

Original Article

A study on italian primary school rules: neurophysiological and didactics aspects in physical education and sport

GAETANO RAIOLA

Public school head of Naples & contract professor University of Salerno, Italy

Published online:: June 30 2011

(Accepted for publication April 14 2011)

Abstract: In the last years, new discoveries on the brain have changed the scientific scenario of psychopedagogy theories concerning how the mind functions in the movements and how the children learn through the motor activities. The results show the connections between new orientation and old one on motor control system theory such as motor imagery in one hand and closed loop and open loop in other hand. At the same time Italian primary school, as called in the past time elementary school, that goes between 6 years old to 11, has updated the ministerial rules and regulation documents relating to the educational activities. The aim is to research if there are the educational elements of psychology and pedagogy have the scientific basis that carry out from scientific discoveries on motor control and movement learning. The method is integrated by theoretical-argumentative approach and documentary one. The results show the absence of specific elements of education and didactics that can be connected to the new discovery theories. All ministerial published documents do not provide any references and contents of recent discoveries related to the theory of movement and didactics of motor activities. It suggests to update them, for this reason it could be useful to communicate to the ministerial head the results and conclusion to fill up the gap. **Key words:** regulation documents, motor control, education

Introduction

To introduce the work on Primary school it is useful to recognize the contents from two sources, in one hand the regulation documents and rules and in the other one the recent discoveries on the function of the mind related to the movement and its laws. Primary education was completely reformed with Legislative Decree no. 59 of 19 February 2004, which was passed following the implementation of delegated Law no. 53 of 28 March 2003 aimed at reforming the entire system of education and training of the first cycle of education. Based on the new organization, this first piece of education pathway, which lasts a total of 8 years, consists of primary school and the first step of secondary school, commonly called low secondary school. Primary school and lower secondary school are two different education levels, each with its own specificities, even though they are part of only one school cycle. Primary school is compulsory and lasts 5 years from 6 to 11 years old. It consists of a first year that serves as a transition from nursery, commonly called in Italy maternal school or kindergarten, and two successive periods of two years for each. Primary education is provided at State Schools and at non-state schools with equal status (*paritarie*), but just the first one has directly the public economical resources, while the second one has not directly the economical resources. Enrolment and compulsory attendance are free of charge at State, equal status or *parificate* authorized schools. The municipality provides all pupils with textbooks free of charge.

Families are generally asked to pay a sum for transport and canteen services managed by the municipality. Families with low incomes are exempted. The possibility to offer financial aids directly to the families falls within the responsibility of single regions; therefore, it changes according to the different legislations. It can be stated, generally, that provisions are contributions in money like cheques and scholarships, reductions of the payment for transport and meals up to the total exemption, for the weaker categories, as well as reductions for text books purchase. (Structures of Education and Training Systems in Europe Italy 2009/10 Edition, EURYDICE CEDEFOP ETF Sharing Expertise in Training p.16).

Education is compulsory from 6 up to 16 years of age. The right/duty to education and training for at least 12 years is fulfilled within the education system or up to the obtainment of a three-year vocational qualification (either at school or in the initial vocational training system) before reaching 18 years of age. Compulsory education covers the first cycle of education (8 years) and the first two years of the second cycle (upper secondary education). Admissions criteria: Enrolment to the first class of primary school is compulsory for all children who have turned 6 within the 31st December of the current school year or, earlier, within the 31st

April of the current school year. Enrolment to the first year of lower secondary school is compulsory for all pupils who have successfully completed the primary school. Enrolment and attendance are offered free of charge for the whole first cycle of education. Families are free to choose the school, within the limits of available posts. Length of school day/week/year : the school year comprises at least 200 days between the 1st of September and the 30th of June. Schools open five or six days a week. Compulsory annual teaching hours are 891 in primary school and 957 in lower secondary school; this amount is subdivided into 33 teaching weeks with an average amount of, respectively, 27 and 29 weekly hours.

According to school autonomy, each educational institution is responsible for the organization of its annual teaching time. At primary level schools can also organize the teaching time on an average of 30 or 40 weekly hours. In the first year of primary schools also a weekly timetable of 24 hours has been introduced. At lower secondary level, the compulsory annual amount of teaching hours is 990 (30 hours a week). Curriculum control and content Schools of the first cycle of education (primary school and lower secondary school) adopt National Guidelines (Indicazioni nazionali per i piani personalizzati delle attività educative) of 2004 together with Guidelines for the Curriculum (Indicazioni per il curricolo per la scuola dell'infanzia e per il primo ciclo di istruzione), issued in 2007 and introduced on an experimental basis in school year 2007/08 and school year 2008/09.

