

The SCERTS System. An integrated approach for the emotional regulation of the student with Autism Spectrum Disorders

Il sistema SCERTS. Un approccio didattico integrato per la regolazione emotiva dell'alievo con Disturbi dello Spettro Autistico

Saverio Fontani / Università di Firenze / saverio.fontani@unifi.it

Deficits in the emotional regulation are commonly observed in the typical behavioral profile of Autism Spectrum Disorders. Such deficits are attributable to the disorientation caused by the inability of understanding the environmental instances. This paper describes the opportunities related to the implementation of the SCERTS System for the emotional regulation of children on Autism Spectrum.

Key-words: autism spectrum disorders, special education, SCERTS model, social inclusion

abstract

© Pensa MultiMedia Editore srl
ISSN 2282-5061 (in press)
ISSN 2282-6041 (on line)

IV. Altri temi 197

Saverio Fontani, psicopedagogo, insegna nel CDL in Scienze della Formazione Primaria dell'Università di Firenze. Si interessa dei processi di Educazione speciale per le disabilità evolutive, con particolare riferimento ai Disturbi dello Spettro Autistico. Tra le sue pubblicazioni: *Il Disturbo da Deficit di Attenzione con Iperattività* (2012). *La Sindrome di Williams. Dalla ricerca all'intervento psicoeducativo* (2012); *I disturbi dello Spettro Autistico. Percorsi per la didattica inclusiva* (2014).

1. Introduction

The *Autism Spectrum Disorders* (ASD) represent one of the most complex developmental disabilities among those found in the child population (Volkmar, Rhea, Klin & Cohen, 2004; Schreibman, 2005; SIPeS, 2008; Dawson, 2008; Lubetsky, McGonigle & Handen, 2011). Because of their relative diffusion the educational systems need to consider the specificity of the educational relationship that should be developed with students that present social and communicative behavioral characteristics attributable to such disorders.

Because of the peculiar characteristics of the cognitive and social profile, characterized by deficiency in social research and consistent communication difficulties, such disabilities would result in the need for special adaptations to the teaching context both in its physical, social and relational aspects (Cottini, 2011; SIPeS, 2008; Guldborg et al., 2011; Mazefsky & Handen, 2011).


In other words, the social deficit commonly associated with Autism Spectrum Disorders imposes the need for a contextual enhancement and facilitation of a learning environment, according to the guidelines of the perspective of the International Classification of Functioning, Disability and Health (WHO, 2001).

The restructuring of the diagnostic criteria, recently operated in the main international diagnostic repertoire, the *Diagnostic and Statistical Manual of Mental Disorders- DSM 5* (APA, 2013), confirms the centrality of social deficits in Autism Spectrum Disorders. The criteria are in fact focused on two main areas:

1. *Deficit of communication and social interaction, with deficits in the following areas:*
 - 1.1 Deficits in social-emotional reciprocity;
 - 1.2 Deficits of nonverbal communicative behaviors;
 - 1.3 Deficits in the development of appropriate relationships.
2. *Restriction and repetition of behaviors and interests, as specified by the following criteria:*
 - 2.1 Stereotyped and repetitive language and movements;
 - 2.2 Adherence to the routine with resistance to change;
 - 2.3 Establishment of interests with abnormal intensity;
 - 2.4 Anomalous interests with pervasive manipulation of objects;
 - 2.5 Changes in sensitivity to pain, cold and heat.

The presence of a similar behavioral profile, characterized by pervasive alteration of the sociality and of the repertoire of interests, should make it easy to guess the special educational needs of students with ASD (Dawson, 2008; Lubetsky, McGonigle & Handen, 2011). They are based on the predictability of the learning environment and the daily routines (SIPeS, 2008; Cottini, 2011), and should be considered in the development of any special educational intervention (Schreibman, 2005; Dawson, 2008; Mazefsky & Handen, 2011; Guldborg et al., 2011).

Similarly, we should also consider the deficits of emotional modulation, which are frequently found in the typical cognitive profile of children with ASD (Wetherby & Prizant, 2000; Prizant, Wetherby, Rubin & Laurent, 2003; Rieffe, Terwogt & Kotronopoulou, 2007; Dawson, 2008; Chambers, Gullone & Allen, 2009; Mazefsky & Handen, 2011; Schipul & Keller, 2011).



The educational relationship, particularly in the educational settings related to Primary School, should be modeled in terms of these specific characteristics in order to encourage the child with ASD to develop basic communication skills, which in turn make up the essential background for the development of capacities of personal autonomy (Mazefsky & Handen, 2011).

These motivations have led to the development of special education models oriented toward the integration of existing approaches according to the educational needs of the student with ASD (Schreibman, 2005).

