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Chapter 3

DEVELOPMENTAL INTERVENTIONS FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS: A LITERATURE REVIEW

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ABSTRACT

Developmental approaches characterized interventions based on the typical sequences of the child's development, paying particular attention to the linguistic, motor and socio-emotional aspects, within a relational perspective. The purpose of this paper was to identify developmental interventions for children with Autism Spectrum Disorders (ASD) aged between 0 and 12 years old. A literature review was carried out searching on MEDLINE, PsycINFO, and PsycARTICLES and manually on key journals and reference lists of key articles. All the electronic databases have been consulted by setting a range of year of publication between 2009 and 2019, and only articles in English have been considered. Two reviewers

assessed studies against predetermined inclusion criteria and 72 unique studies met our inclusion criteria. The interventions selected were described and the main outcomes discussed. This review highlights the need for improved research on intervention programs and the important service needs for families and children with Autism Spectrum Disorders.

Keywords: developmental interventions, autism spectrum disorder, children, psychotherapy

INTRODUCTION

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) of the American Psychiatric Association [1] Autism Spectrum Disorders (ASD) are diagnosed in presence of persistent communication and social interaction deficits and restricted or repetitive interests or activities, emerging from the early stages of child development.

In recent years there has been an increase in the prevalence of Autism Spectrum Disorders. A 2012 systematic review [2] presenting epidemiological investigations since 2000 on ASD and Pervasive Developmental Disorders (PDD) worldwide, showed that the median of prevalence estimates was 12/10,000 children (range 2.8–94) and 62/10,000 children (range 1-189) respectively. A more recent review [3] showed a prevalence range of 21.7 cases (children and adolescents) every 10,000 in 24 countries. The studies found by these authors were then divided into those that were published from 1966 to 2000 (29 studies) and those that had been published from 2001 to 2013 (43 studies) and a prevalence of 11.9 cases every 10,000 and 28.4 cases per 10,000 respectively emerged, showing a significant increase in prevalence over the years. The authors also presented data supporting the hypothesis that DSM-5 diagnostic criteria for ASD applied to studies with samples diagnosed with DSM-IV [4] or DSM-IV-TR [5], did not facilitate the identification of individuals with ASD. The data presented in this study suggest what is also indicated by other authors [6], namely that the estimates prevalence for ASD may depend on several factors

like the age range of the target population, the diagnostic manual, or the social system in which the investigation is conducted.

In a recent study [7], the prevalence of this disorder in 4 States (United States) among 4-year-olds individuals ranged from 13.4 per 1,000 children in 2012 to 17.0 per 1,000 children in 2014, while the prevalence of this disorder in 11 States among 8-year-olds individuals ranged from 13.1 to 29.3 per 1,000 children in 2014, with an m/f ratio of 4 to 1 [8]. This study also showed a comparison between the prevalence detected using the DSM-IV-TR and the DSM-5 for the diagnosis of ASD, and highlighted an overlapping of approximately 86% of cases, with a decrease in diagnosed cases using DSM-5.

European prevalence data from the 2018 network “Autism Spectrum Disorders in the European Union” (ASDEU) out of a total of 631,619 children recruited, found a prevalence of 12.2 children per 1,000 (1 in 89) aged 7 and 9 years, ranging from 4.4 to 19.7 children per 1,000 [9].

For a more comprehensive view of the Italian context, we report below some of the most recent prevalence studies. According to ISTAT data published in 2018 on the position of students with disabilities in primary and secondary schools, for the school year 2016-2017, 25.6% of pupils with disabilities in primary school and 21.7% of pupils with disabilities in lower secondary school have been diagnosed with a developmental disorders (Autism Spectrum Disorders) with a prevalence of 0.84% of the total [10]. A recent study that aimed to assess the prevalence of ASD in 10,138 children aged 7 to 9 in the province of Pisa (Italy) estimated a 0.79% prevalence [11]. Finally, data from two Italian regions (Piemonte and Emilia Romagna) indicate a prevalence of PDD in the 6-10 age group of 4.2/1000 children in 2010 and 2.8/1000 children in 2011 [6]. The serious data of ASD prevalence and the high complexity of this disorder demand for deepening the study of interventions aimed at children with ASD.

DEVELOPMENTAL THERAPIES FOR CHILDREN WITH AUTISM SPECTRUM DISORDER

Despite the high importance of early and appropriate interventions addressing children's and families' needs to promote positive outcomes, considerable variation regarding both access to interventions and the type of intervention received emerges across countries [12].

A study involving 1,680 parents of children with ASD from 18 European countries (Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, The Netherlands, Norway, Poland, Portugal, Romania, Spain, the former Yugoslav Republic of Macedonia and the United Kingdom), aimed at collecting data about the interventions provided to children aged 7 and under. Data showed that 91% used at least one type of intervention among behavioral intervention, developmental and/or relationship-based intervention, speech and language therapy, occupational therapy, other educational and psychological interventions or parent training [12]. The speech and language therapies were the most widely used, while the behavioral, developmental and/or relationship-based interventions accounted for 45% among those applied, representing the second most widely used type of intervention in all the countries involved. Furthermore, the developmental and relationship-based therapies were most commonly used in southern and eastern Europe.

In this field, we can identify several developmental interventions, but among them we can find some core characteristics that seem useful to clarify [13]. The first key feature concerns the strong link with the scientific theories and knowledge of the developmental approach, which also include Attachment Theory and Infant Research [14, 15, 16, 17, 18, 19]. Developmental theories guide both assessment and intervention planning. These interventions consider the importance of critical period (or developmental windows) in common to all children for the promotion and the acquisition of essential skills. Simultaneously they consider the importance to set specific goals for each individual, bearing in mind both risk and protective factors [20]. Great importance is also given to the child's

relationship with significant adults and reciprocal social interactions [21]. In this perspective, the child is seen as an active subject who participates, interacts and co-constructs the therapy [22]. Finally, developmental approaches typically use play sessions to encourage spontaneity, initiative, motivations and provides them opportunities to engage in interpersonal relationships [23, 24, 25]. In sum, developmental approaches characterized interventions based on the typical sequences of the child's development, paying particular attention to the linguistic, motor and socio-emotional aspects, within a relational perspective.

Before proceeding with our review, it is necessary to give a short mention of early intervention for toddler-aged children (from birth to 36 months) with or at risk of ASD. The identification of ASD in toddler-aged children has begun especially important in the past decade, to identify positive prognostic indicators and to plan adequate psycho-educational interventions to support the child's development [26]. A 2011 review [27] identified 14 different developmental domains among 27 papers selected: joint attention, motivation, acceptable behavior or compliance, communication, play, imitation, turn-taking, social interaction, eye contact or looking at faces, cognition, adaptive/self-help, motor, sensory and affect/social-emotional. The majority of the interventions focused on joint attention or communication areas. Among these early interventions, the majority were conducted out of the natural child environment and by professionals as the principal agents of intervention, rather than parents. Furthermore, this paper stated that less than half interventions reviewed promote internal child motivation or child initiative in learning and that all the interventions reported using functional systematic intervention methods "not always easily determined from descriptions provided" (p. 17) [27]. About developmentally targeted interventions, the authors concluded that they varied in their accounting of the role of developmental foundations in their work, especially for the social communication area, and that additional study is needed for distinguishing developmental outcomes of interventions targeting joint attention and those aimed at more developmentally remote abilities.

METHODS OF THE LITERATURE REVIEW

The survey methodology for the current literature review was based on the use of Medline, PsycArticles, PsycInfo, ProQuest and Psychology electronic database, using the following combination of keywords: “autism” or “ASD” or “Autism Spectrum Disorder” and “developmental intervention” or “developmental treatment” or “developmental therapy”. All electronic databases were consulted in a publication range between 2009 and 2019, considering studies carried out on the population of children aged from 0 to 12 years. Only full-text articles in English were considered, and all papers other than journal articles or book chapters, including book reviews, commentaries, and dissertations, were excluded. Additional scientific articles were found by manually examining key scientific journals in this area and references of key articles. Finally, 72 scientific articles dealing with the topic of interest of this review have been selected.

THE DEVELOPMENTAL INDIVIDUAL-DIFFERENCES, RELATIONSHIP-BASED MODEL

The Developmental Individual-Differences, Relationship-Based Model (DIR®) was developed by Stanley Greenspan and Serena Weider [28] for understanding and promoting the positive development of children, focusing on a variety of children capacities. Greenspan has listed six steps or stages of typical development and the corresponding pathologies that might occur if a stage did not progress appropriately: the first stage is called “homeostasis” and it relates to the child internal regulation and a well-balanced interest in the world; the second stage is “attachment” and it is characterized by an emotional investment in animated world, especially caregivers; the third stage is about the “somatopsychological differentiation”, typified by the child acquisition to be flexible, multisystem, affective within reciprocal interactions with primary caregivers; the fourth step concerns the child “behavioral organization, initiative, and

internalization” in which the child creates more stable and organized mental representations that organize his/her behavior; the fifth stage, that is the “representational capacity, differentiation, and consolidation”, is characterized by the consolidation of the child internal representations, the ability to evoke internal object and to organize multisensory experiences, resulting also in a stabilization of mood; the sixth stage occurs from middle childhood through adolescence, and it is characterized by a gradual consolidation of derivative and multiple representational systems, greater flexibility and ability to organize, integrate and differentiate a great amount of affective and ideational content. The failure in the development of adaptive capacities, usually matched by maladaptive caregiver behaviors, may conclude with regulatory disorders; autistic patterns; narrow, rigid or stereotyped responses to others, and random or chaotic behavior and affect; disorganized withdrawn, compliant, or aggressive behavior, stereotyped and polarized behavior and emotion; poor sense of self and others, concreteness of behavior and affect; impulse regulation, mood stabilization and compromised reality testing, depending on the developmental stage impaired. The typical outcomes described for each step represent core therapeutic goals in the treatment of children who have not acquired the abilities of a particular step.

DIRFloortime® (Floortime) is the application of the DIR model in a comprehensive intervention, commonly utilized with children with ASD or other developmental or socio-emotional challenges. It aims at working with the child on the abilities missed in his/her developmental process, through one-to-one interactions between a therapist and a trained parent. In order to accomplish this, the therapy is designed to stimulate child interest through play in a natural environment.

Pajareya and Nopmaneejumruslers [29] presented positive data confirming the results obtained by a previous pilot study [30] using the (DIR)/Floortime™ intervention for preschool children with ASD. Mercer [31] wrote an interesting review on theory and research of DIR/Floortime™ as a treatment for children with ASD, listing several adjuvant treatments to DIR/Floortime that seems to be less plausible. They include speech therapy [32], sensory integration theory (SIT) [33] and developmental optometry

[34]. Against this background, Au and Coulter [35] suggested combining traditional Vision Therapy (VT) techniques with the DIRFloortime model for providing a more comprehensive intervention for children with ASD. This paper also suggested that DIR/Floortime™ is congruent with the developmental theory about ASD, but it does not have the status of an evidence-based treatment yet, letting us deduce that additional randomized control trials are needed.