In the next three school years (until 2011/12) the activities carried out by the schools will be monitored. The outcomes are likely to be used to amend the Guidelines. Such guidelines define the essential performance levels that should be ensured by each school. The guidelines are nationally determined and adapted to local needs by each school according to school autonomy. Knowledge and skills are indicated for each subject; the school will help pupils to transform them into personal competencies. Specific learning objectives at primary school level have been defined for the following subjects: Catholic religion, Italian, English language, history, geography, mathematics, science, technical education and ICT, music, art and drawing, sport and motor sciences. As for the lower secondary school, the specific learning objectives have been defined for the following subjects: Catholic religion, Italian, English language, a second foreign language, history, geography, mathematics, science, technical education, information and communication technology, music, art and drawing, sport and motor sciences. Class size/student grouping pupils are usually grouped according to their age. According to their organizational autonomy, schools can also organize groups with pupils of different ages. Each class is generally made up of maximum 26 and minimum 15 pupils, at primary level, and of maximum 27 and minimum 18 in the first classes at lower secondary level. At primary level teachers are generalist. At lower secondary level, teachers are specialist in one or more subjects. (National system overviews on education systems in Europe and ongoing reforms EURIDYCE 2010 pp.3-4).

General objectives (Organization of the education system in Italy EURIDYCE 2010 pp.60-61) in Primary school is, through the exploitation of the pupils' personal diversities, including those due to disabilities, 'fosters the personality development, the acquisition of basic knowledge and the development of skills, from ICT literacy up to the first logical-critical organization, as well as learning expressive means, Italian language and English language literacy; furthermore, it intends to place the bases for the use of scientific methodologies in the study of the natural world, its phenomena and laws, and to exploit social and orientation skills in the space and time as well as to teach the fundamental principles of civil coexistence' (Legislative Decree no. 59 of 19 February 2004). Primary school aims are clarified in the National Guidelines (Indicazioni nazionali) for the personalized study plans of 2004 and in the new Guidelines for the curriculum (Indicazioni per il curricolo) introduced on a trial basis for school years 2007/08 and 2008/09. In syntax, the ministerial documents are in temporal order: 1955 Programme for the educational activity in elementary school, 1985 Programme for the educational activity in elementary school, 2004 National Guidelines in the first cycle of the school, 2007 Curriculum Guidelines the first cycle of the school, 2009 Revision of the educational organization regulated directions for the first cycle of the school.

Currently the whole phenomenon on physical and sport activities and its didactics can be integrated to investigate properly in Primary school. Research methods may include science fields that are extremely different such as life science and human science to investigate on the mechanism to learn and the method of teaching. Recently, the neurological and scientific research has placed highlight to the need for links among the different fields of knowledge to explain the whole phenomenon. To explain how the man thinks from the sole point of view that regards the restrictive aspect of the physiology could be limited, the same may hold if it approaches the knowledge subject only from the philosophical point of view. Movement theorists are changing and the teaching methods must be update to optimize the didactics to develop better the education action.

The significant changes in theories of the movement must be consistent with the necessary adjustments in teaching, such as to return to human body his central role in learning / teaching process. The occasion is the new scientific evidences on the function of mind and its theory and new discoveries show the relation and relationship between two different research approaches. Determined nerve cells activates when they see, hear or perceive through touch a movement but do not produce actions and movements. These nerve cells are defined mirror neurons for the property of reflecting, such as the mirrors, the own acts and the others, imagining their

own standing still. There is not the contribution by this neurons to the practical execution of the movement, they perceive without to act, it is just imagination and sole motor idea (Rizzolatti, Iacoboni, Gallese, Fogassi, Fadiga, 1996). They discharge the electrical potential and it can be seen when there is the activation by x-ray sophisticated instrumentation the Movement Evoked Potential (MEP) such as Positron Emission Tomography (PET), Functional Magnetic Resonance Integrated (fMRI) of Transcranial Magnetic Stimulation (TMS) and Magneto Encephalography (MEG). These electronic instruments, by planning design, give the icon representation of the particular of the brain in correlation with predefined activity in experimental procedure. When the perception by vision, hearing, touch and proprioception, is active in this representation without the movement there is evidence of motor imagination. It has been demonstrated the existence of particular nerve cells called mirror neurons that, without acts and motor activities, discharge electrical potential and activate the sole part of brain and could be reflect itself the other movement around the own body. Furthermore, this phenomenon happens when it imagines an idea of motor activities without run it. It is then declared a new theory of motor control called imagery motor. This opens a new way on learning of motor activities for imitation and on teaching based on simulation and demonstration. It means that action and perception occur together and in the same time so it helps each other in all phases of movement learning and, perhaps, of other kind of "learnings" .