The SCERTS model, in this perspective, could be considered as an integrated educational approach rather than a specific intervention model (Prizant, Wetherby, Rubin & Laurent, 2003; Prizant, Wetherby, Rubin & Rydell, 2006; Bloch & Weinstein, 2009; Siller, Hutman, & Sigman, 2013).

2. The deficit of social cognition in Autism Spectrum Disorders

From the point of view of the SCERTS System the base deficit of the disorder is brought back to the deficit in the development of social cognition. The deficit of social cognition represents the first area of the diagnostic criteria of the DSM 5 (APA, 2013) and one of the major alterations, also seen in the subjects with high cognitive functioning.

Alterations in communication and social interaction can be caused by two basic deficits, both present in the early stages of development (Wetherby & Prizant, 2000; Prizant, Wetherby, Rubin & Laurent, 2003; Rieffe, Terwogt & Kotronopoulou, 2007; Dawson, 2008; Chambers, Gullone & Allen, 2009).

The first deficit is represented by the inadequacy of sharing processes of attention, a process that is a precursor of the typical social development (Wetherby & Prizant, 2000; Dawson, 2008; Mazefsky & Handen, 2011; Lubetsky, McGonigle & Handen, 2011).

The deficit makes it extremely difficult for the child with ASD to develop his ability to share his interest in an object with a communication partner and it is an obstacle to the development of more common social experiences, such as those represented by the social game and shared reading.

In a typically developing child the share of attention is represented by the directionality of the common gaze towards an object, and by the awareness that the communication partner is observing the same focus of interest at the same time as the subject (Wetherby & Prizant, 2000; Dawson, 2008; Chambers, Gullone & Allen, 2009).

The development of social cognition is determined by the early appearance, in the typically developed child, of the ability to draw the attention of his partners to the focus of public interest. Similarly, at 18 months of age the child is able to coordinate the direction of gaze on objects of interest for the communicative partner (Dawson, 2008; Wetherby & Prizant, 2000; Lubetsky, McGonigle & Handen, 2011).

In children with ASD, the capabilities for sharing attention are extremely compromised, and this aspect is strongly related to the inability to orient the eye on

focus of interest, even after the interlocutor's solicitations (Wetherby & Prizant, 2000; Dawson, 2008).

The joint attention deficit hinders the development of the theory of mind, with the consequent difficulty in recognizing and understanding the interlocutor's beliefs and emotions (Dawson, 2008).

A second deficit commonly detectable in the cognitive and social profile of children with ASD is instead represented by the deficit of symbolization processes (Wetherby & Prizant, 2000; Dawson, 2008; Schipul & Keller, 2011).

The deficit affects the use of symbolic codes used for communication processes and for social interaction, with the consequent inability to produce and understand the language. The deficit is also extended to the understanding of facial emotions and non-verbal communication (Wetherby & Prizant, 2000; Prizant, Wetherby, Rubin & Laurent, 2003; Dawson, 2008; Mazefsky & Handen, 2011; Schipul & Keller, 2011).

The skills of joint attention and use of symbolization processes are essential to the development of social cognition. Deficits of the two abilities may be responsible for the obvious alterations in communication and social interaction, detectable even in milder autism spectrum disorders and in the forms with high cognitive functioning (Wetherby & Prizant, 2000; Prizant, Wetherby, Rubin & Rydell, 2006; Gross, 2007; Dawson, 2008; Chambers, Gullone & Allen, 2009).

The two processes have relations of mutual dependence: the learning of symbolic codes requires expertise in sharing attention. The capabilities related to a correct use of symbolic codes instead enable the understanding of the interlocutor's communicative intentions, based on the understanding of facial expressions of emotions and non-verbal communication (Dawson, 2008; Lubetsky, McGonigle & Handen, 2011).

In the typical development the understanding of the interlocutor's communicative intentions allows the development of interest in shared activities, with positive effects on the development of understanding of beliefs and emotions (Wetherby & Prizant, 2000; Gross, 2007; Chambers, Gullone & Allen, 2009; Lubetsky, McGonigle & Handen, 2011).

In children with ASD, the deficits of sharing attention processes and the use of symbols obstacle the understanding of the intentions and beliefs of others, and even many of the maladaptive behaviors typical of the disorder could be connected to this aspect (Prizant, Wetherby, Rubin & Rydell, 2006; Dawson, 2008; Lubetsky, McGonigle & Handen, 2011).

This deficit also influences the learning style of the student with ASD, characterized by peculiar cognitive strengths and weaknesses (Wetherby & Prizant, 2000; SIGN, 2007; Mazefsky, Pelphrey & Dahl, 2012). The learning style, in particular, is influenced by the presence of relatively preserved competences in the processing visuospatial skills and visual memory, associated with deficits in the social cognition, in the semantic memory and in the problem solving skills (Prizant, Wetherby, Rubin & Laurent, 2003; Lubetsky, McGonigle & Handen, 2011).