THE JOINT ATTENTION, SYMBOLIC PLAY, ENGAGEMENT AND REGULATION

The Joint Attention, Symbolic Play, Engagement & Regulation (JASPER) [36] approach was developed by Connie Kasari with the goal of interacting with children with autism through naturalistic strategies to target the foundations of social-communication in terms of joint attention, imitation, and play. JASPER model is based on the assumption that joint attention and play skills represent a key component of the child's future ability of understanding other's mental representations, and as a consequence, they may positively influence children's social, cognitive, and language abilities [37]. On the basis of this model, a combined developmental and behavioral intervention was implemented, to improve joint attention and symbolic play skills in children with ASD, that are supposed to be characterized by significant deficits in social communication skills. This evidence-based social communication approach consists of approximately 3–6 months of service (minimum 24 sessions) conducted by clinicians, special education teachers or caregivers, typically delivered one-to-one, as well as in group/classroom sessions.

When 16 children were randomly assigned to 6-week JASPER intervention implemented by public school teachers or a control group, data showed more JASPER strategies used by teachers and more joint attention and more time in supported engagement in children of the JASPER group than the control group [36]. In a pilot study [38] the effects of JASPER were

tested on a sample of 15 minimally verbal children with autism aged between 3 and 5 years old. Children were randomly assigned to the control group or JASPER intervention (implemented by graduate students in educational psychology). Data showed greater play diversity, more gestures and less time spent unengaged for children in JASPER treatment compared with the control group.

The JASPER intervention conducted by a caregiver was evaluated comparing children's improvements after a group of 24 sessions with 1 year follow-up to control group of children in the waitlist and showing significant differences in targeted areas of joint engagement [39]. The intervention conducted by the caregiver was also evaluated in a study [40] comparing two small group training for caregivers with or without the child being present. Data showed that both intervention groups improved child outcome, but the caregiver group with the child being present was more effective when compared to the group without the child.

One study [41] compared a 10 weeks caregiver-child JASPER with a parent-only psychoeducational intervention, showing a significant effect of JASPER in dyadic joint engagement, and a significant effect of the parent-only psychoeducational intervention in reducing parenting stress associated with child characteristics.

Regarding teacher implementation, a 2016 study [42] highlighted that teachers and teaching assistants can deliver JASPER with high fidelity in their preschool classroom day, after a brief but sustained coaching support throughout the 2 months of intervention. Furthermore, significant effects in joint attention gestures, child-initiated joint engagement, joint attention language, and length of language emerged for children who have received 2 months of daily classroom JASPER, when compared to children in the waitlist. Shire and colleagues [43] also compared data on JASPER intervention or treatment on children with ASD living in low resource neighborhoods. Children were randomized to Joint Attention, Symbolic Play, Engagement, and Regulation or waitlist and results showed that teaching assistants implementation of JASPER intervention had an adequate fidelity and that children treated with JASPER had significant gains in joint engagement, joint attention, and play skills when compared to children in

the waitlist. A more recent study [44] explored the fidelity of teacher assistants delivering JASPER, showing maintained quality implementation of many of the intervention strategies investigated. Data also showed that teaching assistants helped the children to get into longer periods of joint engagement and to maintain that level of engagement, during the second year of working.

One paper [45] expanded the results that emerged from the study by Almirall and colleagues [46], comparing the longitudinal improvement of minimally verbal children with a diagnosis of autism, aged between 5 and 8 years old. Two treatment (only JASPER and Enhanced Milieu Teaching intervention versus JASPER, Enhanced Milieu Teaching intervention and the use of a speech-generating device) outcomes were compared showing similar play level improvements over a 6-month intervention, but few differences between the two treatments.

According to this study's presentation, we can conclude that the data available on the efficacy of the JASPER approach in improving children's joint attention, and symbolic play skills were generally successfully achieved by different operators, but these results need to be replicated with larger sample size.

THE EARLY START DENVER MODEL INTERVENTION

The Early Start Denver Model is a comprehensive developmental behavioral intervention for improving outcomes of infants to preschool-aged children with ASD. This intervention integrates Applied Behavior Analysis (ABA) with relationship-based and developmental theories, and it is provided in the children's natural environment and delivered by trained therapists and parents.

Reports from the first studies using the ESDM delivered by therapists showed children decreasing of symptoms severity and improvements in children's development, especially in the language domain [47, 48, 49]. Children's improvements after this intervention were also associated with normalized patterns of brain activity when this intervention was compared

with a community intervention [50]. A longitudinal study on 39 6-year-old children with ASD showed also that the gains were maintained and an improvement in core autism symptoms and adaptive behavior when compared with the group of intervention, as usual, two years after the intervention ended [51]. Rogers and colleagues [52] replicated and extended the 2010 study by Dawson and colleagues [47], in which the outcomes of forty-eight children diagnosed with ASD between 18 and 30 months of age were compared when assigned to an ESDM intervention or an intervention as usual, demonstrating the efficacy of this developmental behavioral intervention for toddlers with ASD.

A 2016 review [53] indicated positive child, parent, and therapist outcomes reported in the identified studies, but it also showed a weakness in terms of effectiveness. Recently one study [54] on a parent-implemented Early Start Denver Model (P-ESDM) was implemented with one hundred eighteen children aged between 14 to 24 months and parents to determine its efficacy for children outcomes. A short-term intervention for toddlers with ASD lasting twelve weeks was compared with an enhanced ESDM version, including also motivational interviewing, multimodal learning tools, and a weekly home visit. Parents in the enhanced ESDM group showed increased sensitivity and skills in supporting children's development as compared to the parents of the control group, while children showed similar gains for both groups over time.

Further implementation of ESDM is based on the delivery of this intervention in group-based settings. In this context, a recent review [55] described it as a feasible and sustainable early intervention for young autistic children, that is showing initial promising data. This data was confirmed by a 2019 study involving 44 preschoolers children with ASD receiving the Group-Early Start Denver Model in classroom setting [56], in which children showed improvements and mothers experienced a reduction in stress. Nevertheless, this review stressed the importance of deepening the community viability of this model, the permanence of activities and resources after the training, and the long-term outcomes.

MILIEU TEACHING

The Milieu Teaching (MT) [57] is an intervention for children focused on teaching new communication skills and behaviors within children's natural settings (i.e., home or school). It was performed with children with ASD and is about modeling children's correct responses and correcting them as necessary. It includes a social interactionist perspective, with an emphasis on parents as interventionists [58]. There are several versions of the Milieu Teaching approach including Milieu Language Teaching (MT) [59], Milieu Communication Teaching (MCT) [60] and Prelinguistic Milieu Teaching (PMT) [61], taking into account additional environmental variables to that of the traditional Milieu Teaching.

Christensen-Sandfort and Whinnery [62] examined the effectiveness of the Milieu Teaching classroom intervention for young children during a period of 5 months. Participants attended a preschool classroom for children with varying exceptionalities, and the intervention was provided by a trained teacher. This paper demonstrated the positive impact of the Milieu strategies in increasing spontaneous speech in children with ASD and the usefulness of this intervention for teachers of young children with ASD during classroom activities.

The Prelinguistic Milieu Teaching (PMT) [61] targets prelinguistic social communication outcomes (i.e., eye gaze, gestures, vocalizations) used to request and share attention and it is embedded in play routines within a child's natural environment. Six non-verbal children aged between 5 and 8 years old, with a diagnosis of autism were taught to initiate communication using vocalizations, gestures, and eye gaze within play routines. Data revealed an improvement in children's number of communicative interactions during play routines and initiated intentional communication [58]. One recent paper [63] has deepened the efficacy and the feasibility of PMT with three preschoolers with or at risk for ASD in the context of their classrooms, showing an increase in their engagement in communicative acts.

Another implementation of this intervention is the Responsivity Education/Prelinguistic Milieu Teaching (RE/PMT) therapy consisting of both Prelinguistic Milieu Teaching delivered to the children and responsivity

education delivered to the parents. The Responsivity Education deals with teaching parents to be highly responsive to their children's intentional and unintentional communication and focus of attention, waiting for their child to initiate vocal/motor behaviors and providing proper behaviors as a consequence of their child communication [64]. Yoder and Lieberman [65] compared thirty-six children outcomes comparing RE/PMT or Picture Exchange Communication System (PECS) sessions per week for 6 months and revealed that children receiving RE/PMT intervention were lower in the picture exchanges compared to children receiving in a generalized context. Mcduffie and colleagues [66] compared thirty-two children with ASD aged 18–60 months outcomes when randomly assigned to the (PECS) or RE/PMT treatments. This paper showed that object interest in young children with ASD in the RE/PMT intervention showed a gain in object interest as compared to children in the PECS intervention.

The Enhanced Milieu Teaching (EMT) [59] is an evidence-based and manualized language intervention based on “a naturalistic model of early language intervention in which child interest and initiations are used as opportunities to model and prompt language use in everyday contexts” (p. 296) [67]. It is delivered by a parent and therapist or only by a therapist, who uses developmentally responsive strategies and behavioral teaching strategies to improve children's language. The study by Kaiser and Roberts [67] showed more gains in preschool children receiving EMT implemented by parents and therapist when compared with the control group of therapist-only EMT. When Jasper plus EMT intervention with or without the augmentation of a speech-generating device (SGD) was provided to sixty-one children with autism, aged 5 to 8 years, received a JASP+EMT intervention, data showed that a JASP+EMT intervention incorporating an SGD had a significant and rapid gain in children language [68]. A recent study [69] deepened the effects of the EMT implemented by the therapist on three children with ASD in South Africa and highlighted an increase in the number of words and the number of spontaneous utterances expressed by the children.

In sum, as revealed in a 2009 review on early research conducted in the area of Milieu Therapy, this intervention revealed an increase in children

targeted communication skills [69], while a more recent review [71] suggested a lack of consistency and the need of better define the quality and the quantity of these interventions. Studies investigating Milieu interventions are also limited in terms of participants' age, diagnosis, language severity, and intellectual functioning, and these aspects should be further explored.

TREATMENT AND EDUCATION OF AUTISTIC AND RELATED COMMUNICATION HANDICAPPED CHILDREN

The Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) [72] is a comprehensive treatment method using children preferred activities that are supposed to be more easy to understand, practice, and generalize. The primary aim of this intervention is to improve many different areas of an individual's development, focusing on children's strengths, interests, and needs [73]. This treatment relies on traditional behavioral, neo-behavioral and developmental techniques, usually as part of classroom-based programs of structured teaching. Within this model, the Structured Teaching is a set of teaching principles and intervention strategies helping practitioners' understanding of children needs and learning styles [74]. Children are supported in processing information visually and in choosing, engaging in, and making sense of daily activities. Parents are trained as co-therapists, so home-based programs are also possible. TEACCH programs are not based on children typical development and do not include a standardized curriculum for each child, but they pay attention to the following key elements: "organization of the physical environment, visual information, task organization, and work systems" (pag. 429) [75]. The development of this treatment relies on Eric Schopler theories hypothesizing a better chance for children with autism to learn through visual perceptions than through auditory perceptions, and to have better outcomes when the interventions take place in structured

sessions than in unstructured sessions [76]. A 2013 meta-analysis [77] of intervention studies¹ about TEACCH program for children and adults with autism provided limited support for the clinical effects of the TEACCH program (see Table 1). But nevertheless, Virues-Ortega and colleagues [75] underline that the 2013 review shows also evidence for good practice in TEACCH program like the standardized assessments, the presence of semi-independent international teams, and training carried directly by the first TEACCH center. Besides, reviewed studies in 2013 showed better gains in adaptive, verbal, cognitive, perceptual and motor areas among older participants (6–17 years of age) than younger children (0–5 years of age).

