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Speech-Language Therapist

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Master of Science
Graduate Speech-Language Therapy Program
University of Texas at El Paso
**Class of 2007**

*Canterbury Christ Church University*
*Speech and Language*
*Therapy Programme*
***December / 2019 to date***

***Lecturer in Speech and Language Therapy***
Faculty member in the three-year BSc (Hons) Speech and Language Therapy Programme by Canterbury Christ Church University (CCCU). The program is a joint effort with the University of Greenwich in the Universities at Medway campus. Duties include curriculum design, planning and lecturing as well as clinical supervision of students in the programme.

*Canterbury Christ Church University*
*Department of Applied Psychology*
***April / 2019 to date***

***PhD Candidate***
Research under the supervision of Prof. Jan Burns and Prof. Alex Hassett in the College of Applied Psychology at CCCU. Current research includes evaluation of public and private education programmes for children with Autism Spectrum Disorder (ASD) via quantitative research designs.

*Explora tu Potencial A.C. (ETP),*
*Hermosillo, Sonora and Ciudad*
*Juárez, Chihuahua*
*Mexico*
***January / 2013 to date***

***Founding Member, Speech-Language Pathologist, Clinical Director***
Clinical director responsible for training and clinical programmes for supervisors, instructors and families in multiple clinical sites including Cd. Juárez, Hermosillo and Nogales, in México.

*TruePotential PLLC*
*Tucson, Arizona*
***February / /2008 to date***

***Founding Member, Speech-Language Pathologist, Clinical Director***
Clinical director responsible for training and clinical programmes for ABA providers, speech-language, occupational therapists and families Tucson, Arizona.

*Tucson Unified School District,*
*Tucson, Arizona*
***August / 2007 to January / /2011***

***Speech-Language Pathologist***
Clinician responsible for the diagnosis and

treatment of students with a variety of conditions resulting in communicative impairments in preschool, elementary and middle schools in Tucson, Arizona.

*Autism & Aspergers Consulting, El Paso, Texas*
***February / /2002 to May / /2007***

***Line Therapist and Behavioral Consultant***
Implementation, consultation and program design services for families of children with ASD. Direct training to parents and professionals and individualized intervention with children diagnosed with ASD.

***Licensing & Certifications***

Health and Care Professions Council (HCPC) Registration #SL37525

American Speech-Language-Hearing Association (ASHA) Certificate of Clinical Competence (CCC) # 12120459

Arizona Department of Health Services License #SLP5602

**Current Research**

## Effect of Parent Training and Participation on Treatment Outcomes in Autism Spectrum Disorder (ASD): Evaluation of a Public School Programme for Students with ASD

The impact of Autism Spectrum Disorder (ASD) on public education systems is two-fold: along with a significant increase in rates of prevalence over the last decades (Christensen et al., 2019; Elsabbagh et al., 2012; Russell, Rodgers, Ukoumunne, & Ford, 2013) came a greater need for adequate services, and often unequipped public education systems (Jacobson, 2000; Mulick & Butter, 2002) are faced with the daunting task of inclusive education. By the school-age most children with ASD spend their mornings in educational activities that range in structure, content, complexity of language, speed and quality of social interactions. This brings into focus the potential of

public schools to provide these children with attention than can promote and evidence linguistic, academic and socially holistic growth.

The *Programa de Educación Incluyente para Alumnos con Autismo* en Sonora (PEIAAS) [Inclusive Education Programme for Students with Autism in Sonora] is a public, state-sponsored programme for children with ASD who attend public schools in the State of Sonora, Mexico. It is an effort by *Secretaría de Educación y Cultura* (SEC) [Secretariat of Education and Culture] to address the educational needs of students with ASD. Following federal and state legal guidelines, SEC has enlisted the efforts of Explora tu Potencial, A.C. (ETP), a non-profit, non-governmental organization dedicated to provide clinical services to families as well as training programmes for educators in public schools in Mexico (See Appendix A for a brief history of the PEIAAS).