As Lotze & Halsband (2006) described, the process of imagination is not dependent on the ability to execute a movement but rather on central processing mechanisms. According to Jeannerod (1995) motor imagery (MI) represents the result of conscious access to the content of the intention of a movement, which is usually performed unconsciously during movement preparation. He concluded that conscious motor imagery and unconscious motor preparation share common mechanisms and are functionally equivalent. This may be the reason why mental practice using MI training results in motor performance improvements (review in athletes: Feltz and Landers, 1983).

Jackson et al. (2001) summarized that “contrary to the conditions in which a motor task can be learned implicitly with physical practice, mental practice with MI requires that subjects have all the necessary declarative knowledge about the different components of the task before practicing. However, as with physical practice, the rehearsing of the task with MI can also give access to the non-conscious processes involved in learning the skilled behaviour”

The knowledge operates in the same time, or contemporarily, and does not in the traditional steps:

- 1 sensory information that makes the perception,
- 2 motor idea,
- 3 planning,
- 4 execution ,
- 5 monitoring by feedback.

So, there is also knowledge at one time without the traditional sequential stages of sensitive afferent perception, development of the motor idea, motion planning, execution of actions and feedback. The importance of the playful-motor activities suggests a new way of doing school, which can be carried out only acknowledging the centrality of the person in a holistic version. The primary school after the preschool is particularly interested in this scientific development for the consequences that may have on the educational activity. These applications may influence the mechanisms of acquisition of motor skills and development of motor skills in relationship to other field that are similar among they. Physical education could determine the learnings in other field of knowledge that have at centre the body and its movement. They are spatial, temporal, sequential, linguistic, musical, iconic, expressive skill and so on (Gardner,1993)

Apart physical education, the relationship among body, movement and learning allows to acquire spatial, temporal, sequential, linguistic, expressive and musical skills. the study of the educational psychology updates its own scientific paradigms in relation to these discoveries.

Embodiment and situatedness are the center of learning in early age and they the basis for the new complex knowledge, which means embodied and situated cognition is into the phenomenon on the body and movement to develop the learning way. In order to understand better how to take advantage of these discoveries as well as how to avoid an inappropriate use and distorted cultural spreading, it is important to point out some aspects (Gallese, 2007). Sense-perceptive competencies, movement in space and time and, at least, the body language have to be meant as a communicative-expressive way. These discoveries bring into discussion the theories of motor control that temporally distinguish the afferent perceptive phase from the executive efferent one according to the two more shared scientific paradigms: closed-loop motor control and open-loop motor control. The first provides that the perception is first and then the movement and so constantly in a continuous loop called closed-loop motor control system (Adams 1975). Movements are those that are not present in motor memory and are executed with the help of feedback for adjustments and corrections of errors. They are constantly updated through the comparison between what is perceived, called perceptive trace, and what you have in mind, called memory trace. The second is also expected that first is the perception and then the movement but in one or different scheme called open-loop motor control system (Schmidt 1985). It clarifies some differences about the past other model that is the movements are already present in memory and do not

adjust themselves with the comparison and they can't be corrected when the feedback occurs below 200 milliseconds and the brain can't process them and use them. This theory states that there are in memory a wide range of similar movements among them in a sort of container or register. These patterns are already present at birth but become active in certain circumstances already in a functional manner. The new discoveries about the brain suggest a mixing up of perception/action in a single process where perception and execution are set together without a sequential order and where the knowledge derived from movement is learned in a single process. The aim of this study is to verify if the ministerial documents of the kindergarten there are aspects of psycho-pedagogy and educational applications of any recent neurological and scientific discoveries on mirror neurons and on motor imagery (Raiola 2011). Thus is aim to develop an epistemological and psycho-pedagogical framework including any related educational applications about body and movement; to make an epistemological reflection on the theory of human movement in the educational school that starts from preschool and end to lower secondary school throughout primary school. The aim is to verify the presence of contents that are justified the new scientific evidence.

