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A COMPARISON OF GROUP VERSUS INDIVIDUAL THERAPY ON THE OUTPUT OF APPROPRIATE UTTERANCES IN A SIX-YEAR-OLD GIRL WITH AUTISM: A CASE STUDY

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STUDY

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THESIS
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A thesis submitted in partial fulfillment of the
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at the University of Kentucky

By

McKinzie Craig Sheridan

Lexington, Kentucky

Director: Dr. Judith Page, Associate Professor of Communication Sciences and
Disorders

Lexington, Kentucky

2012

ABSTRACT OF THESIS

A COMPARISON OF GROUP VERSUS INDIVIDUAL THERAPY ON THE OUTPUT OF APPROPRIATE UTTERANCES IN A SIX-YEAR-OLD GIRL WITH AUTISM: A CASE STUDY

Children with autism spectrum disorders typically experience language deficits in multiple areas, including form, content, and use. These children often receive speech therapy with individual sessions (one child and clinician), group sessions (several children), or a combination of both. Although research has deemed individual therapy successful, there is still debate regarding the success of group therapy, and there is virtually no literature examining a comparison between individual and group therapy. The current case-study investigated the relative effectiveness of individual versus group therapy for one six-year-old female with moderate autism spectrum disorder. The child underwent ten alternating therapy sessions of similar structure with consistent language targets during one academic semester. All sessions were transcribed using Systematic Analysis of Language Transcripts (SALT) conventions, and analyzed via the SALT program and Microsoft Excel t-tests. Results indicate that individual sessions yielded larger improvement with syntax and semantics, while group sessions produced greater progress with pragmatics and social skills, suggesting that a combination of both therapy types may be most beneficial. Social validation of group therapy also signified high parent satisfaction with overall growth during the semester. Implications of this study, as well as recommendations for future research and clinical practice are discussed.

KEY WORDS: autism spectrum disorder, individual therapy, group therapy, systematic analysis of language transcripts (SALT), pragmatics

_McKinzie C. Sheridan__

___April 5, 2012_____

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CHAPTER ONE: INTRODUCTION

According to Autism Speaks, the nation's largest autism science and advocacy organization, and the United States Center for Disease Control and Prevention (CDC) 1 out of every 88 American children is diagnosed with autism spectrum disorder (Rice, 2006). This is a significant increase from previous decades, although the exact percentage has been debated. Autism is the fastest growing developmental disability in the United States, and impacts the lives of millions around the world (Autism Speaks, 2012). The most common age for diagnosis is between 2-3 years, but the United States CDC is currently funding and encouraging research to provide earlier diagnoses (Autism Speaks, 2012). Once children are diagnosed with autism, it is important that they are enrolled in speech-language therapy as the most significant deficits of the disorder are often related to communication. Therapy typically addresses the three areas of language, including form (syntax), content (semantics), and use (pragmatics). These goals may be targeted during one-on-one treatment sessions with the child and clinician, or during a group treatment session with multiple children and clinicians. Past research has yielded positive effects from individual therapy, but very little research has examined the value of group therapy or compared it with any alternatives. The current case-study was designed to bridge the gap in current research by investigating the effectiveness of individual versus group therapy for a six-year-old female with autism, and identifying areas that warrant future research.

CHAPTER TWO: REVIEW OF THE LITERATURE

According to the American Psychological Association (2001), autism spectrum disorders are neuro-developmental conditions defined by difficulties in the areas of social functioning and communication with repetitive and stereotyped behaviors and interests. It is clear that individuals with autism have social impairments, but the impact on language extends beyond that of pragmatics (Williams & Minshew, 2010). Although the exact cause of autism is still unknown, there is certainty that the disorder derives from a neurological basis. Past fMRI studies indicate that individuals with autism tend to rely more heavily on lower level processing in the brain, as opposed to higher level processing (Williams & Minshew, 2010). Lower level processes include basic attention, simple memory, sensory perception, and rule-learning; while higher level processes are those such as complex sensory, motor, memory, and language skills. The deficit with higher level processes is made evident by the fact that these individuals show more preference toward visually based styles, which are lower level, than toward verbal language, which is a higher level process (Koshino et al., 2005). Autism has been referred to as a disconnection syndrome by researchers, because information-processing areas in the brain which should function together smoothly and efficiently to perform a task are affected by the disorder, and, therefore, seem disconnected from one another (Williams & Minshew, 2010). In simpler terms, the neurons are organized and composed in a different manner in the autistic brain than in a non-autistic brain. For example, it is difficult for children with autism to learn different categories, because they do not have prototype formations in their brain (Williams & Minshew, 2010). This lack may cause those with autism to become quickly overwhelmed by information because they cannot easily categorize, or sort it, and they are unable to determine the most salient pieces. This is evident during conversation with these individuals, because those with autism will typically look at the speaker's mouth from which the sound is coming,

