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PROJECT GALILEO

A pluriannual teachers' “while working” training, in order to foster children's wellbeing and success in school.

PROJECT GALILEO A pluriannual teachers' “while working” training, in order to foster children's wellbeing and success in school
Jacqueline Bickel, Giuseppina Grandini Introduction In Italy all children are compelled to go to school until 16 years of age, with the opportunity to gain knowledge, abilities and essential competencies. Kindergarten and Primary School particularly are engaged in allowing all children to attain the best development encompassed by their personal potentialities. This purpose seems particularly complex today, due to the continuing social and cultural modifications of the environment influencing schoolchildren, that require constant educational adjustment. But national indications, Institute's curriculum, personalisation are still the key word. The school system must aim at educate children throughout instruction. It is essential that each pupil gain at school a good self esteem, a good attitude and respect toward others as well as a sound construction of his thought with a solid knowledge of subject competencies. Since eight years we are working toward these objectives, taking advantage of the rules of the school autonomy stated in 1999. We shall now briefly synthesize our results. We have set up a new instructional method, called at the beginning Project Galileo, working with our experts and with the collaboration of some teachers of our Institute. This Project is designed for nursery schools educators, and for teachers and pupils from kindergarten to primary and first secondary schools (children 0-14 years). We set up the Project basing the didactic on neuropsychological principles and scientific theories. Our way of teaching children is every year more appreciated outside and allow us to obtain continuous financial resources (many of our projects are accepted and funded every year). We have pin pointed criteria and procedures for a detailed assessment of every child, that allow for an efficient individual teaching and instruction. We have constructed several didactic tools of proved efficacy, from profiles to curricula, that meet at best the needs of today school. THE NEUROPSYCHOLOGICAL BASES The Project is theoretically based on the most recent literature and its reference points are the following. 1. Construction by stages, instead of development Children construct their intelligences using tools, opportunities and time that society, family and the educational group offers them. These constructions follow precise stages, simulating physical development, where every step is due to DNA. The mental building steps may appear due to inherited genes; but genes are responsible only of the initial inherited tendencies. Parents, educators and teachers with their action represent the external context that can optimize or inhibit these initial tendencies. Neurology tell us also that what children construct in the first year of their life is very resistant to any modification or change; and also that every brain has the same places where to build knowledge, but every individual cognitive map may be very different from one to another. 2. Multiple Intelligences The Project is based on

Gardner's Multiple Intelligences theory. At birth every child inherits the nuclei of all these intelligences, but he/she has to expand them by learning, and integrating them in an unique cognitive map. Every child constructs his/her intelligences in different periods and at different rhythms. The intelligences can be grouped, forming the self (the two inter- and intrapersonal intelligences); the practical thought (motor, spatial and musical intelligence); linguistic and logical competence. Children build their practical thought and their self since their first days of life, as they act upon their environment and interact with people. Educators and teachers must model for them especially the linguistic and logical competences, associating the code with practical activity and concrete objects, beginning in kindergarten. If language and logic are well constructed, they will play later a prevalent role in learning.

3. Knowing before programming As educators have the highest responsibility helping children in building their multiple intelligences, they should be precisely informed about the building stages of every intelligence. During the first years of life every intelligence is still singled out; but at the end of kindergarten all intelligences should be sufficiently built, so that they could be connected with one another, to form an unique well integrated cognitive map.

4. Inductive vs deductive learning During the preoperational period children learn mainly through induction: performing in a concrete way, following many examples given by adults and peers, so that they can code their thoughts in language and slowly arrive at more general conclusions and formulae. Inductive learning is slower than deductive learning. Deduction starts with verbal explanations and formulae, but children will profit from this style of teaching only when they will become formal learners. During the entire preoperational stage children must elaborate their way of thinking and their simple first linguistic code, good enough for social uses and interactions with others, but inadequate to sustain the cognitive uses required from school: i.e. reflection and logical thought. To accomplish the best elaboration of their linguistic code, all school children must not only listen but also have the opportunity to speak. So it is necessary to provide them with linguistic education in small groups, of maximum five children, where all the pupils may operate directly manipulating concrete objects, and at the same time learning how to code in language: actions, attributes, spatial relations, time, causes and effects. To become an effective language user, each child must have many opportunities to use the new words and sentences, speaking with teacher and peers.

5. Accepting every child before teaching During the early years teachers must try above all at establishing a positive relationship with all their pupils, instead of thinking about instruction. A positive relationship will give each child a good self image as a learner, building confidence in his ability to continuously meet new issues and, consequently, building a positive relation with the teacher and a good motivation for all the future school learning. As the teacher deals with the entire group of children, he/she cannot practically build the same good relationship with all his pupils, because not all children may feel the teacher's attention toward themselves, and in the mean time he/she needs also maintain order and discipline. When the teacher works with the entire class group he/she is perceived as a controller, a policeman or a judge. Teachers can build a strong positive relationship with all their pupils only while working with them in small groups, modeling for all of them how to use the language of logic and instruction, and appreciating every contribute from all. Only when the

teacher works in the small group every child see him/her as a nice friend and a worthy guide, able and eager to bring success to everyone. ESSENTIAL OBJECTIVES OF THE PROJECT

To assure the best educational success to all children. To help each child in maximize the construction of his thought. To help each child in gaining the maximum knowledge in every subject. To form teachers and parents through interactive seminars, to make clear the theoretical basis, that supports both the assessing instrument, with its ways of gathering and analysing data, and the intervention programs.. To form teachers through while working research. To instruct teachers and parents through consultations on particular cases. ESSENTIAL TOOLS

Protocols and Curricula as tools for individual assessment and programming. Profiles as communication tools between school and families.

