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# Training graduate clinicians to implement speech language pathology, occupational therapy and applied behavior analysis goals in their treatment sessions

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Training Graduate Clinicians to Implement Speech Language Pathology,  
Occupational Therapy and Applied Behavior Analysis  
Goals in Their Treatment Sessions

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A thesis proposal submitted to the Graduate Faculty of

JAMES MADISON UNIVERSITY

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## **Abstract**

Children with Autism Spectrum Disorder (ASD) often receive a multitude of treatment services. Among those services are speech language pathology, occupational therapy services, and applied behavior analysis. This study will focus on developing the skill sets of the three disciplines among graduate clinicians through training and coaching procedures. One graduate student from the applied behavior analysis track trained three graduate student clinicians, one from each discipline, on the individual goals of each discipline. These trainings occurred within the framework of a systematic multiple baseline design. After the mastery criterion was met through training, a bug-in-ear audio communication system was used to deliver coaching in a 5-minute session proceeding the regular therapy session, which was coded for performance of the merged discipline techniques.

## **Introduction**

Collaboration among disciplines is a vital component of an effective, all encompassing, treatment package for children diagnosed with Autism Spectrum Disorder (ASD). Interprofessional practice has been emphasized as a valuable service delivery model in medicine and mental health (World health organization, 2010). One of the major advantages of consultation across disciplines, within medicine and mental health, is that it contributes to a more efficient and effective model of service delivery. Interprofessional education and approaches are paving the way for efficient and effective treatment models. Occupational therapists, speech and language pathologists, and applied behavior analysts represent about 20% of the professionals engaged in educational programs involving interprofessional collaboration (WHO, 2010).

Within the last six years the prevalence rate of ASD has risen from 1 in every 88 children diagnosed with ASD in 2008, to 1 in every 68 children diagnosed with ASD in March of 2014 (CDC, 2014). As the prevalence rates of ASD rise, demand increases, for the most informed, effective, and evidence based practices available (Blumberg, Bramlett, Kogan, Schieve, Jones & Lu, 2013). The Diagnostic and Statistics Manual-5 (DSM-V) lists the following criteria for those who qualify for an ASD diagnosis: deficits in social communication and restricted, repetitive patterns of behavior (American Psychiatric Association, 2013). The diagnostic criteria in the previous DSM-IV stated deficits in social reciprocity, communicative intent and restricted and repetitive behaviors (Hyman, 2013). The core deficits experienced by those with ASD are treatable through a multitude of different evidenced based therapies; applied behavior analysis, occupational therapy, and speech and language pathology. The different therapies may focus on

separate goals and deliver treatment differently, but there are areas of treatment that overlap and lay the groundwork for merged treatment.

Children diagnosed with ASD can receive a multitude of different treatment services. Among the treatments available to those diagnosed with ASD are applied behavior analysis (ABA), speech and language pathology (SLP), and occupational therapy (OT). These three treatments are some of the few evidenced based treatments available to children on the spectrum. Frequently, those diagnosed with ASD receive multiple therapies across multiple disciplines either at home, at school, or within clinical settings (Kohler, 1999). The circumstances surrounding the therapeutic services create an environment, which facilitates interdisciplinary collaboration, which creates the opportunity for a merged treatment package. This ensures that the child is receiving the most encompassing treatment package possible, allowing for open collaboration among the licensed professionals in charge of the treatment plans for the child.

Applied behavior analysis (ABA) is an evidence-based, effective, and commonly used treatment for autism (Lovaas, 1987). Those who practice ABA, board certified behavior analysts (BCBA), focus on the causal relationships between behavioral intervention plans and the change they produce in socially relevant behaviors (Baer, Wolf & Risley, 1968).

Children on the autism spectrum often experience difficulties communicating with the verbal and social community they are surrounded by. Communication can include, but is not limited to, the ability to make sounds to communicate wants/needs to others in a way that is understood by the surrounding social community, either verbally or vocally. Speech and language pathologists focus on communication and swallowing

difficulties for children and adults in order to improve the quality of life for affected individuals (American Speech-Language-Hearing Association, 2007). Speech and language pathologists work with a wide age range of people across a wide range of disabilities. Specifically for those diagnosed with autism it is imperative to work towards increasing spontaneous communication along with functional communication, to decrease problem behaviors (American Speech-Language-Hearing Association, 2006).

Occupational therapy provides treatment to those with special needs in order to increase the quality of life and ease of everyday activities (American Occupational Therapy Association, 2009). Children on the autism spectrum often face difficulties with different sensory experiences. Occupational therapists address sensory processing differences in children with ASD through many different techniques; two of which are proprioceptive and vestibular input.

### **Models of merged treatments**

Collaboration, defined by the World Health Organization, happens when professionals from separate disciplines work together towards the same goals while providing therapy to the same client. Among the many different treatments that are available to people with ASD, merged treatment models are not a new phenomenon. There are many different types of merged treatment approaches that are being utilized in several different settings: school, home, and clinical. Interprofessional collaboration amongst the treating disciplines of those with ASD, focusing on team treatment for their clients, are categorized in three ways: multidisciplinary, inter-disciplinary, and transdisciplinary (Woodruff & McGonigel, 1988; Korner, 2010).



A multidisciplinary model takes an approach to treatment that acknowledges the importance of each discipline working with the client, while still keeping definitive boundaries between the disciplines as well as their treatment plans (Woodruff & McGonigel, 1988). Within this model the respective disciplines will meet individually with the client/family, develop and implement their own treatment plans, and train staff according to the needs of the client and the treatment plan.

An inter-disciplinary model takes a together but separate approach. Disciplines within an inter-disciplinary model act as separate teams whose responsibility is to assess the client, develop/implement a treatment plan, and train staff within their respective disciplines (Woodruff & McGonigel, 1988). The inter-disciplinary part comes into play when meeting with the client/family and delivering therapy to the client. The separate treatment plans from each discipline are combined to create a larger all-encompassing treatment plan. This allows all of the team members the ability to learn about the goals of the other disciplines and ask questions about proper implementation when applicable. Inter-disciplinary models facilitate collaborative efforts to approach treatment for clients while still keeping the integrity of the disciplines separate.

Transdisciplinary models follow an approach that includes all disciplines, and client caregivers, equally in the assessment of the client and the creation and deliverance of treatment (Woodruff & McGonigel, 1988). This model deems one team member as the primary care giver that implements the treatment plan with the client's caregivers. As a form of collaboration, regularly scheduled team meetings transpire in order to communicate the goals of the separate disciplines as well as provide education and feedback among the disciplines.

The Occupational Therapist Practice Framework (OTPF), American Speech-Language-Hearing Association (ASHA) and The Behavior Analyst Certification Board (BACB) are all in agreement on the importance and necessity of input from all of the licensed professionals providing treatment. The OTPF acknowledges the importance of collaboration for the client regarding the aspects of their environment in order to produce effective treatment outcomes (American Occupational Therapy Association, 2014). The ASHA lends support to the importance of having an SLP as a member of an interdisciplinary team in order to produce effective treatment outcomes (American Speech-Language Hearing Association, 2007). In the ABA community, the *Behavior Analyst* emphasizes the importance of collaboration among licensed professionals regarding treatment in order to provide effective treatment outcomes. Collaboration should facilitate more effective treatment versus creating a cutthroat atmosphere among disciplines.

### **Support for merged treatment**

The diagnostic criteria set forth in the DSM-V states deficits in social communication and restricted, repetitive patterns of behavior (American Psychiatric Association, 2013) in those diagnosed with ASD. There seems to be two clear cut disciplines outlined within the diagnostic criteria; deficits in social communication fall into the SLP discipline, while restricted, repetitive patterns of behavior fall into the realm of ABA. The National Research Council (2001) assessed 10 programs considered to be effective; seven of the programs were behavioral approaches, five involved speech and communication training, and two were included occupational therapeutic approaches and goals.

A study completed on the James Madison University campus in the speech and hearing clinic assessed the feasibility of merging treatments at the graduate student level. This study focused on SLP graduate student clinicians and their implementation of ABA skills to increase clients' on-task behavior. This study demonstrated that SLP graduate students were able to incorporate a new skill set for behavior management into their therapy sessions, and that graduate students across disciplines could educate one another (Simons, White, Longerbeam & Stokes (2014).

Similarly, another study conducted at JMU, focused on the increase of skill acquisition of graduate students across disciplines through training and coaching. Training consisted of educating (OT, SLP, and ABA) graduate students on specific goals from each of the three disciplines. Coaching was used to ensure skill acquisition among the graduate students. This study showed an increase in skill usage from all three disciplines among all of the graduate students. There was a positive change in implementation of all OT, SLP, and ABA skills following interprofessional coaching for participants (White, Stokes, Simons, Longerbeam, Richardson, Zinn, 2015).