Methods

The methodological approach is complex. Integration of different types of research into a single model with an ecological model. In one way it is the historical and documentary research that analyzes the methodological and teaching contents of physical sport and motor activities in primary school obtained from laws and ministerial papers. In the other way it is the theoretical and argumentative research that analyzes methodological and didactic patterns of physical motor and sport activities according to the main pedagogical, psychological and physiological theories. Finally to compare all the data and to argumentative the deductions.

Results

The document 1955, Programme for the educational activity in elementary school is very short and contains a few elements for the harmonic development about behaviourist aspects. It has a double orientation: the first one is orientated to the harmonic development of the body and its natural expression by the guide of the master and the second one to include the complexity of movement to help to develop the child to grow up. There are no elements on motor control system or didactics method to teach the movement as well as the neuro scientific research. The document 1985, Programme for the educational activity in elementary school is longer than the past one and, for the first time, speaks on motor education in a cognitive aspects in several interface of physical education and sport in the developmental process between five years old and ten. It contains a strong appeal for a didactic guided by the free doing and acting and the provision of appropriate learning environments for a rich and extensive stimulation. The field of knowledge is divided by areas and the body and movement area is enhanced at least as other fields. The teacher's role is slightly active tending in some cases to director of operations. Despite this innovation, the document is incomplete about the new discoveries on motor control system and there are no scientific elements on neuroscience applied to movement and the learning process through the body. The document 2004, Attachment A - National Guideline for the Programs of studies of the first cycle of education National Guidelines for Personalized Programs of the Educational Activities in the first cycle of education, Specific Learning Objectives, Recommendation to put into practice the National Guidelines for Personalized Programs of the Educational Activities is a very innovative regulation tool to teach properly to a new discoveries on individual learning process. It takes in light the relation between the teaching and the learning in an unicum. It writes in double column, where there is specified knowledge and ability in motor and sports science, as a sort of a new scientific paradigm of physical education and sports in primary school. It is a mere list of objectives to be achieved in the form of motor skills and there is no single reference to teaching. Basically, it refers to the document above and does not refer to any element related to the theories of motor control or to the recent scientific discoveries.

The document 2007, The Guidelines for the curriculum of the first cycle of education, as the last one a large paper where there is written a lot of knowledge and process of motor and sports science in a new vision for this research field. It resumes the contents of the document

Guidelines for primary school and they are contextualized in a disciplinary process that goes from childhood to the end of the first education cycle. It widens the sense of continuity of teaching action without indicating specific teaching methods. It does not indicate a specific item on motor control and does not address to new scientific scenarios on movement in the light of the discovery of mirror neurons or the other two motor control system theories. In all the documents there is no cultural basis of theories of motor control and there are no elements of new scientific discoveries about the brain from the motor point of view. The psycho-pedagogical paradigms are totally based on the overall contents, generalizing the teaching in all fields of knowledge.

The document 2009, Revision of the educational organization regulated directions for the first cycle of the school does not explain the innovation in a new rules, but it postpones to a new experimental study the final revision and does not hint nothing. It recommends to trust in two last documents: 2007, the Guidelines for the curriculum of the first cycle of education and 2004, National Guideline for the Programs of studies of the first cycle of education National Guidelines for Personalized Programs of the Educational Activities in the first cycle of education, Specific Learning Objectives, Recommendation to put into practice the National Guidelines for

Personalized Programs of the Educational Activities. Thus ultimately, there is no trace of a scientific specificity about body and movement nor there is a cultural content on the theories of motor control.

In conclusion, in these documents there are not elements and/or methods to establish the application of motor control system in its three scientific ways and forms: closed loop, open loop and motor imagery. The big vacuum is the absolute absence of psychological and pedagogical aspects on movement that could have the theoretical aspect of new discoveries.

