



Application of the TEACCH approach on Thai pre-school children with autism: A multidimensional pilot study

Manason P, Ph.D.

Department of Communication Sciences and Disorders, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand

Abstract

In recent years, the term Autism Spectrum Disorder or ASD was widely known as one of the world largest phenomenon disorder. Many researches have shown the ratio of children with ASD compared to normal ones was approximately 1:88, which is unexpectedly increased for the last five years. While the ASD was claimed as a neurobehavioral syndrome caused by a dysfunction in the central nervous system, which leads to disordered development, three general categories of behavioral impairment were shown. Common to all persons who have autism are composing of qualitative impairments in social interaction, qualitative impairments in communication, and restricted repetitive and stereotyped patterns of behavior, interest, and activities. With the inappropriate behaviors, most of young children with ASD usually are not attend schools. Even though a small number of intervention programs that claimed to help these children behave appropriately in order to abridge the gap of disabilities have worked intensively on researching interventions with young children with ASD and their families, the reality uses of these programs are still in its infancy. This research intervention was aimed to help these children in order to develop their appropriate behaviors by using two behavioral adjustment programs called Applied Behavioral Analysis (ABA) combined with Treatment and Education of Autistic and Communication-Handicapped Children (TEACCH). Twelve children who participated in this research intervention are 4 years of age and older and have a confirmed of mild to moderate Autism Spectrum Disorder (ASD). This research intervention offered a variety of therapeutic and support services to these pre-school children with ASD, including: family education and counseling, school visit, and parent support groups combined with one-on-one behavioral adjustment program specifically. As the result of these techniques, all of these twelve children were accepted to study in the schools in kindergarten level.

Keywords: Autism ABA TEACCH intervention

Corresponding Author: Manason P, Ph.D.

Department of Communication Sciences and Disorders, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand



Introduction

Autism is a spectrum disorder that begins in infancy or the toddler years and is defined by deficits in three core areas of development: social development, communication, and repetitive behaviors⁽¹⁾. Autism is considered a spectrum disorder because individuals on the autism spectrum can vary significantly in the degree to which behaviors or characteristics manifest. However, evidence of improved functional potentials through intensive programs offered early in the child's development as been reported⁽²⁾. Some studies indicated that children who participate in intensive early intervention beginning by age 3 have a significantly better outcome than those whose intervention started later in life⁽³⁾. The findings also suggested the need to identify and provide program for children with ASD as early as possible.

Two approaches that claimed to help children with ASD reach their maximum potential in particular, Applied Behavior Analysis (ABA) and Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH), are among the most widely known comprehensive intervention models⁽¹⁾. Interestingly, ABA and TEACCH are firmly established as among the most visible and frequently cited autism programs and they are among the most broadly implemented in clinical trial and public schools in the USA⁽⁴⁾.

The Applied Behavior Analysis (ABA) has long claimed to be the primary approach for teaching children with ASD⁽⁵⁾. The direct one-on-one strategy helped to increase and maintain the appropriate behaviors of these children. On the other hand, a leading intervention program for children with ASD is the Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH) approach that is a comprehensive and primarily educational program which includes diagnostic evaluation, individualized treatment, and special education developed by Schopler and his team at the Univer-

sity of North Carolina in the 1970s⁽⁶⁾. The TEACCH approach integrated the theory of autism, behavioral, developmental psychoeducational, and psycholinguistic approaches together. Its long term goal is for the children with ASD to become appropriately transitioned as an adult⁽⁷⁾.

Despite the claims and counterclaims of some advocates of these leading autism approaches, the researcher strongly believe in the potential of both approaches as complementary to each other⁽⁸⁾. As the matter of fact, these comprehensive early intervention approaches share common components that are both socially valid and evidence-based^(1,9).

The purpose of this pilot study is to evaluate the effectiveness of pre-school program using application of TEACCH approach on Thai pre-school children with ASD.

Materials and Method

Participants and procedures

The experimental group comprised 12 children aged from 4 to 6 years. There were 11 boys and 1 girl. All children were formally diagnosed according to the Diagnostic and Statistical Manual-IV⁽¹⁰⁾ as having Pervasive Developmental Disorders (including Autistic Disorder and Pervasive Developmental Disorder Not Otherwise Specified). No child had prior exposure to structured teaching before the study.

The study spanned over 24 months and all participants were assessed at Pre-test (Baseline), Post-test 1 (after 12 months), and Post-test 2 (after 24 months). During the first 3 months, all children received at least 2 hour of ABA training per week at the assigned room. Another 21 months, all children received at least 2 hour of TEACCH training per week. Most children had psychomotor therapy, speech therapy, and sometimes physical therapy in the afternoon or any other time during the week. Apart from the intervention program, parents and the caregivers of these children also received the suggestions for

further assistance. Family group discussions were arranged every 6 months. Each child was also evaluated twice with a one-year interval between assessments using PsychoEducational Profile 3 (PEP-3)⁽¹¹⁾. The PEP-3 offers a developmental approach to the assessment of children with autism or related developmental disorders, and is designed to identify idiosyncratic learning patterns⁽¹²⁾.

