THE SUPERHEROES SOCIAL SKILLS PROGRAM: A STUDY

EXAMINING AN EVIDENCE-BASED PROGRAM

FOR ELEMENTARY-AGED STUDENTS WITH

AUTISM SPECTRUM DISORDERS WHO

ARE FREQUENTLY BULLIED

by

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ABSTRACT

The current study investigated the effectiveness of an evidenced-based social skills program, the *Superheroes Social Skills* program to determine its effectiveness with children who have autism spectrum disorders (ASD) and have been identified by teachers or parents as being highly bullied at school. Three participants with ASD, between the ages of 6 and 10, received socials skills instruction using the *Superheroes Social Skills* program. Along with the social skills lessons, *Superheroes Social Skills* includes lessons that specifically address bullying. All participants received instruction three times a week for 12 weeks. There were also eight normally developing students who attended the lessons and served as peer models. Generalization probes of social interaction during free play periods, in both a research and naturalistic setting, were conducted for each participant in order to determine treatment efficacy. After the implementation of the program, effect sizes (ES), Percentage of All Non-Overlapping Data (PAND), and Percentage of Non-Overlapping Data (PND) were calculated to examine differences in the amount of social interaction during the free play periods. The average total social engagement score for the participants showed a moderate ES using PAND (*ES*=0.34) and the No Assumptions method (*ES*=0.42). In the naturalistic setting, which was the playground at recess, large ES were found using PAND (*ES*=0.92) and the No Assumptions method (*ES*=0.85). In order to assess the program's impact on the victim's response to bullying, the participants with ASD engaged in bullying role-play scenarios

during the intervention. The victim's behavioral responses were coded to determine if any changes were made. Increases in appropriate responding to bullying and the use of appropriate body language were observed across participants. Along with the observational data, the participants' responses on pre- and postmeasures of social responsiveness and victimization were compared. The results of the study suggest increases in social skills and decreases in reports of being a victim of bullying.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Bullying is a pervasive problem with worldwide prevalence rates of school bullying estimated to be between 6% and 41% for boys, and 5% to 38% for girls (Due et al., 2005). In a survey of 15,000 school aged children just from the United States, 47% of boys and 36% of girls reported having been bullied, and 11% of boys and 6% of girls reported being bullied on a weekly basis (Nansel et al., 2001). Bullying behavior can occur in various ways such as physically, verbally, or relationally, yet regardless of way it occurs it appears to consist of four key behavioral components. It is (1) one-sided, (2) hurtful, (3) repeated, and (4) intentional. As Harris (2009, p. 5) defined bullying, it is "intentional, harmful, aggressive behavior of a more powerful person or group of people directed repeatedly toward a less powerful person, usually without provocation." Bullying has also been defined as repeated acts of aggression, intimidation, or coercion against a victim who is weaker than the perpetrator in terms of physical size, psychological/social power, or other factors that result in a notable power differential (Carney & Merrell, 2001; Schneider, Smith, Smith & Ananiadou, 2003).

It is possible that anyone could become the victim of bullying, yet there are certain factors that are correlated with an increased risk for being a target of bullying. These risk factors are academic difficulties, high absenteeism, low peer acceptance, and having few or limited prosocial or interpersonal skills (Card & Hodges, 2008). The risk

factor of having few or limited prosocial or interpersonal skills is of particular interest since the participants in this study are all children with ASD and therefore demonstrate an impairment in their social functioning. The social impairment individuals with ASD experience can be social skills deficits such as a lack of shared enjoyment, perspective taking, difficulty maintaining or initiating social interactions, or the lack of or inappropriate use of nonverbal body language. These social skills deficits impede typical interaction with peers (Bellini, Peters, Benner & Hopf, 2007). The abnormal social play, restricted interests, and impaired conversational skills of individuals with ASD can limit opportunities to establish social relationships with peers. Overall, children with ASD receive and respond to fewer social initiations from their peers, and when they do engage with peers it occurs for shorter periods (McConnell, 2002). With these social impairments being a core deficit for individuals with ASD, as well as a risk factor for being a victim of bullying, it is not surprising that school aged children with ASD have shown to be bullied more than their non-ASD peers (Rao, Beidel & Murray, 2008). A study examining the overall rate of victimization among students who have an ASD found that such adolescents are bullied four times more than their typically developing peers with 75% reported being victimized (Little, 2002).

Given the potential for children with ASD to be victims of bullying due to their impairment in social functioning; the current study was intended to determine if an intensive social skills program, *Superheroes Social Skills* (Jenson, Bowen & Clark, 2011), may be effective in teaching skills social skills to children with ASD who lack skills to cope with social situations and solve social problems, including how to respond to and report bullying. To this end, the primary research questions being addressed by

this study include whether the *Superheroes Social Skills* program can increase social skills among children with ASD who have been identified by their teachers as being victims of bullying, and increase appropriate responding to bullying behaviors.