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instead of looking at the eyes, which may reveal much greater information than the words being spoken (Williams & Minshew, 2010). They are said to have a more idiosyncratic focus than typically developing individuals, and may fixate on characteristics such as color or texture instead of the more important aspects, such as function. As a result of the affinity toward lower level processes and the neuronal disconnection, individuals with autism have a difficult time with language development and communication as a whole (Williams & Minshew, 2010).

The process of language occurs in the left hemisphere of the brain, but studies have shown that the right hemisphere is significantly dominant in the autistic brain. This automatically causes a disconnect when trying to learn language. When a typically developing child is learning language, the environment provides important input (Williams & Minshew, 2010). Most children are around adults or peers who talk and use verbal language on a regular basis, while written language with words and letters is nearly everywhere one may look. The brain of an individual with autism is not able to interpret this environmental input and detect the patterns involved. For instance, these individuals may not be able to discriminate speech from non-speech sounds, detect words within a sentence, or decode the meaning of a word based on surrounding context. Individuals with severe autism may not be able to recognize their own name and demonstrate a lack of preference for their mother's voice (Williams & Minshew, 2010).

It is safe to assume that if these children with autism do not learn language normally, then they will probably not produce it in the same ways as their typically developing peers, and studies have shown that this is indeed the case. Several stereotypical characteristics of autistic speech which illustrate language difficulties include repeating chunks of information, such as a television commercial, at one time, repeating a question instead of answering it, and speaking with unusual prosody.

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Koshino et al. (2005) suggests that one reason for difficulty with language production is the lack of activation of the verbal working memory. The verbal working memory is located in the prefrontal cortex of the left hemisphere, but brains of individuals with autism show more activity in the prefrontal cortex of the right hemisphere, indicating that they process and store all language, whether verbal or written, in the visual areas of the brain (Koshino et al., 2005). One way that children with autism tend to compensate for their poor verbal working memory is through the use of echolalia. While typically developing children go through a period of time of echoing those around them, this behavior often lasts for longer periods of time and is demonstrated more frequently in those with autism (Eigsti et al., 2007). The echo may be of statements made by others, of questions directed toward them, or of random pieces of information heard elsewhere. Regardless, it is highly suspected that this is a self-induced tactic to improve working memory and help individuals with autism to verbally communicate more effectively, since they naturally process all language in the visual areas of their brains. Therefore, individuals with autism benefit greatly from visual input when they are trying to comprehend language and this tactic is commonly taught and utilized during speech therapy for individuals with autism. For most children with autism, therapy is used to teach them proper oral communication skills and the necessary tools for conversation.

Autism is a spectrum disorder, so there may be a wide variety of language deficits present in these children, but Eigsti et al. (2007) found a decreased mean length of utterance and lack of complex utterances to be the most prominent deficit. Interestingly, in this study of children up to the age of five, nearly all had lexical knowledge equal to or greater than that of their typically developing peers, a characteristic that Eigsti et al. (2007) attributed to their increased short and long term memory. Although they have an underactive verbal working memory, children with

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autism have impeccable ability to remember information once it is learned and stored properly (Eigsti et al., 2007).

Since these children do have a large lexical vocabulary, the goals of therapy will be to teach them how to combine the words in a meaningful and grammatically correct fashion, how to use them properly, and how to understand discourse. This is most often done in a one-on-one setting with the child and the therapist. These individual sessions consist of a great deal of direct teaching. For maximum effectiveness, the therapist must determine which strategy will be most effective for facilitating language development (Tager-Flusberg et al., 2009).

