

## ESDM E ABA PER UNA PRESA IN CARICO PRECOCE ED INCLUSIVA DELL'ALUNNO AUTISTICO

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### ABSTRACT

To comprehensively frame the Early Start Denver Model (ESDM) and the Applied Behavior Analysis (ABA), it is necessary to start from the analysis of the pivotal context of application of the two methods, the autism spectrum disorder, and its areas of impairment. ESDM is a behavioral conditioning program that involves early management of the autistic child, which can begin in the age group between 12 and 36 months and can last up to 48-60 months of the infant's life. ABA is a method that involves the practical application of the principles that study human behavior and the strategies and techniques by which it can be conditioned. There is a need for early care of autistic pupils, as early as nursery and kindergarten, and the application of the principles of the ESDM method first and the ABA method, from 48-60 months of life onwards, to achieve educational success and outline new inclusive horizons.

Per inquadrare in modo esaustivo l'Early Start Denver Model (ESDM) e l'Applied Behavior Analysis (ABA), è necessario partire dall'analisi del contesto cardine di applicazione dei due metodi, il disturbo dello spettro autistico e le sue aree di compromissione. L'ESDM è un programma di condizionamento del comportamento che prevede una presa in carico precoce del bambino autistico, che può avere inizio nella fascia di età compresa tra 12 e 36 mesi e che può perdurare sino ai 48-60 mesi di vita dell'infante. L'ABA è un metodo che prevede l'applicazione pratica dei principi che studiano il comportamento umano e le strategie e le tecniche mediante le quali è possibile condizionarlo. Si rende evidente la necessità di una presa in carico precoce dell'alunno autistico, già dal nido e dalla scuola dell'infanzia, e l'applicazione dei principi del metodo ESDM prima e del metodo ABA, dai 48-60 mesi di vita in avanti, per raggiungere il successo formativo e delineare nuovi orizzonti inclusivi.

### KEYWORDS

autism, ESDM, ABA, inclusion, disability  
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## Introduction

To comprehensively frame the Early Start Denver Model (ESDM) and the Applied Behavior Analysis (ABA), it is necessary to start from the analysis of the pivotal context of application of the two methods, the autism spectrum disorder and its areas of impairment. Autism is characterized by a neurodevelopmental deficit with impairments in the area of social relationships, both verbal and nonverbal communication, and the presence of stereotypies in interests and behaviors (Baird, Cass, Slonims, 2003; Berney, 2000; Rutter, 1978; Szatmari, 2003).

Autism can be defined as a disability that accompanies the individual throughout life, although the symptomatic manifestations of the disorder can vary over time (AA.VV., 2013).

From birth, it is possible to find a variably dysfunctional clinical picture in autistic child; in fact, the latter manifests the absence of referential gaze, absence of pointing, lack of imitative capacity and affective-emotional attunement, lack of alternation of shifts in communicative exchanges (Xaiz and Micheli, 2001).

Regarding the communicative sphere, it is characterized by the absence or deficiency of verbal language, more frequently in cases with intellectual disability. Already in the tonic dialogue, the absence of shared attention, facial expressions and gestures for communicative purposes is evident. In cases of language development, even if deficient and partial, it is characterized by the presence of *neo-language* (invented words mixed with existing ones); *echolalia* (immediate or delayed repetition of words or phrases heard); *pronominal inversion* (difficulty in using personal pronouns correctly).

The autistic child is unable to develop reflective and self-reflective skills, is unable to grasp the nuances of language such as allegories, gaffes, irony and sarcasm; moreover, he has a deficit in the *theory of mind* that inhibits the subject from modulating his behavior in view of contextual requests (Howlin, Baron-Cohen, Hadwin. 1999).

Due to *autistic hypersensitivity*, the subject tends to focus his attention on details rather than on the whole picture, so there is a deficit in *central coherence* (Frith, 1989).

The person with autism also has *deficits in executive functions*, which impairs the maintenance of attention, the ability to organize and plan, the possibility of inhibiting impulsive and therefore inadequate and/or inappropriate responses,

and marked resistance to changing routines (sameness) (Schopler and Mesibow, 1998)

Autistic play is characterized by a lack of intrinsic motivation, sharing, waiting for pleasure, and a confirming smile. The child with ASD cannot access the symbolization process, so he does not develop symbolic play (Howlin et al., 1999).

The faithful and meticulous reproductions of observed scenes cannot be part of the sociodramatic game because they do not provide for any interpretation of the role, nor assumption of stereotypical social roles (teacher/student, mother/daughter, policeman/thief, etc.), they do not provide for sharing or involvement of the intellectual, relational and emotional dimensions (AA.VV., 2013).

