

INCLUSION AND EXECUTIVE FUNCTIONS: AN EXAMPLE OF A SCIENTIFIC ACTIVITY

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Abstract

World Health Organization approved a new document: the I.C.F. . (International Classification of Functioning Disability and Health) that has the ambitious goal of changing the way to watch on the disability. It isn't, indeed, a problem of a minority, but an experience that anyone can experience in life. It resulted in the general concept of inclusion that replaces those of insertion and integration. The school should actively promote this goal: it must create, through its various stakeholders (teachers, students, principals, families, territory), an environment that responds to the peculiarities of all pupils, particularly those with special educational needs. In this regard, the Italian school experience seems to be a good example for the whole world. The teacher must create conditions so that tools, situations and people are fruitful mediators for the learning of all pupils. Education for skills, which involves the creation of challenging situations taken from the real world, can be a great help for children with learning disabilities to develop their executive functions. This article describes an example of inclusive work placed in an Italian middle school during the hours of sciences.

Keywords: *inclusion, executive, skill, philosophy, ecology, event*

1. From I.C.F a new vision of disability.

1.1 Introduction

On 22 May 2001, the World Health Organization issued a document for the classification innovative, multidisciplinary and universal: "The International Classification of Functioning, Disability and Health", called I.C.F. Elaboration of this classification was attended by 192 governments that make up the World Health Assembly.

The ICF describes the impact of environmental factors, such as facilitators or barriers; living environments, in fact, have an effect on the genesis and maintenance of disability through their activities and participation of the inhabitants.

The disability, in fact, is a condition determined by many factors involving, not only the person with disabilities, but also the context in which it lives.

Hence the difference between capacity and performance. Capacity is the ability of the entity to carry out certain tasks, while the performance is the ability of the entity to carry out those tasks in a specific context that can help (by facilitators) or hinder (opposing barriers).

1.2 The Italian situation

The Italian school has ruled, at least until the 60s of the last century, confining students with disabilities in special schools.

Only in the 70's, their insertion began to be experienced, but always in a very medicalized way.

From the second half of the 70 models of integration began to be tested: they anticipated that the teacher curriculum was accompanied by a colleague who specialized in entertainment activities and rehabilitation.

“Special” schools began to be dismantled and were gradually abolished also special classes, the first attempts at integration in the classroom "normal" were made.

The attention and recognition of equal opportunities for all pupils, before any legislation is based on the Constitution of the Italian Republic. In particular, art. 34 reads: "The school is open to all" and art. 38 specifies that everyone has the right to education and vocational training. The result has been the Law 118/71 which provided that education could take place in normal classes of the school for all. However, “special” classes were not abolished; the choice was up to the families.

This situation was followed by a "nursery" of legislation that has continued to this day.

In 1987, the Constitutional Court, with the sentence number 215/87, declared the full and unconditional right of all individuals with disabilities to attend schools of all levels, this is a kind of "Magna Charta" which affected all subsequent legislation.

Thereafter, The Framework Law 104/92 becomes the regulatory reference of school and social integration.

Since 2001, after implementing the concept of inclusion spread by ICF, the Italian State has enacted some laws and regulations to spread it in society and especially in the school: L 170/2010, Decree No. 5969/2011, Dir. Min. 27 / 12/2012.

All this makes Italy a country at the forefront of inclusion. This concept, in fact it is in full harmony with the human culture of this country.

1.2 Mediators and executive functions: historical evolution

The models of teaching for pupils with difficulties have undergone profound changes over the years.

The behaviorists, as Skinner, emphasize that educate the behavior of an individual has had great benefits with regard to learning difficulties. The teacher should provide stimuli and expect responses. Also the activities of reinforcement is a duty of him. It is the ability to change the frequency of a certain behavior.

The cognitive scientists, however, have compared the human brain to a computer. It receives simple information from the outside and processes them producing more complex information.

According to this theory, called "human information processing", is also essential a metacognitive phase, that is a reflection on the thought that it is important to understand how to use the information.

By virtue of the similarity between the human brain and the computer, the use of information technology appears to be very important for the learning of pupils with difficulties.

The Vygotskij's socio - cognitivist theories emphasized the importance of the group to encourage the learning.

Vygotskij can be considered, along with Feuerstein, the father of special pedagogy.

Feuerstein's thinking is based on human modifiability: all living things must be considered open systems that can be modified by the relations with the context.

This theory is in close relation with that of mediated learning, according to which the teacher has the role of selecting the content and facilitate learning and makes the study useful for real life.

In recent years, the focus of psychology and medicine turned to the executive functions. In general terms, the executive functions are mental processes for developing cognitive and behavioral patterns, for adaptation to new and challenging environmental conditions (Owen 1997).

The domain of executive functions include (Miyake and c.):

- Inhibition: the ability to inhibit impulses and irrelevant information;
- Working memory: ability to maintain information in memory and use them for short periods of time;
- flexibility response: ability to implement different behaviors, depending on the rule change and the type of task (problem – solving).

Deficits in executive functioning concern patients with damage in the frontal area of the brain. However, in some cases, there is a damage in the region under the cortical (example: Parkinson's disease).

The impairment of executive functions is particularly evident in children and pre-adolescents with DSA e ADHD (8th Convention on ADHS, Pescara, 2011).

The tests used for the evaluation of cognitive ability (basic and complex) was the Nepsy II (Korkman, Kirk, Kemp, 2007).

It was found that the efficiency of executive functions helps predict, during the school age, mathematical, scientific and literary skills.