When children have difficulty with discourse, both receptively and expressively, it is necessary to provide a model for them. One study found that children with autism have the most difficulty with the inferential details of conversation, and they struggle with both asking and answering appropriate and necessary questions (Asberg, 2010). In particular, children with autism have difficulty with "wh-" questions (Hundert & van Delft, 2009). Past studies have found that children with autism can be taught to answer "wh-" questions, but the training usually involves pictures and only one question type at a time. The children are able to transfer their new knowledge to questions without pictures; however, they are unable to generalize the information to the other question types. "When" and "why" questions are thought to be the most difficult of the "wh-" types, because they require the ability to make inferences. In many instances there is not one correct answer to a question of this nature, so it takes higher level skill to determine a plausible answer. Hundert & van Delft (2009) hoped that if children could successfully answer the harder question types, then the easier, more factual, question types would come naturally. However, although the children in their study were trained to answer "why" questions, they still were unable to generalize this ability to other questions (Hundert & van Delft, 2009). This study is one example of how the brain of an individual

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with autism thinks in a very concrete manner. These children are able to learn quickly, and are often very intelligent, but they are unable to think in an abstract fashion and transfer new skills and abilities to other areas. As a consequence, individuals with autism have great difficulty understanding attitudes and emotions of others, because that also requires the ability to make inferences (Longhurst et al., 2010). These characteristics are part of what may make these children seem awkward, insensitive, and different from typically developing peers.

Although there are several distinct syntactic and phonological deficits present in children with autism, studies have found resounding problems involving the use of language (Eigsti et al., 2007). Consequently, one focus of therapy with this group of children must be pragmatics. Since the brain systems that should control social skills do not work properly in the brains of children with autism, it is necessary to train other areas of their brain to accommodate (Longhurst et al., 2010). Eigsti et al. (2007) found that the children with autism were able to take conversational turns and introduce new topics; however they were likely to produce utterances that were unrelated to the current topic, they had a high tendency to echo their own or other's utterances, and they were likely to ignore and fail to respond to questions directed toward them. The children were also likely to produce jargon, which may have been intelligible, but which was inappropriate for the context.

While pragmatic difficulties are often addressed during individual therapy sessions, recent research has begun to examine the effectiveness of group therapy. The idea of group therapy is relatively new, because the prevalence of the diagnoses is increasing, meaning there are enough children with autism spectrum disorders to place into groups (Longhurst et al., 2010). When working on the social aspect of language, it makes sense to place the children in a social situation with other children and target the objectives as a group. A group of parents interviewed by Duncan & Klinger (2010) noted

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that social skills and the ability to interact with others were among the greatest challenges for their children with autism. The parents reported that their children often had one-sided conversations with peers, displayed inappropriate behavior in social situations, experienced difficulties with peer rejection, and had trouble interpreting nonverbal and verbal communication cues. Because these problems have been found to lead to conditions such as extreme anxiety and depression in some older children, it is important to address them early (Duncan & Klinger, 2010).

Many approaches have been suggested for teaching proper social skills, such as incidental teaching, social stories, and role-playing. Incidental teaching is frequently used, and this involves direct instruction about how to handle specific social problems. Social stories are short scripts about various social situations, and they provide solutions that can be generalized to other scenarios. Role-playing allows for practice of skills and strategies after direct teaching and modeling by the therapist.

Regardless of the approach of choice, these approaches have all been implemented in the group therapy setting with great success (Duncan & Klinger, 2010). For example, one program, titled "Outside In," meets five days per week and is for both males and females with autism spectrum disorders (Longhurst et al., 2010). The sessions are a place for the children to discuss problems they are currently having, and for their peers to offer helpful solutions. Therapists mediate all of the conversation and activities, and make sure that each individual's sensory needs are met properly (Longhurst et al., 2010). Other social groups incorporate the idea of art therapy, since children with autism are visual learners and concrete thinkers. Art is viewed as a fun activity, and it forces the children to be more abstract with their expression (Cooper & Widdows, 2004). During one particular art therapy group, the therapists posed cognitive-behavioral questions to the group, such as, "When you're frustrated, what do you say to yourself?" (Epp, 2008). The children could then draw a picture to answer the

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question, and the therapists typically received a deeper level of thinking from the child. This art therapy group was analyzed in a study by Epp (2008), with the participants found to exhibit higher assertion scores, as well as decreased internalizing behaviors, hyperactivity scores, and problem behavior scores compared to beginning group therapy. Other studies have shown similar results, but social groups also have the ability to have a larger impact within families. Parents and children both report feeling less alone once they become part of group therapy, and they know that they are cared for by others and appreciated for who they are, despite the circumstances (Longhurst et al., 2010). Sometimes, this may play a role equally important to the actual progress made during therapy.