Previous literature has demonstrated exposure to verbal behavior and functional communication, through ABA therapy, intended to address the social communication deficits present in those diagnosed with ASD (Charlop-Christy, Carpenter, Le, LeBlanc, & Kellet, 2002). Charlop-Christy and colleagues used the picture exchange communication system (PECS), a widely used picture communication system, to teach three children with ASD functional communication. After the intricate training with PECS the researchers confirmed an increase in functional communication along with a decrease in problem behaviors for the participants. This is not to say that there is only

need for other disciplines to learn the skills necessary for behavior management.

However, it lends support to the fact that there is a strong need for collaboration among disciplines in order to provide a well-balanced, comprehensive treatment package.

Cup and colleagues (2007) demonstrated the effectiveness of collaborative practice among professionals. They compared common practice with a multidisciplinary approach. Through client report the multidisciplinary approach was preferred over the usual treatment methods. Patients valued input from multiple professionals and were not attached to traditional ways (Cup, Pieterse, Knuijt, Hendricks, van Engelen, Oostendorp & van der Wilt, 2007).

The purpose of the present study is to demonstrate the effectiveness of implementing goals from multiple disciplines in treatment sessions, delivered by graduate clinicians and supervised by licensed professionals. During intervention graduate clinicians will be trained and coached on the treatment procedures consistent with the goals from each discipline. From there the execution of those procedures will be tracked during their treatment sessions. Participants are expected to present higher levels of simultaneous treatment procedure implementation from their respective fields compared to the newly learned goals in baseline. Higher levels of goal implementation from the other two fields and maintenance of implementation of goals from their respective fields are anticipated during intervention. The results of the current study will be used as a working protocol for merged treatment at the Inter-Professional Autism Clinic (IPAC) at JMU.

## **Method**

### **Participants**

Three first year graduate students, from James Madison University (JMU), with o completed graduate coursework in their respective fields consented to participate before the study began (ABA participant had 1 semester completed course work; OT student had 2 semesters completed coursework; and SLP student had 1 semester completed coursework). All participants were females ranging in ages from 18 to 25. The three females had prior clinical experience through their graduate programs. Merged therapy sessions were delivered by the student clinicians under the direct supervision of the licensed professional of the respective field. Practicum hours were accumulated by the student clinicians in return for their participation in this study. Their voluntary participation in this research project did not influence their academic standing in their respective programs, in any way, in accordance with the approved proposal for research by the Institutional Review Board (IRB) at JMU.

One child who regularly attended clinic for weekly therapy, was the client in this study. He was a seven-year-old male diagnosed with Autism Spectrum Disorder (ASD). Each graduate clinician was assigned to work with the client during their respective therapy times. Within each of the discipline areas a licensed professional provided supervision to the graduate clinicians within their respective areas. The three licensed professionals involved with this study were Trevor Stokes (ABA), Marsha Longerbeam (SLP), and Elizabeth Richardson (OT); all three licensed professionals are also researchers listed in this study.

### **Setting**

Therapy sessions were conducted at the Interprofessional Autism Clinic (IPAC) on the James Madison University campus. The building has six spaces designated for therapy services; the sensorimotor room (SMR), the kitchen area (KA), the centers area (CA), the skills room (SR), the stepping stones room (SSR), and the main activity area (MA). The SMR was a 9m-by-5m with a ball pit, a therapy swing, a pop up play hut, an oversized bean bag chair, and many other therapy materials typically used within occupational therapy settings. The KA was 6m-by-8m and had kitchen appliances (stove, refrigerator, washer, dryer), a large kitchen table, a child size kitchen table, and an extra round table for observation. The SR measured 4m-by-5m and had a child size table with two chairs, and several toys and materials used to conduct therapy. The CA is 4m-by-5m and had a wide range of toys to facilitate play and therapy sessions. The SSR measured 5m-by-8m and was equipped with a child size table and four chairs, a train table for play, a cd player, a computer, extra seating, and several toys for therapy and play sessions. The MA was located in the center of the building and measured 6m-by-10m. This space was primarily used to work on occupational therapy goals; riding indoor bicycles, walking around a painted track, and completing obstacle courses.

### **Dependent Variables**

The goal of this study was to increase the percent of intervals in which the graduate student utilized goals from the three discipline areas within one therapy session. Goals for each discipline were determined based on the needs of the clinic, frequency of use, and evidenced based literature all within their respective fields.

Occupational therapy goals included exposure to sensory stimuli and prompting, if needed, though prompts required. These are defined below:

Sensory exposure. Participant presents different stimuli to the child within the session. This will be scored when the clinician presented a new stimulus; vestibular, proprioceptive, and tactile were considered new within the interval. This was scored per interval when exposure to the client occurred. When exposure occurred within one interval, and was repeated in the next interval, that was scored as exposure in two separate intervals. Multiple exposures could happen within one interval; vestibular, proprioceptive, and tactile (White, Stokes, Simons, Longerbeam, Richardson and Zinn, 2015).

Vestibular Body position, balance, and movement against gravity (Youngstram et al., 2002). This was scored when the therapist introduced stimuli which required the child to engage in movement upon unlevel surfaces. This required that the child balance him/her self in a different manner other than standing on two feet. Vestibular input was also be scored when the child's head orientation differed from that of standing, sitting, walking, or lying down.

Proprioceptive Awareness of body position in space (Youngstram et al., 2002). This was scored when the therapist provided an opportunity for the child to receive input placed upon their joints; jumping, rolling on the floor, or firm hugs.

Tactile Ability to register and discriminate touch sensations (Youngstram et al., 2002). This was scored when the clinician presented a unique touch stimulus to the child's skin (Wisconsin Indian College) in the interval.

Prompting through prompts required. Physical prompting from the clinician for the child to interact with the stimulus presented by the clinician. Two items were scored within this goal; prompts required and clinician prompting.

Prompts required. This was scored when the child engaged in behaviors that create distance from the stimulus, turning away, or verbal refusal, and/or distressed facial expressions when prompted to engage in an activity involving sensory input. This was scored if it continued from one interval into the next (White, Stokes, Simons, Longerbeam, Richardson and Zinn, 2015).

Clinician prompting. This was scored whether the prompting was full physical or partial physical prompting. When the child is initially resistant to a stimulus and the therapist intervened by physically guiding the child, this was counted as clinician prompting. Child engagement had no bearing on whether or not clinician prompting is counted. The sequence was still scored even if the child was engaging.

Full prompt. This was counted when the clinician was physically moving the part of the child's body needed for engagement, in order to complete the task.

Partial prompt. This was counted when the clinician was touching the child while moving toward the stimulus.

Speech and language pathology goals included expansion of utterance and reinforcement following a communication outcome.

Expansions of utterance. This was scored when the participant did either an expansion or a reauditorization. The interval in which the phrase was completed was the place where this was counted.

Reauditorization. This was counted when the clinician repeated, verbatim, what the child had said.

Expansion. This was counted when the clinician repeated exactly what the child said, adding a few words of their own.



Access with communication outcome. This was scored when the clinician presented a reinforcer, either a verbal praise or the item being withheld, so that the student had tactile or auditory access to it in the presence of a communication response; verbally or receptively. This was scored in the interval where the reinforcer being withheld, was delivered. In order to be counted the reinforcer must have been delivered within five seconds of the child's communicative response.

Applied behavior analysis goals consisted of demand sequences and differential attention.

Commands. Direct commands were declarative statements that contained an order or direction for a vocal or motor behavior to be performed and indicated that the child was to perform this behavior. Direct and indirect commands were always worded positively (Eyberg, 2010).

Questions. Questions were verbal inquiries that were distinguishable from declarative statements by having a rising inflection at the end and/or by having the sentence structure of a question. Questions requested an answer but did not suggest a behavior is to be performed by the child (Eyberg, 2010). For the purpose of the study, questions and commands with no opportunity to comply/answer that can be seen (example, "clap" two seconds pass, "Marc, look at me") were scored. Demands with no visual behavior to follow (example, "think about it") were not scored as a sequence.

Pause. This is scored when the clinician who gave the demand paused for five seconds after the last word of the demand.

No pause. This was scored when the person who gave the demand talks, or physically prompted the child during the five seconds following the last word of the demand

Differential attention. This is scored when the clinician delivered praise, labeled or unlabeled, or positive touch (Eyberg, 2010) when the child engaged in or attempted to engage in a specified behavior (as listed below; active listening and coordinated joint attention). If the child was attending to the desired goal/behavior in one interval, and that behavior continued into the following interval, it was counted in both intervals.

Active listening. This is defined as answers to question and compliance to commands.

Coordinated joint attention. This was counted when the client engaged in an uninterrupted three-point gaze. The child may look at a toy/item, then to the clinicians face, then back to the toy. This was counted in the interval in which it was initiated (adapted from Lord, Rutter, DiLavore, and Risi, 2012).

