues related to optic (light and shadow). Finally we decide to work on both aspects (experiencing with a prism, mixing basic colours, making secondary colours) from a practical point of view.

Despite these problems, as well as noticing that more institutional resources and support are needed to fulfil this gap in our European teaching systems, we believe there is an urgent need for starting the teaching of science at the very early stages of education, for it helps the general children's cognitive development.

## Acknowledgements

The cooperation between P34 and CSIC has been possible thanks to the research stay of Maria Ruiz del Árbol in the University Adam Mickiewicz (Poznań) during the academic years 2012-2015, funded by the CSIC. Thanks are also given to the University Adam Mickiewicz in Poznań, especially to the Institute of Prehistory and Professor Arkadiusz Marciniak, who hosted Maria Ruiz del Árbol. They also supported the visit of M.<sup>a</sup> José Gómez and facilitate her conference on the cognitive



aspects of learning at the Faculty of Philosophy. We would like also to thank the team of the *El CSIC y la Fundación BBVA en la Escuela*, to José M.<sup>a</sup> López Sancho and M.<sup>a</sup> José Gómez, that, from the very first moment, supported our project and shared their expertise with us. They gave also us the opportunity of travelling to Madrid to the *V Scientific meeting between kids, teachers and researchers* (Madrid, 27.05.2014) and of having several formation sessions with them.

---

### **Text references**

1. Project funded by the COMENIUS Multilateral school partnerships (2013-I-PLI-COM06-385781).
2. A good reference of the excellent results achieved through the teaching of science at preschool and school is the work that every year is awarded through the «Premio Arquímedes» to the best research work at schools (<http://www.csicenlaescuela.csic.es/premio.htm>).
3. Interesting references can be found in the *European Early Childhood Education Research Journal* or in the *International Journal of Early Years Education*.
4. See the works of JEAN PIAGET: *The early growth of logic in the child* (London: Routledge and Kegan Paul, 1964) or with INHELDER, B., *The Child's Conception of Space* (New York: W.W. Norton, 1967). A very good synthesis of the nature of knowledge is the book by JOSÉ M. LÓPEZ SANCHO, *La naturaleza del conocimiento. Clave para entender el proceso de aprendizaje* (Madrid: CCS, 2003).
5. As we will point out further in this paper, this aspect of the Project has revealed very interesting. Teaching of Science to small children is especially fruitful in the case of children with special needs, such as hyperactive children.
6. Thanks to a research permission, funded by the CSIC, to María Ruiz del Árbol.
7. <http://www.csicenlaescuela.csic.es>.
8. [www.przedzskole34.budgoszcz.pl](http://www.przedzskole34.budgoszcz.pl).
9. The learning of English language is integrated in the normal life of the school. The English groups are managed by two teachers of Polish and one teacher of English. The teacher of English pretends as if she doesn't understand Polish and encourages children to communicate with her in a foreign language. Beside this P34 offers extra classes such as eurhythmic classes, dancing classes, modeling clay, English classes for children attending to groups without English teacher, speech-therapy, and physiotherapy exercises. One interesting tradition of the kindergarten is to organize national weeks during the school year, during that time children have opportunity to know other countries and their cultures. This plays a great role in children integration.
10. <http://www.asunduse.tln.edu.ee>. The Estonian participation is coordinated by Mrs. Siiri Kliss, Speech and language therapist. Asunduse kindergarten is comprised of two small houses. One of the houses has four groups and other one has five groups. Those relatively small houses are creating a homely atmosphere for children. Between the houses there is a big and varied yard area. One of the groups is mixed with children with special needs. In groups there are also kids whose mother tongue is not Estonian. Teachers are helping them to adapt to Estonian environment. Important keywords in

kindergarten are individualization and considering children development level. Each group has two teachers and one assistant. In addition to group personnel there are: a music teacher, a physical development teacher and a speech therapist.

11. <http://centros.educacion.navarra.es/cpberiaian/web>. The coordinator of the team is Izaskun Ongay (teacher and language coordinator). Every year the whole school community likes to share a common project, during a month. Last year this common project was about the Olympic Games and the school year was closed by celebrating the own school Olympic games. At Beriain school there is a stress on the importance of the values in the educational process. For several years they have been elaborating their own «coexistence curriculum». The whole school community is very conscious of it and takes into account all the ways of dealing with conflicts, fears and emotions.

12. The Turkish coordinator is Mrs. Hatice Öğreden, vice-manager of the School.

13. [www.kedainiaizilvitis.lt](http://www.kedainiaizilvitis.lt). Coordinator of the Lithuanian team is Mrs. Regina Jasinskiene, main teacher of the school. Every year the institution has the so-called «Theatre days». At the kindergarten also work a Pop – choir «Singing Crikets», the folk ensemble «Zilviciukai», the dancing society, the English language society, the club of sport's «Football». Also, a methodical club of teachers is on place.

14. The project «European Children Celebrate» (LLP-COM-DP-2009-LT-00).

15. During her stay in Bydgoszcz she also gave a lecture at the University Adam Mickiewicz about the cognitive aspects of learning.