While there are many studies providing examples of group therapy and promoting it, the idea is relatively new, so the efficacy is still up for debate (Koenig et al., 2009). There is a lack of consistency in outcomes both between and within studies, and methodological differences are very prominent (Lord et al. 2005). It is not clear whether these inconsistencies are a result of experimenting with various strategies, or if they can be attributed to design errors (Koenig et al., 2009). One outstanding problem among many of the group therapy studies is a control group deficit, or overall lack of comparison between group therapy and any alternatives. This deficit is one of the reasons for the present study. In order to have a control group, there would need to be one set of children who were receiving group therapy while another group of children were not receiving group therapy. However, that would essentially be comparing therapy to no therapy, instead of evaluating the effectiveness of group therapy. Another option would be a multi-group design study, which would compare two treatments and not require a control group. One alternative to a multi-group design is to compare both individual and group therapy sessions for the same child. Therefore, the purpose of this study was to investigate the relative effectiveness of group versus individual therapy settings on the

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production of appropriate utterances in a 6-year-old female diagnosed with autism. Although the structure of the sessions differed slightly based on the type of therapy, the language targets and therapeutic tasks remained consistent in order to determine the impact of group and individual therapy sessions, both as separate entities and as a combination, on one child's verbal communicative output.

CHAPTER THREE: METHODOLOGY

Participants

The participant in this study was Nancy, a six year old female diagnosed with moderate autism spectrum disorder. She attended a local Montessori school and was in the first grade. Nancy exhibited an age appropriate level of communication with regards to syntax, however much of her semantics and pragmatics was socially inappropriate. She received speech, occupational, and behavioral therapy services through First Steps for several months as a two-year old, and then continued speech and occupational therapy through Early Start preschool. During this time, Nancy was formally diagnosed with autism. This allowed her to receive additional speech therapy at the University of Kentucky Hospital Outpatient Clinic until the age of six. Following preschool, Nancy was enrolled in the Montessori program with the hope of increasing her social skills, but was only receiving speech-language services from the University of Kentucky. At the time of the study Nancy was enrolled as a client in the University of Kentucky Communication Disorders Clinic and was paired with the researcher, a current graduate student, for speech therapy. The study was conducted during the second semester of therapy between Nancy and the graduate student. The treatment plan consisted of four goals, including the following: Nancy will explain a possible conclusion to a situation described, Nancy will follow two and three step commands of increasing complexity, Nancy will answer questions appropriately and in a timely manner, and Nancy will describe events (from her day or an occasion) including a minimum of two events with supporting details for each event. Nancy and her mother were both made aware of the purpose of the study as well as the minimal risk involved and signed the informed consent prior to the commencement of the study. Nancy was not compensated in any way for her participation.

Materials

Materials used for this study included common children's games, such as Chutes and Ladders and Candy Land, and craft supplies, such as markers, paper, and glue. Additionally, a handheld Sony IC audio recording device and a Sony EVI D30 video recording device were used. The Systematic Analysis of Language Transcripts (SALT) program (Miller, 2010) was used for data analysis, and a three-point scale of appropriateness, the Lamb Sheridan Social Observation (LASSO) Scale, was developed to analyze each of Nancy's utterances. The scale was created by the researcher and a peer while reading the session transcripts and listening to the voice recordings. Both researchers wrote their individual criteria for socially appropriate language, taking into consideration that a child with autism spectrum disorder has difficulty with this skill. The criteria were compared and compiled into one brief description for each point on the scale. According to the scale, a rating of 1 indicates topic maintenance or successful transition to a new topic with a delay of less than two seconds, a rating of 2 indicates an utterance that could possibly relate to the current topic, but the relationship is unclear, or there was at least a two-second delay between utterances, and a rating of 3 indicates an utterance that is completely unrelated to the current topic and does not successfully transition to a new topic, or a delay of greater than three seconds between utterances (see Appendix A for a copy of this scale).

Design

The study was conducted as a single subject alternating treatment design. The order of treatment was counterbalanced with five group sessions and five individual sessions, and the participant always knew which condition was in effect. The independent variables were individual therapy and group therapy, while the dependent variables included the following measures from the SALT program: total utterances, total completed words, mean length of utterance in words, mean length of utterance in

morphemes, number different words, number total words, type token ratio, percent of response to questions, mean turn length, utterances with overlaps, between utterance pauses, between utterance pause time; and one measure from the LASSO scale: topic appropriateness.