### **Observational Data Collection**

Clinician sessions were observed during live sessions and data were collected using a partial interval recording system with 15s intervals. A partial interval recording system was used to capture the occurrence/non-occurrence of the target behaviors. There were different recording sheets for each of the three disciplines, as to make a more accurate record of the usage of the goals by the clinicians.

Four graduate psychology students observed and coded the therapy sessions. Observers were trained and able to practice their coding skills in the weeks prior to the study. Training consisted of coding live sessions and video recordings prior to the begin

date of the study. Coders listened to a pre-recorded interval marker, downloaded to their smart phones, to keep everyone on the same time frame.

Interobserver agreement was calculated on 33% of observations. IOA was calculated point by point per interval for occurrence and non-occurrence of goals. IOA was calculated in this way due to the differences in occurrences of goals per participant. In order to get an appropriate and comparable depiction of reliability both occurrence and non-occurrence reliability was calculated.

### **Procedures**

**Baseline.** The participants were instructed to conduct their therapy session as they normally would. The therapy sessions occurred at IPAC in the appropriate assigned rooms. Sessions were delivered normally and also concluded normally and no feedback was given from researchers to participants. During sessions, depending on the discipline leading, several structured and unstructured activities were available to the client.

During occupational therapy the child had access to the sensorimotor room where he had access to therapy swings, a pit of plastic balls, beanbag chairs, and other items typically found in an occupational therapy room. The room in which skills took place offered a table and chairs used for work type activities and multiple different toys for the child to play with (cars, trains, planes, puzzles, books, etc.) During speech therapy the client had access to a table and chair where works type activities took place and a multitude of different toys that were different each week and at the discretion of the SLP graduate clinician.

After reaching a stable level of responding in baseline all three participants were trained (by a graduate clinician) on the two predetermined ABA goals; request sequences

and differential attention. All three participants attended training as a group and were trained serially one discipline at a time. Following training participants were coached on the trained discipline, each following discipline was also coached in a additive manner. After an appropriate increased level of stable responding was observed in trained ABA goals, the graduate clinicians were then trained on the two OT goals: sensory exposure and prompts required. The OT procedures were chosen as the second intervention (within the training sequence) due to variability within the SLP data. This allowed for a longer baseline period for SLP data, creating the opportunity to see stability within the SLP data. The SLP procedures were intervened with training once stable levels of responding were reached within the SLP baseline data. Again all three participants attended training as a group for all three trainings which were delivered serially. The final phase of training intervention focused on the two SLP goals; reinforcement for communication and expansion of utterances. Again all three participants attended training for SLP goals as a group. During all phases of training participants had to reach a mastery criterion of 85% or higher in order to consider the new skill learned. This mastery criterion was met through sessions of role playing.

Interprofessional coaching. Each participant received interprofessional coaching via a bug-in-the-ear system. The bug-in-the-ear system is a simple FM receiver that allows non-intrusive live coaching. A second year graduate student served as the coach providing feedback to the participants. The coach had two years' experience working in the interprofessional clinic setting, and five years' experience working in the ABA field. Regular interaction and supervision with the licensed professionals was available to researchers and participants. The goals set forth in this study were determined by the

individual licensed professionals and conveyed by the coach to the participants. After the initial ABA procedure training each participant was trained for 5 minutes, on the ABA procedures, preceding therapy sessions. Subsequently coaching was delivered in an additive manner after each training session for the remainder of the study.

After receiving merged treatment training the participants received in-vivo coaching. Each session was set up to allow for feedback before, during, and after therapy with the child client. Coaching was additive verses serial in order to ensure proper and continual implementation of all goals trained. Each participant received corrective feedback before treatment sessions through visual analysis of their own progress displayed on a line graph. The goal in which the participants preformed the lowest during the last session was focused on for improvement.

A bug-in-the-ear system (FM receiver) was used to conduct coaching sessions with the graduate clinicians. An earpiece was worn by the participant and a separate (wireless) microphone was used by the trainer to coach the participant on the usage of the implementation of the trained goals.

### **Experimental Design**

A concurrent multiple baseline across discipline areas was used in this study (Kazdin, 2010). Participants attended training together as a group, one discipline area at a time. Intervention included the training of graduate student clinicians in the fields of ABA, OT, and SLP. One participant from each discipline received training in the two other of the fields, previously unknown to them.

Maintenance of the students “home” (graduate trained) field was also tracked and evaluated. All final data recorded were analyzed using visual analysis. Graphing the

individual data allowed for comparison from before and after intervention phases. Trend, level, and variability were also analyzed to determine a functional relationship between the intervention, pre and post, as well as changes in participant behavior (Parsonson, 2003; Baer, Wolf & Risley, 1968).

Professionals in the applied behavior analysis field often use single case designs in research to determine the effectiveness of treatment (Kazdin, 2010). Among the different types of single case designs the more suited for this study was the systematic multiple baseline design. A type of multiple baseline design is a multiple baseline design across participants, meaning that the behavior of multiple participants are compared across time. Behavior was be tracked over time and across discipline areas versus across participants. With this design the data collection on participants' behaviors being at the same time, and systematically one participant or group of participants enter the same treatment phase while other participants remain in the baseline phase. The isolation of the data between the baseline phase and the intervention phase was documented well with this type of design and adds validity to the effectiveness of the treatment plan. Through replication, over multiple clients, the validity of the treatment grows stronger and speaks more strongly to the effectiveness of the treatment.

A systematic multiple baseline across discipline areas, delivered serially, is most advantageous for this study. In this design, experimental control was demonstrated by the sequential introduction of training and coaching and observed effects on participants' behaviors (Kazdin, 2010). Observations of therapy sessions coincided with tracked data, data was not taken during coaching sessions.

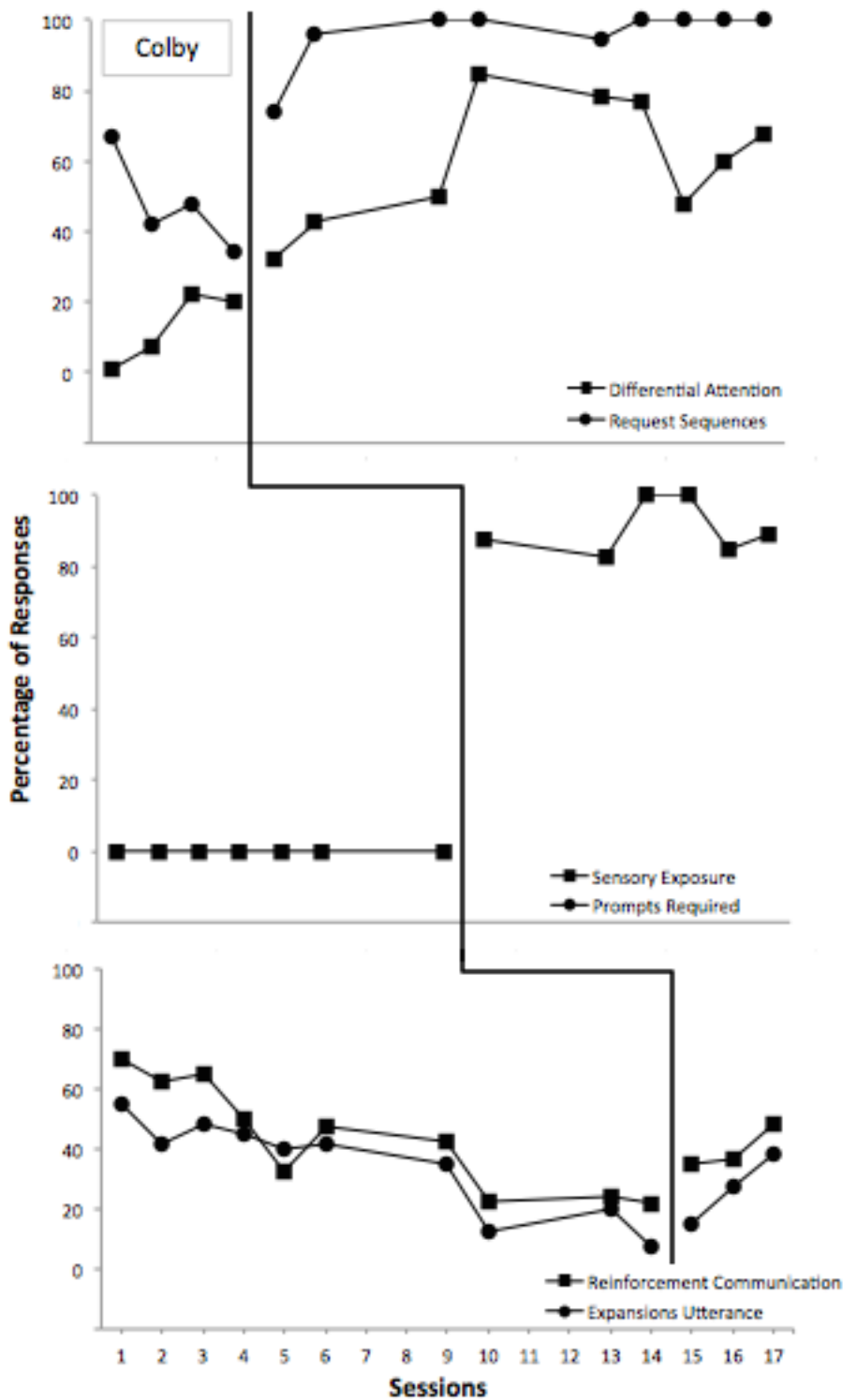
### **Social Validity**

Upon the completion of this study, each participant was administered a social validity questionnaire. The aim of the questionnaire was to assess the procedures, goals, and outcomes. There will be opportunity for the participants to relay questions, comments, and/or concerns on the questionnaire. A copy is found in Appendix XX. In accordance with Wolf's (1978) discussion of social validity, the questionnaire for this study addressed effectiveness, appropriateness and impact of goals, procedures and effects (Wolf, 1978).