Some authors [78] compared ABA and TEACCH treatment models applied at students with ASD, also studying their comprehensiveness and fidelity, concluding that there is no reliable data for favoring one approach over the other; that parents, teachers, and administrators did not prefer one intervention over the other; but they rated as significantly valid some components specific to autism treatment of both approaches. The outcome of TEACCH treatment was also compared to that of children on the waiting list. A pilot randomized controlled trial [79] recruited eleven children with High Functioning Autism, aged between 5 and 6 years old and their mothers, showing better improvements if the individuals were assigned to the TEACCH program than to the control group. When the TEACCH was compared to the LEAP (Learning Experiences - An Alternative Program for Preschoolers and Parents) intervention. A study from our review shows that teachers in special education programs showed a similar level of commitment to both programs in teachers [80] and children [81], although for TEACCH more beneficial to children with greater cognitive impairments emerged.

¹ The papers published since 2009 and cited in this meta-analysis [77] were considered in our review but not extensively described.

Table 1. List of papers included in the Virues-Ortega, Julio and Pastor (2013) meta-analysis

Papers	Participants age (years)
Aoyama, S. (1995). "The efficacy of structuring the work system: Individualization of the work format and the use of a 3-level paper rack in a special education class." [82]	School age
Ozonoff, S., & Cathcart, K. (1998). "Effectiveness of a home program intervention for young children with autism." [83]	4,4
Persson, B. (2000). "Brief report: A longitudinal study of quality of life and independence among adult men with autism." [84]	32,3
Panerai, S., Ferrante, L., & Zingale, M. (2002). "Benefits of the Treatment and Education of Autistic and Communication Handicapped Children (TEACCH) programme as compared with a non-specific approach." [85]	9,1
Van Bourgondien, M. E., Reichle, N. C., & Schopler, E. (2003). "Effects of a model treatment approach on adults with autism." [86]	23,7
Siaperas, P., & Beadle-Brown, J. (2006). "A case study of the use of a structured teaching approach in adults with autism in a residential home in Greece." [87]	21,3
Siaperas, P., Higgins, S., & Proios, P. (2007). "Challenging behaviors on people with autism: A case study on the effect of a residential training programme based on structured teaching and TEACCH method." [88]	21,3
Tsang, S., Shek, D., Lam, L., Tang, F., & Cheung, P. (2007). "Brief report: Application of the TEACCH program on Chinese pre-school children with autism — Does culture make a difference?" [89]	4,6 years
Probst, P., & Leppert, T. (2008). "Brief report: Outcomes of a teacher training program for autism spectrum disorders." [90]	10,0 years
Panerai, S., Zingale, M., Trubia, G., Finocchiaro, M., Zuccarello, R., Ferrei, R., et al. (2009). "Special education versus inclusive education: The TEACCH program." [91]	8,7 years 9,7 years
McConkey, R., Truesdale-Kennedy, M., Crawford, H., McGreevy, E., Reavey, M., & Cassidy, A. (2010). "Preschoolers with autism spectrum disorders: Evaluating the impact of a home-based intervention to promote their communication." [92]	2,8

Papers	Participants age (years)
Braiden, H. J., McDaniel, B., McCrudden, E., Hanes, M., & Crozier, B. (2012). "A practice-based evaluation of Barnardo's forward steps early intervention programme for children diagnosed with autism." [93]	3,2
Welterlin, A., Turner-Brown, L. M., Harris, S., Mesibov, G., & Delmolino, L. (2012). "The home TEACCHing program for toddlers with autism." [94]	2,5

Note. The black line distinguishes the papers published before and after 2009.

R-TEACCH= residential TEACCH; NS-TEACCH= natural setting TEACCH.

An implementation of the TEACCH is the Family Implemented TEACCH for Toddlers (FITT), designed for improving the services intended to occur in children's natural settings like homes (usually called Part C). This parent-mediated approach aims at enhancing parental skills for better targeting the needs, understanding and engaging with toddlers with ASD. In a 2016 study [95] forty-nine participants were recruited and randomly assigned to FITT or services as usual. For FITT intervention approach positive effects on parents' stress and their mental well-being, no specific treatment effect on children's developmental skills, and better toddler social communication outcomes emerged.

In conclusion, this review of studies about the TEACCH highlights that this intervention model incorporates techniques from different perspectives, that more evidence of effectiveness is needed, and key concepts of the intervention are not fully operationalized [75].

HANEN'S 'MORE THAN WORDS'

Hanen's 'More than Words' (HMTW) [96] is a parent-implemented training program targeted in enhancing children's communication/language and consisting of eight weekly group sessions and three individual family sessions. The HMTW program consists of enhancing parents' responsiveness to children's attention and communication signals, increasing the frequency of playful parent-child interactions and facilitate children's communication, through support, education, and practical skills.

Parents are taught to structure everyday routines with the aim of improving parent–child interactions in a more sensitive way, providing more appropriate verbal and non-verbal stimuli to children’s communication [97].

Since 2009 there are only few studies investigating HMTW, to our knowledge. One pilot study [98] recruited four families of children with ASD aged between 37 months to 69 months pointing out that HMTW had a positive impact on children’s social interaction and vocabulary development. The study by Carter and colleagues [96] enrolled 62 children aged 15–25 months with autism and their parents. Children were assigned to either the experimental treatment or to a community treatment but no significant differences between the two interventions were found on parental responsivity and children’s communication. In contrast, there were improvements in communication depending on children’s levels of object interest at the beginning of treatment, showing that this intervention had better effects on child communication with early lower levels of object interest. Fifty children with ASD, and aged 1- 5 years were recruited in a 2017 study [99] to explore the effectiveness of the HMTW intervention program for ASD children. This study showed significant improvements in children’s level of communication and activities, including joint attention, turntaking, eye contact, and toilet training, over time.

Finally, in 2018 a study [100] about the effectiveness of HMTW on parents of children with ASD in Malaysia was conducted. Thirty-one children with ASD and their parents were recruited and assigned either to intervention or control group. Data showed a significant increase in responsive interactions, the retention of facilitative strategies in parents during time, and higher levels of satisfaction than parents in the control group.

As shown above, data on the effectiveness of the HMTW treatment are promising, but further studies are needed to support the use of this intervention.

PRESCHOOL AUTISM COMMUNICATION TRIAL

The Preschool Autism Communication Trial (PACT) [101] is a parent-child communication-focused intervention for children with core autism, aged between 2 and 5 years. This treatment targets “increasing parental sensitivity to child communication and reducing mistimed responses using video feedback, and [...] promoting a range of positive social communication strategies” [102] (page. 427). According to this approach the intervention consists of sessions between therapist and parents with the child present, with the aim of increasing parental sensitivity and responsiveness to child communication, and the help of video-feedback methods to address parent-child interaction.

A first study [101] exploring this kind of intervention compared children’s gains when randomly assigned to PACT or intervention as usual. Data demonstrated an improvement in both groups, with a little difference in favor of the PACT intervention, and better perceptions of children’s language and social communication by parents of the PACT group. A 2015 paper [103] explored the direct and indirect effects of PACT on child behavior and ADOS-G score via parent behavior. Data suggested the mediating role of the parent synchrony and child initiations on the ADOS-G score and supported the PACT theoretical model.

In a subsequent follow-up of this study [104], it was found a reduction of autism symptoms in both autism repetitive symptom and social-communication domains, until 6 years later the treatment endpoint. Similar results to the 2010 study were found in a research [105] conducted in south Asia, India and Pakistan for 64 children aged 2–9 years. A more recent study [106] recruited a sample of caregivers of children with autism aged 8–12 years and did not find a specific protective effect of PACT on parenting stress and well-being, over and above the effect of all the other risk factors.

The results of these studies are not fully promising at present, though more research on the effectiveness of this intervention is needed.

JOINT ATTENTION MEDIATED LEARNING

The Joint Attention Mediated Learning (JAML) [107] is a recent parent-mediated interaction-based intervention for toddlers with ASD, focused on children's social functions of preverbal communication. This intervention is driven by 5 main concepts adapted by Klein's [108] principles of mediated learning: parents should help their children focusing their attention on the objectives, organizing and planning to communicate socially (improving self-regulation), encouraging self-confidence, giving meaning of socially important interaction cues, and expanding interactions in varied settings and with different people.

The JAML includes three phases targeted on the acquisition of joint attention and other early social communication abilities. During the first phase (Focusing on Faces, FF), the child is aided in looking to the parent's face, during the second phase (Turn-Taking, TT) the child is helped in engaging with the parent in play interactions; during the third phase (Joint Attention, JA) the child is engaged in triadic interactions using toys. The authors also stressed that the focus of this intervention is on social rather than instrumental communicative functions [109].

A 2013 study [107] aimed at examining the efficacy of JAML for promoting joint attention and early communication for toddlers with ASD. Twenty-three parents and their children were recruited and were randomly assigned to JAML intervention or a control condition. Data showed more frequent responses to parents' joint attention approaches and improvement in children's communication, guiding children learning from simpler to more complex forms of preverbal social communication. Another study [110] recruited 144 children with ASD aged 16–30 months and their parents to examine the efficacy and implementation of the JAML intervention in promoting children's early social communication. The children were randomly assigned to JAML or community control conditions. Results showed sustaining treatment differences over 6 months after intervention, nevertheless to our knowledge there are still few studies investigating the effectiveness of the JAML intervention.

THE DEVELOPMENTAL, EMOTIONAL REGULATION, RELATIONSHIP AND BODY-BASED INTERVENTION

The Developmental, Emotional regulation, Relationship and Body-Based model (DERBBI) [111] is an approach that attaches great importance to the connection between affect, motor planning and sequencing (see the “affective diathesis” by Greenspan [112]), in the core deficit of children with ASD. Within this model was developed a specific intervention for children with ASD: the Turtle Project. The Turtle Project [113] is an individualized intervention based on an individual’s profile to use developmentally appropriate and meaningful targets. This profile is developed thanks to an accurate diagnostic process, including the TULIP protocol [114], for a comprehensive assessment of the predictors of positive outcomes in children with ASD.

In this model, the diagnostic process is carried out by a group of experts (psychologists, neuropsychiatrists, and other specialized figures) with the means to select targets and measures according to the specific child, useful for early indicators of treatment and follow-up monitoring.

