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Serving The Needs Of The Autism Spectrum Disorder Population

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SERVING THE NEEDS OF THE AUTISM SPECTRUM DISORDER POPULATION

by

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A Scholarly Project

Submitted to the Occupational Therapy Department

of the

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in partial fulfillment of the requirements

for the degree of

Occupational Therapy Doctorate

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Approval Page

This scholarly project, submitted by Taylor White in partial fulfillment of the requirement for the Degree of Occupational Therapy Doctorate from the University of North Dakota, has been read by the faculty Advisor under whom the work has been done and hereby approved.

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4/13/2023

Date

PERMISSION

Title: Serving the Needs of the Autism Spectrum Disorder Population

Department: Occupational Therapy

Degree: Occupational Therapy Doctorate

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Taylor White 04/11/2023

TABLE OF CONTENTS

ACKNOWLEDGEMENT.....	vi
ABSTRACT.....	vii
CHAPTER	
I. INTRODUCTION.....	1
II. LITERATURE REVIEW.....	6
III. METHODOLOGY.....	27
IV. PRODUCT.....	42
V. SUMMARY OF FINDINGS.....	44
REFERENCES.....	50
APPENDIX.....	58

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ABSTRACT

Introduction: Autism spectrum disorder (ASD) is a neurodevelopmental disorder that is marked by challenges in social communication, restricted interests, and repetitive behavior which results in difficulties in many occupations (American Psychological Association [APA], 2013; Crabtree & Demchick, 2018). Occupational therapy is part of the multidisciplinary team providing services to children with ASD. The purpose of this doctoral experiential placement was to gain advanced clinical practice knowledge for serving children with ASD. Additionally, a product focused on enhancing interprofessional collaboration was developed.

Methodology: The person-environment-occupation (PEO) model guided this project (Law et al., 1996). An initial review of the literature was conducted on the best practices for ASD service provision. Once on-site, a needs assessment was conducted to detect the site-specific need. Next, a product was identified and developed through collaboration with the site's director of organizational development.

Results: An educational module addressing interprofessional collaboration for ASD service provision was developed to facilitate collaboration between team members of various disciplines. The training module is an online course that will be a part of the onboarding and training curriculum specific to the site for the necessary team member positions. The training module touches on the various standards for interprofessional collaboration within ASD treatment teams.

Conclusion: The purpose of this product is to increase the facilitation of interprofessional collaboration to create an enhanced continuity of care within ASD treatment plans.

Interprofessional team members will be more equipped to engage in collaborative interactions with other members of their team, which ultimately enhances the outcomes of the child receiving services.

Significance: Interprofessional collaboration is best practice within ASD treatment plans as it increases service outcomes. Often professionals are not adequately prepared to engage in effective collaborative practice (Bowman et al., 2021; Gasiewski et al., 2021; LaFrance et al., 2019). Therefore, this product will improve collaborative service delivery for children with ASD.

Chapter I

Introduction

The American Psychiatric Association (2022) defines autism spectrum disorder (ASD) as “a complex neurodevelopmental condition involving persistent challenges with social communication, restricted interests, and repetitive behavior (para. 1).” As of 2017, 1 in 68 children are diagnosed with autism spectrum disorder (American Psychiatric Association, 2022). There are two distinct features serving as the current diagnostic criteria areas for ASD. To meet diagnostic criteria for ASD according to the DSM-5, a child must have persistent deficits in the areas of social communication and interaction as well as restricted and repetitive behaviors (American Psychiatric Association, 2013). The challenges that individuals with ASD experience are evident in all their areas of occupation (Crabtree & Demchick, 2018). The occupational therapy profession emphasizes the therapeutic use of occupation to enhance engagement and overall quality of life for individuals experiencing challenges within their daily occupations (Tomcheck et al., 2015). Occupational therapy can be an integral service for individuals with ASD across the lifespan by providing direct services to promote health and establish skills in their various occupations (Crabtree & Demchick, 2018).

Due to the extensive literature in regard to current best practices for ASD service provision and the beneficial relevance of occupational therapy services for

individuals with ASD, the essential purpose of this project was to review the most current literature and collaborate with an agency to determine a need, addressing current best practice for children with ASD. This project targets two populations. The first target population is the interprofessional collaborators who provide services to children with ASD. Interprofessional collaborators are targeted by this project as it provides the standards, benefits, and barriers to interprofessional collaboration within ASD service provision. The second target population is the children receiving integrated ASD services. This project targets this population indirectly, as they will be on the receiving end of collaborative therapy services. By providing this product, which is available online to the necessary interprofessional team members, an enhanced level of interprofessional collaboration interactions will be facilitated. The collaborative team members within ASD service provision will be better equipped to approach team decision-making for client programming, as well as be adequately prepared to engage in more effective communication interactions. Interdisciplinary approaches are best practice for the service provision of children diagnosed with ASD, as increased clinical outcomes and enhanced skill acquisition have been the common result when the approach is used correctly (Bowman et al., 2021; Brodhead, 2015; LaFrance et al., 2019). This product allows the occupational therapy discipline to advocate for their relevance and expertise, as well as learn about the applied

behavior analysis and speech therapy disciplines' skill sets within an interdisciplinary setting.

Theoretical Framework

The theoretical framework that guides the development of this project is the Person-Environment-Occupation (PEO) model (Law, 1996). The model emphasizes the dynamic interaction of the three main concepts: person, environment, and occupation (Law, 1996). These three concepts are interdependent on each other and influence the occupational performance of the individual (Law, 1996). The occupational performance of individuals with ASD can be heavily influenced by the supports or barriers that are within their environment (Ambrose et al., 2020). The PEO model allows the user to organize their information into three main components (person, environment, and occupation) and view how each component interacts with the other, influencing the person's occupational performance (Law et al., 1996). The PEO-specific transactions are utilized in all steps of this project; the initial literature review, the on-site needs assessment, and the development of the product. The organization of transactions categorizes the concepts so the user could more easily see where the gaps between the site's interprofessional collaboration efforts and the standards for interprofessional collaboration.

Key Terms

- **Autism Spectrum Disorder (ASD):** A developmental disability defined by “persistent deficits in social communication and social interactions across multiple contexts” and “restricted, repetitive, patterns of behavior, interests, or activities” (American Psychiatric Association, 2013, p. 50).
- **Interprofessional team:** A team comprised of practitioners from two or more professions who learn with, from, and about each other to facilitate effective collaboration and improve health outcomes (Accreditation for Continuing Medical Education, 2021). The following professionals were included in the site’s interprofessional team; occupational therapists, certified occupational therapist assistants, speech-language pathologists, speech-language pathologist assistants, board-certified behavior analysts, and registered behavior technicians.
- **Occupational therapy:** “Occupational therapy intervention uses everyday life activities (occupations) to promote health, well-being, and your ability to participate in the important activities in your life” (American Occupational Therapy Association [AOTA], 2023, para. 1). Professionals providing this discipline’s services include occupational therapists and certified occupational therapy assistants.
- **Speech therapy:** The goal of speech therapy is to assess, diagnose, and treat expressive and receptive language, speech sound production, social

pragmatic communication and swallowing disorders (American Speech-Language-Hearing Association [ASHA], 2016). Professionals providing this discipline's services include speech-language pathologists and speech-language pathology assistants.

- **Applied Behavior Analysis therapy:** "Takes a scientific approach for discovering environmental variables that reliably influence socially significant behavior and for developing a technology of behavior change that takes practical advantage of those discoveries" (Cooper et al., 2020, p. 2). Professionals providing this discipline's services include board-certified behavior analysts and registered behavior technicians.

Within the proceeding chapters, the focus of this project will be presented in further detail. Chapter II is a comprehensive literature review that identifies and examines the current best practices for individuals with ASD. Chapter III explains the methodology utilized to determine the site's areas of need and the product development process. Chapter IV will display the product that was created specifically for the site. Chapter V will review and summarize the current best practices for children with ASD, as well as interprofessional collaboration within ASD service provision teams. Additionally, chapter V provides the limitations of this project and recommendations for future research on this topic.

Chapter II

Review of the Literature

The prevalence of autism spectrum disorder (ASD) has been on the rise in recent years, up to 1 in 54 children receive a diagnosis in 2016 (Maenner, 2021). Diagnostic criteria for ASD include that the individual has persistent effects on social communication and interaction, such as deficits in emotional reciprocity, failure to maintain or initiate conversations, and deficits in the ability to read and exhibit nonverbal communication (American Psychiatric Association [APA], 2013; Alexander, 2019). Individuals with ASD also present with restrictive or repetitive patterns of behavior and/or interests, which can be observed by inflexibility to change, repetitive motor movements and speech, as well as highly restricted interests (APA, 2013). These two traits are needed to be present for an ASD diagnosis, however; there are other traits common among individuals with ASD.

Individuals with ASD commonly have deficits in sensory processing, evidenced by the inability to interpret and respond to various forms of stimuli (Baraskewich, et al., 2019). Impaired executive functioning skills are common in individuals who have ASD. Executive functioning specifically within the areas of problem-solving, goal-directed behavior, intentionality, time management, organization, and planning (Alexander, 2019). Along with the sensory, cognitive, and physical traits mentioned, individuals with ASD can have a range of

behavioral difficulties which include aggression, elopement, self-injury, disruption, and destruction (Alexander, 2019).

Since this diagnosis is based on a spectrum, levels of severity are universally described. The levels help to determine the severity of social skills and repetitive/restrictive behaviors (APA, 2013). Individuals with a level one ASD diagnosis may find it difficult to initiate conversations, have unexpected response to others, have difficulty maintaining interest in conversations, have difficulty switching between tasks, and have inflexibility of behavior that require support (APA, 2013). Individuals with a level two ASD diagnosis have marked deficits in verbal and nonverbal social communication skills, have narrow special interests, difficulty coping with change, and repetitive/restricted behaviors appear frequently, all of which interfere with functioning across various contexts (APA, 2013). Individuals at a level two severity require substantial support (APA, 2013). Level three is the most severe, requiring very substantial support (APA, 2013). Individuals with ASD at this level display significant social interaction deficits which cause severe impairments in everyday functioning (APA, 2013). Individuals with ASD at this severity level will rarely initiate interactions and have few words of intelligible speech (APA, 2013). The inflexibility of restrictive/repetitive behaviors markedly interferes with the function of all their everyday activities in all contexts (APA, 2013). Exhibiting these specific traits can influence engagement within all occupations.

Occupational Therapy Role

The main occupations that individuals with ASD have decreased engagement in are feeding and eating, education, work, activities of daily living (ADL), and instrumental activities of daily living (IADL) (Americans with Disabilities Act, 2022; Baraskewich et al., 2021; Ismael, 2018). Skilled occupational therapy services can assist in the development of skills to increase engagement in these various occupations. Tomcheck et al. (2015) defines the scope of occupational therapy services that can be addressed in individuals with ASD plan of care. The main areas that fall within occupational therapy's scope of practice include emotional regulation, executive functioning skills, work performance skills, and social skills awareness (Tomcheck et al., 2015). As there is an increase in diagnosis and prevalence of ASD, all practitioners must remain up to date on evidence-based practice to ensure an appropriate plan of care for each individual with ASD served. The topic of this advanced clinical placement is to gain a deeper understanding of the evidence-based practice to implement during the entire occupational therapy process and scholarly project.

Model Guide

The occupation-based model that appropriately guided the literature review of this topic is the Person-Environment-Occupation (PEO) model (Law, 1996). The model emphasizes the dynamic interaction of the three main concepts: person, environment, and occupation (Law, 1996). These three concepts are

interdependent and influence the occupational performance of the individual (Law, 1996). The occupational performance of individuals with ASD can be heavily influenced by the supports or barriers that are within their environment (Ambrose et al., 2020). The PEO model assisted in organizing the various person, environment, and occupation factors that are related to individuals with ASD and their occupational performance. Once the concepts have been organized, one will then see the dynamic relationship between an individual with ASD, their environment, the occupation they are participating in, and how these factors influence their occupational performance.

Questions related to the personal concept of the PEO model aimed to identify the common physical, cognitive, affective, and spiritual traits in individuals with ASD. The PEO-guided questions also aimed to identify the various environmental factors for individuals with ASD, including barriers and supports for institutional, physical, and social environments (Law et al., 1996). As for the occupational factor, this review aims to answer the question: What occupations are most impacted by individuals with ASD? Transactive questions aim to answer the results of the dynamic interaction of the three PEO factors (Law et al., 1996).