Procedure

The study was conducted during one semester of speech therapy in the graduate student clinic at the University of Kentucky. Therapy consisted of twelve one-hour alternating individual and group sessions, in which Nancy was one-on-one with the clinician or was included in a group of five children with autism spectrum disorders and five clinicians respectively. Sessions were all conducted in a similar format and order, consisting of a brief welcome, questions and answers, a game, a craft, and a summary of the day's activities.

During an individual session, the child and clinician would enter the 10' by 11' therapy room and sit at a child-sized table against the right wall. The child would face the ceiling mounted video camera, while the clinician faced the one-way mirror allowing parents and clinical instructors to observe therapy. Approximately five to ten minutes were spent discussing the child's day or recent activities as a conversation warm-up. This welcome time also included looking at and reviewing a marker board on the wall which listed the session's activities so the child would always know what was coming next. The first activity consisted of "wh-" questions written on slips of paper for the child to answer. The questions would support the day's theme, such as a particular upcoming holiday, and were placed in a theme related container as well. The child would pull each slip out of the container until she had both asked and answered five questions. Following questions and answers, the child and clinician would play a game previously chosen by the clinician. The game always had manipulatives that required some sort of conversation, whether it be asking for a game piece or working together to find a solution

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to a puzzle. The last activity was a craft relating to the day's theme. Each craft also included manipulatives used to stimulate conversation, and provided the child with a tangible reminder of the day's activities and theme. The sessions were all concluded with a five to ten minute wrap-up discussion about the activities and what the child enjoyed or disliked most.

As previously mentioned, group sessions were conducted in a similar format and order with minor differences. During these sessions all five children and clinicians entered a large therapy room and the children sat on placemats in a circle on the floor, which was in full view of the video camera. One clinician would lead a welcome song with all the children and show them the marker board containing the agenda for the day. Questions and answers would follow, during which each child would pull a question out of a container and direct it toward another child, whose name was written on the question, until all of the children had asked and answered one question. The next activity was a game that related to the session's theme and required all of the children to communicate with one another, either through conversation or simple encouragement of their participation and behavior. It would typically take place on the floor in the room, but occasionally the children were allowed into the hallway outside for more space. Following the game, the children would sit at a small rectangular table and make a craft that required communication with everyone in the room. Each clinician would hold one item needed for the craft, such as paper, glue, or markers, and the children would have to ask for the desired item while making eye contact with the clinician. Once one child had a particular item, they were encouraged to ask the other children if they needed the same item as well. For instance, if one child had the glue, he or she would then ask the other children if they also needed the glue. This required constant dialogue between everyone in the room. Lastly, the group sessions included a snack before the ending wrap-up, where each child told the group their favorite activity from the day.

All individual and group therapy sessions were audio and video recorded. The sessions were transcribed verbatim using the SALT conventions, and entered into the SALT program for analysis. For the purpose of consistency, only the middle portion of each session (questions and answers, game, craft) was transcribed and analyzed. Pauses greater than 1.5 seconds were entered into SALT in order to measure the number of pauses and pause time. All of the additional dependent variable values, with the exception of topic appropriateness, were automatically generated by the routine analysis function of the program. Following the SALT analysis, a two-tailed t-Test was run through Microsoft Excel on the following variables to determine significance: total utterances, total completed words, mean length of utterance in words, mean length of utterance in morphemes, number different words, number total words, type token ratio, percent of response to questions, mean turn length, utterances with overlaps, between utterance pauses, between utterance pause time. Lastly, all of Nancy's utterances were rated on their degree of appropriateness according to the LASSO scale developed by the researcher.

Interrater reliability was measured for transcription, coding via SALT conventions, and appropriateness ratings. A second researcher listened to the audio recordings of twenty percent of the therapy sessions and transcribed them verbatim. The transcriptions were then compared to the researcher's transcriptions and reliability was found to be 96%. The second researcher also coded the transcriptions using the SALT conventions, which were then compared to the researcher's version and reliability was measured at 98%. Once the original transcriptions were coded with the SALT conventions, they were copied and pasted into the SALT program so there was minimal risk of error involved with inputting the sessions into the program. Finally, both of the researchers also rated the appropriateness of Nancy's utterances using the LASSO 3-point scale. Interrater reliability on this measure was found to be 97%.