Generally, toys are deprived of their meaning and the child concentrates obsessively and ritually on a single part, using it in a completely meaningless way; for example, if he is shown a train, he detaches a wheel and devotes all his attention to it, using it in a way that makes no sense of play (he rubs it on the body, he throws it against the wall, bites it, etc.). Trying to prevent the infant from devoting all his attention to the fetish object causes self-directed or hetero-directed aggression crises in him (AA.VV., 2013).

The autistic world is inhabited by chaos due to the person's inability to decipher environmental signals, so to avoid burnout, it is important to structure well-organized and functional learning and playful-educational settings, to propose ordered sequences of behavioral patterns, generalizable, in order to work actively both in the sensory and motor spheres (Ianes and Cramerotti, 2002)

The autistic universe is also characterized by the emission of dysfunctional behaviors, dangerous for the subject and/or for those around him, which are defined as *problem behaviors*, and represent one of the most difficult educational challenges of autism (Pontis, 2018).

### **1) The Early Start Denver Model: the importance of early management of the autistic infant**

The *Early Start Denver Model* (ESDM) is a behavior conditioning program that involves early management of the autistic child, which can begin in the age group between 12 and 36 months and can last up to 48-60 months of the infant's life (Vivanti et al., 2019).

This program was designed by U.S. developmental psychologists Sally Rogers and Geraldine Dawson, in collaboration with Amy Donaldson, Terry Hall, Jean Herbison, Diane Osaki, Laurie Vismara, Chris Whalen, and Jamie Winter.

The ESDM aims to define the skills to be taught in the field of autonomy and communication and contains a series of fundamental operational indications for applying the program. ESDM does not require a specific context for application, therefore it can be implemented both in group programs and at home, by the team of experts or by families, in individual psycho-intervention sessions, at the reference center or in the home and with intervention protocols structured by multidisciplinary teams. (Vivanti et al., 2019).

The intervention program is structured on the basis of check-lists to assess the specific skills experienced by the infant, in the areas that represent educational emergencies. In fact, the levels of development of receptive communication, expressive communication, the ability to maintain shared attention, imitative skills, relational skills, levels of development of playful activity, cognitive skills, eye-hand and gross motor coordination and skills related to basic autonomy are investigated. The domains of imitative skills, verbal and non-verbal communication, social skills development and the level of game development are considered by the authors to be of great relevance in ESDM, to structure an individualized intervention process (Rogers and Dawson 2010).

The process begins with the assessment of the child's remaining abilities. On the basis of the analysis of the checklists, the objectives of the educational program are set, which must be achieved by the infant within twelve weeks. At the end of the twelfth week, administering the same check-list, the assessment is repeated, which will serve to identify the subsequent educational objectives to be achieved in the following twelve weeks, employing, at each stage, different verbal and non-verbal communication strategies, to promote language development.

The ESDM program uses intervention techniques drawn from the ABA method, PRT, and the Denver Model. (Rogers and Dawson 2010)

It is desirable, for an optimal success of the psycho-educational intervention, that the principles of the ESDM program are shared and applied also in the family and at school. In this regard, the nursery educator and the kindergarten teacher must address the autistic child, using an easy and short-term communication based on language, also sharing with the other children in the class what the educational goal of the day is and how the children can profitably interact and relate to the classmate with atypical development.

To promote the process of inclusion of the autistic child, it is advisable to use an accessible language, supported by iconic images, to reinforce the commitment of the atypically developing infant to encourage the repetition of the expected behaviors.

The family plays a central role in the ESDM program, therefore it must be constantly informed of the progress achieved or the difficulties that the child may encounter at school, so that in the hours that the infant spends at home, parents can work in synergy with therapists and teachers (Vivanti et al., 2019)

The teacher must set up a functional classroom setting that favors the child's free exploration, with simple elements that are also present in nature such as stones, sand, leaves and others. It should offer fun activities with easy-to-find items. Educational spaces, according to the principles of ESDM, must promote the development of basic motor patterns and motor skills and stimulate exploratory play and the sensory sphere. The setting is of central importance, because it becomes both educational and therapeutic, favoring social relationships, stimulating cognitive development and implementing the communicative sphere. A natural and unstructured setting is the ideal environment to stimulate learning by trial and error and through assimilation and accommodation in the infant with atypical development, in order to be able to respond positively to the continuous and always new environmental challenges (AA.VV., 2013).