Occupations

As mentioned previously, individuals with ASD can have limited engagement in various meaningful occupations (Americans with Disabilities Act, 2022; Baraskewich et al., 2021; Ismael, 2018). There are various existing factors

that influence the quality of occupational performance for individuals with ASD. Some of these components are categorized under personal factors, such as common characteristics seen in individuals with an ASD diagnosis (Alexander, 2019; Baraskewich et al., 2021; Ismael et al., 2018).

Feeding and Eating

A common occupation that individuals with ASD may have limited engagement in is feeding and eating. Due to the rigidity of thinking, ritualistic behaviors, and sensory sensitivities, individuals with ASD can exhibit various feeding and eating deficits (Baraskewich et al., 2021; Ismael et al., 2018). These include picky eating and mealtime avoidance and aversion (Baraskewich et al., 2021; CDC, 2022). Food selectivity is ten times more common in children with ASD than in children with other disorders and fifteen times more prevalent than in their typically developed peers (Baraskewich et al., 2021). Sensory-based strategies such as oral desensitization, oral exploration, use of kid-friendly foods, and modifications to sensory stimuli have proven to be current evidence-based practices to address deficits in performance skills and client factors that influence the occupation of feeding and eating (Weaver, 2015). Weaver (2015) sheds light on other occupation-based intervention approaches that can be utilized to address this occupation, which include behavioral strategies and caregiver training.

Work and Education

Two other common occupations are that individuals with ASD may show less engagement in their work and education (Paskins et al., 2018; Seagraves, 2021; Widman & Lopez-Reyna, 2020). Both occupations require any individual to communicate with others, exhibit flexible thinking, and maintain efficient executive functioning skills. Individuals with ASD may struggle with these performance areas provided the knowledge that common traits include rigidity in thinking, deficits in social interaction, and lower executive functioning skills (CDC, 2022).

Within the occupation of work, various contextual factors influence engagement as well. The Americans with Disabilities Act (ADA) is a piece of legislation that supports individuals with ASD, along with individuals with other disabilities (Americans with Disabilities Act [ADA], 1990). The ADA states that no employer will “discriminate against a qualified individual based on disability regarding job application procedures, the hiring, advancement, or discharge of employees, employee compensation, job training, and other privileges” (ADA, 1990). The definition of disability recognized under the ADA is that an individual must have a physical or mental impairment that substantially limits one or more major life activities, has a record of such impairment, or is regarded as having such impairment, which includes ASD (ADA, 1990).

Other supports available within the occupation of work will vary depending on the type, region, and company of employment. Vocational training is a common type of support service to provide learning opportunities for developing functional job skills, job searching, interview practice, assistance with the boarding process, and ongoing support during employment (Seagraves, 2021). Job modifications and accommodations may be required to engage individuals with ASD in the workforce. Seagraves (2015) informs on three major themes for job modifications and accommodations. Consistency of schedules, structured breaks, and modification to the work environment are three areas that would support individuals with ASD to appropriately engage within the workforce (Seagraves, 2015).

Other supports for employment include natural job support and peer mentoring, as it has been shown in the literature the significance of individuals learning from others with a mentor/mentee dynamic (Seagraves, 2021). Peer mentoring and natural supports are common interventions evident for the transition into post-secondary schooling (Paskins et al., 2018; Weaver, 2015). Peer mentoring strategies can account for multiple intervention approaches including roleplaying, feedback, video modeling, and visual and kinesthetic learning (Paskins et al., 2018; Weaver, 2015). There is current legislation that addresses support within the educational setting. The Individuals with Disabilities Education Act (IDEA) provides services to individuals with ASD (Individuals with

Disabilities Education Act [IDEA], 2004). There are 13 disability categories, ASD being one of them (IDEA, 2004). The four parts of this legislation include accessibility to free and appropriate education in the least restrictive environment (IDEA, 2004).

ADLs and IADLs

ADL and IADL occupational performance can also be limited based on various personal and contextual factors. ADLs can include basic everyday tasks such as feeding, grooming and hygiene, functional mobility, dressing, and toileting (American Occupational Therapy Association [AOTA], 2020). IADLs can include meal preparation, household management, money management, response to emergencies, and shopping (AOTA, 2020). All these occupations can be difficult for individuals with ASD to engage with appropriately due to a multitude of factors.

Factors can include but are not limited to, sensory sensitivities, deficits in executive functioning such as planning and problem solving, caregiver engagement, and access to skilled services (Althoff et al., 2019; American Psychiatric Association, 2013; Bishop-Fitzpatrick & Kind, 2017; Smith et al., 2020; Widman & Lopez-Reyna, 2020). Caregiver engagement has shown a multitude of benefits within the literature, the most common being assistance with the transference of skills (Althoff et al., 2019). With the engagement of the caregiver to carry over expectations and interventions to do in other

environments, individuals with ASD have a higher likelihood to transfer learned skills across their natural environments (Althoff et al., 2019). There are Special Education Parent Training and Information (PTI) centers that assist parents and caregivers to receive information and training on their child's disability, along with rights and protections under IDEA (Benefits.gov, 2022).

Evidence-based practice

Evaluation

Screening is the first step when adhering to the evaluation continuum for the diagnosis of ASD (Hyman et al., 2020). The purpose of utilizing screening forms and strategies is to identify at-risk children, which ultimately leads to an earlier diagnosis and an earlier initiation of treatment (Hyman et al., 2020). For 9–30-month-olds, the concepts being screened related to motor, cognitive, and language delays (Hyman et al., 2020). The most common type of screening tool for ASD is parent-completed questionnaires (Hyman et al., 2020). Two of the most common parent-completed questionnaires are the Modified Checklist for Autism in Toddlers Revised (M-CHAT-R) and the Social Communication Questionnaire (SCQ) (Hyman et al., 2020). Clinician-directed observations are another method for screening children for ASD. The most common is the Screening Tool for Autism in Toddlers and Young Children (STAT) (Hyman et al., 2020).

Once individuals are identified as being at risk for ASD, a diagnostic evaluation would be the next step to receiving an ASD diagnosis (Hyman et al., 2020). Most often, a developmental-behavioral or neurodevelopmental pediatrician, psychologist, neurologist, or psychiatrist will evaluate, although the diagnostic evaluation can be completed by a child psychologist or general pediatrician if they are familiar enough with the DSM-5 diagnostic criteria (Hyman et al., 2020). A diagnostic evaluation includes a full review of the child's, or individual's, behavioral history (Hyman et al., 2020). This information can be obtained through parent/caregiver and teacher interviews and questionnaires. The Social Responsiveness Scale (SRS), SCQ, Autism Diagnostic Inventory-Revised (ADI-R), and the Child Behavior Checklist are common tools to elicit this information (Hyman et al., 2020). Along with this review, direct observation of the child/individual and formal assessments are required to make a fully informed clinical diagnosis (Hyman et al., 2020). Direct observation checklists that are commonly utilized include the Autism Diagnostic Observation Schedule Second Edition (ADOS-2) and Childhood Autism Rating Scale Second Edition (CARS-2) (Hyman et al., 2020). Formal assessments target to analyze the language, cognitive, sensory, and adaptive behavior components of the child/individual being assessed (Hyman et al., 2020).

Intervention

Since individuals with ASD vary significantly in their needs, support, and strengths meaning there is no one size fits all treatment plan. Within the literature, various evidence-based intervention approaches have been shown effective for the treatment of individuals with ASD (CDC, 2022). The most common evidence-based intervention approaches are behavioral, developmental, educational, social-relational, pharmacological, and psychological (CDC, 2022).

Applied behavioral analysis (ABA) heavily implements behavioral strategies in the treatment of individuals with ASD, the most common being discrete trial training (DTT) and pivotal response training (PRT) (CDC, 2022; Gitimoghaddam et al., 2022; National Professional Development Center on Autism Spectrum Disorder [NPDC], 2020). Other behavioral strategies used during ABA therapy include antecedent-based intervention (ABI), differential reinforcement (DI), picture exchange communication system (PECS), task analysis (TA), extinction (EXT), prompting (PP), reinforcement (R+), functional behavior assessment (FBA), modeling (MD), response interruption/redirection (RIR), scripting (SC), and the use of visual supports (VS) (NPDC, 2020). All the previously listed strategies can be implemented into therapeutic sessions, and some may be transferred over to other settings with the correct education on implementation. Most of these intervention approaches are utilized within ABA therapy, but are not specific to this profession as they can be implemented during

other therapies and family interventions (Gitimoghaddam et al., 2022; NPDC, 2020).

Developmental approaches have been found effective within the intervention plans for individuals with ASD (CDC, 2022). Therapy-based disciplines exercise this approach, including occupational therapy, speech-language therapy, sensory integration, and physical therapy (CDC, 2022). This approach focuses on enhancing the development of physical, social, and cognitive abilities (CDC, 2022). Developmental approaches are often combined with behavioral approaches (CDC, 2022). A model that incorporates both behavioral and developmental approaches is the Early Start Denver Model (ESDM) (CDC, 2022; Autism Speaks Inc., 2022). Along with other approaches, the ESDM focuses on naturalistic intervention, family/caregiver-implemented interventions, and parent-mediated instruction and intervention which can be used in various settings (Autism Speaks Inc., 2022; CDC, 2022). These settings include the home, community, clinic, and schools.

Educational approaches are most often implemented within the classroom setting, although can be generalized to all ages and skill levels (CDC, 2022). The Treatment and Education of Autistic and Related Communication-Handicapped Children (TEACCH) method is an evidence-based academic program that focuses on visual learning interventions for students with ASD and is an educational approach (Applied Behavior Analysis Programs Guide, 2021; CDC, 2022). The

main aim of this program is to promote learning and development in occupations for individuals with ASD (Applied Behavior Analysis Programs Guide, 2021). Five basic principles are specific to this method, one of them being that students with ASD engage best when there are clearly defined physical boundaries (Applied Behavior Analysis Programs Guide, 2021). The second principle is the beneficial utilization of consistent schedules throughout the school day (Applied Behavior Analysis Programs Guide, 2021). The third principle is to establish expectations and communicate objectives with minimal written instructions (Applied Behavior Analysis Programs Guide, 2021). Fourth, establishing and consistently maintaining a routine is crucial for the functional independence of students with ASD (Applied Behavior Analysis Programs Guide, 2021). Lastly, reminders include visually based cues (Applied Behavior Analysis Programs Guide, 2021). Although the TEACCH method is implemented within educational settings, the basic principles can be transferred to other settings such as the home environment.

Individuals with ASD often have deficits in social communication to an extent. Social-relational intervention approaches are among the various evidence-based interventions for individuals with ASD (CDC, 2022). Social relational intervention strategies focus on developing and improving social interaction skills, as well as building emotional relationships with others (CDC, 2022). Social-relational strategies include social stories, social skills groups, social

narratives, structured playgroups, and social skills training (CDC, 2022; NPDC, 2020). The Developmental, Individual Differences, Relationship-Based (DIR) model emphasizes the use of the individual's interests to develop communication opportunities (CDC, 2022). Like the DIR model, the Relationship Development Intervention (RDI) model also utilizes the individuals' interests to expand social opportunities (CDC, 2022).

Pharmacological strategies are used in the treatment plan of individuals with ASD, although there is no medication to change ASD-related behaviors specifically (CDC, 2022). Medications that are prescribed usually target symptoms that occur along with the ASD diagnosis, such as inability to focus, high energy arousal, and self-harming behavior (CDC, 2022). Individuals with ASD can experience anxiety and depressive symptoms, which can also be addressed through medications (CDC, 2022). Additionally, psychological approaches can be utilized in treatment interventions to address anxiety, depression, and other mental health deficits (CDC, 2022). Cognitive behavior therapy (CBT) is an intervention approach that targets the individual's thinking, which ultimately influences their behaviors (CDC, 2022; Widman & Lopez-Reyna, 2020). CBT contains a plethora of strategies to assist individuals with ASD to develop and utilize coping skills within their everyday life and across various contexts (CDC, 2022).