Various usual didactic tools Teaching in small groups.

Protocols Protocols are the first operational tools. They consist in a series of simple tests that the teacher must submit to every child and in a questionnaire for getting information from the family. Their purpose is to bring teachers to assess each child globally and analytically, substituting generic and superficially observations. Curricula The Curricula represent the steps of the mental construction that each child begins early in family and may carry on with the help of his/her school teachers. The assessment with curricula may place exactly every child where his learning is sound in each specific subject, beginning in kindergarten and then going on with the analytical assessment in primary and secondary school. All pupils are so ensured with systematic and integrated school experiences, respecting their needs, rhythms and cognitive styles. Each pupil may receive the educational experiences effectively corresponding to his/her characteristics, leading to an early educational formative programming. Profiles The results obtained from protocols and curricula, are synthesized in written Profiles, that may be useful for:

- controlling the degree of learning reached by each pupil;
- communicating and discussing the learning results with the family;
- activating a strong metacognition in every pupil.

METHODOLOGY

Kindergarten teachers put the seeds of all the important future constructions of children. Kindergarten teachers have the best opportunity to assess needs and potentialities of every child analysing their constructions in the multiple intelligences. They also have the task of informing parents of all their educational responsibilities towards their child. Kindergarten teachers have three years for establishing in every child the correct motor competencies of the graphic sign, that must become automatic with time, working for a few minutes every day. And two years for rendering automatic the ordered representation of number and the first calculation. Teachers must also help each child to understand the meaning of words like numbers, that are not linked to perceptual space, and to build the logical structures of conservation, reversibility, inclusion, transitivity. They also must guide all the children to code with language a simple procedure (sequence of actions) or the description of a common object that the children may have with them and may manipulate. All this may be done only in a small group. Children appreciate so much learning in the small group, even if this is possible only for an hour a week, that they will always respect the small group of other children. ASSESSMENT To plan formative personalized courses, really corresponding to the pupils's bio-psycho-social peculiarities and

aiming at the optimum development of their personalities, requires as a first step an accurate assessment of the needs but also of the potentialities of each pupil: an authentic assessment. Assessment is not a clinical screening, but a way to bring teachers appreciate the special resources and needs of every pupil. This first assessment to be effective needs operative tools and procedures scientifically based and educationally meaningful: protocols. The teacher must assess how every child has elaborated quantitatively and qualitatively all his/her intelligences. A precise and comprehensive assessment (from personal independence to working style; from motor, spatial and rhythmic competencies to the linguistic and logical ones) is prerequisite not only in identifying the formative goals, but also in determining contents, activities, strategies, and educational aids of the instruction programming. The same assessment is useful for the prevention, reduction, or control of learning disorders. Teachers may perform the assessment both "while working" with the great or the small group or individually. As soon as the teacher get the profile it is not necessary to assess again the child globally, but it suffices to note his/her progresses in every area. Teachers must always evaluate their pupils in an indirect way, respecting their self image and self esteem; the evaluation is done mainly on their participation to activities and group discussions, and is based on their questions, as these are the evidence of their interest for the subject and the activities. The assessment become so a continuous process, that come first, take on and follows any instruction. INSTRUCTION PROGRAMMING The instruction programming of every subject is shown step by step in the "Curricula". The subject are divided in fundamental: language, logic and mathematics; concrete or practical educations (gymnastic and sport, technical, art, music, sciences); and information (geography, history, sciences). Language and mathematics have a separate section for motor activities that must become automatic: motor activities of hand and eye that will bring the children to a correct and fluid handwriting and spelling; rhythmic activities that will bring them to a sound construction of number and calculation. Practical education represent the concrete basis where to begin to teach language and logic. The Curricula graduate by time what every child must learn, but they also stress how to teach each subject matter: from the mentally simple to the complex; from the concrete to the abstract; from the global to the particular. Teachers must instruct their pupils with the inductive method, stressing that every child had always the opportunity to associate language to activities on concrete objects they already know how to use; proceeding with a modular instruction for the different needs of the children, bringing all of them to understand the deductive method. Teachers will start with simple procedures, descriptions, comparisons, classifications, the space, time, ending with cause and effects and with problem solving. RESULTS 1. Optimization, prevention, timely intervention The Project Galileo is now become a real method of instruction. It applies to the whole class helping all children to make the best out of their potentialities. It also helps strongly to prevent learning disorders and reduce retardation, but it is not primarily meant for children with handicaps or learning problems. All children at the end of the second primary class get a good automatic handwriting, no orthographic errors, and a sound automatic mental calculation (even divisions). They are interested in observing, describing and all of them love to write. The Project apply well to all the

children in a classroom. When intervention is meant only for retarded children, the teacher will neglect the optimization work for "normal" or "gifted" children; he also will neglect those children, who have only an initial hidden learning problem in one or more intelligences. But when intervention is meant for normal or gifted pupils, these children may well help their peer working in small group. 2. Network intervention: home and community services The Project provides for parents' involvement. The teacher will inform the parents, reading and interpreting for them every observations synthesized in the profile, showing how their child is constructing step by step his/her intelligences. After a certain time, when teachers feel ready and have appreciated the results of the Project, they may summon special meetings to explain the whole project to parents. In many cases the collaborations of the Community Services (Local Organisations, Municipalities, Province's Administrations, ASL, Banks) has been very useful not only for grants or economical contributions, but also and above all for establishing or intensifying services for schoolchildren and their families. Every possible Community's resource must be exploited for the benefit, efficacy and the efficiency of the Project.

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