<div align="center">Autism Spectrum Disorders and Bullying</div>

The percentage of individuals with ASD that report being victimized is much higher than their typically developing peers with 75% reported being victimized (Little, 2002). Another study of children with ASD estimates that 70% of such individuals have experienced victimization (Bejerot & Mortberg, 2009). Bullying and victimization also tends to increase as children grow older (Savage, 2005). However, not all children with ASD experience bullying and recent research has highlighted some differences between those children with ASD who report victimization and those who do not (Cappadocia et al., 2012).

Children with ASD that report victimization are five times more likely to have more severe communication difficulties, 11 times more likely to have more severe internalizing problems, and three times more likely to have a parent with mental health issues. Amongst children with ASD, verbal and relational bullying are the most common types to be reported, which is also the most common types of reported bullying amongst typically developing peers (Cappadocia et al., 2012). The research has demonstrated that children with ASD experience higher rates of victimization than their typically developing peers and there are some differences between those children with ASD who do and do not experience bullying. However, there are also multiple reasons possibly contributing to the higher rates among children with ASD. Some of the possible reasons for the increased rates of victimization will be discussed.

As previously mentioned, a social impairment is a defining feature of individuals with ASD. Behaviors that may be associated with a social impairment can be a limited use of nonverbal behaviors and gesturing, difficulty initiating and sustaining social interactions, a lack of social or emotional reciprocity, and/or difficulty with perspective taking. These social impairments are a risk factor for being a victim of bullying. However, there are other risk factors that increase the likelihood of victimization for children with ASD (Card & Hodges, 2008). With regard to perspective taking, it has been suggested that the "theory of mind" theory is related to it. The theory of mind theory refers to a person's ability to predict and explain social situations and behaviors by using perspective taking or attributing thoughts and ideas to themselves or others in order to better understand (Wong, 2009). This theory has been associated with both increased likelihood of bullying or being a victim of bullying. Sutton, Smith and Swettenham (1999) argue that some bullies may possess a good theory of mind, thus enabling them to more successfully engage in manipulative behaviors and avoid detection. On the converse, it is thought that a weak theory of mind, or poor social cognition, could contribute to being a target of bullying.

Another risk factor that may increase the likelihood of a child with ASD being bullied is related to other impairments and behaviors that are commonly observed in individuals with ASD. The first was an impairment in the individual's social functioning. However, individuals with ASD often have an impairment in their communication. For instance, being able to be assertive and using healthy communication serves as a protective factor against victimization, yet these may be communication skills that children with ASD do not adequately possess, and therefore may be more at risk for

being bullied. Children with more severe communication difficulties also reported more elevated rates of bullying (Cappadocia, Weiss & Pepler, 2012).

Another characteristic of children with ASD is a restricted repetitive and stereotyped pattern of behaviors or interests. This could manifest itself in an intense preoccupation with an idea or object, stereotyped motor mannerisms, or an inflexible adherence to a routine (American Psychiatric Association, 2000). When individuals with ASD demonstrate such atypical interests or behaviors and extreme emotional responses, they may become targets and thus experience higher rates of victimization (Gray, 2004).

Finally, another factor that may account for the increased rates of victimization is related to friendships with peers. A child with ASD may have difficulty in creating and maintaining lasting friendships. Because poor peer relationships are associated with being a victim of bullying (Nansel et al., 2001), this factor may affect children with ASD. The role that peers play in relationship to bullying can be a protective factor, such as being allies for the victims and helping to resolve potential conflicts. A lack of friendships could mean a lack of that protective factor. However, with typically developing peers, as well as children with ASD, when friends are present, the likelihood of becoming a victim decreases (Gray, 2004).

There are negative side effects that children with ASD can experience from frequent bullying. Children who experience frequent bullying once or twice a week, have been rated by their parents as exhibiting more anxiety, over sensitivity, hyperactivity, and self-injurious behaviors, than their nonvictimized ASD peers. However, it should be noted that it may be a bidirectional relationship, meaning children who have mental

health problems, such as those mentioned, are more at risk for being bullied (Nansel et al., 2004).

Children with ASD have been reported to experience more bullying. The risk factors associated with the increased levels of victimization are correlated to impairments inherent in autism spectrum disorders, and the side effects associated with victimization are deleterious. Interventions to address the issue of bullying among children with ASD pose some challenges.