Individuals with ASD may have sensory needs, making sensory-based therapy an appropriate treatment approach (Hyman et al., 2020, Weaver, 2015). Brushing of the skin, proprioceptive input through joints, weighted vests, vestibular input, and use of specialized seating is common sensory-based therapy interventions that are implemented in the treatment plan of individuals with ASD, although “are not yet supported within peer-reviewed literature” (Hyman et al., 2020, p. 27). As mentioned previously, sensory-based strategies are deemed beneficial for food sensitivity interventions (Weaver, 2015).

Videogaming/exergames is an emerging area of intervention to treat individuals with ASD. Main areas that were identified that the studies targets include physical training, cognitive training, social training, neurofeedback training, as well as other interventions such as emotion recognition and daily life skills (Jiménez-Muñoz et al., 2022). Three out of the five studies that focused on social training found significant improvements in the outcomes they explored. These outcomes included using problem-solving, positive social interaction and emotional skills, and collaboration. Other interventions such as daily life skills and emotional regulation were addressed in other studies, both showing significant improvements (Jiménez-Muñoz et al., 2022).

Environment

Barriers

Individuals with ASD must overcome environmental barriers to engage in their valued occupations. Some barriers that individuals with ASD face are not specific to the diagnosis, but are based on racial, ethnic, and socioeconomic status (Smith et al., 2020). Families of children with ASD with a lower socioeconomic status have a harder time accessing services due to not having a primary physician and/or use of healthcare for referrals and treatment services (Smith et al., 2020). Racial and ethnic minorities, both with and without ASD, experience a general lack of access to and use of services (Smith et al., 2020).

Supports

Although individuals with ASD experience barriers to engaging in their valued occupations, there are supports in place to assist in engagement, implemented in various settings. Within the school setting, children with ASD are eligible to access an individualized education plan (IEP) that supports their engagement in their education (IDEA, 2004). Post-secondary supports are also present, including peer mentorship programs, note-takers, and other accommodations which vary between campuses (Widman & Lopez-Reyna, 2020). Vocational rehabilitation programs and career counseling are some of the transition supports implemented across the nation that can assist individuals with ASD to engage in work (Seagraves, 2021; Widman & Lopez-Reyna, 2020).

Within vocational rehabilitation, an individual receiving services can access assessment, counseling, search assistance, and on-the-job training to adequately engage in the occupation of work (Seagraves, 2021).

Interdisciplinary Treatment

Individuals with ASD receive various types of services that make up their individualized treatment team, including speech-language pathologists, occupational therapists, special educators, physicians, board-certified behavior analysts, clinical psychologists, and case managers (Bowman et al., 2021).

Different approaches are apparent within the continuum of professional collaboration. Types of collaboration include transdisciplinary, multidisciplinary, and interdisciplinary (Bowman et al., 2021; Osborne, 2015). Professionals primarily work in a parallel direction along other disciplines where communication is minimal (Bowman et al., 2021; Osborne, 2015). Going along the professional collaboration continuum, an interdisciplinary approach manages coordinated tasks and shared goals among professionals while maintaining discipline boundaries (Bowman et al., 2021; Osborne, 2015). The multidisciplinary approach takes on a shared problem-solving technique where discipline roles are released, and unified treatment plans emerge (Bowman et al., 2021; Osborne, 2015).

Professional collaboration plays a major role in the treatment quality and service outcomes for individuals with ASD (Bowman et al., 2021). Many benefits

arise from integrated care plans including maximizing client outcomes, enhanced problem-solving, increased efficiency in evaluation and treatment, and access to additional resources (Bowman et al., 2021). Although there are many benefits to integrated care collaboration, professionals from all disciplines must be educated on how to deliver effective communication between disciplines (Bowman et al., 2021; Gasiewski, 2021). Ineffective interdisciplinary communication can have detrimental effects on the coordination of care for individuals with ASD. With poor communication, the “buffet approach” can be obtained for the treatment of ASD where disciplines pick and choose discipline-specific interventions, limiting treatment gains (Bowman et al., 2021). Without treatment-specific communication between disciplines, conflicting recommendations can be made to families and caregivers, confusing the treatment plan (Bowman et al., 2021; Gasiewski, 2021). Collaborative communication, role delineation, conflict resolution, collaborative culture, and evidence-based practices are all standards needing to be upheld to support effective interdisciplinary team collaboration for the treatment of individuals with ASD (Bowman et al., 2021).

Institutional Factors

Legislature is in place to provide and support individuals with ASD in their valued occupations. Early intervention services are accessible to children with ASD, from birth to age 3, under IDEA (Benefits.gov, 2022; IDEA, 2004). Under the same legislation, children with ASD can access an individualized plan

of care to support their engagement within the school setting (IDEA, 2004). Client-assisted programs are implemented because of the Rehabilitation Act of 1973, as well as Title 1 of the Americans with Disabilities Act (ADA, 1990; Benefits.gov, 2022). Supportive housing for individuals with disabilities is available, providing supportive services for individuals with ASD to acquire affordable housing and adequate support when living alone (Benefits.gov, 2022). To ensure appropriate advocacy and support for individuals with ASD, the program of protection and advocacy of individual rights was implemented (Benefits.gov, 2022).

The coordination of care for children with ASD is mostly funded through Medicaid waiver services (North Dakota Human Services, 2021). The goal is to “help families care for a child diagnosed with autism spectrum disorder at home instead of having to place the child in a facility to receive needed care” (North Dakota Human Services, 2021, para. 1). In order to be eligible for the waiver program, individuals with ASD must meet certain criteria. The individual must be ages 0-15 years, eligible to receive care in an intermediate facility, have an ASD diagnosis, and live in the family/caregiver’s home (North Dakota Human Services, 2021). Following the application process, the individual will either be approved or denied. If approved, the family must then apply for Medicaid services (North Dakota Human Services, 2021). The services that can be provided within this waiver are service management, respite care, and assistive technology (North

Dakota Human Services, 2021). The process is very parent-driven, meaning the family will assist in the development of the Participant Service Plan (North Dakota Human Services, 2021).

For children with ASD who are not eligible for Medicaid services, the Autism services voucher program is available to apply for (North Dakota Human Services, 2022). The voucher program provides up to \$7,500 per year to help with the costs of supporting a child with ASD (North Dakota Human Services, 2022). Some services available include respite care, assistive technology, parent training, tutoring, sensory and safety equipment, specialized camps, and adaptive sports/activities (North Dakota Human Services, 2022).

Establishing Best Practices

When working to develop skills in advanced practice with children with ASD, occupational therapy practitioners and the agencies serving children with ASD need to be familiar with the various components following the OT process. Starting with evaluation, occupational therapy practitioners should familiarize themselves with the diagnostic continuum for individuals to obtain a clinical diagnosis and common screening and diagnostic tools. Occupational therapy practitioners should also be familiar with the various treatment approaches deemed appropriate and effective in the treatment of individuals with ASD. Along with knowing the evidence-based practice, it is also important to note the lack of literature to support some common therapeutic interventions. One must take into

consideration that these interventions will not be effective with every client with ASD, as one must try to see if the intervention is effective and appropriate. When thinking about measurable outcomes, it is crucial to understand the dynamic interaction between personal and environmental factors for achieving the best outcomes in the engagement of occupations.

Chapter III

Methodology

Chapter III Methodology describes the iterative process of initially assessing the literature to understand the current best practices for occupational therapy service delivery for individuals diagnosed with autism spectrum disorder (ASD), which will be called phase one. Following phase one, a secondary needs assessment was conducted specifically for the partnering site who provides various therapies to children with ASD. This will be called phase two. At the conclusion of phase two, the site-specific identified need was determined which guided the development of the product, which will be illustrated in chapter four. The third and final phase outlines the process for the initiation of product development. The author of this product was inspired by her previous experience providing therapeutic services to children diagnosed with ASD. ASD services are a well-known and researched topic, and given the author's past experiences, a spark of interest occurred to research the most evidence-based practices from an occupational therapy scope.

Occupation-based Model

The Person-Environment-Occupation (PEO) model was implemented to guide the development of search terms, the organization of both needs assessments to determine the unmet need and the fabrication of the product (Law et al., 1996). The model emphasizes the dynamic interaction of the three main

concepts: person, environment, and occupation (Law et al., 1996). These three concepts are interdependent of each other and will positively or negatively influence the occupational performance of the individual (Law et al., 1996). This model was selected by the author as it emphasizes the impacts that the environment plays on one's occupational performance, especially in individuals with ASD (Ambrose et al., 2020). To establish search terms for the initial literature review, the author created transactive questions that were based on the interplay between the three PEO constructs (Law et al., 1996). The author targeted P x O, P x E, E X O, and P x E x O transactions to elicit research results that included all aspects of the PEO model (Law et al., 1996).

Phase One: Initial Literature Review

An initial review of the literature was conducted prior to the start of the on-site experience to review the current best evidence-based practices when providing therapy services to children with ASD. The current literature was gained using various electronic databases, professional organizations, and governmental guidelines. The PEO model was utilized as a guide to identifying the following search terms as well as questions the literature review aimed to answer. The search terms “(autism) AND (occupational therapy) AND (evidence-based practice)”, “(autism) AND (pediatric OR child) AND (best practice OR practice standards OR practice guidelines)”, “(autism) AND (evaluation OR intervention) AND (occupational therapy)”, “(autism) AND (child OR pediatric)

AND (services OR programs)”, “(autism) AND (disparities OR unmet needs)”, “(autism) AND (applied behavior analysis) AND (behavioral interventions)”, “autism national technical assistance centers” were used in the electronic databases of CINAHL, PubMed, Google Scholar, PsycINFO, and MEDLINE. In addition to the databases, two professional organizations were used, the National Professional Development Center on Autism Spectrum Disorder and the American Occupational Therapy Association. Governmental guideline sites were also utilized, which include the Centers for Diseases Control and Prevention (CDC), the U.S. Department of Health and Human Services, The National Professional Development Center on Autism Spectrum Disorder [NPDC], National Technical Assistance Center on Transition (NTACT), Benefits.gov, and Americans with Disabilities Act of 1990 (ADA).

Phase Two: Product Selection Process

As for the second, site-specific needs assessment, the author utilized the PEO model to analyze the interprofessional collaborators at the site (P), the environments in which they provide service delivery (E), and the current interdisciplinary service provision (O) (Law et al., 1996). Table 1 illustrates the analysis process. At the conclusion of the PEO concept organization, the author categorized the various P x E x O transactions into two categories: strengths and opportunities. The list of transactions under the “opportunities” column informed the author of the areas in which the site has unmet needs, determining six

potential product ideas. At this time, the collaboration between the author and other various stakeholders was required to determine the potential product that the partnering site would benefit from most. Stakeholders included an on-site occupational therapist (also the author's site mentor), an on-site board-certified behavior analyst, an on-site licensed social worker, and an on-site operations manager who also doubles as a speech-language pathologist. At the culmination of the meeting, all stakeholders agreed that an educational module on interprofessional collaboration between the disciplines of occupational therapy, speech therapy, and applied behavior analysis therapy would ultimately enhance the interprofessional service provision for children with ASD at this specific site.

Phase Three: Product Development Process

A meeting with the site's director of organizational development initiated the beginning of this final phase. The foremost meeting's agenda included determining the sourcing of the educational module, the necessary stakeholders, the modality of the education, and the sequence of steps needing to be completed before publication onto the site's educational platform. The site informed the author that all previous educational modules were in-sourced, meaning they were developed by the site's own personnel. The author determined that the modality for this module will be an interactive online course for the necessary employees. The necessary stakeholders were previously mentioned within phase two. The module development process is as follows in this order: 1) hold a stakeholder

meeting to determine the essential goal, 2) generate objectives, 3) develop the module outline, 4) create the content following the outline, 5) host a second stakeholder meeting to determine if any modifications are essential, 6) develop the content into the site's software, 7) host a third stakeholder meeting, and 8) run it through the site's risk manager to gain publishing permission. With the guidance of Fazio (2017) and the collaboration between stakeholders and the director of organizational development, a list of objectives was created to meet the essential goal of the educational module.

Chapter III outlined the theoretical basis and the process that directed the development of the interprofessional educational module. The training module aims to provide discipline-specific information, the benefits, and barriers to interprofessional collaboration within ASD service provision, and provide standards for interdisciplinary collaboration in integrated ASD service delivery. The goal of this product is to facilitate increased participation in interprofessional collaboration for the service provision of mutual clients diagnosed with ASD. Chapter IV will illustrate the product, it will provide an introduction, the basis of standards utilized, the educational module's measurable objectives, and the outline that guided the module.