The setting, tools and materials must be "child-friendly", so that every autistic infant can be able to explore the environment independently, without having to resort to the adult to be able to use the materials of interest. Objects should be self-explanatory, intuitive, and easy to manipulate. (Vivanti et al., 2019)

The teacher, according to the ESDM program, must structure psycho-educational intervention itineraries, of short duration, but frequent, aimed at achieving the objectives set in the previously indicated domains. The shortlist of objectives to be pursued is chosen by the teacher, based on the educational emergencies of the atypical developing infant, on what is primarily important to achieve, always starting from the development and learning potentials and trying to weave inclusive plots aimed at the achievement, even relative, of autonomy (Rogers and Dawson, 2010)

## **2) The principles of Applied Behavior Analysis to promote the inclusion of autistic pupils**

Applied Behavior Analysis (ABA) is a method that involves the practical application of the principles that study human behavior and the strategies and techniques by which it can be conditioned (Ricci, et al., 2014).

The first and experimental psychoeducational interventions, of a behavioural matrix, were structured and applied with the aim of interrupting the cycle of problematic behaviours that hindered the maintenance of attention and consequently the learning of students during school hours. (Martin and Pear, 2000). An application model of behavioural guidance to promote learning is the *Personalised Education System (SIP)*. This approach has been designed to support teachers' teaching practice, with strategies and techniques for modifying students' dysfunctional behaviors.

Dysfunctional behaviors that have been addressed with such strategies are, for example, motor frenzy, aggression, and impulsivity. Other strategies drawn from cognitive-behavioral orientation have been effectively applied to achieve educational success, including reading aloud to promote text comprehension, vocabulary increase, cursive writing exercises and to promote the acquisition of the basic elements of calculation (Montedoro, 2001).

ABA has a multidimensional soul, in fact, there are seven spheres of scientific interest that outline its foundations and purposes. There is the dimension of *the application* that focuses its attention on teaching-learning processes and aims to positively modify behaviors that fall within the emergencies of learning, communication and autonomy. It makes use of the *behavioural sphere*, since the intervention must be able to be circumscribed in a reliable and measurable spatio-temporal dimension. ABA has an analytical approach, identifying contextual similarities through systematic observations. ABA interventions are placed in a *technological dimension*, because every psychoeducational intervention must provide generalizable and replicable principles, according to *the principle of ABC contingency*, where the vowel *A* of the acronym refers to the context of the intervention, the letter *B* refers to the expected behavior and the *C*, Please refer to the consequences that follow the execution of the behavior. ABA is *effective* because *it is evidence-based*, it uses only scientifically validated strategies and techniques and supported by analysis and data collection. The principles of the method provide for a *conceptually systematic* and *general* approach since the validity of the intervention is not only found in laboratory settings, but also in the context of the autistic person's life (Mari, Clò, degli Espinosa, 2015).

According to the principles of Applied Behavior Analysis, specific criteria for the definition of behaviors must be observed in the structuring of an intervention process. These must therefore be *objective*, because they must be detectable without any possible misunderstanding, by systematic observation. Behaviors must be clearly emitted, without margins of approximation and/or ambiguity and detectable also by teachers and not only by professionals of the method. The behaviour must be issued in a *complete* way, therefore it is not possible to accept partial executions not foreseen *ab initio*, therefore it is essential, for the purpose of a good application of the method, to clearly define the behavioural objectives (Ricci et al., 2014).

The ABA method involves the use of rewards and rewards to incentivize the repetition of a desired behavior. These rewards are called *reinforcements*. They can be classified into different categories, *that of positive reinforcement, which is implemented to encourage the repetition of an expected behavior, presenting the reinforcement immediately after the emission of the behavior; that of negative reinforcement which is implemented when, to reduce the possibility of repeating an undesirable behavior, a negative consequence is given, immediately after the emission of the same.* There is *primary reinforcement* which is characterized by rewards that the person generally considers to be reinforcing in a natural way, because they are part of basic needs, such as food and drink. *Secondary reinforcement*, on the other hand, makes use of reinforcers that are attractive because they are offered in combination with primary reinforcements, an example can be represented by money which would not be stimulating, but becomes attractive because it allows you to buy goods of interest that allow you to satisfy human needs (Holt et al., 2019).

For the administration of a reinforcement to be valid, the reward must be given to the autistic person *immediately* after emitting the expected behavior; it is important to avoid taking too long and risking accidentally reinforcing unwanted behaviors. It is advisable to know the tastes and preferences of the person to select only those that are stimulating as reinforcements (Ricci et al., 2014).