The Turtle Project generally plans to improve parent-child affective attunement, the child-peer imitation process, and the child’s ability to integrate and process sensory perceptions, during the first year of therapy. The second year of intervention typically refers to the psychomotor/communicative-relational area, with the aim of improving children’s motor initiative and emotion regulation, towards the re-definition of their body schema. During the third year, this intervention commonly aims to improve children’s linguistic, behavioral, relational, cognitive, playing skills, personal autonomy and motivation to relate with. Finally, during the fourth year the intervention keeps improving the children verbal and non-verbal relational strategies, with a focus on the school learning. At this stage a special attention is paid to the holophony technique. This is a sound reproduction technique that simulates human listening strategies by immersing the listener in a three-dimensional hearing reality. Through sound-motor and graphic-interactive paths and games children are driven to

improve emotion regulation, visual-spatial, speech, and learning abilities and executive functioning [115].

The targets of the Turtle Project are met through the combination of different settings: group settings for children with similar functioning levels, parent-child dyadic and triadic settings, parents support groups, school support service and animal-assisted therapy. The treatment has an average duration of 4 years and it consists of 10 hours of treatment per week including 6 hours of child individual/group therapy, 2 hours of parental support, and 2 hours of school observation and counseling [111].

The Turtle Project is an example of a program that both reflects and contributes to the evidence base of autism interventions, through various studies that have shown an assessment protocol useful for capturing the complexity and the uniqueness of every child [114, 116, 117]. Furthermore, the studies deepening the effectiveness of the Turtle Project highlighted the protective factors identified during the diagnostic assessment and useful in predicting children's developmental trajectories and children for whom this type of treatment could lead to a greater improvement in symptoms [113, 114, 118, 119]. Third, recent papers have brought new reflections on the need to customize the intervention according to the characteristics not only of the autistic disorder but above all of the child and his/her family.

More specifically, in the 2015 paper [118] on a sample of 90 individuals with ASD aged between 2 years and six months and 16 years, data showed an improvement in autistic symptoms after 4 years of treatment. The 2016 paper [113] provided further data supporting the effectiveness of Turtle Project, indicating that after two and four years of treatment children exhibited a significant improvement in all assessed areas (speech and communication, mutual social interaction, play, restricted and repetitive behaviors, and Intelligence Quotient), in addition to a significant reduction in core autistic symptoms.

In this context, research studies should try to identify a specific population among the autisms, that could get better improvements from this type of developmental intervention, that gives special emphasis to the body and relational aspects.

IMPROVING PARENTS AS COMMUNICATION TEACHERS (PROJECT IMPACT)

The Improving Parents As Communication Teachers Project (ImPACT) is a training for parents' intervention to promote children's social engagement, language, social imitation, and play during daily routines [120]. It can be implemented in either a group or individual settings to teach parents first to promote their responsiveness and social reciprocity through videotaped examples, homework written and spoken descriptions of techniques, and practice with coaching.

In a single-subject study [121], 8 children with their mothers were recruited to examine the efficacy of this model and showed an increase in parents' intervention techniques, children use of language, and a significant association between parents' abilities and children language. In 2015 a pilot study [122] compared ImPACT intervention group with the community group addressed to 30 children with ASD. The paper had the aim to explore the effectiveness of this intervention and showed a strong parent intervention adherence and a significant improvement in the child's social-communication skills.

The Project ImPACT for Toddlers is a toddler-specific adaptation of ImPACT that included a parent-mediated intervention specifically addressed to 12 to 36 months children, and focused on improving children's play, social engagement, communication, and imitation in children's natural setting. It provides to parents brief didactic information sessions alternate with practice sessions with clinician feedback [123]. Recently, some authors [124] compared parent-child improvements when children were assigned to either the Project ImPACT for Toddlers or usual care and showed more positive parent-child interactions and children's social and communication skills, for individuals in the Project ImPACT for Toddlers group than usual care group.

Limited data from clinical studies support the effectiveness of this intervention, that however needs further monitoring and investigations.

FURTHER DEVELOPMENTAL INTERVENTIONS

This section aims to mention recently or poorly investigated developmental interventions for children with ASD, as revealed by our literature review.

As part of intervention focused on joint attention, a recent study [118] described a brief parent-mediated home-based intervention focused on joint attention, imitation and social engagement skills of children with ASD. This study compared improvements in children and parents who underwent this specific intervention or a intervention as usual, over five sessions. Data showed significant improvements in children and lower levels of perceived stress and better coping in parents of the parent-mediated intervention group when compared to parents of the intervention as usual, along with high fidelity of intervention and parental adherence to the parent-mediated intervention.

In the broader framework of early intervention programs for children with autism, data suggest the positive effects of interventions focused on joint attention and play skills, with a lack or limited follow-up data. In this context, one long-term follow-up study by Kasari and colleagues [126] recruited a sample of children with autism assigned to joint attention (JA), symbolic play (SP), or control (CO) group. Results showed that a comprehensive intervention targeting joint attention and play skills positively affects the children long-term language outcomes.

As part of the parent-mediated interventions, we mention the *Pathways Early Autism Intervention* [127, 128]. It is a community-based, intensive behavioral and developmental intervention program for toddlers with ASD. According to this intervention, parent-child interactions are video recorded and reviewed with the parent, providing feedback on intervention strategies. The interventionist introduces new topics, clarifies parent questions, demonstrates new strategies with the child, plans activities and routines. This intervention is aimed to promote children's communication and social engagement. In a pilot study [126] for demonstrating its effectiveness, four boys with ASD and their mothers were recruited and the authors found that this intervention program is useful for improving children's early social

communication but not for nonverbal turn-taking. Furthermore, a 2019 study [129] stressed that parents in the Pathways group experienced a decrease in stress levels and an increase in responsiveness when compared with parents in the control group.

The *Relationship Development Intervention* (RDI) [130, 131] is a parent-delivered intervention aimed at improving children's emotional referencing, declarative language, social coordination, relational information processing, flexible thinking, and foresight and hindsight of children with ASD. The intervention is implemented by parents who learn to perceive and support their children's perceptual, cognitive, and emotional patterns through an intensive training in RDI theory, principles, and components. A modified version of the RDI was recently implemented in China [132]. Forty-two children were recruited and assigned to RDI or a control group. Results showed better improvements in language, social, sensory and behavioral domains than those in the control group, after a 6 months training.

The *Responsive Teaching* (RT) [133], is a parent-mediated developmental intervention focused on children's communication, cognition, and social-emotional domains. Parents are trained to address their children with responsive interaction strategies to reach 19 predefined objectives within daily routines. Data on RT intervention shows an improvement in children developmental and social-emotional functioning and parents' responsiveness and affect [134, 135]. In a recent study [136], a sample of 28 Saudi Arabian children and their parents were recruited, and mothers who participated in Responsive Teaching intervention showed improvements in parenting stress and depression.

The *Video-feedback Intervention to promote Positive Parenting adapted to Autism* (VIPP-AUTI) is a video feedback attachment-based intervention program, aiming to enhance parental sensitivity to their child's signals and improving parent-child interaction [137]. This is an adapted version of the original VIPP by Juffer and colleagues [138], already employed in various families of infants, toddlers and preschoolers. The VIPP-AUTI program comprise a short-term parent-child interaction, videotaped in a natural environment, with video feedback. Data showed [139] a decrease in parental

intrusiveness towards the child and an increase in parental efficacy. Significant differences between VIPP-AUTI and control group emerged in child-initiated joint attention skills, at follow-up.

Finally, among the studies reviewed as part of the play intervention, we found the *Play and Language for Autistic Youngsters* (PLAY) [140] model that is a parent-mediated developmental model focused on helping parents to increase their interaction with the child, and children to improve their social interaction and emotional development. This intervention is shown to be effective in parental responsiveness, affect and depression and children's social engagement [140, 141].

CONCLUSION

As stated by Zhou and colleagues [49] the Naturalistic Developmental Behavioral Interventions (NDBIs) “integrate developmental and relationship-based approaches with strategies of applied behavior analysis, and emphasize establishing joint activity routines in natural environments, including play and daily life activities in which many learning opportunities can be embedded” (p. 655). Within this broad panorama of intervention, our review identified several developmental approaches as empirically and theoretically supported interventions for children with ASD.

In conclusion, this review showed different developmental therapies underlying the specific components in each of the approaches presented. Some of them are specifically implemented by the therapist, others are carried out by trained parents and/or teachers/educators. Some treatments focus on several developmental areas, others are focused on specific developmental areas, like joint attention. Some of them represent a combination of behavioral and developmental methods, others are more closely developmental approaches. This review also shows that a few of these methods require a comprehensive assessment as a prerequisite to calibrate the intervention. Additionally, despite its great significance, little attention is still given to early intervention for ASD, and the study of the effectiveness of these methods in long-term longitudinal studies. For future

research it is also important to increase the number of individuals involved, focusing on different children's developmental ages, giving greater emphasis to the approaches with more significant effect sizes.

REFERENCES

- [1] American Psychiatric Association. 2013. *Diagnostic and statistical manual of mental disorders, 5th edition*. Author: Washington.
- [2] Elsabbagh, M., Divan, G., Koh, Y. J., Kim, Y. S., Kauchali, S., Marcín, C., & Yasamy, M. T. 2012. "Global prevalence of autism and other pervasive developmental disorders." *Autism research* 5(3): 160-179. doi: 10.1002/aur.239.
- [3] Tsai, L. Y. 2014. "Impact of DSM-5 on epidemiology of autism spectrum disorder." *Research in Autism Spectrum Disorders* 8(11): 1454-1470. doi: 10.1016/j.rasd.2014.07.016.
- [4] American Psychiatric Association. 1994. *Diagnostic and statistical manual of mental disorders, 4th edition*. Washington, DC: Author.
- [5] American Psychiatric Association. 2000. *Diagnostic and statistical manual of mental disorders, 4th edition, text revised*. Washington, DC: Author.
- [6] Soldateschi M, Ambrosio V, Scattoni ML, Chiarotti F, Venerosi A. 2016. Tools for surveillance and care of children with autism spectrum disorder: the role of pediatricians in early recognition. ISTISAN reports 16/24. (Tr. It. *Strumenti per sorveglianza e presa in carico di bambini con disturbo dello spettro autistico: il ruolo dei pediatri nel riconoscimento precoce. Rapporti ISTISAN16/24*). Retrived 05/10/2019 from http://old.iss.it/binary/publ/cont/16_24_web.pdf.
- [7] Christensen, D. L., Maenner, M. J., Bilder, D., Constantino, J. N., Daniels, J., Durkin, M. S., & Shenouda, J. 2019. "Prevalence and Characteristics of Autism Spectrum Disorder Among Children Aged 4 Years—Early Autism and Developmental Disabilities Monitoring Network, Seven Sites, United States, 2010, 2012, and 2014." *MMWR Surveillance Summaries* 68(2): 1-58. doi: 10.15585/mmwr.ss6802a1.