Table 1

PEO Analysis of Cohesive Service Delivery for Regional Service Providers

<u>Occupation(s):</u>	
<p>Providing cohesive service delivery to children diagnosed with ASD, across multiple disciplines.</p> <ul style="list-style-type: none"> • Back-to-back interdisciplinary service • Team meetings • Family education • Cotreats • Interprofessional communication 	
<u>Person:</u> Interprofessional collaborators providing services to children with ASD.	
Physical:	<ul style="list-style-type: none"> • Location 1 1 occupational therapist (OT), 1 speech language pathologist (SLP), 1 board certified behavior analyst (BCBA), 7 registered behavior technicians (RBT) • Location 2 Shared OT with location 1, 2 BCBAs, 1 SLP, 1 COTA, and 2 RBTs • In total, 16 interprofessional collaborators, although will fluctuate. • Rural area in North Dakota
Affective:	<ul style="list-style-type: none"> • Location 1 Observation of some collaboration for behavioral intervention and treatment planning (White, 2023). • Location 2

	<p>Observed to have less opportunities for interprofessional communication about treatment planning decisions. Limited emphasis on team meeting opportunities (White, 2023). All disciplines heavily advocate for their profession.</p>
Cognitive:	<ul style="list-style-type: none"> • BCBA (ABA) Trained in behavioral modification, evaluating behaviors, and implementing ABA specific interventions. Must obtain a master’s or PhD in psychology or behavior analysis, pass a national certification exam, and become licensed in states (BACB, 2023). • RBT (ABA) Complete the 40-hour RBT training modules and pass the RBT exam. Must complete competency assessment annually (done by overseeing BCBA). BCBA supervision must occur for minimum of 5% of RBT monthly service delivery hours (BACB, 2023). <p>(1)Skilled in building a behavioral repertoire to increase client choice by increasing skills to draw from (2) emphasize generalization (3) support the implementation of the mediator model (4) utilizes strength based approach (5) trained to analyze the context and environmental influences (6) identifies the importance of making decisions collaboratively (7) OT and ABA literatures contain similar guideline pertaining to the prioritization of goal setting (8) utilizes discipline specific terminology (9) interprofessional collaboration is not within the educational curriculum (10) provides intensive behavioral therapy instead of eclectic approaches (11) high standard for what entails evidence based practice (12) sees sensory interventions as “complementary” (Gasiewski et al., 2021).</p> <ul style="list-style-type: none"> • OT Entry level master’s or doctorate degree, completing two 12-week fieldwork rotations (and a doctoral placement for doctorate degree), pass the national board certification exam for OT (NBCOT), and obtain state licensure. Requirement of CEU credits to

	<p>maintain. OT's have skilled knowledge in the areas of evaluating and implementing sensory integration/regulation and social emotional interventions. As well as determining limited factors through occupational analysis and contexts (AOTA, 2023).</p> <ul style="list-style-type: none"> <p>COTA</p> <p>An associate degree through an accredited OTA program, participate in hands on fieldwork experience within the program. Pass the NBCOT exam. Must complete 3 CEUs every 2 years. Overseeing OT must deem COTA competent in-service delivery, as well as abide by provision requirements (varies by state and therapist).</p> <p>(1)Trained to look at clients in a holistic perspective (analyzing peoples' behaviors and occupational skills on multiple levels) (2) uses a strength based approach (3) considers the social and cultural context (4) identify importance of making decisions collaboratively (5) OT and ABA contain similar guidelines pertaining to the prioritization of goal setting (6) skilled in adapting and/or modifying the environment (7) knowledge on the use of adaptive equipment (8) knowledge on fine motor habilitation, as well as core strength, executive functioning, `visual perceptual skills, and emotional regulation (9) interprofessional collaboration is embedded within their educational curriculum (Gasiewski et al., 2021).</p> <p>SLP</p> <p>Obtain a bachelor's degree, then complete master of science in speech-language pathology (400 clinical hours integrated), complete clinical fellowship (1,260 hours), pass the praxis exam, and then become certified by ASHA and the State. CEU credits required to maintain title and license. Must complete 30 CEUs every 3 years to maintain title and license. Specializes in evaluation and intervention of communication disorders, swallowing difficulties, eating/feeding issues (OT does at ACC), and cognitive functions (ASHA, 2023; Service provider 1, personal communication, February 8, 2023).</p>
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	<p>(1)Values interprofessional collaboration and education (2) values empirically based treatment (3)considers client perspectives and goals (4)trained to take a more eclectic approach (5) training focuses on the person and their factors more than the environmental influences (ASHA, 2023).</p> <ul style="list-style-type: none"> • Interprofessional team (OT/COTA, SLP, BCBA/RBT) <p>All positions received interprofessional collaboration skill training to various degrees in their educational curriculum.</p>
Spiritual:	<ul style="list-style-type: none"> • Essential goal of ABA therapy is to “take a scientific approach for discovering environmental variables that reliably influence socially significant behavior and for developing a technology of behavior change that takes practical advantage of those discoveries” (Cooper et al., 2020) • Essential goal of OT is to promote engagement in and the performance of daily activities through executive functioning, sensory integration/processing/modulation, social emotional skills, and praxis skills (AOTA, 2023). • Essential goal of ST is to assess, diagnose, and treat expressive and receptive language, speech sound production, social pragmatic communication and swallowing disorders (ASHA, 2016; Service provider 1, personal communication, February 8, 2023). • Region service provider’s mission statement: “To make the world a more inclusive place where independence is a gift to all” (Region service provider, 2023).
<p><u>Environment:</u> Context in which the interprofessional collaborators engage in service delivery for children with ASD.</p>	

Cultural:	<ul style="list-style-type: none"> • Site follows an interdisciplinary team’s approach in which discipline specific roles are maintained (White, 2023). In this approach, the multiple disciplines work cohesively, each bringing their own discipline related information to contribute to the overall picture (Slim & Reuter-Yuill, 2021). • The extent of interprofessional collaboration varies between the two locations (White, 2023). • Between disciplines, there are differences in terminology that can lead to confusion and avoidance of collaboration (White, 2023). • Minimal knowledge base about different professions, causing minimal collaboration and consultation in treatment plans (White, 2023). • Region service provider’s core values (Region service provider, 2023). Acceptance, lifelong learning, gratitude, compassion, service above self, holistic encouragement, and teamwork
Physical:	<p>Location 1:</p> <ul style="list-style-type: none"> • Most services are delivered at the physical clinic location, located in a mall with various suites within the mall. • Suite A, B, C, and D. A – Manager and coordinator offices, a kitchen, and a bathroom B – Connected to suite A. Therapy treatment rooms and offices. OT and ST share an office, ABA office is in the next room The hallway shares those offices, along with 5 treatment rooms (each with their own doors, seating, and lighting). C - Own separate suite, contains toys, sensory swing, seating, small trampoline. Used as a playroom for the clients receiving services at the center. Additionally has two treatment rooms and open workspaces. D – Contains a large conference table, a large screen, and a bathroom. Used for team meetings.

	<ul style="list-style-type: none"> • OT provides service delivery via telehealth to some clients, done from the office or at home. <p>Location 2:</p> <ul style="list-style-type: none"> • Physical clinic is also within a mall, although all rooms are within the same suite. The space consists of an OT office (where treatment is provided), an ST office (where treatment is provided), a kitchen, one ABA office, one office for program coordinators, and a playroom where ABA treatment is provided.
Institutional:	<ul style="list-style-type: none"> • BCBA/RBT Frequency of services range from 2-6 hours per day, 1-5 days a week depending on the child and their skills. Most common reimbursement comes from the Medicaid waiver and 3rd party payers (Blue Cross Blue Shield (BCBS); Sanford). (Service provider 2, personal communication, January 18, 2023). • ABA scope of practice Treatment approach that has the largest evidence base and has received the most recognition. Utilization of various ABA interventions such as token reward systems, behavior contracts, behavior tracking, discrete trial training, shaping, priming, functional communication training, desensitization, modeling, use of visual supports, etc (BACB, 2021). Practitioners delivering ABA services are trained in conducting functional behavioral assessments (Gasiewski et al., 2021). BCBA's tend to rely more on objective data and place an emphasis on the utilization of data collection (Gasiewski et al., 2021). • OT/COTA 1-3x per week, usually 45-minute sessions. Medicaid, BCBS, and Sanford are most common reimbursement options. Sessions can also be implemented via telehealth. (Service provider 2, personal communication, January 18, 2023). • OT scope of practice Most common performance skills targeted during assessment and intervention is sensory processing/integration, self-regulation techniques, life skills (ADLs/IADLs), executive functioning, and FM and GM coordination to support occupational performance within

	<p>all areas of occupation (AOTA, 2015). The OT profession is trained to assess outcomes based on occupational performance within the natural environment (Gasiewski et al., 2021).</p> <ul style="list-style-type: none"> • SLP 1-2x per week, usually 30-minute sessions. Medicaid, BCBS, and Sanford are most common payers. Sessions can be implemented via telehealth (Service provider 2, personal communication, January 18, 2023). • SLP scope of practice Service delivery domains include collaboration, counseling, prevention and wellness, screening, assessment, population and systems, technology, and instrumentation. Goals for intervention for service delivery to individuals with ASD include (1) initiating spontaneous speech and language, (2) engaging in reciprocal communication and play, (3) generalizing skills across activities, environments, and communication partners (ASHA, 2016; Service provider 1, personal communication, February 8th, 2023). <p>Region service provider training includes (Service provider 3, personal communication, February 24, 2023):</p> <ul style="list-style-type: none"> • Crisis Prevention Intervention • Central reach navigation (documentation portal) • Incident reports • Workplace harassment • Supervision training for BCBA • CPR/First Aid • CEUs (for OT and SLP) • CEU course for interprofessional collaboration, from a nursing standpoint
Social:	Current collaboration efforts include;

	<ul style="list-style-type: none"> • Monthly team meetings to discuss clientele where OT, SLP, BCBA, respite PC, and RBTs are present. • Informal consultation across disciplines to discuss service delivery methods at surface level. • Indirect communication (email/teams/teleconferencing). • In location 2, no interprofessional meetings are currently in place. • Monthly parent meetings, facilitated by the BCBA
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Transactions	
P x E x O Strengths	P x E x O Opportunities
<ul style="list-style-type: none"> • All three disciplines are located within the same suite, making potential collaborative efforts more accessible. • All three disciplines value interprofessional collaboration (to varying degrees). • All three disciplines utilize visual supports. • Clientele can stay in the same treatment rooms throughout the differing discipline treatment sessions. • All three disciplines are in the same suite, making transitions of service delivery easy for clientele and therapists. • In both the locations, all three disciplines utilize the behavioral theory in their service delivery (to varying degrees). 	<ul style="list-style-type: none"> • Minimal collaboration efforts are currently in place at both locations. • Cohesive visual supports and behavioral methods are not present across disciplines. • Speech therapy and occupational therapy utilize behavioral theory approaches in their service delivery, along with others such as cognitive behavioral, sensory integration, and developmental theories. • The client's goals differ highly across disciplines, meaning different prioritization of goal areas. • ABA service providers utilize ABA-specific terminology, which some other service providers across disciplines are not familiar with, causing confusion and less motivation to collaborate.

<ul style="list-style-type: none"> • Both the ABA and OT disciplines have similar guidelines for the prioritization of goals (in general). • Reimbursement sources are relatively the same across disciplines. • All professionals utilize the same documentation portal, having access to other disciplines' notes and goals. 	<ul style="list-style-type: none"> • In both locations, there is room to educate on other disciplines (to varying degrees across locations) to support informative consultation/collaboration. • Professionals may lack time to access and read other profession's daily notes, evaluation data, and current goals. • Professionals do not currently have interprofessional collaboration training in place.
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To facilitate the occupational best fit for interprofessional collaboration, the following efforts will be proposed.

Opportunities	Potential Ideas
<ul style="list-style-type: none"> • Professionals do not currently have interprofessional collaboration training in place. 	Develop a module to include in the onboarding process that targets interprofessional communication. Include aspects such as core competencies for collaboration, benefits, barriers, and strategies to promote.
<ul style="list-style-type: none"> • The client's goals differ highly across disciplines, meaning different prioritization of goal areas. 	Create a decision-making tree for goal prioritization across disciplines.
<ul style="list-style-type: none"> • Professionals may lack time to access and read other profession's daily notes, evaluation data, and current goals. 	Create a protocol/agenda for things to touch on in the monthly interdisciplinary meetings. Include goals and current interventions/techniques being utilized.
<ul style="list-style-type: none"> • In both locations, there is room to educate on other disciplines (to varying degrees across locations) to support informative consultation/collaboration. 	Provide handouts regarding each discipline's scope of practice, debunking common perceptions, their expertise areas, EBP, philosophical foundations, and when to collaborate vs. consult.

