

Paige Harriman

EDUC762

Dr. Simeonsson

20 April 2018

The Efficacy of Early Behavioral Intervention for Children with Autism Spectrum Disorder

According to Jean Piaget, young minds are malleable – his theory of cognitive development states that the developing child builds mental structures and maps in response to physical and cognitive experiences within his or her environment, which indicates influenceability. Though children typically move through four stages of development (sensorimotor, preoperational, concrete operations, and formal operations), as we know now, developmental disorders can impede their cognitive growth.

For children with autism spectrum disorder (ASD), there is often an arrest in operative functions at the sensorimotor level (like oral motor skills or sensory processing abilities), while continued advancement in figurative functions. (Morgan, 1986) This early setback restricts the following development of higher-level skills, especially in conceptual, symbolic, and social areas; thus, it seems that children with ASD who receive early intervention would have better prognoses than ones who do not.

Currently, the Early Start Denver Model (ESDM) is one of the only evidence-based early comprehensive intervention model for young children with autism, specifically ages 12 to 48 months. Based on developmental and applied behavioral analytic criterion, ESDM intervention takes advantage of the learning potentiality of the infant mind, which mitigates autism's detrimental effects and allows children to lead more normal lives. (Autism Speaks, 2009)

The positive impact of this intervention is undeniable – in a randomized clinical trial of 48 children diagnosed with ASD (ages from 18 to 30 months), children who received ESDM (as compared with the control group, who had community-based intervention) improved considerably in regards to IQ and adaptive behavior skills, and for some, even autism diagnosis. Two years following intervention, the ESDM group increased their average IQ by 17.6 standard score points (1 SD: 15 points), as compared with 7 points in the control group, proportionate to baseline scores. (Autism Speaks, 2009) Moreover, the ESDM group sustained its rate of advancement in adaptive behavior skills, as compared with a normative sample of typically developing (TD) children. To compare, the control group had larger delays in adaptive behavior. In addition, in a surprising finding, children who received ESDM were also more likely to receive a change in diagnosis from autism to pervasive developmental disorder, not otherwise specified. (Autism Speaks, 2009)

This finding has been repeated in other studies. In 2015, researchers tracked 569 children diagnosed with ASD as toddlers; the children all entered an early intervention program, and received re-evaluation for autism before they started elementary school, typically four years after receiving early intervention services. (Autism Speaks, 2015) These assessments revealed that 38 of the 569 had progressed to no longer receiving a first-time diagnosis of autism – a surprising finding, as this developmental disorder is considered lifelong, even with significant advancement, children do not usually lose their diagnosis. (Carpenter, 2015) In addition to losing their autism diagnosis, though the majority of the 38 children had previously tested as intellectually disabled as toddlers, on re-assessment, they all scored within a normal intellectual range. (Autism Speaks, 2015)

And yet, even with these improvements in social and intellectual skills, 92% of those children still required special services. (Autism Speaks, 2015) This indicates that these children definitively have a developmental disability, and, in absence of early intervention, it is reasonable to suspect they would have continued to receive diagnoses of autism spectrum disorder. So what made the early intervention so effective for these children? Did it truly help them to experience the world more like TD children, affecting their neural patterns and changing their cognitive development abilities, or simply teach them to camouflage their symptoms? How permanent are those changes – will some or all of the children regress?

To begin with, developmental research on ASD has indicated that there are age-related changes in symptom expression (McGovern & Sigman, 2005), especially with social behaviors. At the time of this literature review, no follow-up studies have been conducted with those children; nonetheless, it has been heavily documented that cognitive changes occur in a particular sequence and at particular ages. (Brainerd, 1978) When early intervention helps a child with ASD develop behaviors and skills of stages after sensorimotor, such as more age-appropriate motor and language skills, what else about their development is affected?

Current research already shows a connection between a Piagetian sequence of cognitive development and ASD, with perceptual functions (specific mental functions of recognizing and interpreting sensory stimuli) developing normally and operative intelligence developing atypically, and new research suggests that early intervention helps better the development of operative intelligence – but are those only short-term gains? What are the long-term impacts of early intervention for children with ASD?