An example of secondary reinforcement that can be used in school is the *economy token*. It is a strategy of the ABA method that involves reinforcing a behavior using tokens (Martin and Pear, 2000).

Many special education teachers use the token economy with autistic students, believing its application to be very profitable. There are basically two benefits of using token reinforcement. First, they can be given immediately after the

expected behavior is emitted, and they can be collected later, by conversion into primary reinforcements. They are therefore used to reduce the time delays between the expected behavior and the disbursement of the reward. This becomes particularly valuable, because in the school context it would be very difficult to have numerous primary reinforcements and to avoid, for example, that the student identifies the place where they are stored (Martin and Pear, 2000).

In addition to planning a school intervention process, it is necessary to make use of strategies, techniques and tools that allow the teacher to make a valid application of the method and foresee its implementation. In the planning of the classroom setting, it is necessary to arrange furniture, tools and materials in a functional way to encourage a free but safe exploration of the environment and the development of autonomy. It is necessary to organize the times and observe the ethical norms. You also need to consider the context in its group matrix, and then look at how the class group relates (Carradori and Sangiorgi, 2017).

There are numerous inclusive school strategies that can be drawn from the ABA method for optimal care of the autistic student. Non-verbal communication can be enhanced, teaching the student to understand facial expressions and to use gestures for communication purposes. To avoid the emission of *problem behaviors*, it is possible to systematically observe each school day, for a sufficient time to identify the dysfunctional variables that cause the manifestation of the problematic behavior, so as to act on the triggering element, removing it, and thus preventing the student from endangering himself or showing aggression towards one or more classmates. It is also essential to suggest alternative behavior patterns to the autistic student, which however belong to his behavioral patterns, but socially acceptable, so that he can recognize them as his own and that he chooses to emit them in place of the problem behavior, to cause the extinction of the latter (Carradori and Sangiorgi, 2017).

In the planning of a behavioural conditioning process, it is necessary to make sure that the pupil is in possession of the prerequisites required to achieve the expected result and it is necessary to carefully consider and evaluate, since we are dealing with intellectual disability, therefore pupils with lower development and learning potential, that the final goal is important.

The teacher, in his/her psychoeducational planning, must structure each phase of the intervention in a progressive and sequential way, paying particular attention to correctly detect the skills already experienced by the student and the skills that he has not yet developed and which will therefore represent future objectives of



the process. It must also be considered, objectively, whether, even with all the aid provided for in the method, it will ever be able to achieve the objective of the intervention, this assessment is essential to exclude or include an objective from the intervention process.

Furthermore, a behavioural conditioning objective can only be considered effective if the delivery involves the development of a competence that the pupil has not yet developed, which is relevant to promote the increase of the fundamental domains of educational and learning emergencies and which is scientifically documentable. (Carradori and Sangiorgi, 2017).

The context must provide a functional setting, with self-explanatory material, to stimulate in the student, the assertive capacity and therefore consequently the ability to counteract passivity and hyperdependence, very frequent in intellectual disability (Martin and Pear, 2000).

A valid strategy of the ABA method, to facilitate the progressive approximation of the expected behavior, is that of *shaping*. Modelling becomes essential when the pupil alone is unable to perform the desired behaviour; shaping, in fact, requires that approximations are reinforced in order to "model" them until they become precise executions (Ricci et al., 2014).

Prompts *are* used when an attempt is made to develop in the student, in order to facilitate its emission, a behavior that is not present in one's behavioral baggage. The stimulus is then presented to the student and the prompt is added at the same time, to encourage the emission of the expected behavior and increase the possibility that it will be repeated in the future. There are different prompt modes; *physical*, when guiding the autistic student's body to complete the action and thus facilitate the achievement of the goal; *verbal*, when language is used to suggest the desired answer and facilitate its memorization by the student; *gestural*, when the teacher, through an encouraging look, pointing with the finger or moving the head, favors in the student, the identification of the correct answer; *positional*, when it is the objective that is gradually and proportionally brought closer to the student encountered; *imitation*, when a model is used in the setting to show the desired behavior; *trace*, when a draft of the expected response is outlined in order to simplify its completion (Ricci et al., 2014).

Even the context can become a "conditioning tool"; *cues* (environmental suggestions) are elements inserted in the classroom setting that should encourage a spontaneous response in the student, modifying behavioral patterns (Ricci et al., 2014).

Frequently, in the paths of conditioning behavior, the teacher makes the mistake of causing the student to become accustomed to reinforcements, no longer being able to use them as rewards and receiving continuous requests for (unmotivated) gratification from the student.