Even the deficits in the self-regulation of the arousal exert significant influences on the learning style of the student with ASD, and this element should be considered in the development of each educational project oriented to meet his special educational needs (SIGN, 2007; Dawson, 2008; Mazefsky & Handen, 2011).

The SCERTS System was developed precisely to ensure adequate educational

responses to the deficit of social cognition and emotional regulation typically observed in the cognitive profile of the student with ASD, according to the selection of the most advanced evidence based educational techniques (e.g. ABA, Denver Model, Pivotal Response Training), and their adaptation to the educational needs of every single student (Prizant, Wetherby, Rubin & Laurent, 2003; Prizant, Wetherby, Rubin & Rydell, 2006; Guldborg et al., 2011; Molteni, Guldborg & Logan, 2013).

These features allow considering the approach as one of the most advanced systems for Special Education interventions aimed at the student with ASD (see for a review Guldborg et al., 2011; Molteni & Guldborg, 2013).

3. The SCERTS System

The SCERTS System represents a pedagogical approach based on the multi-disciplinary organization of the educational context according to the learning style of the student with ASD. In this perspective, the approach could be considered as a philosophy based on the most appropriate educational response to the educational needs of each child with ASD, which are represented by the deficit of social cognition and by the deficits of emotional self-regulation (Prizant, Wetherby, Rubin & Laurent, 2003; Prizant, Wetherby, Rubin & Rydell, 2006; Molteni, Guldborg & Logan, 2013).

For this reason, the approach does not qualify as a new model of specific intervention, but rather as a mode of selection, among the existing models, of the ones that are most appropriate to the cognitive and social profile of every student with ASD.

In the perspective of the *International Classification of Functioning, Disability and Health* (WHO, 2001; 2013), the SCERTS system could therefore be considered as an enhancement of the educational context developed for every student with ASD, oriented towards the development of appropriate educational responses to his educational special needs.

The denomination SCERTS derives from the acronym of its components: Social Communication, Emotional Regulation and Transactional Support. The components of the approach are related to the intervention on the processes of social communication, of emotional self-regulation and on transactional support.

The first two components of the approach are aimed at an educational response to deficits of typical students with ASD, and the third area is characterized by the data that peers, educators and parents learn the most effective ways of organizing communicative support to the pupil with ASD (Prizant, Wetherby, Rubin & Rydell, 2006; Guldborg et al., 2011; Molteni & Guldborg, 2013; Molteni, Guldborg & Logan, 2013).

The basic elements of each of the three components are presented below.

1. Area of Social Communication

The interventions in this area are oriented to the acquisition of basic communication skills, which represent essential components for the understanding of en-

vironment instances and for the satisfaction of the individual in the relationship with the community (Prizant, Wetherby, Rubin & Rydell, 2006; Dawson, 2008; Mazefsky, & Handen, 2011). The acquisition of basic social skills also represents a predictor for the development of the capacity of personal autonomy.

For these reasons, the SCERTS approach is characterized by the constant repetition of interactive sequences between the child and the educator, based on the sharing of attention and the use of shared symbolic codes.

An example of interactive sequences is represented by the following script, which is a behavioral repertoire able to promote the development of experiences of sharing attention:

- Look at the interlocutor;
- Switch the gaze from the other person to the focus of interest;
- Point out the focus and alternate gaze to the partner;
- Take the object and hand it to the communication partner;
- Use verbal symbols (for example, name the object).

The repetition of this interactive script, derived from the most effective evidence-based models such as the *Pivotal Response Training* (Koegel, 2000), the *Denver Model* (Rogers & Dawson, 2010) and the *Picture Exchange Communication System - PECS* (Bondy & Frost, 2002), is an essential sequence to provide the student with ASD experiences of sharing attention and experiences of use of symbolic codes for communication (Prizant, Wetherby, Rubin & Laurent, 2003; Schreibman, 2005; Prizant, Wetherby, Rubin & Rydell, 2006; Dawson, 2008).

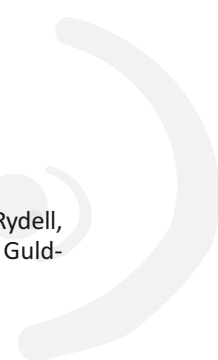
More complex communication sequences, based on the introduction of new symbols and of new experiences of sharing attention processes (such as reading a picture book together or watch a video together) can be developed on a basic interactive script like the one described.

These interactive sequences can be easily carried out in the educational relationship between the special support teacher and the student with ASD, and could be easily incorporated into natural contexts represented by educational environments related to Kindergarden and Primary School.