<ul style="list-style-type: none"> • ABA service providers utilize ABA-specific terminology, which some other service providers across disciplines are not familiar with, causing confusion and less motivation to collaborate. 	<p>Create a crash course or list of ABA specific terms, their definitions, examples, and if there is a word that the other profession would know that closely associates with it.</p> <p>Provide this same list to all disciplines to support all disciplines knowing the ABA-specific terminology, as well as associated words that could be utilized instead.</p> <p>Utilized in communication as well as in documentation.</p>
<ul style="list-style-type: none"> • Cohesive visual supports and behavioral methods are not present across disciplines. 	<p>Create cohesive visual systems across disciplines to utilize.</p> <p>Have multiple copies, visual stimuli, charts.</p>

Chapter IV

Product

Chapter IV provides a description of the product which is located in Appendix A. The product was constructed based on the thorough findings of both the initial literature review and the on-site needs assessment. The development of this product was guided by the Person-Environment-Occupation (PEO) model (Law et al., 1996) as well as the proposed standards for interprofessional collaboration with autism spectrum disorder (ASD) service provision (Bowman et al., 2021). The product consists of an outline of the training module, a list of the training module objectives, one self-assessment checklist for the collaborative team, and seven handouts to accompany the slides of the training module. The module was recorded with the collaborating site's software and published to the necessary personnel's training portals.

The outline was created to organize the standards of interprofessional collaboration specific to ASD treatment planning in a presentation platform, which is the platform utilized by the training module. The list of training module objectives was collaboratively developed between the author and the partnering site's director of organizational development. The training module objectives aim to lay out the purpose of the module for the necessary consumers. The Standards of Adherence Self-assessment Checklist is a modified version of the self-assessment checklist proposed by Bowman et al. (2021). The author of this

product altered the items on the checklist to align more appropriately with an interdisciplinary collaborative approach, rather than a multidisciplinary approach. The checklist aims to assist collaborative team members in their management and maintenance of their adherence to the proposed interdisciplinary standards.

Lastly, seven handouts were developed to aid in the further comprehension of the training module's content. The handouts located in Appendix A follow the same order in which they would be provided within the training module. The handouts address the following concepts in their respective order; the three types of interprofessional collaboration approaches, a comparison chart of each discipline's scope of practice, a list of two evidence-based interventions from each discipline, a handout for discipline-specific terms for each profession, and a conflict resolution handout.

Chapter V

Summary of Findings

Chapter V contains a summary of the online interprofessional collaboration education module, implications for occupational therapy practice, strengths of the product, limitations, recommendations for further action, and concluding statements. The purpose of this scholarly project was to develop a product that would support and enhance evidence-based best practices within autism spectrum disorder (ASD) service provision. This product also aimed to facilitate interprofessional collaboration among ASD treatment team members, including occupational therapists, certified occupational therapy assistants, speech-language pathologists, speech-language pathologist assistants, board-certified behavior analysts, and registered behavior technicians, in order to provide an integrative plan of care.

Overview of Product

The product *Interprofessional Collaboration Training Module – For Autism Service Provision* is a training module that provides standards and action steps when working in a collaborative team, providing services to children with ASD. The module content utilizes the interprofessional collaboration standards from Bowman et al. (2021). This set of written standards was curated specifically for practitioners providing integrated services to children with ASD. The training module is an online format that will be accessed by the practitioners employed at

the collaborating agency, as it will be a required piece of the onboarding process for new employees. It was recommended by the author that this module become an annual requirement for the necessary personnel for maintenance, although this decision will be at the discretion of the collaborating agency. The module contains interactive slides that cover the topics such as the types of interprofessional collaboration, the benefits and barriers of the interdisciplinary approach, each discipline's scope of practice, effective communication aspects, conflict resolution techniques, and action steps to establish a collaborative culture. Various handouts were developed to accompany each slide and are shown in Appendix A. A modified self-assessment for interdisciplinary collaboration adherence was created, guided by the multidisciplinary approach self-assessment in Bowman et al. (2021), which is also located in Appendix A.

Implications for Occupational Therapy Practice

This product yields various implications for occupational therapy practice. The first implication is the heavy focus on collaborative interactions between practitioners of various disciplines with ASD service provision. This aligns with a holistic perspective, that the occupational therapy discipline adopts for all clients. This product also provides a multitude of advocacy opportunities for other disciplines to be exposed to and to learn about occupational therapy's scope of practice and expertise areas. These opportunities can be completed through various modes including ongoing education and training, communication, and

exposure. Lastly, this product exposes the practitioners in the occupational therapy profession to the other disciplines' skill sets and expertise areas within ASD service provision. This will positively influence the occupational therapy practitioner's collaborative culture.

Strengths of the Product

This product targets interprofessional collaborative team members specifically within ASD service provision, as well as the children receiving the integrated services. This product has a variety of strengths that aim to enhance the occupational performance of the target populations. After consulting both the literature and the collaborating site, there were numerous gaps between the on-site needs assessment and the standards of interprofessional collaboration. This product was curated specifically in response to bridging the current gaps present at the collaborating site. The development and design of this product were guided through the utilization of the Person-Environment-Occupation model (Law et al., 1996) in which the organization of content can be understood by practitioners of other disciplines. This creates a more comprehensive process for the dissemination of the product to the stakeholders, as well as the reasoning behind the determination of the need for this product. The product's content is informed by various stakeholders that are a part of the inter-collaborative team, within the discipline of occupational therapy, speech-language therapy, and applied behavior analysis therapy. Lastly, this product follows the interprofessional collaboration

standards within ASD service provision that were proposed by Bowman et al. (2021) intending to increase the awareness of various aspects of collaboration.

Limitations

The product has many strength areas that are listed above, yet the product also yields limitations. The author of this product is a third-year occupational therapy doctoral student with a background in providing applied behavior analysis therapy, although has limited expertise and training within interprofessional collaboration. This may impact the credibility of the training module content. This product has not been piloted due to time constraints, diminishing the opportunity for the author to make modifications. This product is also only available for the specific agency that was in collaboration for the training module as the need for this product was determined through a site-specific needs assessment. To bridge this gap, the author developed universal handouts intended to further depict parts of the training module content that can be utilized by the general population. Although this product was informed through various literature, there is limited empirical research for interprofessional collaboration within ASD service provision. This may influence the credibility of the current standards that the training module follows.

Recommendations for Further Action

The author of this training module intended to implement this product at an outpatient pediatric service center that has professionals from the disciplines of

occupational therapy, speech-language therapy, and applied behavior analysis therapy to facilitate an enhanced level of interprofessional collaboration.

Throughout the development of this product, opportunities for further action were identified. The training module is currently only available to one region of the partnering agency, although other regions of this agency do provide collaborative services to children with ASD, leaving an opportunity for product expansion. It is also recommended that further literature and empirical research be produced to determine the level of efficacy that the interprofessional standards will have on ASD service provision.

Conclusion

In order to see effective treatment gains in children with ASD's service provision, it is crucial for all members of the integrative care team to engage in effective interprofessional collaboration. This product provides the guidance to facilitate an enhanced level of interprofessional collaborative efforts specifically within ASD service provision treatment programming. This product is unique as it focuses on the collaborative efforts between practitioners associated with the main disciplines providing services to children with ASD; occupational therapy, applied behavior analysis, and speech-language therapy. Another way in which this product is unique is its foundation of written standards proposed by Bowman et al. (2021). The author intends that the development and implementation of this educational training module will facilitate a greater level of integrated care

interactions among all practitioners involved in ASD service provision, as well as indirectly influencing a greater level of service outcomes.

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Appendix A



***The Interprofessional
Collaboration Training
Module – For ASD Service
Provision***



Training Module Outline

1. Title Slide “Interprofessional Collaboration Training Module – For ASD Service Provision”
2. Objectives
 - a. Understand what interprofessional collaboration is, who is involved within ASD service provision, why it’s important, and how we can overcome barriers.
 - b. Enhance a collaborative culture, including knowing the scope of practice for each discipline and being able to share two evidence-based treatment methods from each discipline.
 - c. Enhance a collaborative culture, including identifying the six aspects of collaborative communication.
 - d. Identify three conflict resolution strategies related to a mutual client’s plan of care.
3. Defining interprofessional collaboration (specific to ASD)
 - a. What is it? What type of approach is present at the site?
 - i. Interprofessional collaborative approaches chart handout
 - b. Benefits
 - c. Barriers
 - i. Role boundaries
 - ii. Communication
 - iii. Conflict
 - iv. Organizational constraints
4. Disciplines involved in ASD service provision. (Paired with Role Boundaries barrier)
 - a. Each discipline’s scope of practice and training
 - i. ABA
 - ii. OT
 - iii. ST
 1. Scope of practice handout
 - b. Evidence-based treatment methods for each discipline
 - i. Evidence-based interventions handouts (2 for each discipline)
5. Collaborative communication (Paired with communication barrier)
 - a. Go through the 6 aspects (based on Bowman et al., 2021)
 - i. Open communication
 - ii. Sharing information
 - iii. Ongoing communication
 - iv. Active communication
 - v. Informal communication
 - vi. Mutually understood language
 1. Handout for ABA-specific terms
 2. Handout for ST-specific terms
 3. Handout for OT-specific terms
6. Conflict resolution (paired with conflict barrier)
 - a. (based on Bowman et al., 2021)
 - i. Timely
 - ii. Bringing attention
 - iii. Perspectives with conflict





Training Module Outline

- iv. Resolution protocols
- v. Involvement of clients
 - 1. Conflict resolution handout
- 7. Establishment of a collaborative culture
 - a. Unity of purpose
 - b. Collaborative education and training
 - i. Self-assessment handout (modified from Bowman et al., 2021)
- 8. Ending slide





Training Module Objectives

- a. Understand what interprofessional collaboration is, who is involved within ASD service provision, why it's important, and how we can overcome barriers.
- b. Enhance a collaborative culture, including knowing the scope of practice for each discipline and being able to share two evidence-based treatment methods from each discipline.
- c. Enhance a collaborative culture, including identifying the six aspects of collaborative communication.
- d. Apply three conflict resolution strategies related to a mutual client's plan of care through a simulated case study.