To start with, while they often show significant and sizable benefits in cognition, academic achievement, educational progression and attainment, and behavioral and emotional competencies, some findings suggest that early benefits in terms of cognition or school achievement may eventually fade. (Karoly et al., 2005) However, studies suggest that there can be more enduring, considerable advances in life outcomes, including special education placement, autism diagnosis, and grade retention. (Karoly et al., 2005) Moreover, the parents of participating children may also benefit from early interventions, especially when they are involved with the intervention. (Karoly et al., 2005) In essence, while early intervention may not necessarily permanently impact overall cognitive abilities as children with ASD get older, it still has a considerable impact on other things – like IQ, adaptive behavior, and autism diagnosis. (Dawson, 2010)

Knowing this, what additional factors would make early intervention more successful and enduring? What contributes to long-lasting improvements for children with ASD, and what can school psychologists do to support them? Before all else, continued reinforcement and exposure seems to increase efficacy. (Autism Speaks, 2009) Parental involvement and their use of intervention strategies during daily activities, according to new research, seems to profoundly impact the child's achievement and progress. (Dawson, 2010) Therapists must teach parents appropriate strategies for engaging their children and promoting proper communication, because when these strategies are used throughout the day, the children have many moments to learn better social interaction. (Dawson, 2010) Moreover, collaboration improves intervention outcomes – when parents work with therapists to help the child achieve individualized goals,

especially improving social responsiveness with other peers, communication with parents, and even playing with toys. (Dawson, 2010)

As previously mentioned, the ESDM is one of the only evidence-based early comprehensive intervention model for young children with ASD; nevertheless, there is another comprehensive behavioral intervention program that children with ASD can benefit from – the UCLA/Lovaas model. Developed in 1987, the model gives young children with ASD (under the age of four at the start of treatment) immersive early intervention, through providing them with weekly ABA instruction (40 hours per week) for two to three years. (ASAT)

In the first year, children receive individual discrete trial training, which means that behaviors are taught through repeated trials and reinforcement. (ASAT) According to Piaget's theory of cognitive development, TD children, in the sensorimotor stage, develop an understanding of their world through trial and error, using their senses and actions to determine appropriate responses to stimuli. Through assimilation and accommodation, TD children continuously adapt to the world. (McLeod, 2015) Children with ASD, however, have difficulty with establishing those appropriate responses to stimuli, and thus truly benefit from the repetitive nature of individual discrete trial training, as it enables them to practice and learn normal behaviors. More specifically, this repetitive intervention strengthens secondary circular reactions (the knowledge that repetitive actions have positive effectives), the coordination of secondary circular reactions stages (the development of logic and coordination between means and ends), and tertiary circular reactions, novelty, and curiosity (the discovery of new means to meet goals).

While individual discrete trial training primarily happens in the child's home, in the second year, they spend increasing amounts of time on playdates with TD peers, which gives them chances for peer tutoring and to increase their social abilities; enter general education preschools, which encourages adjustment to school; and take part in incidental teaching, in addition to discrete trial training. (ASAT) Incidental teaching (IT) creates a learning environment that fosters and nurtures the interests of children, which makes successfully motivating students easier. In other words, this process makes the best use of learning opportunities that happen through typical activities.

When looking at Piaget's theory, it seems that this would help children with ASD gain ground in the pre-operational stage, who, as it currently stands, do not progress well. For example, at the beginning of this stage, all children often have difficulties thinking about more than one aspect of a situation (decentering), have trouble understanding the perspectives of other people (egocentrism), and engage primarily in parallel play. (McLeod, 2014) As TD children advance throughout this stage, their egocentrism lessens, and they start to enjoy playing with other children, however, children with ASD do not experience this growth. Intervening at this stage with repeated exposure to same-age peers dramatically improves the adoption of social skills, especially with decentering and shared play. (Eapen et al., 2013)

For the third and final year, the focus shifts from individualized intervention and instruction to increasing inclusion into the classroom, either in general education or in special education, depending on the needs of the child. At this point, the children are practicing the skills they've learned in the first two years in more real-life social situations, and a number of studies about this treatment indicate that there are indeed large gains in development and cognitive

functioning, as well as a reduction of the need for specialized services. Moreover, it potentially results in some children with ASD developing levels of functioning similar to TD children; however, unlike the ESDM, the evidence of this is not comprehensive. The studies involved have had a small number of participants, in addition to other design limitations, and there is a need for larger studies of this intervention (with stronger experimental designs) to prove validity. (Eapen et al., 2013)

Even so, the vast benefits of early intervention are undeniable – children with ASD who receive them typically have significantly better life outcomes than ones who do not. So then, what of girls with ASD, who are often not diagnosed until post-adolescence? (Michelle and Connie, 2014) How does the lack of early intervention affect them, and how can they best catch up to their peers?