The use of communication tables based on the symbols of the Augmentative and Alternative Communication (AAC) may represent a practical application of the script indicated. The inclusive potentiality of this activity could be extended to the whole class, teaching to peers the basic symbols of the AAC for the collective sharing of the communication code (Mirenda & Iacono, 2009; Beukelman & Mirenda, 2013).

Such tasks will broaden the audience of potential interlocutors of the child with ASD, and can increase the experiences of sharing attentional processes through the teaching of the basic elements of this interactive script to his/her peers. Sharing these activities with peers can have a positive effect on the communication competences of the child with ASD, representing a model for an effective inclusive education (Mirenda & Iacono, 2009; see Beukelman & Mirenda, 2013, for a review).

From this point of view, the opportunities presented by the experiences of joint attention and by sharing of the symbolic codes for the development of basic



social skills should be taken into consideration (Prizant, Wetherby, Rubin & Rydell, 2006; Guldborg et al., 2011; Mazefsky, Pelphrey & Dahl, 2012; Molteni & Guldborg, 2013; Molteni, Guldborg & Logan, 2013).

2. Area of Emotional Regulation

Deficits in the regulation of the emotional are commonly observed in the typical behavioral profile of Autism Spectrum Disorders. Such deficits are attributable to the disorientation caused by the inability of understanding the environmental instances and of communicating needs and possible feelings of discomfort to the interlocutors (Rieffe et al., 2011; Mazefsky, Pelphrey & Dahl, 2012).

From this point of view, the deficits of Emotional Regulation may be the cause of the child's various maladaptive behaviors, such as the motor stereotypies, or reactions of fear and aggressiveness (Wetherby & Prizant, 2000; Prizant, Wetherby, Rubin & Laurent, 2003; Simonoff et al., 2008; Rieffe et al., 2011; Lubetsky, McGonigle & Handen, 2011).

According to the guidelines of the SCERTS approach, the repeated presentation of the experience of sharing attention and use of shared symbolic codes allow the improvement of basic communication skills, with the consequent expansion of the capacity to make demands of the environment and ask for help in difficult situations.

The emotional self-regulation, in this perspective, is strictly related to the development of communication skills (White et al., 2009; Schipul, Keller & Just, 2011; Rieffe et al., 2011; Lubetsky, McGonigle & Handen, 2011). If the child learns how to make requests or to communicate his/her needs, the maladaptive behaviors would no longer be necessary, since it becomes possible to influence the environment with the use of symbols (e.g. indicate the symbol of the door to ask someone to go out instead of developing maladaptive behaviors).

Such a conception of maladaptive behavior, derived from the perspective of *Applied Behavior Analysis* (Maurice, Green & Luce, 1996; Baker, 2008; Cottini, 2011; Lubetsky, McGonigle & Handen, 2011; Mazefsky, Pelphrey & Dahl, 2012), should be sufficient to understand the link between the development of social communication competences and these related to processes of Emotional Regulation.

The effective metaphor proposed by Frith (1989), according to which the maladaptive behaviors related to the Autistic Spectrum would have the same signaling function of the white cane for the blind person, may be exemplary with respect to this point of view.

In the SCERTS perspective, in fact, the skills of self-regulation of the emotional arousal are favored by the presentation of repeated experiences of modification of the environment as a result of a request, developed through symbolic codes (Prizant, Wetherby, Rubin & Rydell, 2006; Mirenda & Iacono, 2009).

The awareness of the use of these possibilities would exercise a very positive effect on the ability of regulation of emotional states by the student with ASD, with a corresponding decrease in maladaptive behaviors typical of the behavior profile connected to disorder (Prizant, Wetherby, Rubin & Rydell, 2006; Baker, 2008; Odom, Horner & Snell, 2009; White et al., 2009; Mazefsky, Pelphrey & Dahl, 2012).

3. Area of Transactional Support

This component of the system is based on the research carried out by educators, parents and peers to find the best way for the coordination of the support offered to the student with ASD.

The concept of *Team around the child* is an effective indicator of the level of structuring multidisciplinary support presented to the student by the educational environment (Prizant, Wetherby, Rubin & Rydell, 2006; Odom, Horner & Snell, 2009; Guldberg et al., 2011; Molteni & Guldberg, 2013; Molteni, Guldberg & Logan, 2013).

The concept of team illustrates the need for coordination between multidisciplinary professionals who develop and implement educational projects based on the response to the Special Educational Needs of the student with ASD (Molteni, Guldberg & Logan, 2013).

Similarly, the emphasis of the SCERTS approach on the involvement of family members in the educational interventions centered on the child witnesses the need of the extension of transactional support in the domestic context (Bloch & Weinstein, 2009; Siller, Hutman & Sigman, 2013; Molteni, Guldberg & Logan, 2013).