Standards of Adherence Self-Assessment Checklist (Modified) (Bowman et al., 2021)

Assessing the Collaboration of Treatment Team Professionals in the Treatment of Individuals with ASD					
<i>A checklist for collaborating professionals to determine if interdisciplinary practice is being used to maximize the delivery of effective and efficient collaboration.</i>					
<p>The purpose of this self-assessment is to provide an evaluation of interdisciplinary collaboration by indicating the treatment team’s adherence to collaborative practice standards using a Likert scale. This checklist is to be completed by the treatment team during a team meeting.</p> <p>1 (never) 2 (rarely) 3 (sometimes) 4 (often) 5 (always)</p>					
Collaborative Communication					
Thoughts or opinions are openly expressed and received by treatment-team members.	1	2	3	4	5
Assessment results are shared by team members and interventions are collectively designed.	1	2	3	4	5
Data and assessments are accessible to all team members.	1	2	3	4	5
Team member meetings take place at least once a month, wherein all team members are present.	1	2	3	4	5
Literature across disciplines is shared and reviewed by team members regularly.	1	2	3	4	5
The language used by team members is mutually understood, and any language that is not understood is made clear through explanation.	1	2	3	4	5
Score					

Distinguished Roles in Collaboration					
Each team member’s role, specific practice area, and contribution is clearly delineated.	1	2	3	4	5
Each team member’s scope of competence is clearly understood.	1	2	3	4	5
Respect of each member’s unique knowledge and contribution is demonstrated.	1	2	3	4	5
Score					

Role of the Organization					
All members of the treatment team hold equal positions, and no member holds a direct supervisory position over other members.	1	2	3	4	5
All disciplines and professions are equally valued.	1	2	3	4	5





Score	
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Client Care					
Visible team care is provided wherein recipients of services are aware of the team's collaborative efforts.	1	2	3	4	5
The client's values, preferences, and needs are considered by all team members.	1	2	3	4	5
Social validity measures are collectively designed in accordance with the team's mission and vision.	1	2	3	4	5
Social validity measures are obtained for each client.	1	2	3	4	5
Score					

Conflict Resolution					
Conflict is addressed promptly by being brought to the attention of the team for resolution.	1	2	3	4	5
The perspectives of all treatment-team members are considered when problem solving through conflict.	1	2	3	4	5
Score					

Joint Partnerships					
Team members maintain their discipline-specific role boundaries.	1	2	3	4	5
Team members practice within their boundaries of competence.	1	2	3	4	5
Team members collaborate on goal areas and assume collective ownership of the overall client care.	1	2	3	4	5
Score					

Evidence-Based Practice					
Team members are firmly committed to evidence-based practice.	1	2	3	4	5
Team members' recommendations are effective, reasonable, and feasible.	1	2	3	4	5
Resources that have reviewed the scientific data on various treatments for ASD are used in decision making regarding courses of action in treatment.	1	2	3	4	5
Data are collected on all interventions.	1	2	3	4	5





Score	
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Collaborative Culture					
Team members participate in continuing education events devoted to interprofessional collaboration.	1	2	3	4	5
Each collaborating discipline’s code of ethics is shared with the other team members and the most stringent codes are adopted by the team.	1	2	3	4	5
Team members assess their individual collaboration competency and are accepting of feedback from clients and other team members.	1	2	3	4	5
A shared unity of purpose exists and is at the core of the team’s function.	1	2	3	4	5
Score					

Scoring	
Add the circled responses for each section to obtain section scores. Below are section scores that indicate standards have been adequately upheld.	
<i>Collaborative Communication – A score of 24 or more</i>	
<i>Distinguished Roles in Collaboration – A score of 13 or more</i>	
<i>Role of the Organization – A score of 8 or more</i>	
<i>Client Care – A score of 18 or more</i>	
<i>Conflict Resolution – A score of 9 or more</i>	
<i>Joint Partnerships – A score of 13 or more</i>	
<i>Evidence-Based Practice – A score of 17 or more</i>	
<i>Collaborative Culture – A score of 15 or more</i>	
A cumulative score of 117 or more indicates the collaborative practice aligns with an interdisciplinary approach.	
Cumulative Score	

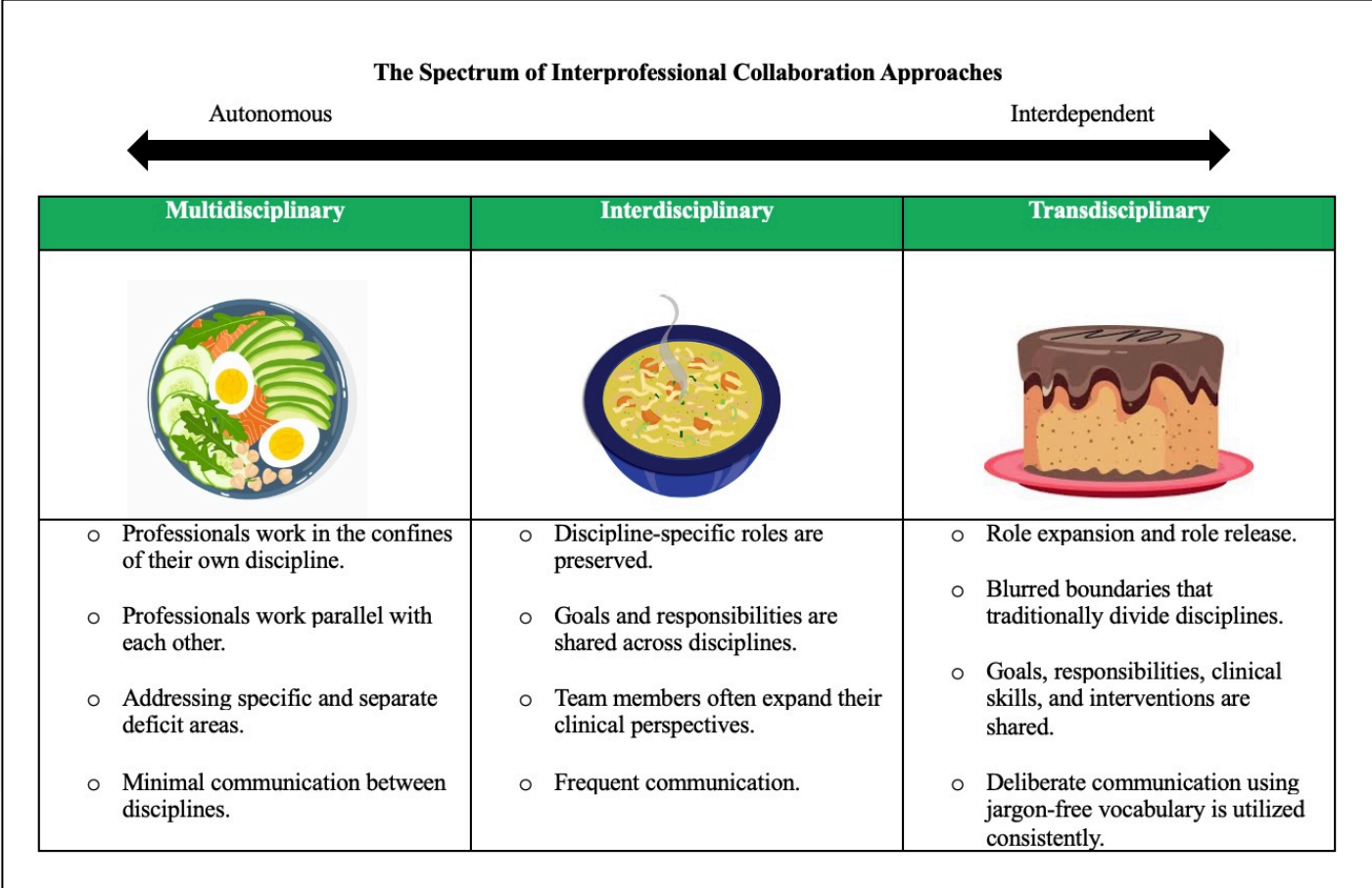
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The Spectrum of Interprofessional Collaboration Approaches





Scopes of Practice

Speech Therapy	Occupational Therapy	Applied Behavior Analysis Therapy
<p>Skilled in assessing and treating:</p> <ul style="list-style-type: none"> - Speech sound production <ul style="list-style-type: none"> o Articulation o Speech apraxia o Ataxia o Dyskinesia - Resonance - Voice <ul style="list-style-type: none"> o Phonation o Quality o Pitch o Respiration - Fluency - Language <ul style="list-style-type: none"> o Comprehension o Expression - Literacy - Prelinguistic communication <ul style="list-style-type: none"> o Joint attention o Intentionality o Communicative signaling - Cognition <ul style="list-style-type: none"> o Executive functioning o Attention o Memory o Problem solving o Sequencing - Feeding and swallowing - Alternative augmented communication 	<p>Skilled in assessing and treating:</p> <ul style="list-style-type: none"> - Cognition <ul style="list-style-type: none"> o Executive functioning o Sequencing o Problem solving o Judgement o Attention - Sensory <ul style="list-style-type: none"> o Regulation o Integration o Sensory diets o Processing - Social emotional regulation - Social skills - Gross motor skills - Fine motor skills <ul style="list-style-type: none"> o Handwriting o Development of grasps - Activities of Daily Living (ADL) performance - Instrumental Activities of Daily Living (IADL) performance - Visual <ul style="list-style-type: none"> o Visual-perceptual skills o Visual-motor skills - Environmental modifications - Motor planning - Any other skills influencing an individual’s occupational performance in their desired and expected occupations. 	<p>Skilled in assessing and treating:</p> <ul style="list-style-type: none"> - Cognition <ul style="list-style-type: none"> o Attention o Problem solving o Executive functioning o Judgement - Daily living skills <ul style="list-style-type: none"> o Include but not limited to <ul style="list-style-type: none"> ▪ Self-cares ▪ Functional and independent living skills ▪ Eating - Problem behavior (SIB) - Parent training - Language <ul style="list-style-type: none"> o Verbal o Nonverbal - Social skills <p>Through the use of:</p> <ul style="list-style-type: none"> - Functional communication training - Environmental modifications - Social skills training - Functional behavior assessments - Discrete trial training - Picture exchange communication systems - Antecedent based intervention - Naturalistic interventions - Behavior contracts - Token reward systems





Evidence-Based Approaches

Occupational Therapy Evidence-Based Interventions

Sensory Regulation

DEFINE:

- Sensory dysregulation – A mind and/or body state which occurs when the body is out of balance due to experiences within the sensory environment.

Sensory Dysregulation Indicators Before a Sensory Meltdown
<ul style="list-style-type: none"> ▪ Increased stimming – such as rocking back and forth, hand flapping, tensing of the body, and repetitive noises. ▪ Escalation of behaviors ▪ Talking faster, louder, or not at all
Over Responsiveness (Hypersensitivity) Examples
<ul style="list-style-type: none"> ▪ Covering ears ▪ Closing eyes/requesting the light to be off ▪ Refusing or insisting on certain foods, clothing, etc. ▪ Avoidance of certain textures/liking their hands to be clean
Under Responsiveness (Hyposensitivity) Examples
<ul style="list-style-type: none"> ▪ Difficulty recognizing when they need to use the bathroom and/or detecting pain ▪ Frequent chewing on non-food items ▪ Frequent touching of others/playing rough ▪ Seeking to spin/swing very fast
High vs. Low Arousal
<ul style="list-style-type: none"> ▪ High Arousal - High alertness, which can be exhibited by an increase in sensory seeking behaviors, decreased attention, and a “busy body” and “busy mind”. ▪ Low Arousal - Low alertness, which can be exhibited by increased passivity, decreased attention and participation, and slower movements.





Evidence-Based Approaches

Sensory Exposure

Sensory System:	Vestibular	Visual	Auditory	Tactile	Proprioception
Definition:	Sense of balance and motion. Vestibular input can produce a variety of responses. It can be calming, alerting, organizing, or disorganizing depending on the type of movement and the sensitivity of the individual.	Sense of vision. The visual sensory system helps us see as well as filter out the visual stimuli that are not important.	Sense of hearing. When we process auditory information, our brain can determine what sounds are important, as well as the content of the sound and the directionality.	Sense of touch, tactile receptors are located on our skin and mouth. Our tactile system tells us when we have been touched and what it is that we touched. Senses light touch (tends to be alerting and alarming for some) and deep touch (also called deep pressure) (tends to be calming and organizing).	Sense of body awareness. Our body senses proprioception through messages sent from sensory receptors in our muscles and joints. The proprioceptive system is activated every time we push/pull things, as well as when our joints are stretched or compressed together. Proprioceptive input tends to have a calming and organizing effect on the body, especially when overstimulated.
Sensory-Based Strategies for Low Arousal:	Heavy work, bounce, jump, swing, spin, hopping, skipping, dancing.	Keep lights on, provide various visual aids/stimuli.	Music on a louder volume with a faster beat, variations in your own voice volumes, sound effects.	Provide light touch on arms, hands, legs, and back, sensory exposure to various textures.	Heavy work (i.e., pushing/pulling objects, stomps, wall pushups, etc.).
Sensory-Based Strategies for High Arousal:	Rock back and forth, slowly swing/spin.	Turn off lights, close eyes, remove unnecessary items.	Listen to soft and calming music, white noise, away from loud and busy environments.	Squeezes (arms, hands, legs, feet, etc.), fidgets.	Deep breaths, joint compressions, heavy work (i.e., animal walks, wall leans, pushing/pulling an object).

**Gustatory, interoception, and olfactory sensory systems are not included in the chart.
 **Ask your OT team member if you have any questions and/or would like additional information





Evidence-Based Approaches

Applied Behavior Analysis Evidence-Based Interventions Functional Communication Training

DEFINE:

Functional Communication Training (FCT) – A differential reinforcement procedure in which an individual is taught an alternative response that results in the same class of reinforcement identified as maintaining problem behavior (Tiger et al., 2008).

Step 1: Define the challenging behavior and complete a functional behavioral assessment (only to be completed by someone who is trained).