When interventions are attempted with children with ASD, a particular challenge is the lessened ability for those individuals to correctly interpret social situations, thus leading to difficulties in properly recognizing whether or not a situation is a "bullying" situation. This misinterpretation of the situation can result in either over reporting or under reporting of actual occurrences of bullying. The results of a study by Van Roekel and colleagues suggest that children with ASD who score high on teacher and self-report measures of bullying, were more likely to misinterpret innocuous situations as bullying; whereas, children with ASD who were reported to engage in bullying themselves often misinterpreted actual bullying situations as innocuous (2010). In order to address this challenge, it has been suggested that the intervention focus on improving the children's perception or ability to correctly identify bullying. This has been an approach used in many bullying interventions targeted at children with ASD (Van Roekel et al., 2010).

<u>Bullying Prevention and Intervention Programs</u>

There are numerous bully prevention and intervention programs that attempt to address the issue of bullying through various methods. Bully programs can focus on educating and intervening with the bullies, teaching and educating the victims,

empowering bystanders to become involved, or an approach that addresses all of them. These programs are designed to be used in small groups, classrooms, or even schoolwide. Some common programs that are available are listed in Table 1. Of all the programs listed in Table 1, the Olweus Bully Prevention Program may be the most frequently referenced in research. Olweus and colleagues (1999) developed the Bullying Prevention Program (BPP) as a universal intervention for the prevention and reduction of bullying for both victims and bullies that can be used at the schoolwide, classroom, or individual levels. The Olweus program focuses primarily on bullying identification, prevention and early detection of bullying behaviors. With the early identification of risk factors being a key element of this intervention, schools can attempt to stop the problem before it becomes serious and unmanageable. This program also encourages regular classwide or schoolwide meetings to remind each student of the program's goals and the individual bully prevention goals each person has set. The Olweus Bullying Prevention Program has demonstrated significant reductions in reported bullying and general antisocial behavior and has resulted in improvements in the overall social climate of the classroom. The effectiveness of the Olweus program is usually demonstrated through survey data (Olweus, 1999).

The *Bully-Proofing Series* (Garrity et al., 1994) can be used schoolwide, in individual classrooms, or even in the home by parents. The focus of this program is primarily on the bystander rather than the victim or the bully. The intent of the program is to provide bystanders with feelings of empowerment so they can assist victims in seeking help. The program also provides information on early childhood, elementary school, middle school, and high school problems so that approaches can be tailored to the

targeted age group.   There is information in this series that can be used for students, teachers and parents. Parents are able to participate and are taught how to teach bully prevention to their children. The parental involvement angle of the *Bully-Proofing Series* is unique because it allows the program to be implemented outside the school. Research on this program relies on pre- and postsurvey data with mixed results (Beran, Tutty & Steinrath, 2004).

The program *Aggressors, Victims, and Bystanders*, by Ron Slaby (1995) focuses on victims as well as bullies. This program focuses on problem solving with the practice occurring in the classroom to translate more effectively into real world situations. The lessons are comprised of four steps: Step One—Keep Cool, Step Two—Size Up the Situation, Step Three—Think It Through, and Step Four—Do the Right Thing. This program is based on principles of cognitive psychology and attempts to replace the impulsive action in bullying with concrete thought processes. When this program was used with nearly 700 students in urban, suburban, and small city school districts, it was found to be effective in decreasing bullying behavior. The results were based on survey data (Slaby, 1995).

Similar to Slaby's program in its focus on thought processes, Greenburg, Kusche, and Mihalic (1998), developed *PATHS: Promoting Alternative Thinking Strategies*. This program has proven to be an effective bully prevention program that discourages impulsive action by focusing on self-control, regulating emotions, and improved thinking and planning skills. Use of the techniques learned in this program can lead a victim to methodically come to his/her own conclusions on how to act when faced with a conflict. When this program was implemented in a between groups design with 287 children,

significant improvement was reported as observed on the strengths and difficulties questionnaire. Instead of actual reported rates of bullying, an increase in emotional understanding was used to determine the program's effectiveness (Curtis & Norgate, 2007).

The *Get Real About Violence* program (Meyer, 2004) differs from other bully programs in that it is technology based. It is a mixed media prevention program that uses computer training and internet resources and was created for grades K-12. Targeting a wide range of bullying behavior such as spreading rumors, teasing, and physical aggression, the goal is to provide students with the skills to keep themselves safe by learning conflict resolution without violence. *Get Real About Violence* is designed for use at the schoolwide level but can also be used with individuals. Matched treatment and control groups of approximately 250 junior high school students in a major metropolitan area completed pretest and posttest questionnaires to determine the effectiveness of the program. The survey and observation data demonstrated positive effects as students who experienced *Get Real About Violence* were less likely to be verbally aggressive, to passively watch a fight, and to spread rumors.