A peculiar role, in this perspective, is the one played by the sibling relations, that determined specific alterations in the familiar dynamics (see Caldin & Cinotti, 2014 for a review).

In fact, the *Parental Mediation* represents a component that can influence positively the educational interventions directed to children with ASD (SIGN, 2007; White et al., 2009; Bloch & Weinstein, 2009; Siller, Hutman & Sigman, 2013), as is also highlighted by the Italian Guidelines (2011).

The reference to the involvement of peers in the regulation of transactional support offered to his companion, finally, has clear points of contact with the current models of Inclusive Education (see Booth & Ainscow, 2002; Downing & Peckman-Hardin, 2007; Cottini, 2011).

Learning the most effective communication methods to understand the needs and experiences of their partner (for example through the collective learning of the symbols of *Augmentative Alternative Communication*), is in fact one of the most effective methods of transactional support for the improvement of the student's communication skills, with the resulting positive effects on his/her ability of emotional self-regulation (Prizant, Wetherby, Rubin & Rydell, 2006; Mirenda & Iacono, 2009; Rieffe et al., 2011; Mazefsky, Pelphrey & Dahl, 2012).

4. The role of the SCERTS system in the processes of Emotional Regulation

In a typically developing child, the processes of communication and social interaction are closely related to the ability to regulate his/her emotions (Gross, 2007; Rieffe, Terwogt & Kotronopoulou, 2007; Chambers, Gullone & Allen, 2009; Rieffe et al., 2011). This competence, which is essential for the cognitive and social development, can be considered as the ability to maintain a state of optimal acti-

vation adaptive responses to environmental instances (Anzalone & Williamson, 2000; DeGangi, 2000; Prizant, Wetherby, Rubin & Laurent, 2003; Rieffe et al., 2011; Mazefsky, Pelphrey & Dahl, 2012).

The skills of emotional regulation directly affect the ability to control the activation (arousal), which varies from minimum activation states (such as sleeping) to states of high activation (for example, reactions of fear and aggressiveness).

In children with ASD there are substantial deficits in the modulation of these processes, determined both neurophysiological factors and their inability to understand the environmental instances (Prizant, Wetherby, Rubin & Laurent, 2003; Prizant, Wetherby, Rubin & Rydell, 2006; Simonoff et al., 2008; Odom, Horner & Snell, 2009; Schipul & Keller, 2011).

In other words, this inability to influence the arousal processes may be responsible for common maladaptive behaviors in the cognitive profile of Autism Spectrum, such as the reactions of escape, the aggressiveness or fear that can be observed when the child is exposed to unexpected changes or feared situations (Wetherby & Prizant, 2000; Volkmar, Rhea, Klin & Cohen, 2004; Simonoff et al., 2008; Odom, Horner & Snell, 2009; Chambers, Gullone & Allen, 2009).

In the behavioral profile of the child with ASD, maladaptive reactions can also occur in an under reactive form, characterized by lethargy (Wetherby & Prizant, 2000; Simonoff et al., 2008; Odom, Horner & Snell, 2009). The maladaptive behaviors that result from deficiency of the emotional regulation processes are attributed to the lack of competences related to social communication and to the involvement in learning situations (Prizant, Wetherby, Rubin & Laurent, 2003; Mazefsky & Handen, 2011; Mazefsky, Pelphrey & Dahl, 2012).

For this reason, in the SCERTS System, a dominant role is attributed to the development of the skills of emotional self-regulation. The ability to exercise control on the states of hyperactivation or underactivation seems to be significantly related to the involvement in the sharing of attention processes and in the learning of new symbols, basic components of the processes of social communication (Prizant, Wetherby, Rubin & Rydell, 2006; Gross, 2007; Mazefsky & Handen, 2011).

In the child with ASD the difficulties of mutual regulation should also be considered. These difficulties involve the understanding of the attempts of help delivered by the interlocutor.

The student with Autism Spectrum Disorders, in other words, has a substantial deficit even in the understanding of the fact that the adult can provide opportunities for help and comfort (Wetherby & Prizant, 2000; Prizant, Wetherby, Rubin & Laurent, 2003; Dawson, 2008; Gullone & Allen, 2009).

The difficulties of mutual regulation are attributable to the lack of joint attention, a process that is essential for the development of appropriate social relationships. The absence of shared attention processes may prevent in the child the knowledge of symbolic nonverbal behaviors (e.g. reach out to the adult or take him/her by the hand) or verbal (e.g. say: *I don't want!* or: *Never!*).

These considerations should illustrate the relationship between the deficit of social communication and the deficit in the individual or mutual emotional regulation processes, and may justify the emphasis of the SCERTS Model on these processes (Laurent & Rubin, 2004; Prizant, Wetherby, Rubin & Rydell, 2006; Gross, 2007; Chambers & Gullone, 2009; Rieffe et al., 2011).