Treatment

The ABA program applied to all children with the one-on-one approach. Each child will firstly ask about the stimulant which was either 5 minutes break time or sticker. Then the program focused according to the child strengths and weaknesses using precise routines such as face reading, giving and sharing, yes and no.

The TEACCH program also applied to all children based on three fundamental principles: an individual educational program, environmental adaption, and alternative communication training. Individual educational intervention programs were planned and structured for each child.

Results

Table 1: Statistical significance of the differences between the Posttest 1 and 2 of the PsychoEducational Profile-3 (Schopler et al, 1990) after 2 years of treatment

Scale	P-Value
Imitation	0.05
Perception	0.02
Fine motor skills	NS
Gross motor skills	0.05
Hand-eye coordination	0.05
Cognitive performances	0.02
Total	0.02

*NS = Not significant

Before the beginning of the intervention program, researcher assessed the entire group for a baseline measurement. The evaluations were repeated after 12 months. The instruments used for the multidimensional assessment was the PsychoEducational Profile -3 (PEP-3) and structured observations of inappropriate behaviors. Statistical significance was obtained using the Wilcoxon test. The results of the two application of PEP-3 showed statistically significant progress in areas of imitation ($p < 0.05$), perception ($p < 0.02$), gross motor skills ($p < 0.05$), hand-eye coordination ($p < 0.05$), and cognitive performances ($p < 0.02$).

The observations of the problematic behaviors, grouped in three categories (self-injurious behavior, stereotypes, and aggressiveness) showed statistically significant reductions in self-injurious behavior and aggressiveness ($p < 0.02$). Stereotypes did not demonstrate any statistical significance in the reduction, probably because of the small sample observed.

After 24 months of intervention program researcher noticed an increase of behavioral problems during structured activities. Group discussion with parents brought researcher to notice the positive result to these children with ASD. Work systems, tasks organization, and self-control promoted a higher level of attention and collaboration and, intriguingly, more independence during the work sessions. Also, children communicated more using both verbal and non-verbal methods. After 24 months program, these children was submitted to study in regular classroom with their friends in the public schools. These initial results were very promising. This pilot study confirms the efficacy of applying the integration of ABA and TEACCH models to pre-school Thai children with ASD.

Discussion

As an initial and small-scale pilot study, this research is vested with a few notable limitations. First, some practical constraints made it impossible to ran-



domly assign the participants into the experimental and control groups, but possible threats to the internal validity of the study had been controlled to some extent by using analyses of covariance. Second, the small sample size limited the generalizability of the findings. Researcher plan to repeat the study, including a matched control group of children treated differently in the future. Finally, as the number of professional eligible for TEACCH training and research was still limited, it was not possible to achieve total blindness in assessment and progress evaluation.

More study should be conducted to study the implementation of TEACCH for school-age children with ASD as to evaluate the usefulness beyond childhood.

Acknowledgements

The present study was financially supported by the Development Potentials of Thai People Project, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand.

References

1. Humphrey N. Parkenson G. Research on interventions for children and young people with autistic spectrum: A critical perspective. *J Res Spec Educ Needs* 2006;6:76-86.
2. Schreibman L. Intensive behavioral/psychoeducation treatments for autism: Research needs and future directions. *J Autism Developmental Disorders* 2000;30:373-8.
3. Rogers S. Empirically supported comprehensive treatments for young children with autism. *J Clin Child Psychol* 1998;27:168-79.
4. Callahan K. Mehta S. Magee S. Wie M. ABA Versus TEACCH: The case for defining and validating comprehensive treatment models in autism. *J Autism Developmental Disorders* 2010;40:74-88.
5. Howard J. Sparkman C. Cohen H. Green G. Stanislaw H. A comparison of intensive behavior analytic and eclectic treatments for young children with autism. *Res Developmental Disabilit* 2005;26:359-83.
6. Schopler E. International priorities for developing autism services via the TEACCH model. *International J Mental Health* 2000;29:3-7.
7. Mesibov GB. Sear V. The culture of autism: From theoretical understanding to educational practice. Division TEACCH, Department of Psychiatry, University of North Carolina at Chapel Hill: 1998.
8. Callahan K. Henson R. Cowan A. Social validation of evidence-based practices in autism by parents, teachers, and administrators. *J Autism Developmental Disorders* 2008;38:95-103.
9. Odom S. Brown W. Frey T. Karasu N. Smith-Canter L. Strain P. Evidence-based practices for young children with autism: Contributions for single-subject design research. *Focus on Autism and Other Developmental Disabilities* 2003;18:166-5.
10. American Psychiatric Association. Diagnostic and statistical manual of mental disorder (4th Edition). Washington, DC: Author; 1994.
11. Schopler E. Lansing MD. Reichler RJ. Marcus LM. Individualized assessment and treatment for autistic and developmentally disabled children: Psychoeducational profile 3th Edition (PEP-3). Austin, TX: Pro-Ed 2004.
12. Tsang S. Shek D. Lam L. Tang F. Cheung, P. Brief Report: Application of the TEACCH program on Chinese pre-school children with autism-Does culture make a difference? *J Autism Developmental Disorders* 2007;37:390-6.