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CHAPTER FOUR: RESULTS

Following initial data analysis via the SALT program, mean values were generated for each dependent value, with the exception of topic appropriateness. These mean values were subsequently compared using two-tailed t-tests in Microsoft Excel to test for statistically significant differences. The following variables were found to be significantly different between group and individual therapy, with $p < .05$: total utterances, total completed words, number of different words, number of total words, type token ratio, percent of response to questions, utterances with overlaps, between utterance pauses, and between utterance pause time. The exact *p-values* are recorded in table 1.1.

Table 1.1 Dependent variables found to be statistically significant

Variable	P(T<=t) two-tail	Direction of difference
Total Utterances	0.005	Individual
Total Completed Words	0.004	Individual
Number Different Words	0.002	Individual
Number Total Words	0.003	Individual
Type Token Ratio	0.019	Group
Percent Response to Questions	0.008	Individual
Utterances with Overlaps	0.019	Individual
Between Utterance Pauses	0.052	Group
Between Utterance Pause Time	0.022	Group

The dependent variables found to not be statistically significant include the following: mean length of utterance in words, mean length of utterance in morphemes, and mean turn length. The *p-values* for these variables are recorded in table 1.2.

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Table 1.2 Dependent variables found not to be statistically significant

Variable	P(T<=t) two-tail
MLU in Words	0.142
MLU in Morphemes	0.106
Mean Turn Length	0.454

Topic appropriateness was analyzed separately from the other dependent variables because it was not generated from the SALT program. Percentages of utterances rated under each level of the scale (1, 2, 3) were calculated out of Nancy's total utterances from all sessions of both individual and group therapy. The percentages are listed in table 1.3. The means for each level of the scale were then compared via two-tailed t-test to determine statistical significance between individual and group sessions. It was found that there was a statistically significant difference between the percentages of utterances rated either a 1 (p = .006) or a 2 (p = .001) on the scale with favorable direction toward group sessions, but the percentages of utterances rated as a 3 were not found to be significantly different between the groups (p = .122). The results are recorded in table 1.4.

Table 1.3 LASSO scale percentages per session

Percentage			
GROUP	**1's**	**2's**	**3's**
Session 1	90.5	9.5	0
Session 2	95.2	4.8	0
Session 3	93.1	6.9	0
Session 4	91.2	5.9	2.9
Session 5	87.2	12.8	0
INDIVIDUAL	**1's**	**2's**	**3's**
Session 1	72.7	21.6	5.7
Session 2	80.9	16.9	2.2
Session 3	77	17.6	5.4
Session 4	84.5	15.5	0
Session 5	61.5	31.4	7.1

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Table 1.4 T-test results of LASSO scale percentages

Variable	P(T<=t) two-tail
1's	0.006
2's	0.001
3's	0.122

Each therapy session was also given an overall score of appropriateness, which was developed by multiplying the number of Nancy's utterances by the corresponding rating on the LASSO scale, and then dividing by her total number of utterances. For instance, if one group session consisted of four utterances with a "1" rating and two utterances with a "2" rating, the overall score would be (4x1 + 2x2)/6 = 1.33. A mean was calculated for each individual session and each group session. The means were then compared via two-tailed t-test, with results indicating significantly better scores (p = .001) for the group sessions. Table 1.5 illustrates each sessions overall score, and the t-test results are displayed in table 1.6.

Table 1.5 Overall scores of appropriateness for each session

Session	Score of Appropriateness
Group 1	1.09
Group 2	1.05
Group 3	1.07
Group 4	1.12
Group 5	1.13
Individual 1	1.33
Individual 2	1.21
Individual 3	1.28
Individual 4	1.15
Individual 5	1.46