This integrated approach, in fact, provides components for the evaluation of the factors that interfere with the emotional self-regulation.

Objectives for self and mutual regulations are then determined on the basis of an individualized assessment of the child's competences.

The *stimulants strategies*, used for children who are in states of low activation (e.g. encourage the child to look for objects, move randomly or jump) are examples of emotional self-regulation.

Similarly, *calming strategies* aimed at the reduction of the arousal (e.g. move according to musical rhythms, or manipulate favorite objects) can be used efficaciously with children who are in states of high activation. The recursive use of calming or stimulating strategies seems to exert a positive influence on the ability of modulation of activation (Laurent & Rubin, 2004; Bradley & Isaacs, 2006; Gross, 2007; White et al., 2009; Rieffe et al., 2011). The ability to exercise control on the arousal increases the availability of the child to the sharing of attention and social interaction (Prizant, Wetherby, Rubin & Laurent, 2003; White et al., 2009; Rieffe et al., 2011).

This ability to control, mediated by the educator, can be exemplified by the teaching of symbolic gestures, verbal or non-verbal (Gross, 2007; White et al., 2009), that enable the child to make requests or refuse objects and activities through socially acceptable manner (e.g. pointing at, nodding to mean availability, shaking head to refuse).

The use of symbolic gestures could encourage the substitution of maladaptive behaviors with communicative behaviors, according to the guidelines of *Applied Behavior Analysis* (Maurice, Green, & Luce, 1996; Baker, 2008; White et al., 2009; Cottini, 2011).

In addition, the ability to express emotional states through the use of shared symbols, derived for example from theses of the CAA (Beukelman & Miranda, 2013), is a primary target for emotional self-regulation.

Through the use of shared symbols the student with ASD can signal his/her needs and desires to a partner that represents his/her life environment, and this possibility is related to the decreasing maladaptive behaviors, particularly in forms with a low cognitive functionality (Prizant, Wetherby, Rubin & Laurent, 2003; Prizant, Wetherby, Rubin & Rydell, 2006; Gross, 2007; Baker, 2008; White et al., 2009).

The ability to understand the requires of the environment is in fact positively related to the ability to regulate emotional states, with the resulting decrease in non adaptive behaviors which are typical of students with Autism Spectrum Disorders (Gross, 2007; Baker, 2008 Chambers & Gullone, 2009).

The background of the processes of emotional regulation is finally represented by the ability to ask for help in situations of disorientation, instead of developing maladaptive behaviors such as those represented by the crying, fight or escape attempts (Dawson, 2008; Baker, 2008; Chambers & Gullone, 2009; Rieffe et al., 2011).

The student could thus learn the socially shared symbolic gestures needed to ask to get out of a noisy classroom, for instance by giving the corresponding symbol on the communicative table or directly indicating the door, instead of crying or screaming (Prizant, Wetherby, Rubin & Rydell, 2006; Gross, 2007; Mazefsky & Handen, 2011; Mazefsky, Pelphrey & Dahl, 2012).

Similar considerations could be developed in relation to the capacity of mutual and self-regulation necessary to exit from the crisis.

The situations of acoustic overstimulation are events associated with a high risk of disorientation for the student with Autism Spectrum Disorders (Wetherby, Prizant & Schuler, 2000; Prizant, Wetherby, Rubin & Laurent, 2003; Baker, 2008; White et al., 2009; Lubetsky, McGonigle & Handen, 2011).

For this reason, the SCERTS System includes the presentation of operational suggestions indispensable to the student to get out of the crisis by himself. A typical example is the development of the capacity of independent research of a quiet situation (Prizant, Wetherby, Rubin & Rydell, 2006; Baker, 2008; Dawson, 2008; Molteni, Guldberg & Logan, 2013).

In other words, the student could learn the socially shared signals to ask to decrease the environmental acoustic overstimulation: if he/she is disturbed by a noisy classroom, the child may learn to express the need to go into the room of the game, instead of developing maladaptive behaviors (Prizant, Wetherby, Rubin & Laurent, 2003; Bradley & Isaacs, 2006; Prizant, Wetherby, Rubin & Rydell, 2006; Gross, 2007; Mazefsky & Handen, 2011).

5. Concluding remarks

The SCERTS System can be considered as an interdisciplinary approach oriented to guide to the choice of the most appropriate evidence-based educational techniques in functions of the learning style and of the cognitive profile of each student. A multidisciplinary approach such as that provided by the system is essential to the development of educational interventions aimed at students with disabilities resulting from autism spectrum disorders (Prizant, Wetherby, Rubin & Rydell, 2006; Lubetsky, McGonigle, & Handen, 2011; Rieffe et al., 2011; Molteni & Guldberg, 2013).