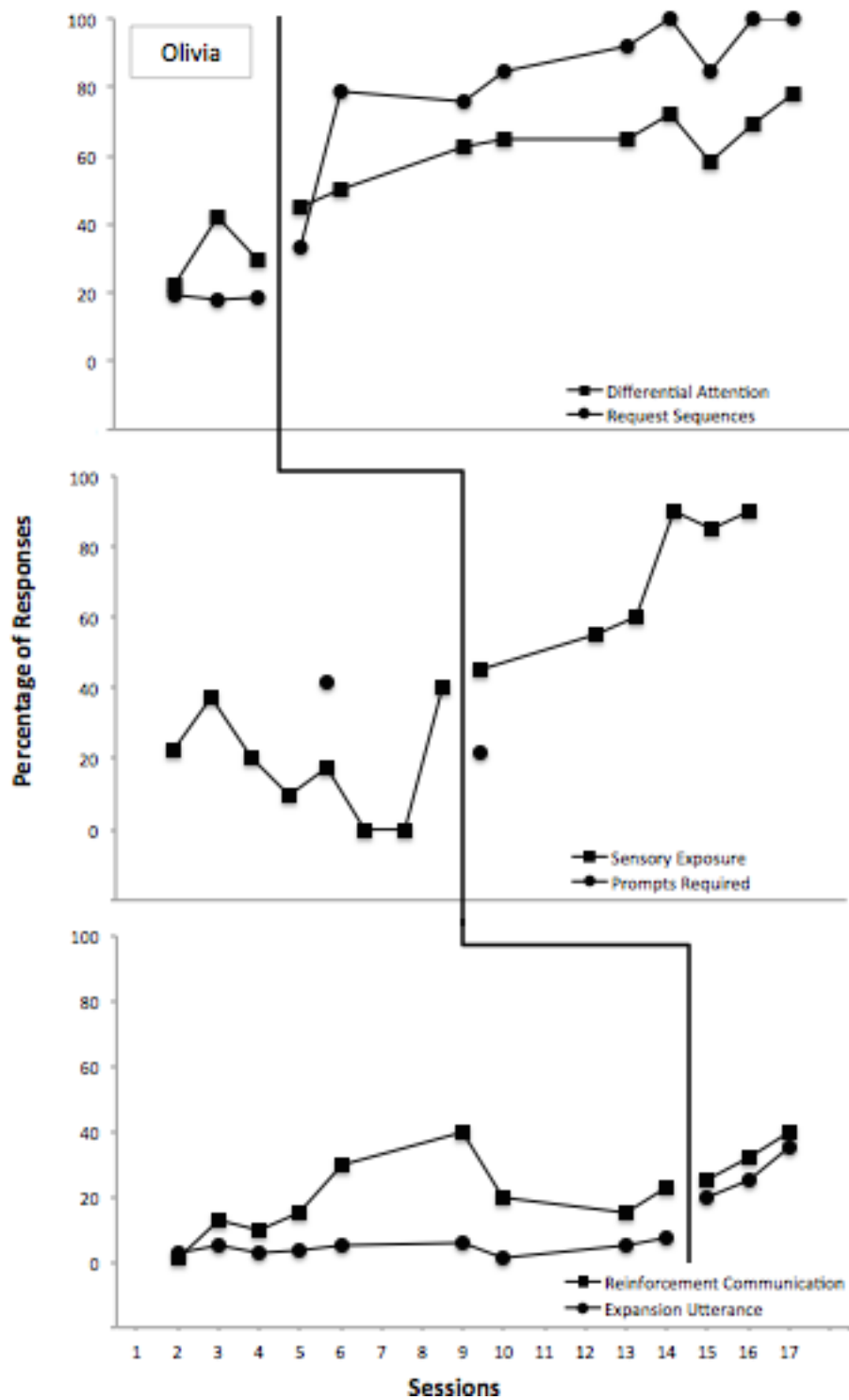
### **Results**

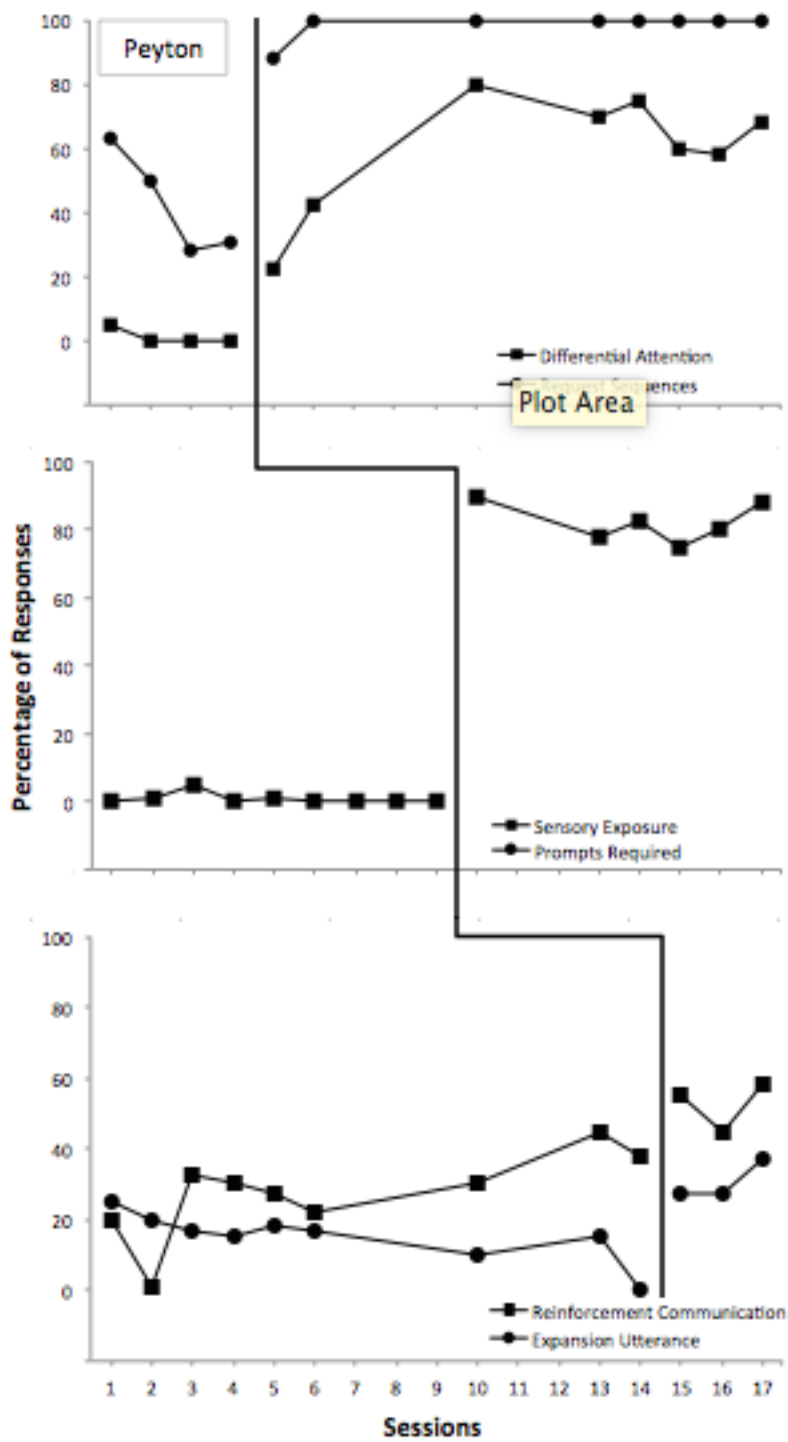
The purpose of this study was to evaluate the effectiveness of an interprofessional merged treatment package among first year graduate clinician within the setting of the Inter-professional Autism Clinic at James Madison University. Three clinicians from three separate disciplines were trained on two goals from each discipline; OT SLP ABA. During the first four weeks of research baseline data were recorded on each of the three participants during their respective therapy sessions; data were recorded on each of the three disciplines for the three participants. Upon the fifth week the first training intervention was implemented across the three participants, training consisted of the applied behavior analysis procedures. On the eighth week the second training consisted of occupational therapy procedures. On the thirteenth week, the third intervention was implemented across the three participants, training consisted of the speech and language pathology procedures.