Table 1.6 T-test results for overall scores of appropriateness means

Variable	P(T<=t) two-tail
Score of Appropriateness	0.01

Social Validation

During an informal interview with Nancy's mother, it became clear that group therapy played a much larger role in her daughter's life than simple statistics may show. Throughout most of Nancy's early childhood, including infancy and toddlerhood, she would scream and try to hide if any other children came near her. In order to help engage her with others, Nancy's mother immediately began looking for a social group following the official autism diagnosis, but they sat through countless playgroups with Nancy screaming and burying her head. Once Nancy was enrolled in school, and welcomed the birth of her baby brother, she warmed slightly to other children, but would only observe their activities from the corner of her eye. She slowly began to participate in parallel play, meaning she would allow another child to play next to her but would not actively include them. Nancy's mother was excited when the researcher and clinical supervisors created a social group at the University of Kentucky Communication Disorders Clinic. However, Nancy was reluctant to participate initially, claiming she did not want to make new friends. Much to her mother's delight, it took only a few sessions before changes became evident. Nancy's imaginary play became more inclusive. Her mother observed her arrange a circle of stuffed animals and replay an entire group therapy session with them, including the opening greeting song during which she would welcome each animal friend. Gradually, Nancy began to include her mother and little brother in these sessions. Nancy's teachers also reported positive changes at school. Nancy was able to calmly sit with other children during circle time, and would attempt to join in activities on the playground. Overall, Nancy's mother indicated she was thrilled with her progress and new found comfort level with social experiences. In fact, Nancy now approaches other unfamiliar children in all environments and introduces herself with no guidance and instruction. Although she may never be socially or emotionally

"normal," her mother expressed the belief that she is developing at a rate much closer to her peers than prior to group therapy, although individual therapy sessions may have had an impact on her social and emotional development as well.

From a researcher and clinician's perspective, Nancy made tremendous strides during the study. At the time of the first group session, she was extremely hesitant and nervous. She spent the majority of two entire sessions clinging to the researcher and unwilling to sit by herself in the circle of children. Once she realized that it was a safe and welcoming environment, she began to relax and enjoy herself. During individual sessions the focus would be on the topic at hand, but often times Nancy would sing the group welcome song to the clinician or ask about the activities for the next group session during the concluding minutes. It became evident that she was growing to love the social experience as well as her new friends. If one of the other children was late, Nancy would be visibly upset until she knew that they were indeed coming. Although positive effects were seen from both individual and group therapy sessions, the parents, teachers, clinicians, and researchers involved would all agree that the largest overall impact appeared to stem from the addition of a social group experience to Nancy's life.

CHAPTER FIVE: DISCUSSION

Overview

The results of this study clearly indicate several key differences between individual and group therapy sessions for a single child with autism spectrum disorder. MLU for both words and morphemes, and mean turn length were the only variables not significantly different between individual and group therapy. Children with autism spectrum disorders often have a decreased mean length of utterance overall, so this result is not surprising (Eigsti et al., 2007).

Regardless of which variables were determined to be significantly different, the current statistical analysis supports previous literature about the focus of individual and group therapy. As stated by Tager-Flusberg et al. (2009), individual therapy sessions are typically used for direct teaching of language, with an emphasis on syntax and semantics. Eigsti et al. (2007) found that the majority of children with autism spectrum disorders had a vast lexical knowledge, so there is little need to teach vocabulary. It is more important to develop an understanding of how the words should be arranged. The dependent variables relating to the form and content areas of language (total utterances, total completed words, number of different words, number of total words) were found to yield more favorable percentages during the individual therapy sessions. Surprisingly, the percent of response to questions was also more favorable during individual sessions, but this could be a result of a higher number of questions asked directly to Nancy. During group sessions, questions were often posed to the entire group, and various children answered each time.

Eigsti et al. (2007) also discussed the importance of pragmatic therapy with children with autism, since they do have such a large vocabulary but have distinct difficulties with the use of language. Group therapy appears to be a more appropriate setting for addressing pragmatic skills because it is more feasible to address social

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language skills with a group of people. As literature predicted, two of the dependent variables relating to the use of language (between utterance pauses, and pause time) had more favorable percentages during group sessions. The only variable that did not follow this expectation was utterances with overlaps. One might anticipate that with improved social use of language comes decreased interruption and overlap, but there is much greater chance of overlapping utterances in a group of ten people than during a session with only one child and clinician. Type token ratio was also found to be more favorable during group therapy, indicating a wider variation in Nancy's vocabulary during these sessions.