- [8] Baio, J., Wiggins, L., Christensen, D. L., Maenner, M. J., Daniels, J., Warren, Z., & Durkin, M. S. 2018. "Prevalence of autism spectrum disorder among children aged 8 years—autism and developmental disabilities monitoring network, 11 sites, United States, 2014." *MMWR Surveillance Summaries* 67(6): 1-23. doi: 10.15585/mmwr.ss6706a1.
- [9] ASDEU 2018. "Autism Spectrum Disorders in the European Union (ASDEU): final report: main results of the ASDEU project." Retrieved 26/09/2019, from <http://asdeu.eu/wp-content/uploads/2016/12/ASDEUExecSummary27September2018.pdf>.
- [10] Istat. 2018. "The integration of students with disabilities in primary and secondary schools" (Tr. it. *L'integrazione degli alunni con disabilità nelle scuole primarie e secondarie di primo grado*). Retrieved 06/10/2019, from <https://www.istat.it/it/files/2018/03/alunni-con-disabilit%C3%A0-as2016-2017.pdf>.
- [11] Narzisi, A., Posada, M., Barbieri, F., Chericoni, N., Ciuffolini, D., Pinzino, M., & Muratori, F. 2020. "Prevalence of autism spectrum disorder in a large Italian catchment area: a school-based population study within the ASDEU project." *Epidemiology and psychiatric sciences* 29. doi: 10.1017/S2045796018000483.
- [12] Salomone, E., Beranová, Š., Bonnet-Brilhault, F., Briciet Lauritsen, M., Budisteanu, M., Buitelaar, J., & Fuentes, J. 2016. "Use of early intervention for young children with autism spectrum disorder across Europe." *Autism* 20(2): 233-249. doi: 10.1177/1362361315577218.
- [13] Wagner A., Wallace K., Rogers S. 2014. "Developmental Approaches to Treatment of Young Children with Autism Spectrum Disorder." In *Handbook of Early Intervention for Autism Spectrum Disorders. Autism and Child Psychopathology Series*, edited by Tarbox J., Dixon D., Sturmey P., Matson J., 393-427. New York: Springer. doi: 10.1007/978-1-4939-0401-3_20.
- [14] Beebe, B. 2017. "Daniel Stern: Microanalysis and the empirical infant research foundations." *Psychoanalytic Inquiry* 37(4): 228-241. doi: 10.1080/07351690.2017.1299498.

- [15] Beebe, B., & Lachmann, F. M. 1988. "The contribution of mother-infant mutual influence to the origins of self- and object representations." *Psychoanalytic Psychology* 5(4): 305–337. doi: 10.1037/0736-9735.5.4.305.
- [16] Cassidy, J., & Shaver, P. R. (Eds.) 2016. *Handbook of Attachment, 3rd edition: Theory, Research, And Clinical Applications*. New York: Guilford Press.
- [17] McKenzie, R., & Dallos, R. 2017. "Autism and attachment difficulties: Overlap of symptoms, implications and innovative solutions." *Clinical child psychology and psychiatry* 22(4): 632-648. doi: 10.1177/1359104517707323.
- [18] Stern, D. N. 1998. *The motherhood constellation: A unified view of parent-infant psychotherapy*. London: Karnac books.
- [19] Tronick, E., Als, H., Adamson, L., Wise, S., & Brazelton, T. B. 1978. "The infant's response to entrapment between contradictory messages in face-to-face interaction." *Journal of the American Academy of Child psychiatry* 17(1): 1-13. doi: 10.1016/S0002-7138(09)62273-1.
- [20] LeBlanc, L. A., Riley, A. R., & Goldsmith, T. R. 2008. "Autism spectrum disorders: A lifespan perspective." In *Clinical assessment and intervention for autism spectrum disorders*, edited by J. L. Matson, 65-87. Burlington, MA: Academic Press.
- [21] Greenspan, S. I., & Wieder, S. 1997. "Developmental patterns and outcomes in infants and children with disorders in relating and communicating: A chart review of 200 cases of children with autistic spectrum diagnoses." *Journal of Developmental and Learning Disorders* 1: 87-142.
- [22] Siller, M., & Sigman, M. 2002. "The behaviors of parents of children with autism predict the subsequent development of their children's communication." *Journal of autism and developmental disorders* 32(2): 77-89. doi: 10.1023/A:1014884404276.
- [23] Hillman, H. 2018. "Child-centered play therapy as an intervention for children with autism: A literature review." *International Journal of Play Therapy* 27(4): 198–204. doi: 10.1037/pla0000083.

- [24] Lifter, K., Foster-Sanda, S., Arzamarski, C., Briesch, J., & McClure, E. 2011. "Overview of play: Its uses and importance in early intervention/early childhood special education." *Infants & Young Children* 24(3): 225-245. doi: 10.1097/IYC.0b013e31821e995c.
- [25] Pittala, E. T., Saint-Georges-Chaumet, Y., Favrot, C., Tanet, A., Cohen, D., & Saint-Georges, C. 2018. "Clinical outcomes of interactive, intensive and individual (3i) play therapy for children with ASD: a two-year follow-up study." *BMC pediatrics* 18(1): 165-178. doi: 10.1186/s12887-018-1126-7.
- [26] Di Renzo, M., di Castelbianco, F. B., Plescia, F., Racinaro, L., Petrillo, M., & Rea, M. 2016. "The understanding of others intentions can predict the improvement of symptomatology in children with autism—An exploratory study." *Current Pediatric Research* 20(2): 183-192.
- [27] Schertz, H. H., Baker, C., Hurwitz, S., & Benner, L. 2011. "Principles of early intervention reflected in toddler research in autism spectrum disorders." *Topics in Early Childhood Special Education* 31(1): 4–21. doi: 10.1177/0271121410382460.
- [28] Greenspan, S. I., & Wieder, S. 1999. "A functional developmental approach to autism spectrum disorders." *Journal of the Association for Persons with Severe Handicaps* 24(3): 147-161. doi: 10.2511/rpsd.24.3.147.
- [29] Pajareya, K., & Nopmaneejumruslers, K. 2011. "A pilot randomized controlled trial of DIR/Floortime™ parent training intervention for pre-school children with autistic spectrum disorders." *Autism* 15(5): 563-577. doi: 10.1177/1362361310386502.
- [30] Solomon, R., Necheles, J., Ferch, C., & Bruckman, D. 2007. "Pilot study of a parent training program for young children with autism: The PLAY Project Home Consultation program." *Autism* 11(3): 205-224. doi: 10.1177/1362361307076842.
- [31] Mercer, J. 2017. "Examining DIR/Floortime™ as a treatment for children with autism spectrum disorders: A review of research and theory." *Research on Social Work Practice* 27(5): 625-635. doi: 10.1177/1049731515583062.

- [32] Morgan, L. J., Rubin, E., Coleman, J. J., Frymark, T., Wang, B. P., & Cannon, L. J. 2014. "Impact of social communication interventions on infants and toddlers with or at-risk for autism: A systematic review." *Focus on Autism and Other Developmental Disabilities* 29(4): 246-256. doi: 10.1177/1088357614539835.
- [33] Ayres A. J. 1979. *Sensory Integration and the Child*. Los Angeles, CA: Western Psychological Services.
- [34] Green, M. D. A., Wachs, H., & Dee, M. 2014. "Successful optometric vision therapy with patients on the autistic spectrum: Engaging patients with visual-cognitive therapy." *Optometry & Visual Performance* 2(5): 235–239.
- [35] Au, M., & Cuolter, R. 2014. "Vision therapy for the autistic patient: A literature review and case report." *Optometry & Visual Performance* 2: 244-250.
- [36] Lawton, K., & Kasari, C. 2012. "Teacher-implemented joint attention intervention: Pilot randomized controlled study for preschoolers with autism." *Journal of consulting and clinical psychology* 80(4): 687-693. doi: 10.1037/a0028506.
- [37] Kasari, C., Freeman, S., & Paparella, T. 2006. "Joint attention and symbolic play in young children with autism: A randomized controlled intervention study." *Journal of Child Psychology and Psychiatry* 47(6): 611-620. doi: 10.1111/j.1469-7610.2005.01567.x.
- [38] Goods, K. S., Ishijima, E., Chang, Y. C., & Kasari, C. 2013. "Preschool based JASPER intervention in minimally verbal children with autism: Pilot RCT." *Journal of autism and developmental disorders* 43(5): 1050-1056. doi: 10.1007/s10803-012-1644-3.
- [39] Kasari, C., Gulsrud, A. C., Wong, C., Kwon, S., & Locke, J. 2010. "Randomized controlled caregiver mediated joint engagement intervention for toddlers with autism." *Journal of autism and developmental disorders* 40(9): 1045-1056. doi: 10.1007/s10803-010-0955-5.
- [40] Kasari, C., Lawton, K., Shih, W., Barker, T. V., Landa, R., Lord, C., & Senturk, D. 2014a. "Caregiver-mediated intervention for low-

- resourced preschoolers with autism: An RCT.” *Pediatrics* 134(1): e72-e79. doi: 10.1542/peds.2013-3229.
- [41] Kasari, C., Gulsrud, A., Paparella, T., Hellemann, G., & Berry, K. 2015. “Randomized comparative efficacy study of parent-mediated interventions for toddlers with autism.” *Journal of consulting and clinical psychology* 83(3): 554. doi: 10.1037/a0039080.
- [42] Chang, Y. C., Shire, S. Y., Shih, W., Gelfand, C., & Kasari, C. 2016. “Preschool deployment of evidence-based social communication intervention: JASPER in the classroom.” *Journal of autism and developmental disorders* 46(6): 2211-2223. doi: 10.1007/s10803-016-2752-2.
- [43] Shire, S. Y., Chang, Y. C., Shih, W., Bracaglia, S., Kodjoe, M., & Kasari, C. 2017. “Hybrid implementation model of community-partnered early intervention for toddlers with autism: A randomized trial.” *Journal of Child Psychology and Psychiatry* 58(5): 612–622. doi: 10.1111/jcpp.12672.
- [44] Shire, S. Y., Shih, W., Chang, Y. C., Bracaglia, S., Kodjoe, M., & Kasari, C. 2019. “Sustained Community Implementation of JASPER Intervention with Toddlers with Autism.” *Journal of autism and developmental disorders* 49(5): 1863-1875. doi: 10.1007/s10803-018-03875-0.
- [45] Chang, Y. C., Shih, W., Landa, R., Kaiser, A., & Kasari, C. 2018. “Symbolic play in school-aged minimally verbal children with autism spectrum disorder.” *Journal of autism and developmental disorders* 48(5): 1436-1445. doi: 10.1007/s10803-017-3388-6.
- [46] Almirall, D., DiStefano, C., Chang, Y. C., Shire, S., Kaiser, A., Lu, X., & Kasari, C. 2016. “Longitudinal effects of adaptive interventions with a speech-generating device in minimally verbal children with ASD.” *Journal of Clinical Child & Adolescent Psychology* 45(4): 442-456. doi: 10.1080/15374416.2016.1138407.
- [47] Dawson, G., Rogers, S., Munson, J., Smith, M., Winter, J., Greenson, J., & Varley, J. 2010. “Randomized, controlled trial of an intervention for toddlers with autism: the Early Start Denver Model.” *Pediatrics* 125(1): e17-e23. doi: 10.1542/peds.2009-0958.