Discussion

In order to give a wide view of knowledge and to understand all the data is obligatory to explain a course prior to the period of the analysis of ministerial documents learning motor activities were characterized by the instrumental use of the body to achieve goals in the military field during a period that goes from 1920 and 1945. Didactics and modelling teachers has been determined by military purposes, those aimed to develop the quantitative motor and sport evaluation such as strength, endurance and speed. For this reason it is important to improve motor performance and aesthetic of external aspects of body to exalt the ego, while neglecting the education of the person through the body activities. The model was chosen to improve performance that was a demonstration of the technical gesture and the order to reproduce it faithfully or the administration of heavy workloads; didactics and model teaching was the same for all members of the group to carry out the same outcomes for everyone. The foundations of this theoretical model are to be found in behaviourism school of thought that is the general law. It begins with the external sensory stimulus, the same command for all, it continues with the answer, predetermined, induced and required at all. Everything is constantly repeated in order to consolidate the motor learning. At the same time and in contrast to this theoretical model, it was born a scientific orientation that considers the totality of stimulation, mainly visual, according to a comprehensive approach to its shape. The Gestalt theory or Form theory (from German language), a psychological current that derives its origin from historical necessity in America to meet the limits of the behaviourist theory that unifies the individual behaviour caused by the stimulus. The stimulation becomes total perception, developed and consists of all the sensations and the data held in memory. Perception is subjective, individual and conditioned by already acquired learning, it replaces the specific command with a request of execution of movement according to an individual process of imitation. Specifically, the teacher demonstrates in the whole the gesture to play and applies for many years the so-called educational "global-analytical-global" theorem. The cognitive orientation claims to the behaviourism the total absence of the importance of innate aspects of the individual and the consequent ability of the subject to effect changes on itself, cancelling the power that the environment exerts on the individual. A dynamic inside the person is projected to the outside, to the surrounding environment to assert the primacy of the individual; then, there was a review on neutrality on the inside and the outside and so appeared three trends. The culture produces effects on learning as if it were a conditioning from which one can't ignore and crystallizes the values in all knowledge (Culturalism). The context within which the dynamics is not neutral in the acquisition of knowledge, rather facilitates or inhibits the activity of the mind (Contextualism). Knowledge is built on another before and is constantly developed starting from the initial matrix (Constructivism). The environment was thus partially re-evaluated on the actual impact on knowledge. It turns out the absolute centrality of the individual respect to the environment and the priority of the person in the motor activity without control but the teacher does not show but announces a delivery with minimum requirements and does not interfere in the process and the individual separately learns without a specific technique to achieve the objective it has set itself. The teaching model refers to the techniques of teaching workshop (circle time, cooperative learning and role playing). The phenomenology, the orientation of philosophical origin (Husserl and Merleau Ponty 1945), has for some time, before Behaviourism, Gestaltism and Cognitivism with its derivations, focused on the function of the interaction body-environment and subject-subject in the mechanisms of learning, as it was already aware of the actual functioning of the perceptive phenomena of specialized nerve cells that are discovered later (mirror neurons). The interpretative key was all aimed at enhancing the body as a receiver of signals to decode and that they contributed to the knowledge that independently formed whatever it was the single channel, the sensory channel, but determined by perception. The discovery of mirror neurons is confirmed by the phenomenology of perception (Iacoboni, Gallese 2008) which binds together perception, action and knowledge in a unique process with no beginning and ending, it defines a different scenario in his motion for complete adherence to the phenomenology. Furthermore, the ability of brain to activate the motor neuron cells that do not innervate muscles, they are evidence of functions of the mind affecting the movement and they are only abstract, like any other knowledge that does not take place with the movement. Documents are lacking in cultural references about physical education and this results in a total absence of knowledge of general and specific aspects of human movement, motor control and psychological aspects. The unique and overall formulation of knowledge is useful for the holistic approach to knowledge but it does not realize at all the objective of base knowledge in a specific field. A detailed review of the psycho-pedagogical principles at the basis of ministerial documents is needed, with the purpose to insert clear links to the theories of motor control and human movement.