In another study it was found that the training aimed at improving of some components of executive functions translate into improvements, especially in mathematics.

2. The Project “Eco – logic day”: an example of a protocol for teaching to improve the executive functions.

2.1 Introduction

In teaching experience that follows, we tried a new way to improve the executive functions. We have combined the discussion, typical of "Philosophy for Children" to "Life skills teaching."

The experiment was aimed at the entire class and it has had three main phases:

- Reading and discussion about a piece with ethical significance. In our case, the passage is taken from an international document, "the paper of the Earth".

This document is a declaration of fundamental ethical principles, drawn up following the recommendation of the World Commission of the United Nations, 1987.

It "seeks to inspire in all peoples a sense of global interdependence and shared responsibility for the well-being of the human family, the greater community of life, and future generations."

- Design of an event with the aims of disseminating the shared values that have resulted from the conversation and, in particular, respect for the environment.
- Realization of the event and the budget debate.

2.2 Background and content

This experiment was carried out in an Italian middle school on 2015. The school is located in Trino (VC), a village of about 7000 inhabitants, in the Po valley. The class involved was a sixth grade with 20 students, including two children with learning disorders and 5 foreign children (Moroccans 3, Romanian 1, Albanian 1).

The annual program provides for this class knowledge environment, generally, and the knowledge of the area in which the students live. These goals are common to different disciplines: Italian, geography and science.

For this reason, the Italian teacher and I have decided to work together to draw up and implement this project.

2.3 Methodology

In the first part of the experiment the Italian teacher has read the document with the students and started discussions.

Its role has been to ask the questions and guide the discussion. He was careful to keep an attitude of active, interested and non-judgmental.

He divided the children into groups of three people and asked them to point out the sentences of the "Earth Charter" that had affected them more. A representative from each group had the task of reading all these sentences and to explain the reasons for the choice. The teacher opened the debate and was driving it. When the boys expressed opinions that he was far from universal values of "Earth Charter" posed questions designed to understand them and to make them understand that what they said was not good for society.

In the second part of this experimentation, I, as the science teacher, threw the boys a teaching challenge: design and create a special day for their teachers and their families with the aim of spreading the ideals of the "Earth Charter".

At this stage I used the educational model: "Life skills" and the methodology of teaching by project.

In the last decades a new idea of learning, founded on the concept of *Life skill*, is progressively affirmed. This concept has suffered a deep evolution during the years. The Boterves (4) reassumes it as the passage from "to know" to "to know to be" and to "to know to act": intended as synthesis among to know how to do and to know how to be for facing a challenging situation.

This model of teaching would cure, therefore, the deep fracture among scholastic world and the real world, underlined by Resnick.

The importance of the renewal of the school in this direction has been observed by numerous International Organizations and it has totally been embraced by the European Union.

In the Life skills teaching the teachers are not the protagonists of the didactic action anymore, but a director that creates situations becomes only, He/She observes, corrects, evaluate; He/She is a true point of reference for the class group.

A methodology that is in full accord with the Life skills teaching, is the *teaching by a project*; in which class is invited to build a tangible product that means to mobilize the knowledge of all pupils and to increase their *Life Skills*.

2.4 Pupils with cognitive (executive functions) in this project

The two students with learning disabilities have participated in all stages of the trial. In the first phase, during the philosophical discussion, they were spokesmen of the reflections made in their work group. They have been inserted into two different groups; the groups were heterogeneous for level.

The conversation was aimed to increase their security and their motivation towards the proposed activity, in addition to the purpose, common to the whole class, to teach the universal values.

During the rest of the project, a student with difficulty was included in the group that was in charge of the organization of the lunch and in the management of the budget (rental of the farmhouse in the woods, shopping for food, ...). The other student has dealt with the Companions of publicizing the event and the organization of the games during the day. These activities have stimulated much the executive functions in children with deficits. They have improved their organizational skills, their computing power and memory.

Teamwork was an opportunity for everyone to grow with the help of classmates and it was a beautiful moment of inclusion.

The purpose of the "eco - logical" day was to create a festive atmosphere and socialization, to stay in contact with nature, to increase the scientific skills and the feeling of inclusion.

As teachers, we have noticed considerable improvements by all pupils, and especially pupils in difficulty.

2.6 Results: the "Eco - logic" Day

Pupils have dedicated 18 hours of science classes to organize this day that was held Sunday, June 7, 2015 at the forest "delle sorti della Partecipanza" - Trino

The day was preceded by an inspection at the local lowland forest during the month of May in school hours.

98 people took part to the initiative: the students and their families and 10 teachers.

The initiative was called by the boys "*Eco - logic Day*" and was structured as follows:

- Welcome speech read by a student;
- Ecological walk during which pupils have done as nature guides;
- Reflection's moment: the pupils have asked all participants to stand in a meadow with their eyes closed and they read some phrases from "The Earth Charter";
- Debate: the boys have asked their parents and their brothers and sisters to comment on what had been read;
- Lunch;
- Developing games: competitors were parents who, in the course of the race, had to answer questions about what they have learned during the day.

3. Conclusions

In this experiment, students with deficits have trained their executive functions, without performing mechanical exercises. They were placed in heterogeneous groups and they worked on the project with their classmates. The purpose of the project has increased the motivation of all, especially of children with learning difficulties. Classmates were indispensable for their positive reinforcement and to compensate for their shortcomings. This experiment was, therefore, an excellent example of inclusive activities.

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