Figure One:









**Colby**

Baseline data for Colby regarding the ABA goals shows a decreasing trend at a mid-level for request sequences and a slightly increasing trend at a low level for differential attention. After ABA intervention there is a distinct increase in both procedures. Request sequences increased forty percentage points, to a high stable level from baseline to the first intervention point, while differential attention increased twelve percentage points to a mid-level with a proceeding increase in trend. Through the first leg of intervention request sequences reached a ceiling at one-hundred percent on the third week after ABA training.

The OT goals during baseline showed no data due to there being zero instances of sensory exposure, therefore resulting in zero opportunity to observe any prompts required. After intervention strong experimental control was observed with Colby exposing the client to sensory experiences in 87.5 % of intervals. The client showed zero prompts required resulting in no opportunity for a data points. After OT intervention Colby's implementation of procedures increased to 87.5 %. Through the remaining data collection Colby showed stable responding at a high rate.

During SLP baseline Colby showed decreasing trends at mid levels in both goals; reinforcement for communication and expansions of utterance. After intervention Colby's implementation of SLP procedures show an increase of skills along an increasing trend.

**Olivia**

Baseline for Olivia regarding the ABA procedures show a low-level with no trend for request sequences and variable data at a mid-level for differential attention. After

ABA intervention there is an increase in both goals. Request sequences increased sixty-one percentage points on the second week of intervention to a high level with an increasing trend. Differential attention went from a low-stable level in baseline to a high level with an increasing trend after intervention.

The OT goals during baseline showed a low-level with a slight increasing trend for sensory exposure, and little occurrence for prompts required with the exception of one outlier data point at a mid-level. After intervention Olivia's use of OT procedures increased over the first three weeks to her highest data point, 90%.

During SLP baseline Olivia showed low levels in both goals; reinforcement for communication and expansions of utterance. After SLP intervention Olivia's use of procedures is on an increasing trend.

### **Peyton**

Baseline for Peyton regarding the ABA procedures show a low-level (three data points were recorded at zero) for differential attention with no trend and a mid-level for request sequences with a decreasing trend. After ABA intervention there is a distinct increase in both goals. Request sequences increased fifty-seven percentage points to an high level with an increasing trend. On the second week of ABA intervention Peyton reached one-hundred percentage points for request sequences, which continued into week two post-intervention. Differential attention increased twenty percentage points to a mid-level with an increasing trend.

The OT goals during baseline showed infrequent sensory exposure; the highest data point reached five percent. Immediately following intervention, Peyton implemented sensory exposure in 90% of intervals and the client showed zero percent

prompts required. After OT intervention Peyton's use of procedures increasing to 90% and stayed at a high stable level of responding.

During SLP baseline Peyton showed a stable low level with a slight decreasing trend for expansions of utterance and data at a low level with a slight decreasing trend for reinforcement for communication. After SLP intervention Peyton increased her implementation of SLP procedures, showing experimental control.

The training procedures required that participants meet a mastery criterion of 85% or higher of proper implementation of goals, all three participants met this. Each participant met mastery through role-play sessions. Implementation for home field goals was considered mastered through comparison to pre-training levels.

Interobserver agreement was calculated on thirty-three percent of observations, this was accomplished by sticking to a strict observation schedule. For each goal there was adequate level of agreement of 85 % (Differential Attention = 90 %; Request Sequences 93%; Prompts required 100%; Sensory Exposure 88%; Expansions of Utterance 89%; Reinforcement for Communication 90). This speaks to the integrity of the definitions and data collection methods. IOA was calculated point by point per interval per goal for occurrence and non-occurrence of goals. IOA was calculated in this way due to the difference in occurrences of goals per participant. Some participants implemented goals at a higher rate of occurrence while others implemented goals at a lower rate of occurrence. IOA was calculated in this was in order to appropriately compare the reliability of the occurrence and non-occurrence of the implementation of the goals.

## **Discussion**

The present study trained three, first year graduate clinicians from different disciplines; OT, SLP, and ABA. Our experimental goal was to assess the feasibility of utilizing a merged treatment protocol. In other words, was it possible to train students on the procedures used by other disciplines to deliver a more encompassing treatment package? If it proved to be possible what were the best methods in terms of training and coaching? The development of a merged training protocol was necessary in order to implement future replications of merged treatment packages in the Interprofessional Autism Clinic.

Overall, therapists were able to implement goals from other disciplines into their respective treatment sessions. All three participants increased their use not only of their respective disciplines but the newly trained disciplines as well. The bug-in-the-ear coaching technique played a pivotal part in the participants being able to acquire the new skills in-vivo. After coaching sessions the participants were eager to ask for more advice and at times even requested more coaching on skills they felt they were performing poorly in. This study focused primarily on training two goals from each field and the implementation of these goals were supervised by the respective licensed professionals during treatment sessions. Experimental control was observed by the immediate and distinct positive change in implementation of the skills following training across the participants and across disciplines.

There has been a call for merged treatment procedures (Akerson, Hammond, Hargens, O'Donoghue, Stanford, Stewart & Stokes, 2013). As the Interprofessional Autism Clinic moves towards a truly interprofessional merged approach the need for a training protocol grows, this study aimed to address this issue. There have been many

different models of merged treatment in existence across a range of disciplines. OT, SLP, and ABA are recognized therapies for ASD and are recommended by several organizations (CDC, 2013). The specific goals used in this project from each discipline were carefully selected based on the needs of the client and the clinic after extensive consultation with the licensed professionals. In the future, the clinic plans for a systemic training procedure to exist to determine the effectiveness of students' acquisition of extra-disciplinary knowledge (White et al 2014). The findings from this research project will help outline a protocol for future skill training among therapists across disciplines.

James Madison University places a heavy emphasis on inter-professional collaboration, a task force was established to assess the quality of inter-professional education for JMU students (Akerson, Hammond, Hargens, O'Donoghue, Sanford, Stewart & Stokes 2013). This group supported interprofessional collaboration in clinical practice for faculty and students. Another example of inter-professional collaboration at JMU would be within the Communication Sciences and Disorders program during their Summer Autism Clinic. Speech and Language students are educated on the application of Applied Behavior Analysis techniques and provided with training and the opportunity to practice their skills first hand in the clinic (live) with clients (The speech-language-hearing applied laboratory, 2013). Both the Interprofessional Autism Clinic and the Summer Autism Clinic are utilizing collaborative approaches to focus on specific targets within therapy to treat the core deficits of autism. A working protocol was developed based on the needs of the Interprofessional Autism Clinic and the push for interprofessional education at JMU (Akerson, Hammond, Hargens, O'Donoghue, Stanford, Stewart & Stokes, 2013).

The importance of the findings of the current study are not only important for the operation of the clinic but also to support the need for training for paraprofessionals that work with children on the Autism Spectrum. In this study the graduate clinicians acted in a similar way to paraprofessionals, providing many different services delivered simultaneously. Previous literature demonstrates the ability for individuals from different fields to enhance their repertoire with expert input and coaching (Bethune & Wood 2013; Laws, Brown, Epstein & Hocking, 1971). The present study supports the previous findings and shows success enhancing ones repertoire and successfully implementing therapy goals from other disciplines.

The graduate clinicians selected to participate in this study were all first year students, in their second semester of graduate work, and their first semester participating in the clinic. The students were all supervised by licensed professionals from their respective fields and all of the students had prior work experience outside of the clinic within their respective fields and working with children on the Autism Spectrum. It is important to note that none of the students had any training in other disciplines outside of their home discipline.

During activity rotation within the clinic the clinicians are free to move about and observe each other's therapy sessions. For example, the ABA students are able to observe the OT and SLP sessions. This could have created a confound to training in a way that observing may lead to untrained learning. The clinic supports and encourages interprofessional collaboration in this way, along with allowing students to move about freely to observe the licensed professional work one-on-one with the clients. There is also the opportunity for collaborative meetings where goals are shared among all of the



students from every discipline who work with the client, unintended learning could have also happened in this instance. During these instances student clinicians are free to observe, take notes, collect data, and interact with one another as they choose.