References

- Berthoz, A. (2000). *The brain's sense of movement*. Cambridge: Harvard University Press.
- Buccino, G., Lui, F., Canessa, N., Patteri, I., Lagravinese, G., Benuzzi, F., Porro, C.A. & Rizzolatti, G. (2004). Neural circuits involved in the recognition of actions performed by nonconspecifics: An fMRI study. *Journal of Cognitive Neuroscience*, 16, 114-126
- Gallese, V. (2007). Before and below "Theory of mind" : embodied simulation and the neural correlates of social cognition. *Philosophical Transactions of the Royal Society B.*, 362(1480): 659-669.
- Gallese, V. (2006 a). A neurophysiological perspective on social cognition. *Brain Res. Cog. Brain Res.*, 1079, 15-24.
- Gallese V., (2006 b). *Corpo vivo, simulazione incarnata e intersoggettività*. In Cappuccio, M. (Ed.)
- Gallese, V. (2005). Embodied simulation: from neurons to phenomenal experience. *Phenomenology and Cognitive Science*, 4, pp. 23-48.
- Gallese, V., & Goldman, A. (1998) Mirror neurons and the simulation theory of mindreading. *Trends in Cognitive Sciences*, 12, 493-501.
- Gallese, V., Fadiga, L., Fogassi, L. & Rizzolatti, G. (1996). Action recognition in the premotor cortex *Brain*, 119(2), 593-609
- Gardner, H. (1983). *Frames of Mind: The theory of multiple intelligences*. Basic Books. New York
- Merleau-Ponty, M. (2002). *Phenomenology of perception*. London: Routledge
- Husserl, D. (1936) *Die Krisis der europaischen Wissenschaften und Die transzendente Phänomenologie*, Belgrado: Philosophia.
- Jackson, P.L., Lafleur, M.F., Malouin, F., Richards, C., Doyon, J., 2001. Potential role of mental practice using motor imagery in neurologic rehabilitation. *Arch. Phys. Med. Rehabil.* 82, 1133–1141. Jeannerod, M., 1995. Mental imagery in the motor context. *Neuropsychologia* 33, 1419–1433.
- Lotze M., Halsband, H (2006) Motor Imagery. *Journal of Physiology - Paris* 99(4-6):386-395. IF 1.
- Mackenzie, B. D (1977) *Behaviourism and the limits of scientific method*. London: Routledge & Kegan Paul.
- Skinner, B. F., (1969) *Contingencies of Reinforcement*. New York: Appleton-Century-Crofts.
- Gardner, H. (2002) *Frame of the mind, the theory of multiple intelligences* Basic Books, New York 1985, USA
- Kohler, W. (1947) *Gestalt Psychology*, Liveright, New York, USA
- Latash M. (2008) *Neurophysiological Basis of Movement, Human Kinetics, Champaign IL USA*
- Schmidt, R., A., Wrisberg, G., A., (2008) *Motor Learning and Performance, Human Kinetics, Champaign IL, USA*
- Jacoboni M. (2008) *Mirroring People. The new science of how we connect with others*, Farrar Straus & Girox, US
- Raiola G. (2011) Study between neurophysiological aspects and regulation documents on preschool in Italy, *Journal of Physical Education and Sport*, 11(1), [e-journal], Available at: <<http://www.efsupit.ro>
- Rizzolatti, G. (2006) *So quel che fai. Il cervello che agisce e i neuroni specchio*. Raffaello Cortina Editore, Milano, Italia
- Wrisberg, G. A., (2009) *Sport Skills for Coaches, Human Kinetics, Champaign IL, USA*
- Chapman, A., E., (2009) *Biomechanical Analysis of Fundamental Human Movements, Human Kinetics, Champaign IL*
- European Union Document References
- Structures of Education and Training Systems in Europe Italy 2009/10 Edition, EURYDICE CEDEFOP ETF Sharing Expertise in Training 2010 EU
- National system overviews on education systems in Europe and ongoing reforms EURIDYCE 2010 EU - http://eacea.ec.europa.eu/education/eurydice/documents/eurybase/national_summary_sheets/047_IT_EN.pdf
- Organization of the education system in Italy 2009/2010 EURIDYCE 2010 EU

Regulations References

- Decree of Republic President DPR no. 89 of 20 march 2009 Revisione dell'assetto ordinamentale didattico organizzativo del primo ciclo di istruzione. Revision of the educational organization regulated directions for the first cycle of the school
- Ministerial Decree D.M. 31 July 2007, Indicazioni per il Curricolo per il primo ciclo di istruzione, The Guidelines for the curriculum of the first cycle of education
- Legislative Decree DLGS no. 59 of 19 February 2004 - Attachment A - National Guideline for the Programs of studies of the first cycle of education National Guidelines for Personalized Programs of the Educational Activities in the first cycle of education, Specific Learning Objectives, Recommendation to put into practice the National Guidelines for Personalized Programs of the Educational Activities
- Decree of Republic President DPR no. 104 of 12 February 1985 Programmi per la scuola elementare Programme for the educational activity in elementary school
- Decree of Republic President DPR no. 503 of 14 June 1955 Programmi per la scuola elementare Programme for the educational activity in elementary school