The implementation of the programs of educational intervention based on the SCERTS methodology could promote the development of adaptive behaviors in students with severe disorders, given the emphasis placed on the promotion of communication skills.

The development of these skills is in fact strongly correlated with positive long-term developmental outcomes: students who fail to share attention with stakeholders are in fact able to start the communication sequences and using a symbolic language to communicate their needs and their emotional states (Prizant, Wetherby, Rubin & Rydell, 2006; Lubetsky, McGonigle & Handen, 2011).

Similarly, the promotion of communication skills is able to influence the student's maladaptive behaviors, encouraging their replacement with more adaptive competences, as those related to requests for help. These competences, in turn, are crucial for the ability to prevent or to get out of dangerous situations, as those represented by events of acoustic overstimulation (Lubetsky, McGonigle, & Handen, 2011; Mazefsky, Pelphrey & Dahl, 2012).

The development of an independent capacity of a risk event is a valid predictor for the positive developmental outcomes of the disorder (Prizant, Wetherby, Rubin & Laurent, 2003; Baker, 2008; White et al., 2009; Mazefsky, Pelphrey & Dahl, 2012).

The system is currently one of the most widely used programs for the educational intervention in the United Kingdom and the United States, and its introduction in the training of special support teachers may be desirable also for the Italian academic training systems.

References

- APA - American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders – DSM 5*. Washington: APA (Tr. it., *Manuale Diagnostico e Statistico dei Disturbi Mentali*, Raffaello Cortina, Milano, 2014).
- Anzalone M., Williamson G. (2000). Sensory processing and motor performance in autism spectrum disorders. In A. & B Wetherby, B.M. Prizant. *Autism spectrum disorders: A transactional developmental perspective* (pp. 143-66). Baltimore: Brookes.
- Baker J. (2008). *Positive strategies for managing and preventing out-of-control behavior: No more meltdowns*. Arlington, TX: Future Horizons.
- Beukelman D. R., Mirenda P. (2013). *Augmentative and Alternative Communication. Supporting Children and Adults with Complex Communication Needs*. Baltimore: Brookes.
- Bloch J., Weinstein J. D. (2009). Families of young children with Autism. *Social Work in Mental Health*, 8, 23-40.
- Booth T., Ainscow M. (2002). *Index for Inclusion: developing learning and participation in schools*. CSIE: New Redland Building, Coldharbour Lane, Frenchay, Bristol.
- Bondy A., Frost L. (2002). *A picture's worth. PECS and other communication strategies in Autism*. Bethesda: Woodbine House.
- Caldin R., Cinotti A. (2014). Different mirrors. Sibship, disability and life phases. *Italian Journal of Special Education for Inclusion*, 1, 95-113.
- Chambers R., Gullone E., Allen N. B. (2009). Mindful emotion regulation: An integrative review. *Clinical Psychology Review*, 29, 560-572.
- Cottini L. (2011). *Autismo a scuola. Quattro parole chiave per l'integrazione*. Roma: Carocci.
- Dawson G. (2008). Early behavioral intervention, brain plasticity, and the prevention of autism spectrum disorder. *Development and Psychopathology*, 20, 775-803.
- Downing J. E., Peckman-Hardin K. A. (2007). Inclusive education. What makes a high quality education for students with moderate-severe disabilities? *Research and Practice for Persons with Severe Disabilities*, 32, 16-30.
- Felce D., Perry J. (2009). Living with support in the community. Factors associated with quality of life outcome. In S. Odom, R. Horner, M.E. Snell (2009). *Handbook of developmental disabilities* (pp. 410-28). New York: Guilford.
- Flynn L., Healy O. (2012). A review of treatments for deficits in social skills and self-help skills in Autism Spectrum Disorders. *Research in Autism Spectrum Disorders*, 6, 431-40.
- Frith U. (1989). *Autism: Explaining the enigma*. Oxford: Blackwell.
- Gross J. J. (2007). *Handbook of emotion regulation*. New York: Guilford.
- Guldberg K. S., MacLeod A., Jones G., Prunty A., Balfe T. (2011). Implications for practice from international review of the evidence on best practice in educational provision for children on the Autism Spectrum. *European Journal of Special Needs Education*, 26, 65-70.
- Koegel L. (2000). Interventions to facilitate communication in Autism. *Journal of Autism and developmental Disorders*, 30, 383-91.
- Laurent A. C., Rubin E. (2004). Challenges in emotional regulation in Asperger syndrome and high-functioning autism. *Topics in Language Disorders*, 24, 286-297.
- Lubetsky M., McGonigle J., Handen B. (2011). *Autism Spectrum Disorder*. Oxford: Oxford University Press.
- Mazefsky C. A., Handen B. L. (2011). Addressing behavioral and emotional challenges in school-aged children with ASD. In M. Lubetsky, J. McGonigle, B. Handen (Eds.), *Autism Spectrum Disorders*. Oxford: Oxford University Press.
- Mazefsky C. A., Pelphrey K., Dahl R. E. (2012). The Need for a Broader Approach to Emotion Regulation Research in Autism. *Child Dev. Perspect*, 6 (1), 92-97.
- Maurice C., Green G., Luce S. (1996). *Behavioral intervention for young children with autism*. Austin: Pro-Ed.