Another limitation of the present study is the fact that all of the trainings were conducted by a student from the ABA program. The training procedure should be discussed in further depth to explore the idea of involving student clinicians from every discipline in the training rotation. More specifically, if the licensed professional from each discipline had the responsibility of training the students from their own discipline, training would be more comprehensive. This would allow for the newly trained students to then train the students from the other two discipline areas. Students from specific disciplines would prove to be more effective trainers than a student who is still learning how to incorporate skills from other disciplines themselves. Training was implemented serially across disciplines. This allowed for the participants to focus on learning skills from each discipline one step at a time, as not to become overwhelmed while allowing time for the participants to hone their skills one discipline at a time. Participants attended each training as a group. This allowed for collaboration among the participants as they were able to ask each other questions and learn from one another. This was an interesting aspect of the present study. Learning occurred during the training sessions between the student clinicians. Collaboration among the participants was not discouraged. Participants asked each other questions, role-played with each other, and even asked for advice from the other participants.

Observations occurred during the regular therapy times for the respective disciplines. In order to capture a truly interprofessional collaborative approach it would

be more advantageous to track data during a session where the three disciplines are working together with the child. For instance, during time spent in the sensorimotor room one student from each discipline works with the child (1 child to 3 therapists). It would be advantageous to future studies to consider time for observations to include therapy sessions in which student clinicians from each discipline work collectively with the client. This would allow for a truly collaborative approach where student integration of procedures within the same environment could be observed and skill development could be more accurately assessed.

The three separate intervention phases of the study demonstrated experimental control within participants across disciplines. The immediate increase in the use of ABA skills after training, and lack of change in OT and SLP goals indicates that the immediate change was due to the implementation of the training. This happened across all three of the training sessions.

The impacts of the ABA and SLP goals may not have been mutually exclusive, meaning that the SLP goal of reinforcement for communication could have been scored as the ABA goal differential attention and vice versa. There are instances in the graphed data that showed the data paths following one another. This could have been controlled for with clearer definitions that would have ruled out the occurrence of the overlap. Another way to control for the overlap would have been to choose different goals that did not overlap with one another. The overlap of the goals was not seen as negative. In collaborative practice it is the goal of the clinicians to incorporate procedures related to as many goals as possible during therapy. If there was overlap within the goals it was easier for the clinician to integrate more than one goal within their therapy sessions.

This study focused on skill acquisition among clinicians. This study did not focus on generalization of skill acquisition across environments or extended time (Stokes & Baer, 1977). Data were taken at the same time, on the same day, during the same setting each week. This could be considered to be a limitation of the present study. For truly collaborative practice with skills that have been truly learned, the clinicians should be able to generalize across settings to demonstrate proficiency. It would be advantageous of future studies to focus on skill generalization across settings among the clinicians. It would also lend support to the effectiveness of collaborative practice and strengthen the argument for the need for more collaborative practice.

Along the same lines of skill generalization would be child outcomes. This study supports the fact that different skills can be learned and implemented across disciplines, but there are no data in this present study to support whether or not the client benefits from an interprofessional approach versus a traditional approach. A study that focuses on child outcomes would lend support to the need for interprofessional collaboration.

Interprofessional collaboration was at the heart of this study even though the training and data collection methods could be considered biased. The main trainer was an ABA student along with the observers. In an ongoing interprofessional training program it would be beneficial to the program to not only include other student clinicians (OT and SLP) in training, but also in data collection. In the present study, students would have benefited in their education if those from the other disciplines assist with training as well as data collection.

This study obtained useful data that will aid in creating a training protocol for the Interprofessional Autism Clinic as well as help further future research on the topic of

interprofessional collaboration. The six chosen goals for this study were all trained to a mastery criterion of 85% and showed immediate positive changes after intervention.

Training was an important aspect of this study along with coaching. Coaching played a pivotal role in keeping the participants engaged and active with their use of the trained skills.

## References

- Akerson, E., Hammond, J., Hargens, T., O'Donoghue, C., Sanford, J., Stewart, A., & Stokes, T. (2013). White paper: the state of interprofessional education (IPE) in the college of health and behavioral studies. Unpublished document, Interprofessional Education Taskforce, James Madison University, Harrisonburg, VA
- American Occupational Therapy Association. (2004). Definition of occupational therapy practice for the AOTA Model Practice Act. (Available from the State Affairs Group, American Occupational Therapy Association, PO Box 31220, Bethesda, MD 20824-1220. E-mail: stpd@aota.org)
- American Occupational Therapy Association. (2009). Scope of practice. Commission on Practice 2009 (Ed.), The reference manual of the official documents of the American Occupational Therapy Association, Inc.. Retrieved from <http://www.aota.org/~media/Corporate/Files/Practice/OTAs/ScopeandStandards/ScopeofPracticeedited2009.ashx>
- American Occupational Therapy Association. (2014). Occupational therapy practice framework: Domain and process. *American Journal of Occupational Therapy*, 62, 625-683.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- American Speech-Language-Hearing Association. (2006). Roles and responsibilities of speech-language pathologists in diagnosis, assessment, and treatment of autism

spectrum disorders across the life span [Position Statement] Available from  
[www.asha.org/policy](http://www.asha.org/policy)

American Speech-Language-Hearing Association. (2007). Scope of practice in speech-  
language pathology [Scope of Practice]. Available from  
<http://www.asha.org/policy/SP2007-00283/>

Baer, D.M., Wolf, M.M. & Risley, T.R. (1968). Some current dimensions of applied  
behavior analysis. *Journal of Applied Behavior Analysis*, 1, 91-97.

Bethune, K. S., & Wood, C. L. (2013). Effects of Coaching on Teachers' Use of  
Function-Based Interventions for Students With Severe Disabilities. *Teacher  
Education and Special Education: The Journal of the Teacher Education Division  
of the Council for Exceptional Children*, 36(2), 97-114.

Blumberg, S. J., Bramlett, M. D., Kogan, M. D., Schieve, L. A., Jones, J. R., & Lu, M. C.  
(2013). Changes in prevalence of parent-reported autism spectrum disorder in  
school-aged u.s. children: 2007 to 2011-2012. *National Health Statistics Reports*,  
65, 1-7.

Campbell, P. (1987). The integrated programming team: An approach for coordinating  
professionals of various disciplines in programs with severe and multiple  
handicaps. *Journal of the Association for Persons with Severe Handicaps*, 12(2),  
107-116.

CDC- Centers of Disease Control and Prevention. (2013, June 27). Autism spectrum  
disorders (asds): Data & statistics. Retrieved from  
<http://www.cdc.gov/ncbddd/autism/data.html>

Charlop-Christy, M. H., Carpenter, M., Le, L., LeBlanc, L. A., & Kellet, K. (2002).

- Using the picture exchange communication system (PECS) with children with autism: Assessment of PECS acquisition, speech, social-communicative behavior, and problem behavior. *Journal of Applied Behavior Analysis*, 35(3), 213-231.
- Cup, E., Pieterse, A., Knuijt, S., Hendricks, H. T., van Engelen, B. G., Oostendorp, R. A., & van der Wilt, G. J. (2007). Referral of patients with neuromuscular disease to occupational therapy, physical therapy and speech therapy: usual practice versus multidisciplinary advice. *Disability Rehabilitation*, 29(9), 717-726.
- Eyberg, S. (2010). Abridged manual for the dyadic parent-child interaction coding system, 3<sup>rd</sup> ed. Prepared by the Child Study Lab, University of Florida.
- Eyberg, S. M., Nelson, M. M., & Boggs, S. R. (2008). Evidence-based psychosocial treatments for children and adolescents with disruptive behavior. *Journal of Clinical Child and Adolescent Psychology*, 37(1), 215-237
- Hyman, S. (2013, June 4). New dsm-5 includes changes to autism criteria. *The Official Newsmagazine of the American Academy of Pediatrics*, Retrieved from <http://aapnews.aappublications.org/content/early/2013/06/04/aapnews.20130604-1.full.pdf>
- Kazdin, A. (2011). *Single-case research designs: Methods for clinical and applied settings*. (2 ed.). New York, NY: Oxford University Press.
- Kohler, F. W. (1999). Examining the services received by young children with autism and their families a survey of parent responses. *Focus on Autism and Other Developmental Disabilities*, 14(3), 150-158.
- Korner, M. (2010). Interprofessional teamwork in medical rehabilitation: a comparison of multidisciplinary and interdisciplinary team approach. *Clinical Rehabilitation*,

24(8), 745-755.