- [48] Vivanti, G., Dissanayake, C., Zierhut, C., Rogers, S. J., & Victorian ASELCC Team. 2013. "Brief report: Predictors of outcomes in the Early Start Denver Model delivered in a group setting." *Journal of Autism and Developmental Disorders* 43(7): 1717-1724. doi: 10.1007/s10803-012-1705-7.
- [49] Zhou, B., Xu, Q., Li, H., Zhang, Y., Wang, Y., Rogers, S. J., & Xu, X. 2018. "Effects of parent-implemented Early Start Denver Model intervention on Chinese Toddlers with autism spectrum disorder: A non-randomized controlled trial." *Autism Research* 11(4): 654-666. doi: 10.1002/aur.1917.
- [50] Dawson, G., Jones, E. J., Merkle, K., Venema, K., Lowy, R., Faja, S., & Smith, M. 2012. "Early behavioral intervention is associated with normalized brain activity in young children with autism." *Journal of the American Academy of Child & Adolescent Psychiatry* 51(11): 1150-1159. doi: 10.1016/j.jaac.2012.08.018.
- [51] Estes, A., Munson, J., Rogers, S. J., Greenson, J., Winter, J., & Dawson, G. 2015. "Long-term outcomes of early intervention in 6-year-old children with autism spectrum disorder." *Journal of the American Academy of Child & Adolescent Psychiatry* 54(7): 580-587. doi: 10.1016/j.jaac.2015.04.005.
- [52] Rogers, S. J., Estes, A., Lord, C., Munson, J., Rocha, M., Winter, J., & Sugar, C. A. 2019. "A multisite randomized controlled two-phase trial of the early Start Denver Model compared to treatment as usual." *Journal of the American Academy of Child & Adolescent Psychiatry* 58(9): 853-865. doi: 10.1016/j.jaac.2019.01.004.
- [53] Waddington, H., van der Meer, L., & Sigafoos, J. 2016. "Erratum to: Effectiveness of the Early Start Denver Model: a Systematic Review." *Review Journal of Autism and Developmental Disorders* 3(4): 399-399. doi: 10.1007/s40489-016-0095-8.
- [54] Rogers, S. J., Estes, A., Vismara, L., Munson, J., Zierhut, C., Greenson, J., & Whelan, F. 2019. "Enhancing low-intensity coaching in parent implemented Early Start Denver Model intervention for early autism: A randomized comparison treatment trial." *Journal of*

- autism and developmental disorders* 49(2): 632-646. doi: 10.1007/s10803-018-3740-5.
- [55] Capes, K., Upson, S., Jones, C., Dissanayake, C., & Vivanti, G. 2019. "Delivery of Group-Early Start Denver Model in an Australian early childhood setting." *Pediatric Medicine* 2: 16-25. doi: 10.21037/pm.2019.04.04.
- [56] Vivanti, G., Dissanayake, C., Duncan, E., Feary, J., Capes, K., Upson, S., & Hudry, K. 2019. "Outcomes of children receiving Group-Early Start Denver Model in an inclusive versus autism-specific setting: A pilot randomized controlled trial." *Autism* 23(5): 1165-1175. doi: 10.1177/1362361318801341.
- [57] Hart, B., & Risley, T. R. 1975. "Incidental teaching of language in the preschool." *Journal of applied behavior analysis* 8(4): 411-420. doi: 10.1901/jaba.1975.8-411.
- [58] Franco, J. H., Davis, B. L., & Davis, J. L. 2013. "Increasing social interaction using prelinguistic milieu teaching with nonverbal school-age children with autism." *American Journal of Speech-Language Pathology* 22(3): 489-502. doi: 10.1044/1058-0360(2012/10-0103).
- [59] Hancock, T. B., & Kaiser, A. P. 2006. "Enhanced Milieu Teaching." In *Treatment of Language Disorders in Children*, edited by R. McCauley & M. Fey, 203-233. Baltimore: Paul Brookes.
- [60] Fey, M. E., Warren, S. F., Brady, N., Finestack, L. H., Bredin-Oja, S. L., Fairchild, M., & Yoder, P. J. 2006. "Early effects of responsivity education/prelinguistic milieu teaching for children with developmental delays and their parents." *Journal of Speech, Language, and Hearing Research* 49(3): 526-547. doi: 10.1044/1092-4388(2006/039).
- [61] Yoder, P. J., & Warren, S. F. 1998. "Maternal responsivity predicts the prelinguistic communication intervention that facilitates generalized intentional communication." *Journal of Speech, Language, and Hearing Research* 41: 1207-1219. doi: 10.1044/jslhr.4105.1207.
- [62] Christensen-Sandfort, R. J., & Whinnery, S. B. 2013. "Impact of milieu teaching on communication skills of young children with

- autism spectrum disorder.” *Topics in Early Childhood Special Education* 32(4): 211-222. doi: 10.1177/0271121411404930.
- [63] Dubin, A. H., Lieberman-Betz, R. G., Ayres, K. M., & Zawoyski, A. 2019. “The Effects of Prelinguistic Milieu Teaching Implemented in Classrooms for Preschoolers With or at Risk for Autism Spectrum Disorder.” *Focus on Autism and Other Developmental Disabilities*. doi: 10.1177/1088357619888917.
- [64] Peters-Scheffer, N. C., Huskens, B., Didden, R., & van der Meer, L. 2016. “Prelinguistic milieu teaching.” In *Early intervention for young children with autism spectrum disorder*, edited by R. Lang, T. B. Hancock and N. N. Singh, 151-175. Cham, Switzerland: Springer International Publishing.
- [65] Yoder, P. J., & Lieberman, R. G. 2010. “Brief report: randomized test of the efficacy of picture exchange communication system on highly generalized picture exchanges in children with ASD.” *Journal of autism and developmental disorders* 40(5): 629-632. doi: 10.1007/s10803-009-0897-y.
- [66] Mcduffie, A. S., Lieberman, R. G., & Yoder, P. J. 2012. “Object interest in autism spectrum disorder: A treatment comparison.” *Autism* 16(4): 398-405. doi: 10.1177/1362361309360983.
- [67] Kaiser, A. P., & Roberts, M. Y. 2013. “Parent-implemented enhanced milieu teaching with preschool children who have intellectual disabilities.” *Journal of Speech, Language, and Hearing Research* 56(1): 295-309. doi: 10.1044/1092-4388(2012/11-0231).
- [68] Kasari, C., Kaiser, A., Goods, K., Nietfeld, J., Mathy, P., Landa, R., & Almirall, D. 2014. “Communication interventions for minimally verbal children with autism: A sequential multiple assignment randomized trial.” *Journal of the American Academy of Child & Adolescent Psychiatry* 53(6): 635-646. doi: 10.1016/j.jaac.2014.01.019.
- [69] Hampton, L. H., Harty, M., Fuller, E. A., & Kaiser, A. P. 2019. “Enhanced milieu teaching for children with autism spectrum disorder in South Africa.” *International journal of speech-language pathology* 21(6): 1-11. doi: 10.1080/17549507.2018.1559357.

- [70] Mancil, G. R. 2009. "Milieu therapy as a communication intervention: A review of the literature related to children with autism spectrum disorder." *Education and Training in Developmental Disabilities* 44(1): 105-117.
- [71] Parker-McGowan, Q., Chen, M., Reichle, J., Pandit, S., Johnson, L., & Kreibich, S. 2014. "Describing treatment intensity in milieu teaching interventions for children with developmental disabilities: A review." *Language, speech, and hearing services in schools* 45(4): 351-364. doi: 10.1044/2014_LSHSS-13-0087.
- [72] Mesibov, G. B., Shea, V., & Schopler, E. 2005. *The TEACCH approach to autism spectrum disorders*. New York: Springer Science & Business Media.
- [73] Mesibov, G. B., & Shea, V. 2010. "The TEACCH program in the era of evidence-based practice." *Journal of autism and developmental disorders* 40(5): 570-579. doi: 10.1007/s10803-009-0901-6.
- [74] Van Bourgondien M. E., Coonrod E. 2013. "TEACCH: An Intervention Approach for Children and Adults with Autism Spectrum Disorders and their Families." In *Interventions for Autism Spectrum Disorders*, edited by Goldstein S., Naglieri J., 75-105. New York: Springer. doi: 10.1007/978-1-4614-5301-7_5.
- [75] Virués-Ortega J., Arnold-Saritepe A., Hird C., Phillips K. 2017. "The TEACCH Program for People with Autism: Elements, Outcomes, and Comparison with Competing Models." In *Handbook of Treatments for Autism Spectrum Disorder. Autism and Child Psychopathology Series*, edited by Matson J., 427-436. Cham, Switzerland: Springer International Publishing. doi: 10.1007/978-3-319-61738-1_23.
- [76] Schopler, E., & Reichler, R. J. 1971. "Parents as cotherapists in the treatment of psychotic children." *Journal of autism and childhood schizophrenia* 1(1): 87-102. doi: 10.1007/BF01537746.
- [77] Virues-Ortega, J., Julio, F. M., & Pastor-Barriuso, R. 2013. "The TEACCH program for children and adults with autism: A meta-analysis of intervention studies." *Clinical psychology review* 33(8): 940-953. doi: 10.1016/j.cpr.2013.07.005.

- [78] Callahan, K., Shukla-Mehta, S., Magee, S., & Wie, M. 2010. "ABA versus TEACCH: the case for defining and validating comprehensive treatment models in autism." *Journal of autism and developmental disorders* 40(1): 74-88. doi: 10.1007/s10803-009-0834-0.
- [79] Ichikawa, K., Takahashi, Y., Ando, M., Anme, T., Ishizaki, T., Yamaguchi, H., & Nakayama, T. 2013. "TEACCH-based group social skills training for children with high-functioning autism: a pilot randomized controlled trial." *BioPsychoSocial medicine* 7(1): 14-22. doi:10.1186/1751-0759-7-14.
- [80] Coman, D., Alessandri, M., Gutierrez, A., Novotny, S., Boyd, B., Hume, K., & Odom, S. 2013. "Commitment to classroom model philosophy and burnout symptoms among high fidelity teachers implementing preschool programs for children with autism spectrum disorders." *Journal of autism and developmental disorders* 43(2): 345-360. doi: 10.1007/s10803-012-1573-1.
- [81] Boyd, B. A., Hume, K., McBee, M. T., Alessandri, M., Gutierrez, A., Johnson, L., & Odom, S. L. 2014. "Comparative efficacy of LEAP, TEACCH and non-model-specific special education programs for preschoolers with autism spectrum disorders." *Journal of autism and developmental disorders* 44(2): 366-380. doi: 10.1007/s10803-013-1877-9.
- [82] Aoyama, S. 1995. "The efficacy of structuring the work system: Individualization of the work format and the use of a 3-level paper rack in a special education class." *Japanese Journal of Special Education* 32(5): 1-5.
- [83] Ozonoff, S., & Cathcart, K. 1998. "Effectiveness of a home program intervention for young children with autism." *Journal of Autism and Developmental Disorders* 28: 25-32. doi: <https://doi.org/10.1023/A:1026006818310>.
- [84] Persson, B. 2000. "Brief report: A longitudinal study of quality of life and independence among adult men with autism." *Journal of Autism and Developmental Disorders* 30: 61-66. doi: 10.1023/a:1005464128544.