The clinical foundations of the PEIAAS include evidence-based practices from the fields of: Applied behaviour Analysis (ABA), play-based and language-based interventions, all of which have been widely documented on their own (Chang, Shih, Landa, Kaiser, & Kasari, 2018; Foran et al., 2015; Kasari, Freeman, & Paparella, 2006; Müller & Donley, 2019; Pitts, Gent, & Hoerger, 2019) and evidenced as critical in the treatment of ASD (Solomon & Chung, 2012). The programme is delivered via parent, educator training and direct intervention for children with ASD at home and school settings.

**Applied Behaviour Analysis (ABA)**

ABA is a function-based approach to the systematic modification of “socially important behaviours” (Fisher & Piazza, 2015). It requires what a layperson would know as *context*. Opposite to non-function based approaches (which derive behavioural solutions based only on the behaviour itself), it evaluates the relationship between the behaviour, its antecedents and consequences (Schlinger & Normand, 2013; Skinner, 1953). ABA uses Functional Behavioural Assessments (FBAs) to better understand

these relationships to systematically influence the form, frequency and duration of target behaviours. ABA also includes structured teaching techniques built on ABA principles such as Discrete Trial Teaching (DTT) which have been shown to produce significant gains in children with ASD (Leaf, J., Cihon, J., Leaf, R., McEachin, J., Taubman,M., 2017; Lovaas, 1987).

The PEIAAS trains parents and educators theoretically and practically on the use of ABA strategies such as FBAs in order to make modifications and adaptations to individualized education plans. It also teaches the use of DTT to break down and teach increasingly complex developmental, cognitive and academic skills (i.e. imitation, matching, receptive language skills). Parents and educators are trained on techniques for structured teaching and curriculum development (Lovaas, 1981). Initial programme design includes goals which are broken down into objectives, and described using a DTT structure.

**Play-Based Intervention**

Play-based interventions focus on interactions around the child's locus of interest. They facilitate moments through which during play the caregiver or educator can teach developmental milestones such as joint attention and symbolic play (Chang, Shih, Landa, Kaiser, & Kasari, 2018; Kasari, Freeman, & Paparella, 2006). Models such as the Developmental, Individual-Difference, Relationship-Based (DIRTM) do this by focusing on the child's development through a continuum of engagement-communication-logical-abstract thinking and tailoring interactions based on the child's unique responses to the environment (Greenspan, Stanley & Wieder, 1998; Greenspan, Stanley I. & Wieder, 1999).

Using the continuum laid out by Greenspan and Wieder (1997), the PEIAAS trains parents and educators on the use of play-based techniques such as Floortime to engage and guide the child through increasingly complex play-based interactions.

**Language-Based Intervention**

Along with the use of functional assessment of behaviours and play-based interventions, the National Institute for Health and Care Excellence (NICE, 2013) outlines the use of social-communication interventions in the treatment of the symptoms of ASD. Such interventions should be adapted to the child's developmental level and include "techniques to expand the child or young person's communication, interactive play and social routines" (NICE, 2013).

Means for facilitating social communication in ASD have been widely researched and include the use of alternative and augmentative communication systems. Their aim is to introduce functional communication skills starting at the child's current developmental level including phonetic, phonological, morphological, syntactical, semantic and pragmatic development.

**Parent and Educator Training**

Training parents and educators has been a topic widely researched and its relevance is paramount as healthy team dynamics and caregiver agreement have been identified as ingredients for best outcome. Not only has it been shown to enhance the quality of child-caregiver interactions, but also parents' competency in using strategies themselves (Hardan et al., 2015; Krantz, MacDuff, & McClannahan, 1993; McConachie & Diggle, 2007; Oono, Honey, & McConachie, 2013).

Nonetheless, the widespread use of specific strategies does not guarantee their efficacy; often they are used as part of eclectic approaches synthesized by parents and educators in a collective effort to provide cohesive and comprehensive educational programmes and in many cases, result in “watered-down services… based on no more than 2 or 3 days of training for staff” (Jacobson, J. W., 2000).

Systematic study of structured programmes for public systems are of urgent concern as many children with ASD receive most of their interventions in the school setting. Legislation continues to move the educational goal post for children with developmental needs, and it is our responsibility to ensure the path is increasingly clear for many parents and educators that currently face this challenge on their own, at times with little or no specialized support. The current study will evaluate a public education program for children with ASD to further our understanding of internal mechanisms that make such programs effective, as well as suggest further areas for educational support and research.