Behavior is intended to fulfill one of the four functions:

Escape	Attention	Obtain Tangible Objects	Sensory Stimulation
To get away from a situation they find uncomfortable and/or anxiety provoking.	To obtain attention from others.	To get something physical that they want.	May behave in a certain way because it feels good or is in some way positive.

Step 2: Identify an appropriate form of communication that will meet the same function as the problem behavior.

The replacement behavior should be: (1) easier to perform than the problem behavior, (2) something the child can learn quickly, and (3) something that others will understand.

Step 3: Teach the identified appropriate replacement behavior.

The ABA therapist will create opportunities where the problem behavior will most likely occur and prompt the child with the appropriate communication behavior before the problem behavior occurs.

IMPORTANT NOTE: At this stage, the problem behavior should be on extinction. Meaning the child is receiving NO reinforcement for the behavior problem. (Example: If the child is yelling to receive attention, the yelling must cease before redirecting to perform the replacement behavior).

Steps 4 & 5: Generalize and Maintain the replacement behavior.





Evidence-Based Approaches

Differential Reinforcement

DEFINE:

Differential Reinforcement (DR) – Reinforcing a target behavior while withholding reinforcement from unwanted behavior. There are various types although the goal remains the same; to replace unwanted behaviors with desirable behaviors.

Type	Definition	Example
Differential Reinforcement of Alternative Behavior (DRA)	Reinforces a pre-determined target behavior that is an alternative to the unwanted behavior.	If one’s problem behavior is eloping from the treatment area to escape a demand, redirecting the child to using an “I want a break” card.
Differential Reinforcement of Incompatible Behavior (DRI)	Reinforces a physically incompatible behavior to replace the unwanted behavior. It is impossible to perform both at the same time.	If one is trying to teach a child to remain seated during activities, one will provide reinforcement only when they are in their seat.
Differential Reinforcement of Other Behavior (DRO)	Reinforces any other behavior other than the unwanted behavior. Usually completed in a time setting interval.	If the target behavior is screaming, and the child refrains from yelling for the set interval time of 5 minutes, reinforcement will be given. If screaming occurs, reinforcement will not be given.
Differential Reinforcement of Low Rates (DRL)	Reinforces at the end of an instructional session if the problem behavior occurred during the entire session at or below a predetermined criterion. Used to decrease frequency .	If a child repeatedly flushes the toilet after using the bathroom, reinforce for when the child only flushes once (if that is the predetermined frequency).
Differential Reinforcement of High Rates (DRH)	Goal is to increase the rate of desired behaviors . Reinforces when a pre-determined rate of the behavior is achieved within a time interval.	A child is a slow eater and needs to finish his food within 20 minutes. This approach could be implemented to decrease the time in between bites.

****The type of differential reinforcement is determined by (1) the target behavior, (2) the baseline levels of the behavior, (3) whether the goal is to increase or decrease the behavior, (4) the long-term goals, (5) the function of the target behavior, (6) alternative behaviors in the child’s repertoire, and (7) the child and stakeholder’s preferences.**

****Ask your ABA team member if you have questions and/or would like additional information!**





Evidence-Based Approaches

Speech Language Therapy Evidence-Based Interventions

Verbal Requesting

Factors to consider for motivator selection:

Child's Interest	Avoid Using Daily Necessities	Consider Developmental Age	Go For Mass Practice	Increase Desirability	Be Exact
Make sure the motivator is worth the child's effort and time to learn a new skill.	Do not withhold water and meals from the child, as this is dangerous.	Choose toys/activities that are developmentally age appropriate.	Choose items that allow the child to practice saying the same word many times.	Reduce access to the (motivators) toys or food before working on them.	Present the snack or drink in the way the child likes. As well as playing with the toy or activity the way the child wants to.

Target Word Selection:

More Than One Target Word	Decide on the Target Word	Consider Language	Success
Allows the ability to change motivators and can avoid overgeneralization of the target word.	Decide on the form of communication: PECS, words, signs, or AAC. To simplify more complex words, use shortened versions (i.e., heli for helicopter).	Determine the best language in which to present the target word. Relevant to children who are in bilingual homes.	The child must understand how to imitate the therapist first. The therapist may model the word first (verbally, signing, selecting on AAC or PECS).

Steps to Requesting:

Step 1: Model the word and wait. For example: if you are working on the target "cookie", hold the cookie and model "cookie", then wait for a response.

Step 2: Give the child time to respond. Wait 3-5 seconds, and if they respond within that time, reward them.

Step 3: Repeat a few times, then prompt. If the child does not respond, repeat again. If the child does not respond during the trials, use hand over hand (for PECS and AAC), or encourage them to say a word or sign a word they have already mastered.







Evidence-Based Approaches

Language Expansion

DEFINE:

Language Expansion – Techniques that can be utilized to facilitate and assist children in developing a larger language repertoire.

 Self-Talk	<p>A technique where one should describe, in a narrative format, their actions, feeling, and experience.</p> <p>Example: "I am opening the box, and there is a big red fire truck inside. HONK HONK"</p>
 Parallel Talk	<p>Describing the actions of the child while they are playing. This maps the language concepts assists the child in understanding the meaning of language.</p> <p>Example: "You are jumping up and down on the trampoline, you are smiling, you must be happy!"</p>
 Expansion	<p>A way of rewording a child's utterance, which can be incomplete and/or short, into a complete sentence.</p> <p>Example: The child says, "baby cryin", and the therapist expands this to say "Yes, the baby is crying."</p>
 Scaffolding	<p>This technique is like expansion. To teach the child to add more information to their statement, the therapist will "one up" them by expanding the utterance slightly.</p> <p>Example: If the child says "tree", and the therapist replies with "big tree" or "that's a big tree".</p>



ABA-Specific Terms

APPLIED BEHAVIOR ANALYSIS TERMS EXPLAINED

ABC description: Antecedent (A), behavior (B), and consequence (C). The A is the stimulus that immediately occurs before the behavior. The B is the description of the response to the A. The C is the immediate outcome of the behavior.

Active student responding: A requirement that the student must learn novel skills through interactions with their environment, as opposed to observation or listening.

Approximation: A less-than-perfect attempt at a TARGET BEHAVIOR (i.e., if the target behavior is to draw a square, and the student draws a rectangle).

Successive approximation: Within the SHAPING procedure, the reinforced behavior steps to create a more exact version of the TARGET BEHAVIOR.

Augmentative communication: An umbrella term for a variety of communication systems that are utilized to assist individuals who have difficulties with acquiring spoken language. Within this term: sign language, communication boards, and picture exchange communication are included.

Behavioral deficit: Refers to the inability of an individual to engage in behavior that their typically developing peers engage in.

Chaining: A teaching procedure where one attempts to link various simple individual responses together to make one long and complex behavior.

Forward chaining: A type of CHAINING procedure in which the first step is taught first, then the second, then the third, and so on through the final step.

Backward chaining: A type of CHAINING procedure where one attempts to teach the task starting with the last step and working through the sequence in reverse.

Contingency: An if/then statement to present the correlation between specific behaviors and consequences (i.e., if you engage in behavior “x”, then you will receive the consequence “y”).

Cue: A stimulus that signals a behavior. Other terms used synonymously include ANTECEDENT, PROMPT, and DISCRIMINATIVE STIMULUS.

Desensitization: Procedure used to increase the tolerance of an individual for a previously aversive stimulus.

Systematic desensitization: One would start with identifying coping skills (i.e., deep breathing, closing their eyes, etc.). Then the procedure would construct a hierarchy of the uncomfortable stimuli from least to most anxiety-provoking (i.e., looking at a picture of a dog, seeing a dog across the street, being within 5 feet of a dog, and then petting a dog).





ABA-Specific Terms

Discrete trial teaching: One procedure used in ABA, following the ABC response to assist students in learning new skills. Each trial consists of one rotation of the ABC response (i.e., of one trial, the therapist says, “point to the shoe” (A), the student points to the picture of a shoe (B), and reinforcement is given (C)).

Echoic: Repeating previously heard utterances (i.e., the therapist says “baa”, then the student repeats).

Errorless learning: The student is not allowed to make mistakes when learning a new skill. If the student does not perform the behavior correctly or at all, the therapist will provide most to least PROMPTING before a new trial begins (i.e., if a student does not respond to pointing to a stimulus, the therapist will guide their hand to the correct stimulus, then provide REINFORCEMENT).

Escape: Behavior whose function is to allow the individual to “escape” from undesired tasks and/or environments.

Extinction: To quit reinforcing a previously reinforced behavior to decrease the behavior’s frequency (i.e., a child screams to gain attention from others, therefore when the screams occur, the correct response is to minimize attention). *One must understand the FUNCTION of the behavior first to identify the correct action steps.

Fading: Gradually removing extra PROMPTS one has introduced in a teaching situation.

Function of behavior: The variable maintaining a given behavior (the thing reinforcing the behavior). Common REINFORCERS are communication, avoidance, escape, attention seeking, sensory reinforcers, and tangibles.

Functional analysis: One of the central techniques in ABA, involves the steps to answer the question “why is that behavior occurring?”

Incidental teaching: Teaching that “takes advantage” of naturally occurring opportunities to teach.

Incompatible behavior: Engaging in one behavior that does not allow the possibility of another behavior to occur at the same time (i.e., biting on a chewy, which refrains from biting peers). Usually refers to instances where students learn more desirable behaviors to replace undesirable behaviors.

Intraverbal: A program wherein the student fills in a missing word from a known phrase (i.e., Old McDonald had a ___”).

Joint attention: Refers to two individuals sharing an experience.





ABA-Specific Terms

Latency: A behavioral measure referring to the length of time required for a behavior to occur following a stimulus (i.e., measuring the time it takes the individual to cover their ears in a noisy environment).

Maintenance: Refers to the retention of learned skills, as well as the procedure that addresses previously acquired skills to not lose those skills.

Mand: To request (i.e., the individual manded for more goldfish).

Natural environmental teaching: A teaching approach wherein the child's current activities and interests determine teaching strategies, often contrasted with DISCRETE TRIAL TEACHING.

Noncontingent: The term that means there is no relationship between BEHAVIOR and CONSEQUENCE.

Overcorrection: Refers to a set of behavior reduction procedures wherein an individual must correct the environmental impact of their inappropriate behavior, and often must practice appropriate behavior.

Premack reinforcer: Access to a high-probability behavior used to REINFORCE a lower-probability behavior. Describes a direct CONTINGENCY stating that access to a highly preferred activity will be granted upon completion of a less desired activity.

Probe: A term used for the procedure of "testing" programs, as well as gathering baseline data for newly tested skills.

Prompt dependency: Refers to a condition in which individuals do not respond to a DISCRIMINATIVE STIMULUS unless they receive prompts.

Redirection: A procedure in which an individual attempts to interrupt a student engaging in an undesired behavior and attempts to engage them in an alternative behavior.

Reinforcer: A CONSEQUENCE that increases the probability of the behavior that immediately preceded it (i.e., a student engages in the desired behavior, verbal praise is given as a reinforcer).

Conditioned: A REINFORCER that was previously neutral but has become a REINFORCER through pairing with a previously established REINFORCER.

Intermittent: Reinforcing only some of the occurrences of a desired behavior, not each time. This type contrasts with CONTINUOUS.

Continuous: A schedule of REINFORCEMENT in which every occurrence of a target behavior is reinforced.

Satiation: When a REINFORCER loses its effectiveness through overuse.

Self-injurious behavior (SIB): The act of causing physical injury to oneself. Common behaviors include head banging, hitting their body, and biting themselves.





ABA-Specific Terms

Self-management: Refers to the procedures of self-monitoring and self-reinforcement where people observe their behaviors and self-deliver REINFORCERS.

Shaping: Process used to create new behaviors by DIFFERENTIALLY REINFORCING SUCCESSIVE APPROXIMATIONS to a desired behavior.

Tact: To label (i.e., he correctly tacted the horse when I showed him a picture of a horse).

Target behavior: The desired behavior or undesired behavior that the teacher is attempting to increase or decrease the probability of.

Token economy: A common stimulus serving the purpose of a generalized REINFORCER. Common token economies include coins, stickers, icons, and puzzle pieces.

Newman, B., Reeve, K. F., Reeve, S. A., & Ryan, C. S. (2003). *Behaviorspeak: A glossary of terms in applied behavior analysis*. Dove & Orca.