- Mirenda P., Iacono T. (2009). *Autism Spectrum Disorders and AAC*. Baltimore: Brookes.
- Molteni P., Guldberg K. (2013). Promoting multidisciplinary team work for Autism: an English school experience. *Italian Journal of Special Education for Inclusion*, 1, 83-93.
- Molteni P., Guldberg K., Logan N. (2013). Autism and multidisciplinary teamwork through the SCERTS Model. *British Journal of Special Education*, 40 (3), 137-145.
- Odom S., Horner R., Snell M.E. (2009). *Handbook of developmental disabilities*. New York: Guilford.
- Prizant B., Wetherby A., Rubin E., Laurent A. (2003). The SCERTS Model. A transactional, family centered approach to enhancing communication and socioemotional abilities of children with Autism Spectrum Disorders. *Infants and Young Children*, 16 (4), 296-313.
- Prizant B., Wetherby A., Rubin E., Rydell P. J. (2006). *The SCERTS Model: A comprehensive educational approach for children with Autism Spectrum Disorders*. Baltimore: Brookes.
- Rieffe T., Terwogt M. M., Kotronopoulou K. (2007). Awareness of single and multiple emotions in high-functioning children with autism. *Journal of Autism and Developmental Disorders*, 37, 455-465.
- Rieffe C., Oosterveld P., Terwogt M.M., Mootz S., van Leeuwen E., Stockmann L. (2011). Emotion regulation and internalizing symptoms in children with autism spectrum disorders. *Autism*, 15, 655-70.
- Rogers S., Dawson G. (2010). *Early Start Denver Model. Linguaggio apprendimento e reciprocità sociale*. Torino: Omega.
- SIGN- Scottish Intercollegiate Guidelines Network (2007). *Assessment, diagnosis and clinical interventions for children and young people with Autism Spectrum Disorders. A national clinical guideline*. Edinburgh: SIGN.
- Siller M., Hutman T., Sigman M. (2013). A parent mediated intervention to increase responsive parental behaviors and child communication in children with ASD: a randomized clinical trial. *Journal of Autism and Dev. Disorders*, 43, (3), 540-555.
- Simonoff E., Pickles A., Charman T., Chandler S., Loucas T., Baird G. (2008). Psychiatric Disorders in Children with Autism Spectrum Disorders: prevalence, comorbidity and associated factors in a population-derived sample. *Journal of the American Academy of Child and Adolescent Psychiatry*, 47, 921-929.
- Schreibman L. (2005). *The science and fiction of Autism*. Cambridge: Harvard University Press.
- Schipul S. E., Keller T. A., Just M. A. (2011). Inter-regional brain communication and its disturbance in Autism. *Frontiers in Systems Neuroscience*, 5, 1-11.
- SIPeS - Società Italiana di Pedagogia Speciale (2008). *Integrazione scolastica degli alunni con disturbi dello spettro autistico. Documento di indirizzo*. Trento: Erickson.
- Volkmar F., Rhea P., Klin A., Cohen D. (2004). *Handbook of Autism and Developmental Disorders*. New York: Wiley (Tr. it., *Autismo e disturbi pervasivi dello sviluppo*, Vannini, Brescia 2008).
- Wetherby A. M., Prizant B. M., Schuler A. L. (2000). Understanding the nature of communication and language impairments. In A.M. Wetherby, B.M. Prizant, *Autism spectrum disorders: A transactional developmental perspective* (pp. 109-141). Baltimore: Brookes.
- Wetherby A.M., Prizant B. M. (2000). *Autism Spectrum Disorders. A transactional developmental perspective*. Baltimore: Brookes.
- White S. W., Oswald D., Ollendick T., Scahill L. (2009). Anxiety in children with autism spectrum disorders. *Clinical Psychology Review*, 29, 216-229.
- WHO- World Health Organization (2001). *International Classification of Functioning, Disability and Health (ICF)*. Geneva: WHO.
- WHO- World Health Organization (2013). *How to use the ICF: A practical manual for using the International Classification of Functioning, Disability and Health (ICF)*. Geneva: WHO.