- Laws, R. D., Brown, R. A., Epstein, J., & Hocking, N. (1971). Reduction of inappropriate social behavior in disturbed children by an untrained paraprofessional therapist. *Behavior Therapy*, 2(4), 519–533.
- Lord C., Rutter, M., DiLavore, P.C., Risi, S. (2012). *Autism diagnostic observation schedule (Ados-2)*. Los Angeles, California: Western Psychological Association.
- Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of consulting and clinical psychology*, 55(1), 3.
- Parsonson, B.S. (2003). Visual analysis of graphs: Seeing is believing. In K. S. Budd & T. Stokes, (Eds). *A Small Matter of Proof: The Legacy of Donald M. Baer*. (Pp. 35–51). Reno, NV: Context Press.
- Simons, E., White, H., Longerbeam, M. & Stokes, T.F. (2014, May). Merge of Behavior Analysis Procedures into a Speech-Language Pathology Autism Clinic Poster presented at the 40th annual convention of the Association for Behavior Analysis International, Chicago, IL.
- Stokes, T. F. & Baer, D. M. (1977). An implicit technology of generalization. *Journal of Applied Behavior Analysis*, 10, 349-367.
- White, W., Stokes, T.F., Simons, E., Longerbeam, M., Richardson, E. and Zinn, T. (2015, April). Interprofessional practice to implement core techniques from three disciplines: OTSLPABA. Poster presented at the 11 th Annual Conference of the Virginia Association for Behavior Analysis, Charlottesville, VA.
- Wisconsin Indian head technical college occupational therapy assistant student



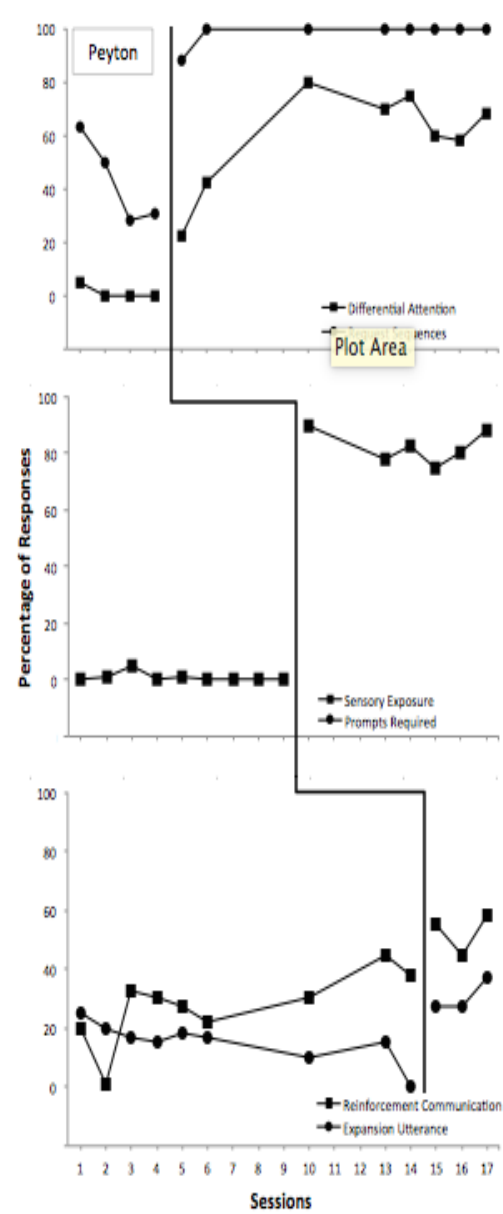
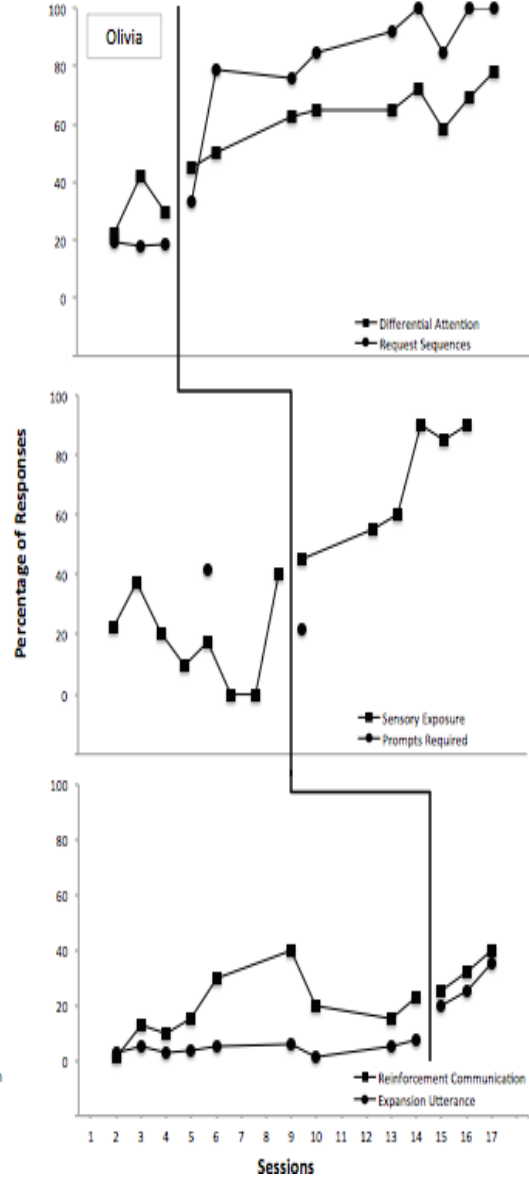
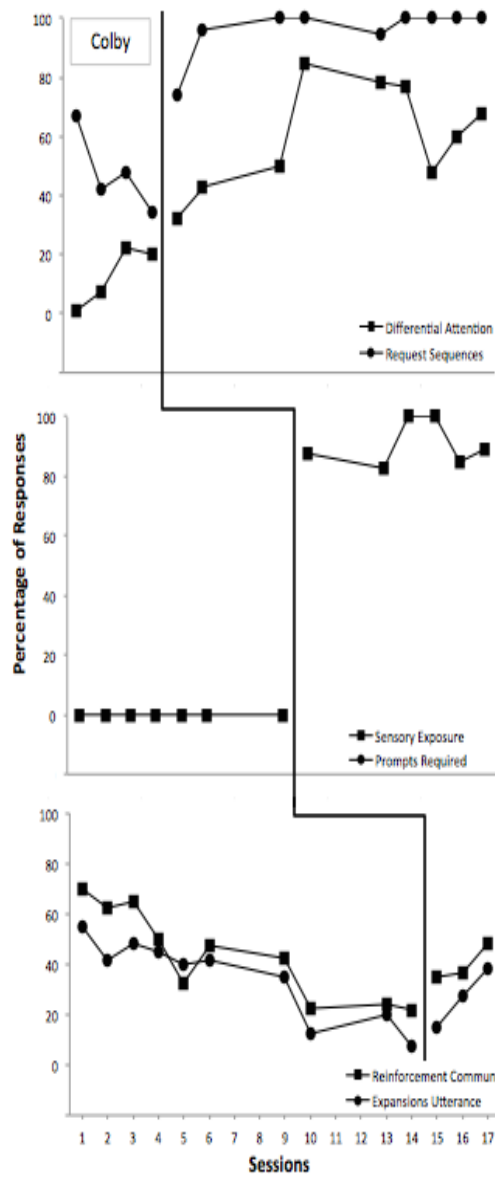
handbook. (pp. 1-5). Retrieved from  
[http://www.witc.edu/pgmpagescontent/ota/handbook/pdfs/i-OTA  
practice\\_definitions.pdf](http://www.witc.edu/pgmpagescontent/ota/handbook/pdfs/i-OTA_practice_definitions.pdf)

Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis*, 11, 203-214.

Woodruff, G., McGonigel, M. J., Council for Exceptional Children, R. A., & ERIC Clearinghouse on Handicapped and Gifted Children, R. A. (1988). *Early Intervention Team Approaches: The Transdisciplinary Model*.

World Health Organization. (2010). *Framework for action on interprofessional education & collaborative practice. Health Profession Networks Nursing & Midwifery Human Resources for Health*. Retrieved from  
[http://whqlibdoc.who.int/hq/2010/WHO\\_HRH\\_HP\\_N\\_10.3\\_eng.pdf](http://whqlibdoc.who.int/hq/2010/WHO_HRH_HP_N_10.3_eng.pdf)

Youngstrom, M., Brayman, S., Anthony, P., Brinson, M., Brownrigg, S., Clark, G., Roley, S., Sellers, J., Van Slyke, N., Desnarausm S., Oldham, J., Radomski, M. & Hertfelder, S. (2002). Occupational therapy practice framework: domain and process. *The American Journal of Occupational Therapy*, 56(6), 609-639.



### Appendix A: Social validity Questionnaire

Name \_\_\_\_\_

Date: \_\_\_\_\_

Questions for Participants to Answer	Agree	Somewhat Agree	Neutral	Somewhat Disagree	Disagree
<b>Appropriateness of Procedures</b>	5	4	3	2	1
1. The written materials were easy to read and understand.					
2. My coach understood and communicated procedures and techniques effectively.					
<b>Social Significance of Goals</b>	5	4	3	2	1
4. I would recommend a similar training to other practicum students.					
5. It is important to learn techniques such as these to teach children new skills.					
<b>Social Importance of the Effects</b>	5	4	3	2	1
6. I learned many beneficial skills during this training.					
7. I would like the opportunity to use these skills to assist in therapeutic activities.					