ST-Specific Terms

SPEECH-LANGUAGE THERAPY TERMS EXPLAINED

Apraxia: A disorder of articulation characterized by an impairment of motor speech programming or impaired capacity to program the position of speech musculature and the sequencing of muscle movements for the production of speech. Also referred to as dyspraxia.

Article: Noun modifier that denotes specificity, (i.e., a, an, the).

Articulation: The way phonemes are formed in speech; the shaping of the vocal tract to produce sounds.

Articulators: Organs of the speech mechanism which produce meaningful sound (i.e., lips, lower jaw, velum, tongue, and pharynx).

Audition: The sense or act of hearing.

Auditory processing: The ability to fully utilize what is heard, to make sense of auditory stimuli.

Auditory processing disorder: Impaired ability to attend, discriminate, recognize, or comprehend auditory information even though hearing and intelligence are within normal limits.

Augmentative and alternative communication (AAC): Any approach designed to support, enhance, or supplement the communication of individuals who are not independent verbal communicators. AAC may include but not be limited to sign language, picture boards, and computer-assisted devices.

Block: In stuttering, the stoppage or obstruction at one or several locations – larynx, lips, tongue, etc.- experienced by the stutterer when trying to talk which temporarily prevents smooth sound production

Carryover: In speech, the habitual use of newly learned speech or language techniques in everyday situations with all communication partners and in all environments (outside of therapy).

Cueing: A function or aid (i.e., visual, auditory, tactile) to assist or obtain a desired response, (i.e., giving the command “Sit in the chair” while pointing to the chair).

Echolalia: Tendency for an individual to repeat without modification that which is spoken to him; normally occurs between 18 and 24 months of age.

Delayed: Repetition of an original utterance at some later time.

Immediate: Instant repetition of the original utterance.

Mitigated: Repetition of the original utterance with slight modification.



ST-Specific Terms

Unmitigated: Unchanged repetition; exact duplication of the original utterance.

Fluency: Smoothness with which sounds, syllables, words, and phrases are joined together during oral language; lack of hesitations or repetitions in speaking.

Fluency disorder: is an interruption in the flow of speaking characterized by atypical rate, rhythm, and disfluencies (e.g., repetitions of sounds, syllables, words, and phrases; sound prolongations; and blocks). Synonymous with “dysfluency”.

Stuttering: The most common fluency disorder. It is categorized by repetitions of sounds (i.e., b-b-baby or “let’s go out-out-out”), prolongations of consonants when it isn’t for”) and blocks (i.e., inaudible, silent fixation, or inability to initiate sounds).

Cluttering: A fluency disorder categorized by a perceived rapid and/or irregular speech rate, atypical pauses (i.e., I will go / to the store), maze behaviors (i.e., “I need to go to...I mean I’m out of cheese, I ran out of cheese”), pragmatic issues, decreased awareness of fluency problems, or collapsing/omitting syllables (i.e., “Iwanwatevision”).

Idiosyncratic: Used to describe a structural or behavioral characteristic peculiar to an individual.

Intelligibility: The degree of clarity with which one’s utterances are understood by familiar and/or unfamiliar communication partners.

Jargon: Verbal behavior of children, beginning at about 9 months and ceasing at about 18 months, which contains a variety of syllables that are inflected in a manner approximating meaningful connected speech.

Labeling: Naming, identifying.

Language: Any accepted, structured, symbolic system for interpersonal communication composed of sounds arranged in ordered sequence to form words, with rules for combining these words into sequences or strings that express thoughts, intentions, experiences, and feelings.

Delayed: Failure to comprehend and/or produce language at the expected chronological age.

Expressive: Ability to communicate via the spoken or printed word.

Receptive: Words one understands. The ability to understand and comprehend spoken language that you hear or read.

Perseveration: The tendency to continue an activity, motor or mental, once it has been started and to be unable to modify or stop the activity even though it has become inappropriate.



ST-Specific Terms

Phonological processes: Patterns of sound errors that typically developing children use to simplify speech as they are learning to talk.

Substitution type:

- Backing (i.e., “gog” for “dog”) – usually seen in more severe phonological delays
- Fronting (i.e., “tootie” for “cookie”) – 3.5 years
- Gliding (i.e., “yeyo” for “yello”) – 6 years
- Stopping (i.e., “dump” for “jump”) – 5 years
- Vowelization (i.e., “appo” for “apple”)
- Affrication (i.e., “joor” for “door”) – 3 years
- Deaffrication (i.e., “ships” for “chips”) – 4 years
- Alveolarization (i.e., “tu” for “shoe”) – 5 years
- Depalatalization (i.e., “fit” for “fish”) – 5 years
- Labialization (i.e., “pie” for “tie”) – 6 years

Assimilation type:

- Assimilation (i.e., “bub” for “bus”) – 3 years
- Denasalization (i.e., “doze” for “nose”) – 2.5 years
- Final consonant devoicing (i.e., “pick” for “pig”) – 3 years
- Prevocalic voicing (i.e., “gomb” for “comb”) – 6 years
- Coalescence (i.e., “foon” for “spoon”)
- Reduplication (i.e., “baba” for “bottle”) – 3 years

Syllable structure:

- Cluster reduction (i.e., “pane” for “plane”) – 4-5 years
- Initial or Final consonant deletion (i.e., “unny” for “bunny” or “toe” for “toad”) – 3 years
- Weak syllable deletion (i.e., “nana” for “banana”) – 4 years
- Epenthesis (i.e., “bu-lue” for “blue”) – 8 years

Phonological disorder: Occurs when phonological processes persist beyond the age when most typically developing children have stopped using them.

Pragmatics: Set of rules governing the use of language in a social context; (i.e., to comment, request (objects, actions, attention), inform, etc.).

Syntax: The way in which words are put together in a sentence to convey meaning. Rules and principles for combining grammatical elements and words into utterances and sentences.

Utterance: Any act of vocal expression.



OT-Specific Terms

OCCUPATIONAL THERAPY TERMS EXPLAINED

Activities of Daily Living (ADLs): Competence in taking care of one's personal needs, such as bathing, dressing, eating, grooming, and studying.

Bilateral Coordination: The ability to use both sides of the body together in a smooth, simultaneous, and coordinated manner.

Body Awareness: The mental picture of one's own body parts, where they are, how they interrelate, and how they move.

Desensitization: A treatment technique that modifies how sensitive the environment is to the individual. Desensitization techniques can treat HYPERSENSITIVITIES from all sensory systems.

Directionality: The awareness of right/left, forward/back, and up/down, and the ability to move oneself in those directions.

Discriminative System: The component of a sensory system that allows one to distinguish differences among stimuli. This system is not innate but develops with time and practice.

Dyspraxia: Deficient MOTOR PLANNING that is often related to a decrease in sensory processing.

Extension: A straightening action of a joint (neck, back, arms, legs).

Fine Motor: Movements of the muscles in the fingers, toes, eyes, and tongue.

Fine Motor Skills: It is the ability to move the hands and fingers in a smooth, precise, and controlled manner. Fine motor control is essential for efficient handling of classroom tools and materials.

Flexion: A bending action of a joint or a pulling in of a body part.

Food jaggging: When a child “jags” on a specific food (or small amount of food items), they want to eat the same food, prepared the same way, the same brand, etc. It is likely that the child will grow tired of this food and eliminate it from their diet entirely.

Form Constancy: Recognition of a shape regardless of its size, position, or texture.

Grasping Patterns for objects:

Crude Ulnar-Palmer grasp (3-5 months)

Palmar grasp (5-6 months)

Radial Palmer grasp (6-9 months)

Radial Digital grasp (10-18 months)

Immature Pincer grasp (18-24 months)



OT-Specific Terms

Mature Pincer grasp (well developed by age 5)

Grasping Patterns for Writing Utensils:

Palmar Supinate grasp (12-18 months)

Digital Pronate grasp (2-3 years)

Immature Static Tripod/Quadrupod grasp (3-4 years)

Dynamic Tripod/Quadrupod grasp (4 years +)

Gravitational Insecurity: Extreme fear and anxiety that one will fall when one's head position changes.

Gross Motor: Movements of the large muscles of the body.

Gross Motor Skills: Coordinated body movements involving large muscle groups. A few activities requiring this skill include running, walking, hopping, climbing, throwing, and jumping.

Hypersensitivity: Oversensitivity to sensory stimuli, characterized by a tendency to be either fearful and cautious, or negative and defiant. Synonymous with hyper-reactivity or hyper-responsiveness.

Hyposensitivity: Under sensitivity to sensory stimuli, characterized by a tendency either to crave intense sensations or to withdraw and be difficult to engage. Synonymous with hypo reactivity or hypo responsiveness.

Lateralization: The process of establishing preference of one side of the brain for directing skilled motor function on the opposite side of the body, while the opposite side is used for stabilization. Lateralization is necessary for establishing hand preference and CROSSING THE BODY MIDLINE.

Linear movement: A motion in which one moves in a line, from front to back, side to side, or up and down.

Midline: A median line dividing the two halves of the body. Crossing the midline is the ability to use one side or part of the body (hand, foot, or eye) in the space of the other side or part.

Modulation: The brain's ability to regulate its own activity.

Motor Coordination: the ability of several muscles or muscle groups to work together harmoniously to perform movements.

Motor Planning: The ability to conceive of, organize, sequence, and carry out an unfamiliar and complex body movement in a coordinated manner, a piece of praxis.

Muscle Tone: The degree of tension normally present when one's muscles are relaxed, or in a resting state.





OT-Specific Terms

Low Tone: The lack of supportive muscle tone, usually with increased mobility at the joints; a person with low tone may seem “loose and floppy”.

High tone: The increased tension in the muscles, making it difficult for one to relax and can lead to contractures; a person with high tone may seem “stiff”.

Oral Defensiveness: An aversive response to touch sensations around (i.e., lips, cheek) or in the mouth cavity (i.e., tongue, teeth, swallowing) that can cause extreme sensory, emotional, and behavioral responses when eating.

Postural Stability: Being able to maintain one's body in a position to efficiently complete a task or demand, using large muscle groups at the shoulders and hips.

Praxis: The ability to interact successfully with the physical environment; to plan, organize, and carry out a sequence of unfamiliar actions; and to do what one needs and wants to do. Praxis is a broad term denoting voluntary and coordinated action. Synonymous with MOTOR PLANNING.

Prone: A horizontal position of the body where the face is positioned downward.

Proprioception: The unconscious awareness of sensations coming from one's joints, muscles, tendons, and ligaments; the “position sense”.

Rotary Movement: Turning or spinning in circles.

Self-Regulation: The ability to control one's activity level and state of alertness, as well as one's emotional, mental, or physical responses to senses; self-organization.

Sensory Defensiveness: A child's behavior in response to sensory input, reflecting severe over-reactions or a low threshold to a specific sensory input.

Sensory Diet: The multisensory experiences that one normally seeks on a daily basis to satisfy one's sensory appetite; a planned and scheduled activity program that an occupational therapist develops to help a person become more self-regulated.

Sensory Integration: The normal neurological process of taking in information from one's body and environment through the senses, organizing and unifying this information, and using it to plan and execute adaptive responses to different challenges in order to learn and function smoothly in daily life.

Supine: A horizontal body position where the face is positioned upward.

Tactile: Refers to the sense of touch and various qualities attributed to touch: to include detecting pressure, temperature, light touch, pain, discriminative touch.





OT-Specific Terms

Tactile Defensiveness: The tendency to react negatively and emotionally to unexpected touch sensations.

Vestibular: Our sense of movement and the pull of gravity, related to our body.

Visual Motor Skills: The ability to visually take in information, process it and be able to coordinate your physical movement in relation to what has been viewed. It involves the combination of visual perception and motor coordination.

Visual Perceptual Skills: The ability to interpret and use what is seen in the environment. Difficulties in this area can interfere with a child's ability to learn self-help skills like tying shoelaces and academic tasks like copying from the blackboard or finding items in a busy background.

Visual Discrimination: Differentiating among symbols and forms, such as matching or separating colors, shapes, numbers, letters, and words.

Visual Figure-Ground: Differentiation between objects in the foreground and in the background.

Visual Scanning: The ability to look and locate relevant information in one's environment quickly, efficiently, and actively.

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Conflict Resolution



Bringing Attention

Timely Resolution

Involvement of Clients

**Perspectives
with Conflict**

Resolution Protocols

**Clients should never be involved in the conflict resolution process.





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