## Purpose and Research Questions

This project will evaluate the effect of the number of one-on-one intervention hours in both school and home settings on the severity of symptoms of children with ASD. It will also seek to isolate *the effect of the number of weekly intervention hours* for measurement. This will be accomplished through minimizing discrepancies in the consistent implementation of therapeutic practices across home and school settings. The following questions will be answered through the administration of controlled, supervised treatment in both settings:

1. Childhood Autism Rating Scale-2 (CARS-2) scores decrease significantly after a period of intensive individualized intervention.

2. Increase in Average Weekly Drills (AWD) has a decreasing effect on severity scores on the Childhood Autism Rating Scale-2 (CARS-2).

3. Hours of Parent and Educator Training (PET) are negatively correlated with CARS-2 scores.

4. Perceptions of Self-Efficacy (PSE) scores are negatively correlated with CARS-2 scores.

5. Parent and Educator Training (PET) hours have an increasing effect on Perceptions of Self-Efficacy (PSE) scores.

6. Perceptions of Self-Efficacy (PSE) scores are positively correlated with Average Weekly Drills (AWD).

7. Parent and Educator Training (PET) has an increasing effect on Average Weekly Drills (AWD) administered.

8. What factors (PET, AWD) make the most significant contributions to the decrease in CARS-2 severity scores?

9. What areas of the program are perceived to be beneficial to parents and educators? Why do parents and educators think these areas are useful?

10. What areas of the program are perceived in need for improvement or otherwise modification/analysis? Why do parents and educators perceive these as needing improvement?

## Methodology

**Frequency, intensity and duration of target behaviors** will be collected via centralized electronic platform. All team members, including parents, will be trained on its use, and supervised on its implementation. **Severity indices** will be obtained *via administration of CARS-2 assessment* during baseline and post treatment conditions for all subjects.

A within-group study design will be used to evaluate the interaction between dependent and independent variables (see Appendix B). Potential correlations can point to further areas for investigation of cause-effect relationships of specific variables to be studied using a variety of research design models.

## Procedure

All research assistants, educators, Individual Educational Assistants (IEAs) and parents will be trained during a 50-hour training divided into 5 separate units (10 hours per unit). Training will be provided to at least one parent in every household and all team members based on a centralized curriculum (*see Appendix A*). Under this model all participants (parents and educators) are expected to implement intervention principles under the supervision of trained

and qualified research assistants (graduate professionals within the fields of education, special education, language development and psychology).

Working agreements have been established with local universities to provide undergraduate students within the aforementioned fields that will function as IEAs as needed. The use of IEAs within the classroom setting, when properly trained and supervised has demonstrated positive effects in overall social and academic functioning in students with ASD.

IEAs will undergo periodic evaluations (every 4-8 weeks during intervention) to ensure quality control across different dimensions of implementation. These dimensions include session structure and materials preparation, technique and implementation, team-based communication, and theoretical knowledge of therapeutic principles. Supervisors require at least 6 months of experience overseeing these programs in the clinical and academic setting, and a graduate diploma in the aforementioned fields.

Parents will be trained to provide treatment in the home setting. Supervision will include a minimum number of supervision hours per week in both home and school settings.

## Hypothesis and Results

Consistent with the literature on behavior and play-based treatment models, it is hypothesized that increased dosage (in number of treatment hours) provided in both home and school settings results in measurable positive outcomes for school-age students with ASD.

Results may also suggest the exploration of frequency thresholds for therapeutic intervention. Lower and upper limits for frequency of intervention can suggest when a student is having too many (symptoms remain unchanged) or too few (no significant impact on symptoms) treatment hours per week.

This and future research stemming from the use of this platform and its databases seeks to provide families, therapists, teachers and all those involved in treating students with ASD with a

specific blueprint and tools to designing and implementing effective, cost-efficient, complete educational and therapeutic programs.

## Funding

This research is funded by the Sonora State Education Board, and Explora tu Potencial, A.C., a non-profit organization dedicated to the treatment of individuals with ASD in Mexico.