Pragmatics was not the only area that progressed during group therapy. One particular goal that was targeted during all therapy sessions was the improvement of "wh-" questions. Hundert and van Delft (2009) discussed the fact that children with autism spectrum disorders struggle with "wh-" of questions. Since much of language revolves around asking and answering questions, it is important to address this skill. In individual sessions, each type of "wh-" question was taught directly, while in group sessions the questions were targeted in a less direct format, but both were meant to encourage the ability to make inferences. Group sessions helped the children understand one another's attitudes and emotions. If they were unable to decipher a peer's feelings, the children were instructed to ask questions such as, "What do you think about this?" or "How do you feel about it?" Learning how to ask and answer questions can improve all areas of language, including syntax, semantics, and pragmatics.

Perhaps the most important variable in the present study was that of topic appropriateness. Nancy exhibited a significantly higher percentage of appropriate utterances during group therapy than during individual therapy. She did have a greater total number of utterances during individual sessions, so there was more room for error,

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but it is interesting that she was able to demonstrate appropriate language with a group of nine other individuals. The group therapy sessions also had a more favorable overall score of appropriateness. This provides confirmation that group therapy not only greatly impacted her pragmatics, but it also contributed to improved syntax and semantics as well. To receive a rating of "1" on the LASSO scale, utterances had to be both socially appropriate as well as grammatically correct and meaningful. Since Nancy received significantly more "1's" during group sessions, it is possible that group therapy addresses the aspects of language (syntax and semantics) that are typically targeted more during individual therapy sessions; however it is also possible that individual sessions impact pragmatics at an equal level with group sessions. Although this may not be enough evidence to rely on group therapy alone, it emphasizes the success that collaboration between individual and group therapy can have.

Limitations of the study

Several limitations exist within the present study that may have impacted the results. First, as a case study, there was only one participant and she was a female. The results would potentially be different for a group of children, and/or for males. Every child with autism is different, since it is a spectrum disorder, and they often display different symptoms with various degrees of severity. Second, the researcher was the primary therapist and was present for all group and individual sessions. Although particular efforts were put in place to avoid any bias, it is possible that this still had an effect on the results. It should also be noted that the study began once a relationship was already formed between the child and clinician. It was conducted during the second semester of therapy, so the child and the clinician had twelve previous weeks to develop a connection. This is not necessarily a limitation, but it could have played a role in the outcome. Additionally, all of the therapy sessions were progressive, so there is a degree of uncertainty as to whether the child's language and communication skills improved as

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a result of continuous therapy, or if the two types of sessions individually had significant results. Lastly, there was no pretest administered before the start of therapy to determine a baseline because therapy was continued from the previous semester. Therefore, the exact overall level of improvement from the duration of the study cannot be accurately determined in any way other than through progress notes and the video/audio recordings.

Recommendations

It is recommended that this study be replicated and expanded. It should be conducted on a larger scale, with a group of children, ideally made up of both males and females. It would be beneficial to employ a pretest measure before commencing the study, in order to determine overall progress. Typically a pretest would be conducted before any type of study. If the study is expanded, it would also need a more detailed statistical analysis. If additional children are involved, it would be possible to perform an *ANOVA* in order to compare all of the dependent variables with one another both for each individual child and the group as a whole.

Implications and Conclusion

Previously, there was very little literature about the effectiveness of both individual and group therapy in conjunction with one another. This study serves to add information from the perspective of using both types of therapy sessions in order to maximize the therapeutic progress and positive effects on the child's life. The primary contribution of this study is to identify differences in language produced between individual and group therapy that warrant further investigation. It is not clear whether or not one type of therapy, either individual or group, is superior, as they each address different targets and will always differ based on the children involved. However, the combination of the two types of therapy should be investigated further to determine

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whether or not they may yield the highest levels of progress across all areas of language, including syntax, semantics, and pragmatics when used concurrently.

In conclusion, this is meant to serve as a pilot case-study, with the hope that the research will be continued in the future. The purpose of the present study was to investigate the relative effectiveness of individual versus group therapy for children with autism spectrum disorders, and this was accomplished for one female child. Although there were multiple limitations, this study does have the ability to serve as a bridge to more expansive research endeavors in this area.

Appendix A: The Lamb Sheridan Social Observation (LASSO) Scale

Rating of 1 – Topic maintenance or successful transition to a new topic with a delay of less than two seconds

Rating of 2 – The utterance could possibly relate to the current topic, but the relationship is unclear, or there was at least a two-second delay between utterances

Rating of 3 – The utterance is completely unrelated to the current topic and does not successfully transition to a new topic, or there was a delay of greater than three seconds between utterances

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