*Fading* is the gradual reduction of reinforcement and is a strategy that is used by the teacher to gradually accustom the student not to resort to supports that are no longer necessary and therefore to take important steps towards autonomy (Foxy, 1995).

To be able to achieve autonomy, relative or absolute, based on developmental potentials, it is important that the student can learn meaningfully, sequences or chains of behavioral patterns. *Chaining* favors the acquisition of single units of behaviors that at the end of the intervention will be linked to each other, forming complex and articulated sequences (Ricci et al., 2014).

The chaining strategy assumes that a teacher can encourage the student to learn many behavioral patterns, breaking them down into circumscribed sequences, which will therefore become easy to acquire. The process of breaking down a complex behavioral pattern into smaller, and therefore much more accessible, sequences is called *task analysis* (Martin and Pear, 2000).

The daily school life of autistic students is too often characterized by frequent problematic behaviors. It is therefore essential to understand what the triggering causes are, to reduce or extinguish, the student's need to repeat these behaviors that are very dangerous for himself and/or for the class group. The behavioural patterns of the pupil with SLD are influenced by the psycho-educational intervention itineraries and by the intervening variables of the student himself, for example by his motivation, by his level of perceived self-efficacy. Investigating these parameters is essential to understand how the student has consolidated dysfunctional patterns of behavior and for what reason. (Carradori and Sangiorgi, 2017)

*Functional behavior analysis* is a technique that aims to determine the objective and contingencies of the intervention process, understand the cause and purpose of the problem behavior, identify the contextual stimuli that favor the repetition of dysfunctional behavior in the student. It is divided into three phases, *antecedent, behavior, and consequence (ABCs)*.

"*The educational cycle*, also called the three-term relationship (Leslie, 1987), is composed of three interconnected elements: the first element, the one that starts

the cycle, is the *signal*, i.e. any stimulus (object, person, animal, event or instruction) present in the environment; the second is *behavior*, i.e., the response that is emitted as a result of the signal; the third is *the consequence*, i.e., a natural or socially mediated event that contingently follows the response." (Ricci et al., 2014).

Functional analysis is particularly useful to dissuade the autistic student from the repetition of dysfunctional behavior patterns, suggesting others, present in the student's behavioral repertoire, alternative and proactive.

## **Conclusion**

Today's school, in the increasingly frequent cases of autism, is proposed as a fundamental educational agency, in synergy with the family and with local authorities. It is therefore essential to take care of the autistic pupil promptly, early and supportively, in order to meet the emergencies in the area of communication and autonomy and in that of basic learning. The role of the inclusive teacher is affirmed as central in proposing himself as a reference model from the earliest age of the autistic child. The special education teacher should therefore be trained on the theoretical bases of the ESDM method and ABA, on intervention strategies and techniques, in order to be able to weave important and essential inclusive plots (Martin and Pear, 2000).

Today's school trains its teachers on the panorama of autism spectrum disorder, so complex and varied and full of significant symptomatic differences between one student and another. Therefore, in order to pursue the goal of the educational and training success of each and every one, it is crucial that the special education teacher opens up to the world of rehabilitation therapies and builds a synergy of education, training and care with the therapists of the autistic student. If the autistic student does not follow methods of conditioning behavior, in the afternoon hours, he can still acquire the foundations at school, thanks to the inclusive training of the support teacher, which allows the latter to be able to implement a conditioning of behavior aimed at achieving the development of the most compromised dimensions in autism, but fundamental for the well-being of the person with atypical development.

The teacher must therefore aim to develop verbal communication, if possible, and non-verbal communication in the student, encourage the acquisition of basic autonomy, improve spatial-temporal orientation, develop relational skills through

emotional literacy and shared play with the peer group. He/she will be able to assess, in taking charge, the level of gross motor skills achieved and, if necessary, work on the consolidation of basic motor patterns, will be able to evaluate the level of eye-hand coordination achieved by the autistic student, and possibly enhance the activities to promote the correct grip of the graphic medium. They will also be able to propose activities aimed at recognizing the body pattern about themselves and others. Through the correct application of behavioural conditioning strategies and techniques, it is therefore possible for a special education teacher to structure a psycho-educational process tailored to the specific educational needs of the student, teaching the child new knowledge and encouraging the development of new skills, supporting, with repetition and exercise, the consolidation of those already developed (Montedoro, 2001).

In conclusion, it is certainly possible to affirm the need for early care of autistic pupils, as early as nursery and kindergarten, and the application of the principles of the ESDM method first and the ABA method, from 48-60 months of life onwards, to achieve educational success and outline new inclusive horizons for children with autism spectrum disorder.

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