To begin with, psychologists often do not detect ASD in young girls because they are quiet and tend to behave in more appropriate ways – they are generally more verbally and socially interactive. (Jamison et al., 2017) New findings suggest that there may be neurological differences in boys and girls with ASD: in the area of the brain that processes social information, girls seem to have less of a disruption than boys. (Pelphrey, 2018) Because of that, girls may be more easily able to understand what social norms are expected of them, even if they can't meet those requirements, which causes them stress. (Pelphrey, 2018) Lack of early intervention to teach them appropriate socio-emotional skills not only results in interpersonal distress, but also to fall further behind their TD peers. (Pelphrey, 2018)

However, there are interventions for recouping those abilities. In 2015, Dr. Elizabeth Laugeson, a clinical psychologist at UCLA, developed PEERS, a social skills training

intervention for youth with social challenges. It has a strong evidence-base for use with adolescents and young adults with ASD, and is also effective for children and adolescents with ADHD, anxiety, depression, and other socio-emotional problems. This intervention has the largest randomized controlled trial for young adults (18 to 24) with ASD; studies show that, in addition to improving the overall social functioning of participants, the participants' advances continued to be seen 16 weeks after the program's conclusion. Autism symptoms related to social responsiveness diminished, and the level of social engagement and knowledge increased dramatically. Moreover, the program also strengthened things like empathy and responsibility. (UCLA/Lovaas Intervention, 2018)

Though the cognitive and related outcomes (in terms of IQ and diagnosis) are not the strong as with early intervention programs, the social skills – like conversational skills and conflict handling abilities – allow young adults with late-diagnoses of ASD to “catch up” with their peers. It may be that behavioral interventions do not depend as heavily on development stages as cognitive ones do; that is, social skills can be taught more easily things like operative intelligence. (Lovaas, 1987)

In any event, children with ASD, even after receiving early intervention, still grow up to be adults with their own individual challenges – ones which often affect their ability to make friends and develop romantic relationships, to graduate high school, and to hold jobs, and sometimes their abilities to live on their own. Consequently, it is imperative that psychologists detect ASD early on, so that children with it can live happier, more successful lives.

Bibliography

Adelman, C. R., & Kubiszyn, T. (2016). Factors That Affect Age of Identification of Children With an Autism Spectrum Disorder. *Journal of Early Intervention*, 39(1), 18-32. doi: 10.1177/1053815116675461

Al Backer, N. B. (2015). Developmental regression in autism spectrum disorder. *Sudanese Journal of Paediatrics*, 15(1), 21–26.

Autism Speaks. (2012, July 25). Early Intervention For Toddlers With Autism Highly Effective, Study Finds. Retrieved from <https://www.autismspeaks.org/about-us/press-releases/early-intervention-toddlers-autism-highly-effective-study-finds>

Autism Speaks. Early Intervention Helps 1 in 14 Toddlers Overcome Autism Symptoms. (2012, July 25). Retrieved from <https://www.autismspeaks.org/science/science-news/early-intervention-helps-1-14-toddlers-overcome-autism-symptoms>

Carter, C. S., & Jacob, S. (2013). Oxytocin and Vasopressin: Mechanisms for Potential Sex Differences Observed in Autism Spectrum Disorders. *Oxford Medicine Online*. doi:10.1093/med/9780199744312.003.0018

Dawson, G., Jones, E. J. H., Merkle, K., Venema, K., Lowy, R., Faja, S., ... Webb, S. J. (2012). Early Behavioral Intervention Is Associated With Normalized Brain Activity in Young Children With Autism. *Journal of the American Academy of Child and Adolescent Psychiatry*, 51(11), 1150–1159. <http://doi.org/10.1016/j.jaac.2012.08.018>

Eapen, V., Črnčec, R., & Walter, A. (2013). Clinical outcomes of an early intervention program for preschool children with Autism Spectrum Disorder in a community group setting. *BMC Pediatrics*, 13, 3. <http://doi.org/10.1186/1471-2431-13-3>

Dawson, G., Rogers, S., Munson, J., Smith, M., Winter, J., Greenson, J., . . . Varley, J. (2009). Randomized, Controlled Trial of an Intervention for Toddlers With Autism: The Early Start Denver Model. *Pediatrics*, 125(1). doi:10.1542/peds.2009-0958

Karoly, Lynn A., M. Rebecca Kilburn, and Jill S. Cannon, Proven Benefits of Early Childhood Interventions. Santa Monica, CA: RAND Corporation, 2005. https://www.rand.org/pubs/research_briefs/RB9145.html.

Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology*, 55, 3-9.

McLeod, S. (1970, January 01). Saul McLeod. Retrieved from <https://www.simplypsychology.org/sensorimotor.html>

Michelle, D., Connie, K., Wendy, S., Fred, F., Rondalyn, W., Felice, O., . . . Robin, H. (2014). The peer relationships of girls with ASD at school: Comparison to boys and girls with and without ASD. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 55(11), 1218–1225. <http://doi.org/10.1111/jcpp.12242>

Morgan, S. B. (1986). Autism and Piagets theory: Are the two compatible? *Journal of Autism and Developmental Disorders*, 16(4), 441-457. doi:10.1007/bf01531710

Thurber, S., Sheehan, W., & Valtinson, G. (2007). Autism spectrum conditions from a Piagetian perspect. doi:10.1007/978-1-4419-1698-3_293

Pelphrey, K. A. (2018). Autism: insights from the study of the social brain. In R. Biswas-Diener & E. Diener (Eds), *Noba textbook series: Psychology*. Champaign, IL: DEF publishers. DOI:nobaproject.com

UCLA/Lovaas Intervention. (2018). Retrieved from <https://www.asatonline.org/for-parents/learn-more-about-specific-treatments/applied-behavior-analysis-aba/aba-techniques/uclalovaas-intervention/>

UK, R. A. (n.d.). Common Issues and Challenges facing Children on the Autism Spectrum. Retrieved from <http://www.researchautism.net/autism/children-and-young-people-on-the-autism-spectrum/challenges-facing-children-on-the-autism-spectrum>

Young adults with autism show improved social function following skills program. (2015, July 31). Retrieved from <https://www.sciencedaily.com/releases/2015/07/150731103705.htm>

Why do some children seem to 'outgrow' autism? (2018, January 10). Retrieved from <https://www.spectrumnews.org/features/deep-dive/children-who-leave-autism-behind/>

Zwaigenbaum, L., Bauman, M., Choueiri, R., Kasari, C., & Carter, A. (n.d.). Early Intervention for Children With Autism Spectrum Disorder Under 3 Years of Age: Recommendations for Practice and Research. American Academy of Pediatrics.

Autism spectrum disorder (ASD) is associated with several oropharyngeal abnormalities, including dysbiosis in the oral microbiota. As there is a correlation between abnormal microbiota and development of autism like behaviour, so, modifying the gut microbiome by probiotics, prebiotics, antibiotics and fecal microbiota transplant (FMT) could be a potential route to improve GI and behavioural symptoms in children with ASD. Researchers have created interventions to improve the social behaviour and communication abilities of children with Autism Spectrum Disorder (ASD). Such findings reinforce the efficacy of self-modelling video social stories, which highlight the ability of mixed therapy strategies to treat a child with ASD's social deficits. Save to Library. Download. Early intensive behavioral intervention (EIBI) programs are among the most widely known interventions in autism, but their effects on families have receive. Early intervention for children with autism spectrum disorders: ~Guidelines for good practice~™. Australian Government's Department of Families , Housing, Community Services and Indigenous Affairs (FaHCSIA) . Retrieved from <https://www.dss.gov.au/>. Journal of Behavioral Education, 20 , 297-305. <https://doi.org/10.1007/s10864-011-9138-5> . Article Google Scholar. Khanlou, N., Haque, N., Mustafa, N., Vazquez, L. M., Mantini, A., & Weiss, J. (2017). Reviewed in the United States on June 20, 2014. Verified Purchase. There's a lot of material in this book that is great, from treatment planning to how to recruit employees. There are even flow charts for helping to make behavior intervention decisions, and lots of general use data sheets. What I get most out of it is the lesson planning material, this book is full of examples of targets for each skill. Reviewed in the United States on April 2, 2018. Verified Purchase. My sons is autistic and this book has very good information. 5.0 out of 5 stars Behavioural intervention for children with autism. Reviewed in Canada on October 25, 2013. Verified Purchase. To delineate the early progression of autism spectrum disorder (ASD) symptoms, this study investigated developmental characteristics of infants at high familial risk for ASD (HR), and infants at low risk (LR). Methods. Current research indicates that ASD recurrence risk for siblings of children with ASD is as high as 18.7 % [38], with population-based estimates around 10 % [44]. Elucidating the timing and progression of early developmental differences in infants who go on to develop ASD could lead to earlier identification and provide insights into ways of altering the early course of ASD, ultimately identifying novel targets for intervention and opportunities to ameliorate later symptoms.