- [85] Panerai, S., Ferrante, L., & Zingale, M. 2002. "Benefits of the Treatment and Education of Autistic and Communication Handicapped Children (TEACCH) programme as compared with a non-specific approach." *Journal of Intellectual Disability Research* 46: 318–327. doi: 10.1046/j.1365-2788.2002.00388.x.
- [86] Van Bourgondien, M. E., Reichle, N. C., & Schopler, E. 2003. "Effects of a model treatment approach on adults with autism." *Journal of Autism and Developmental Disorders* 33: 131–140. doi: 10.1023/A:1022931224934.
- [87] Siaperas, P., & Beadle-Brown, J. 2006. "A case study of the use of a structured teaching approach in adults with autism in a residential home in Greece." *Autism* 10: 330–343. doi: 10.1177/1362361306064433.
- [88] Siaperas, P., Higgins, S., & Proios, P. 2007. "Challenging behaviours on people with autism: A case study on the effect of a residential training programme based on structured teaching and TEACCH method." *Psychiatriki* 18(4): 343–350.
- [89] Tsang, S., Shek, D., Lam, L., Tang, F., & Cheung, P. 2007. "Brief report: Application of the TEACCH program on Chinese pre-school children with autism — Does culture make a difference?" *Journal of Autism and Developmental Disorders* 37: 390–396. doi: 10.1007/s10803-006-0199-6.
- [90] Probst, P., & Leppert, T. 2008. "Brief report: Outcomes of a teacher training program for autism spectrum disorders." *Journal of Autism and Developmental Disorders* 38: 1791–1796. doi: 10.1007/s10803-008-0561-y.
- [91] Panerai, S., Zingale, M., Trubia, G., Finocchiaro, M., Zuccarello, R., Ferrei, R., et al. 2009. "Special education versus inclusive education: The TEACCH program." *Journal of Autism and Developmental Disorders* 39: 874–882. doi: 10.1007/s10803-009-0696-5.
- [92] McConkey, R., Truesdale-Kennedy, M., Crawford, H., McGreevy, E., Reavey, M., & Cassidy, A. 2010. "Preschoolers with autism spectrum disorders: Evaluating the impact of a home-based intervention to

- promote their communication.” *Early Child Development & Care* 180: 299–315. doi: 10.1080/03004430801899187.
- [93] Braiden, H. J., McDaniel, B., McCrudden, E., Hanes, M., & Crozier, B. 2012. “A practice-based evaluation of Barnardo’s forward steps early intervention programme for children diagnosed with autism.” *Child Care in Practice* 18: 227–242. doi: 10.1080/13575279.2012.683773.
- [94] Welterlin, A., Turner-Brown, L. M., Harris, S., Mesibov, G., & Delmolino, L. 2012. “The home TEACCHing program for toddlers with autism.” *Journal of Autism and Developmental Disorders* 42: 1827–1835. doi: 10.1007/s10803-011-1419-2.
- [95] Turner-Brown, L., Hume, K., Boyd, B. A., & Kainz, K. 2019. “Preliminary efficacy of family implemented TEACCH for toddlers: effects on parents and their toddlers with autism spectrum disorder.” *Journal of Autism and Developmental Disorders* 49(7): 2685-2698. doi: 10.1007/s10803-016-2812-7.
- [96] Carter, A. S., Messinger, D. S., Stone, W. L., Celimli, S., Nahmias, A. S., & Yoder, P. 2011. “A randomized controlled trial of Hanen’s ‘More Than Words’ in toddlers with early autism symptoms.” *Journal of Child Psychology and Psychiatry* 52(7): 741-752. doi: 10.1111/j.1469-7610.2011.02395.x.
- [97] Weitzman, E. 2013. “More than words—The Hanen Program for parents of children with autism spectrum disorder: A teaching model for parent-implemented language intervention.” *Perspectives on Language Learning and Education* 20(3): 96-111. doi: 10.1044/lle20.3.86.
- [98] Prelock, P. A., Calhoun, J., Morris, H., & Platt, G. 2011. “Supporting parents to facilitate communication and joint attention in their young children with autism spectrum disorders: Two pilot studies.” *Topics in Language Disorders* 31(3): 210-234. doi: 10.1097/TLD.0b013e318227bd3f.
- [99] Zaman, T., Das, D., & Chowdhury, M. A. 2017. “Outcomes of An Early Intervention Programme on Children with Autism Spectrum

- Disorders.” *Chattagram Maa-O-Shishu Hospital Medical College Journal* 16(2): 9-13. doi: 10.3329/cmshmcj.v16i2.37285.
- [100] Sokmun, S., Singh, S. J., & Vandort, S. 2018. “The impact of Hanen More Than Words programme on parents of children with ASD in Malaysia.” *Jurnal Sains Kesihatan Malaysia (Malaysian Journal of Health Sciences)* 15(2): 43-51. doi: 10.17576/JSKM-2017-1502-06.
- [101] Green, J., Charman, T., McConachie, H., Aldred, C., Slonims, V., Howlin, P., & Barrett, B. (2010). “Parent-mediated communication-focused treatment in children with autism (PACT): a randomised controlled trial.” *The Lancet* 375(9732): 2152-2160. doi: 10.1016/S0140-6736(10)60587-9.
- [102] Green, J., & Garg, S. 2018. “Annual Research Review: the state of autism intervention science: progress, target psychological and biological mechanisms and future prospects.” *Journal of Child Psychology and Psychiatry* 59(4): 424-443. doi: 10.1111/jcpp.12892.
- [103] Pickles, A., Harris, V., Green, J., Aldred, C., McConachie, H., Slonims, V., & PACT Consortium. 2015. “Treatment mechanism in the MRC preschool autism communication trial: Implications for study design and parent-focussed therapy for children.” *Journal of Child Psychology and Psychiatry* 56(2): 162-170. doi: 10.1111/jcpp.12291.
- [104] Pickles, A., Le Couteur, A., Leadbitter, K., Salomone, E., Cole-Fletcher, R., Tobin, H., & Aldred, C. 2016. “Parent-mediated social communication therapy for young children with autism (PACT): long-term follow-up of a randomised controlled trial.” *The Lancet* 388(10059): 2501-2509. doi: 10.1016/S0140-6736(16)31229-6.
- [105] Rahman, A., Divan, G., Hamdani, S. U., Vajaratkar, V., Taylor, C., Leadbitter, K., & Patel, V. 2016. “Effectiveness of the parent-mediated intervention for children with autism spectrum disorder in south Asia in India and Pakistan (PASS): a randomised controlled trial.” *The Lancet Psychiatry* 3(2): 128-136. doi: 10.1016/S2215-0366(15)00388-0.
- [106] Salomone, E., Leadbitter, K., Aldred, C., Barrett, B., Byford, S., Charman, T., & Parr, J. R. 2018. “The association between child and

- family characteristics and the mental health and wellbeing of caregivers of children with autism in mid-childhood.” *Journal of autism and developmental disorders* 48(4): 1189-1198. doi: 10.1007/s10803-017-3392-x.
- [107] Schertz, H. H., Odom, S. L., Baggett, K. M., & Sideris, J. H. 2013. “Effects of joint attention mediated learning for toddlers with autism spectrum disorders: An initial randomized controlled study.” *Early Childhood Research Quarterly* 28(2): 249-258. doi: 10.1016/j.ecresq.2012.06.006.
- [108] Klein, P. S. 2003. “A mediational approach to early intervention: Israel.” In *Early intervention practices around the world*, edited by S. L. Odom, M. J. Hanson, J. A. Blackman & S. Kaul, 69–80. Baltimore: Paul H. Brookes.
- [109] Lee, K., & Schertz, H. H. 2019. “Brief Report: Analysis of the Relationship Between Turn Taking and Joint Attention for Toddlers with Autism.” *Journal of autism and developmental disorders*, 1-8. doi: 10.1007/s10803-019-03979-1.
- [110] Schertz, H. H., Odom, S. L., Baggett, K. M., & Sideris, J. H. 2018. “Mediating parent learning to promote social communication for toddlers with autism: Effects from a randomized controlled trial.” *Journal of autism and developmental disorders* 48(3): 853-867. doi: 10.1007/s10803-017-3386-8.
- [111] Di Renzo, M., ed. 2020. “The developmental-relational approach to autism” (Tr. It. *L’approccio evolutivo-relazionale all’autismo*). Roma: Edizioni Magi.
- [112] Greenspan, S. I. 2001. “The affect diathesis hypothesis: The role of emotions in the core deficit in autism and in the development of intelligence and social skills.” *Journal of Developmental and Learning Disorders* 5(1): 1-45.
- [113] Di Renzo, M., Bianchi di Castelbianco, F., Vanadia, E., Petrillo, M., Racinaro, L., & Rea, M. 2016. “From the emotional integration to the cognitive construction: The developmental approach of turtle project in children with autism spectrum disorder.” *Autism-Open Access* 6: 160-169. doi: 10.4172/2165-7890.1000160.

- [114] Di Renzo, M., Bianchi di Castelbianco, F., Vanadia, E., Petrillo, M., Racinaro, L., & Rea, M. 2016. "TULIP Protocol (TCE, UOI, Leiter-R as Indicators of Predictivity) for the Assessment of the Developmental Potential in Children with Autism Spectrum Disorders." *Autism Open Access* 6(4): 188-194. doi: 10.4172/2165-7890.1000188.
- [115] Istituto Di Ortofonia. 2016. "Holophony. Three-dimensional listening for a new therapeutic model" (Tr. It. *Olofonia. L'ascolto tridimensionale per un nuovo modello terapeutico*). Roma: Edizioni Magi.
- [116] Di Renzo, M., di Castelbianco, F. B., Vanadia, E., Petrillo, M., Racinaro, L., Stracqualursi, M., & Rea, M. 2016. "Assessment of executive functions in preschool-aged children with autism spectrum disorders: Usefulness and limitation of BRIEF-P in clinical practice." *Journal of Child and Adolescent Behavior* 4(5): 313-20. doi: 10.4172/2375-4494.1000313.
- [117] Di Renzo, M., Guerriero, V., Petrillo, M., Racinaro, L., Vanadia, E., & Bianchi di Castelbianco, F. 2019. "A comprehensive assessment process for children with autism spectrum disorders." *Advances in Autism* 1-13. doi: 10.1108/AIA-09-2018-0031.
- [118] Di Renzo, M., Di Castelbianco, F. B., Petrillo, M., Racinaro, L., & Rea, M. 2015. "Assessment of a long-term developmental relationship-based approach in children with autism spectrum disorder." *Psychological reports* 117(1): 26-49. doi: 10.2466/15.10.PR0.117c15z8.
- [119] Di Renzo, M. 2017. "The Theoretical Principles of the Body-Centered Therapy to Promote Affective Attunement in Children with Autism Spectrum Disorder." *Journal of Behavioral and Brain Science* 7(12): 545-556. doi: 10.4236/jbbs.2017.712039.
- [120] Ingersoll, B., & Dvortcsak, A. 2010. *Teaching social communication to children with autism: A practitioner's guide to parent training*. New York, NY: The Guilford.
- [121] Ingersoll, B., & Wainer, A. 2013. "Initial efficacy of Project ImPACT: A parent-mediated social communication intervention for young