**Appendix B: Data Forms**

*Occupational Therapy Data Forms.*

Date:                      Observer #:                      Participant #:                      Condition:    Baseline    Treatment                      IOA: Yes No

Minute	1				2				3				4				5				6				7				8				9				10							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Interval																																												
Sensory Exposure																																												
Prompts required																																												
Prompt																																												
Full																																												
Partial																																												

Date:                      Observer #:                      Participant #:                      Condition:    Baseline    Treatment                      IOA: Yes No

Minute	1				2				3				4				5				6				7				8				9				10											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
Interval																																																
Sensory Exposure																																																
Prompts required																																																
Prompt																																																
Full																																																
Partial																																																

*Speech Language Pathology Data Forms.*

Date:                      Observer #:                      Participant #:                      Condition:    Baseline    Treatment                      IOA: Yes No

Minute	1				2				3				4				5				6				7				8				9				10							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Reinf. For Com.	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Expan. Of Utternaces																																												
Diff. Attention																																												

Date:                      Observer #:                      Participant #:                      Condition:    Baseline    Treatment                      IOA: Yes No

Minute	1				2				3				4				5				6				7				8				9				10							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Reinf. For Com.	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Expan. Of Utternaces																																												
Diff. Attention																																												

*Applied Behavior Analysis Data Forms.*

Date:                      Observer #:                      Participant #:                      Condition:    Baseline    Treatment                      IOA: Yes No



## Appendix C: Training Document

**Premise of this Training:** There are 6 goals we will focus on in this training that are used at IPAC: 2 goals from Occupational Therapy, 2 goals from Speech and 2 goals from Applied Behavior Analysis. We will merge these in your sessions following this training.

### Throughout Session Goals:

1. OT- Sensory Exposure: Presenting new stimuli more often and presenting a variety of different stimuli relating to different senses.

**Vestibular Stimuli** – Balance. Anything that will make the student interact in unlevel surfaces. Changes in head movement through space also.

*Examples: Flying through the air, flipping, jumping.*

**Proprioceptive** – putting pressure on the student's joints.

2. SLP- Access following a communication outcome: The clinician delivers a reinforcer (detailed below) only after the child responds verbally or nonverbally to a question, direction or activity involving a specified speech goal (below).

**Reinforcers:** Items the child likes or gravitates toward.

Verbal approval- ie "great job", "awesome!"

Positive touch- ie high fives, pat on the back.

**Communication outcomes:** Verbal or nonverbal responses to questions or activities involving

Prepositions- on, under, on top, in between, in, beside

Pronouns- he, she, they

Ownership- hers, his, theirs

*Example: Clinician: "Put the red block in between the squares"*

*Child puts the block in between.*

*Clinician: "Wonderful!"*

3. ABA- Differential Attention: The clinician delivers a reinforcer (described above) when the child complies/attempts to comply to commands or answers/attempts to answer questions. Reinforcers are also delivered if the child attends to the same activity as the clinician with joint attention (defined below). Also, the clinician withholds reinforcers when the child is non-compliant and doesn't answer questions.

**Joint Attention-** an uninterrupted 3-point gaze.

*Example: child looks at an object, looks at the clinician then back at the object without looking at other things or people during this gaze.*

### If...then Goals:

1. OT- Prompt Through Prompts required: When a stimulus is presented to the child and the child is resistant to interacting with the stimulus (defined below), the clinician is to wait five seconds to allow the child to engage with the stimulus. If the child does not engage, the clinician is to prompt the child to engage. *If the child is resistant, then the clinician prompts him.*

**Prompts required-** when the child engages in behaviors that create distance from the stimulus, turning away, verbal refusal, or distressed facial expressions when

prompted to engage or currently engaging in an activity involving sensory input, including movement.

**Prompting-** the clinician touches the body part of the child that is intended to interact with the stimulus.

2. SLP- Expansion of Utterance: When the child talks, the clinician repeats back what the client says and/or expands on that phrase or word to give him a model. This hopefully will increase his language use. *If the child talks, then the clinician repeats or expands what he said.*

**Reauditorization:** Saying exactly what the client says- adding nothing to it nor taking anything away.

**Expansion:** Saying what the client says and adding additional words to it to enhance the meaning.

3. ABA- Opportunity to Comply: When the clinician gives a direction or asks a question, the clinician waits 5 seconds (not talking nor touching the client). This allows the client to process the demand and appropriately respond. *If the clinician asks a question or gives a command, then he/she waits 5 seconds.*





### **Consent to Participate in Research**

#### Training Graduate Clinicians to Implement Occupational Therapy, Speech Language Pathology and Applied Behavior Analysis Goals in Their Treatment Session Supervised by Licensed Clinicians

Principal Investigator: Courtney Powers  
powersce@dukes.jmu.edu

### **Identification of Investigators & Purpose of Study**

You are being asked to participate in a research study conducted by Courtney Powers and faculty from James Madison University. The purpose of this study is to investigate different methods of training in the implementation of goals from multiple fields to determine which methods are most effective in yielding desirable outcomes. This study will contribute to the researcher's completion of her master's thesis.

### **Research Procedures**

Should you decide to participate in this research study, you will be asked to sign this consent form once all your questions have been answered to your satisfaction. This study consists of reviewing goals and procedures from other fields. All materials and training will be provided as part of the activities of the Inter-Professional Autism Clinic (IPAC). After reviewing the training materials, you will participate in role-playing of procedures with other graduate students before working toward a level of performance considered good practice by the licensed supervising therapists. After you have reached a comfortable level of practice, you will be asked to perform goals with a child in the clinic. While working with this client, you will be receiving prompt feedback after your session. You will be able to review your performance at the end of each session.

### **Time Required**

Participation in this study will require about 2 to 3 hours of your time per week for approximately 8 to 20 weeks.

## Risks

The investigator perceives that this research involves no more than minimal risk. The following are possible risks arising from your involvement in this study:

- You may be uncomfortable with direct observation in the beginning of the study, although previous research has shown that such discomforts are usually temporary.
- There is a small risk of interacting with a child who exhibits aggressive behavior that may result in a minor injury from a hit, bite or scratch. The investigative team will do their best to have participants work with children who have very little or no history of aggressive behavior. If there is unpredictable problem behavior, people on the investigative team have been trained to deal with this quickly and will step in to manage the situation. These risks are no greater than the risks involved in your practicum activities.

## Benefits

The main potential benefit from participation in this study is to improve your skills in therapeutic interaction with young children on the autism spectrum. The research will also help JMU develop collaborative goals for IPAC to develop a protocol that is most effective in delivering intensive and high quality services to children with autism and their families.

## Confidentiality

The results of this research will be presented at the investigator's thesis committee meeting in which the thesis will be defended, and will be presented at the Psychological Sciences Symposium. The research may be presented and published at academic conferences and journals. The results of this project will be coded in such a way that the participant's identity will not be identified. All data will be stored in a secure location without names attached and accessible only to the research team members.

## Participation & Withdrawal

Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind. Your practicum placement and training at the Inter-Professional Autism Clinic will not be affected by whether you agree or decline to participate in this research.

## Questions about the Study

If you have questions or concerns during the time of your participation in this study, or after its completion or you would like to receive a copy of the final aggregate results of this study, please contact:

Courtney Powers  
Psychological Sciences  
James Madison University  
powersce@dukes.jmu.edu

Trevor Stokes  
Baird Center  
James Madison University  
Telephone: (540) 568-8829  
stokestf@jmu.edu

**Questions about Your Rights as a Research Subject**

Dr. David Cockley  
Chair, Institutional Review Board  
James Madison University  
(540) 568-2834  
[cocklede@jmu.edu](mailto:cocklede@jmu.edu)

**Giving of Consent**

I have read this consent form and I understand what is being requested of me as a participant in this study. I freely consent to participate. I have been given satisfactory answers to my questions. The investigator provided me with a copy of this form. I certify that I am at least 18 years of age

\_\_\_\_\_  
Name of Participant (Printed)

\_\_\_\_\_  
Name of Participant (Signed)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Researcher (Signed)

\_\_\_\_\_  
Date



ALVIN V. BAIRD ATTENTION AND LEARNING DISABILITIES CENTER

Approved and recommended for acceptance of this thesis proposal in partial fulfillment of the requirements for the degree of Master of Arts.

Special committee directing the thesis work of Courtney Powers

\_\_\_\_\_  
Trevor Stokes

\_\_\_\_\_  
Date

\_\_\_\_\_  
Marsha Longerbeam

\_\_\_\_\_  
Date

\_\_\_\_\_  
Elizabeth Richardson

\_\_\_\_\_  
Date

\_\_\_\_\_  
Tracy Zinn

\_\_\_\_\_  
Date