- children with ASD.” *Journal of autism and developmental disorders* 43(12): 2943-2952. doi: 10.1007/s10803-013-1840-9.
- [122] Stadnick, N. A., Stahmer, A., & Brookman-Frazee, L. 2015. “Preliminary effectiveness of project ImPACT: A parent-mediated intervention for children with autism spectrum disorder delivered in a community program.” *Journal of autism and developmental disorders* 45(7): 2092-2104. doi: 10.1007/s10803-015-2376-y.
- [123] Rieth, S. R., Haine-Schlagel, R., Burgeson, M., Searcy, K., Dickson, K. S., & Stahmer, A. C. 2018. “Integrating a Parent-Implemented Blend of Developmental and Behavioral Intervention Strategies into Speech-Language Treatment for Toddlers at Risk for Autism Spectrum Disorder.” *Seminars in speech and language* 39(2): 114-124. doi: 10.1055/s-0038-1627483.
- [124] Stahmer, A. C., Rieth, S. R., Dickson, K. S., Feder, J., Burgeson, M., Searcy, K., & Brookman-Frazee, L. 2019. “Project ImPACT for Toddlers: Pilot outcomes of a community adaptation of an intervention for autism risk.” *Autism*. doi: 10.1177/1362361319878080.
- [125] Manohar, H., Kandasamy, P., Chandrasekaran, V., & Rajkumar, R. P. 2019. “Brief Parent-Mediated Intervention for Children with Autism Spectrum Disorder: A Feasibility Study from South India.” *Journal of autism and developmental disorders* 49: 1-13. doi: 10.1007/s10803-019-04032-x.
- [126] Kasari, C., Gulsrud, A., Freeman, S., Paparella, T., & Hellemann, G. 2012. “Longitudinal follow-up of children with autism receiving targeted interventions on joint attention and play.” *Journal of the American Academy of Child & Adolescent Psychiatry* 51(5): 487-495. doi: 10.1016/j.jaac.2012.02.019.
- [127] Rollins, P. R., Campbell, M., Hoffman, R. T., & Self, K. 2016. “A community-based early intervention program for toddlers with autism spectrum disorders.” *Autism* 20(2): 219-232. doi: 10.1177/1362361315577217.

- [128] Rollins, P. R. 2017. "Pathways early intervention program for toddlers with autism." *Journal of Mental Health and Clinical Psychology* 1(1): 14-18. doi: 10.29245/2578/-2959/2018.1.1104.
- [129] Rollins, P. R., John, S., Jones, A., & De Froy, A. 2019. "Pathways Early ASD Intervention as a Moderator of Parenting Stress on Parenting Behaviors: A Randomized Control Trial." *Journal of autism and developmental disorders* 49(10): 4280-4293. doi: 10.1007/s10803-019-04144-4.
- [130] Gutstein, S. 2001. *Solving the relationship puzzle*. Arlington, TX: Future Horizons.
- [131] Gutstein, S. E., Burgess, A. F., & Montfort, K. 2007. "Evaluation of the relationship development intervention program." *Autism* 11(5): 397-411. doi: 10.1177/1362361307079603.
- [132] Wang, N., Wang, Y., & Han, H. 2019. "Efficiency of Relational Development Intervention Program for Children with Autism." *Advances in Social Science, Education and Humanities Research (ASSEHR)* 300. doi: 10.2991/erss-18.2019.163.
- [133] Mahoney, G., & MacDonald, J. 2007. *Autism and developmental delays in young children: The responsive teaching curriculum for parents and professionals*. Austin, TX: Pro-Ed.
- [134] Karaaslan, O., Diken, I. H., & Mahoney, G. 2013. "A randomized control study of responsive teaching with young Turkish children and their mothers." *Topics in Early Childhood Special Education* 33(1): 18-27. doi: 10.1177/0271121411429749.
- [135] Mahoney, G., Wiggers, B., Nam, S., Kralovic, S., & Perales, F. 2014. "How depressive symptomatology of mothers of children with pervasive developmental disorders relates to their participation in relationship focused intervention." *International Journal of Early Childhood Special Education* 6(2): 204-221. doi: 10.20489/intjecse.86233.
- [136] Alquraini, T., Al-Odaib, A., Al-Dhalaan, H., Merza, H., & Mahoney, G. 2019. "Relationship-based Intervention with Young Children with Autism in Saudi Arabia: Impediments and Consequences of Parenting Stress and Depression." *International Journal of Disability,*

Development and Education 66(3): 233-248. doi: 10.1080/1034912X.2018.1487042.

- [137] Poslawsky, I. E., Naber, F. B., Bakermans-Kranenburg, M. J., De Jonge, M. V., Van Engeland, H., & Van IJzendoorn, M. H. 2014. "Development of a Video-feedback Intervention to promote Positive Parenting for Children with Autism (VIPP-AUTI)." *Attachment & Human Development* 16(4): 343-355. doi: 10.1080/14616734.2014.912487.
- [138] Juffer, F. Bakermans-Kranenburg, M. J. & Van IJzendoorn, M. H. (Ed.). 2008. *Promoting positive parenting: An attachment-based intervention*. New York, NY: Lawrence Erlbaum Associates.
- [139] Poslawsky, I. E., Naber, F. B., Bakermans-Kranenburg, M. J., van Daalen, E., van Engeland, H., & van IJzendoorn, M. H. 2015. "Video-feedback Intervention to promote Positive Parenting adapted to Autism (VIPP-AUTI): A randomized controlled trial." *Autism* 19(5): 588-603. doi: 10.1177/1362361314537124.
- [140] Solomon, R., Van Egeren, L. A., Mahoney, G., Huber, M. S. Q., & Zimmerman, P. 2014. "PLAY Project Home Consultation intervention program for young children with autism spectrum disorders: a randomized controlled trial." *Journal of Developmental and Behavioral Pediatrics* 35(8): 475-485. doi: 10.1097/DBP.0000000000000096.
- [141] Mahoney, G., & Solomon, R. 2016. "Mechanism of developmental change in the PLAY project home consultation program: Evidence from a randomized control trial." *Journal of autism and developmental disorders* 46(5): 1860-1871. doi: 10.1007/s10803-016-2720-x.

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Publications from the Last 3 Years:

1. Di Renzo, M., Guerriero, V., Petrillo, M., Racinaro, L., Vanadia, E., & di Castelbianco, F. B. (2019). A comprehensive assessment process for children with autism spectrum disorders. *Advances in Autism*.
2. Di Renzo, M. (2017). The Theoretical Principles of the Body-Centered Therapy to Promote Affective Attunement in Children with Autism Spectrum Disorder. *Journal of Behavioral and Brain Science*, 7(12), 545.
3. Di Renzo, M., Bianchi di Castelbianco, F. B., Vanadia, E., & Racinaro, L. (2017). The psychomotor profile in children with autistic spectrum disorders: clinical assessments and implications for therapy. *Autism Open Access*, 7(209), 2.
4. Di Renzo, M., Marini, C., Bianchi di Castelbianco, F., Racinaro, L., & Rea, M. (2017). Correlations between the Drawing Process in Autistic Children and Developmental Indexes. *J Psychol Psychother*, 7(291), 2161-0487.
5. Di Renzo, M., Bianchi di Castelbianco, F., Vanadia, E., Petrillo, M., Racinaro, L., & Rea, M. (2017). Sensory processing and repetitive behaviors in clinical assessment of preschool children with autism

spectrum disorder. *Journal of Child and Adolescent Behavior*, 5(2), 1-8.

6. Renzo, M. D., Palladino, G., & Bianchi di Castelbianco F., Racinaro L. (2017). When the Intellectual Potential is Concealed from Symptoms: A Case Report. *Journal of Clinical Case Report*, 7(943), 2.

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Publications from the Last 3 Years:

1. Pace, C. S., Guerriero, V., & Zavattini, G. C. (2020). Children's attachment representations: A pilot study comparing family drawing with narrative and behavioral assessments in adopted and community children. *The Arts in Psychotherapy*, 67, 101612.
2. Pace, C. S., Di Folco, S., Guerriero, V., & Muzi, S. (2019). Late-adopted children grown up: a long-term longitudinal study on attachment patterns of adolescent adoptees and their adoptive mothers. *Attachment & human development*, 21(4), 372-388.
3. Di Renzo, M., Guerriero, V., Petrillo, M., Racinaro, L., Vanadia, E., & di Castelbianco, F. B. (2019). A comprehensive assessment process for children with autism spectrum disorders. *Advances in Autism*.

4. de Campora, G., Giromini, L., Guerriero, V., Chiodo, C., Zavattini, G. C., & Larciprete, G. (2019). Influence of maternal reflective functioning on mothers' and children's weight: A follow-up study. *Infant Mental Health Journal, 40*(6), 862-873.
5. Pace, C. S., Di Folco, S., & Guerriero, V. (2018). Late-adoptions in adolescence: Can attachment and emotion regulation influence behaviour problems? A controlled study using a moderation approach. *Clinical psychology & psychotherapy, 25*(2), 250-262.
6. Guerriero V., de Campora G., Gnazzo A., Vegni E., Zavattini G. C. (2017). Parents facing their child disease: insights from attachment theory. In Alexandra M. Columbus (Eds.), *Advances in Psychology Research* (Vol. 126). Nova Science Publishers.

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Publications from the Last 3 Years:

1. Di Renzo, M., Guerriero, V., Petrillo, M., Racinaro, L., Vanadia, E., & di Castelbianco, F. B. (2019). A comprehensive assessment process for children with autism spectrum disorders. *Advances in Autism*.
2. Di Renzo, M., Bianchi di Castelbianco, F. B., Vanadia, E., & Racinaro, L. (2017). The psychomotor profile in children with autistic spectrum disorders: clinical assessments and implications for therapy. *Autism Open Access*, 7(209), 2.
3. Di Renzo, M., Marini, C., Bianchi di Castelbianco, F., Racinaro, L., & Rea, M. (2017). Correlations between the Drawing Process in Autistic Children and Developmental Indexes. *J Psychol Psychother*, 7(291), 2161-0487.
4. Di Renzo, M., Bianchi di Castelbianco, F., Vanadia, E., Petrillo, M., Racinaro, L., & Rea, M. (2017). Sensory processing and repetitive behaviors in clinical assessment of preschool children with autism spectrum disorder. *Journal of Child and Adolescent Behavior*, 5(2), 1-8.
5. Renzo, M. D., Palladino, G., & Bianchi di Castelbianco F., Racinaro L. (2017). When the Intellectual Potential is Concealed from Symptoms: A Case Report. *Journal of Clinical Case Report*, 7(943), 2.