The *Quit It!* program (Froschl, Sprung & Mullin-Rindler, 1998) focuses strictly on younger grades (K-3) and targets verbal bullying such as teasing and name-calling. This program was designed for teachers and is broken down into three components meant to develop safe classrooms. First, rules are created for the classroom. Second, the students and teacher discuss teasing and bullying by including opportunities for student discussion about where and why they feel unsafe. Also included are opportunities to practice safe methods of response to bullying. The final step explores the idea of courage

as it relates to teasing and bullying. When this program was implemented over the course of 2 years, it resulted in a 35% reduction in teacher observed bullying and a 130% increase in staff involvement in such incidents. The effectiveness of the program was determined by pre- and postreport of teacher observed behaviors (Froschl & Sprung, 2000).

Hoover and Oliver (1996) developed a bully prevention program directed at administrators and teachers. *The Bullying Prevention Handbook: A Guide for Principals, Teachers, and Counselors* teaches educators how to recognize bullying behavior at its early phase in order to prevent it. Addressing how an administrator can mentor teachers and coaches, it optimizes the educator's role in a schoolwide bully prevention program. When implemented effectively, this program can lead to increased awareness school wide due to teacher and administrator participation. This program relies on an effective reinforcement system for students who actively participate in the early detection of bullying, consequently increasing school unity.

Another common bully prevention program is called *Bully Busters*, by Horne, Bartolomucci, and Newman-Carlson (2000). Consisting of a set of two manuals designated for grades K-5 and grades 6-8, the program is research-based and contains materials that emphasize self-control and bully prevention through helping teachers increase their own awareness, knowledge base, and intervention skills. Including 36 overall activities designed for grades K-5, and 39 activities for grades 6-8, this program helps students attain bully prevention skills. When this program was used with 288 middle school students over the course of a year, data from a quasi-experimental pretest/posttest design indicated that the teachers perceived themselves as being more

effective at intervening and a better classroom environment was achieved, but there was no decrease in the students' reported levels of victimization (Bell, Raczynski & Horne, 2010).

Lastly, *The Tough Kid Bully Blockers Book* (Bowen, Aschraft, Jenson & Rhode, 2008) is a program that is divided into six units with several lessons for each unit intended for weekly implementation either in the classroom or at the schoolwide level. The units include the definition of a bully, how to report bullying, friendship skills, problem-solving, respecting differences, and building self-confidence. The program is unique in its sensitivity to teachers' busy schedules, using very little teaching time. Supplemental activities are included for each lesson, providing students with hands-on practice in "blocking" bullies. The *Tough Kid Bully Blockers Book* provides student and teacher surveys that can be used at a schoolwide, classwide, or individual level to assess a student's level of victimization and/or progress.

<div align="center">Meta-analyses of Bully Prevention Programs</div>

Though there are many programs available, two meta-analyses on the effectiveness of bully prevention programs indicate most programs show limited effects (Merrell, Gueldner, Ross et al., 2008; Schneider, Smith, Smith & Ananiadou, 2004). Merrell et al. (2008) evaluated 16 studies on antibullying programs. They used five criteria for which studies were included in their meta-analysis. These criteria were (1) the study had to use an experimental group design, (2) they had to address bullying behavior, (3) bullying behavior had to be the primary focus of the study, (4) the derived data had to be in a format that ES could be calculated, and (5) the study must be from a peer reviewed journal, doctoral dissertation, or a book chapter. Three bully prevention

programs mentioned in Table 1 had been researched in studies that met these criteria and were included in the Merrell et al. (2008) study. These were the *Bully Prevention Program* (Olweus et al., 1999), the *Bully Busters* (Horne et al., 2000), and the *Bully-Proofing Series* (Garrity et al., 1994).

The results from the meta-analysis show evidence supporting the notion that many school bullying interventions can enhance self-esteem, social competence, and peer acceptance of students but do not generalize to actual responses in bullying situations. Overall, Merrell et al. (2008) found limited positive effects of bully programs in decreasing self-reported bullying behavior. Coinciding with the findings of Merrell et al., Schneider and colleagues (2004) concluded from their meta-analysis that the majority of programs available yielded nonsignificant effects according to self-report data. The authors indicated, however, programs with systematic monitoring at school or home yielded larger ES than those with limited or no monitoring.

In the current study, the use of the *Superheroes Social Skills* program to teach the participants to effectively deal with bullying employed two factors that have shown some success. First, as focused on in Ron Slaby's *Aggressors, Victims, and Bystanders* (1995), the *Superheroes Social Skills* program targets the victim and addresses the thought processes involved in problem-solving. Participants are made aware of what bullying is and who to talk to about it in the "Recognizing Bullying and Reporting Bullying" lesson, and learned different strategies to deal with bullying in the "Responding to Bullying" lesson. When those lessons are used in conjunction with the other social skills lessons of "Reducing Anxiety- Be Cool," and "Problem Solving and Safety," a cognitive approach that targets the thoughts and behaviors of the victim is achieved. The other advantageous

factor used in this study was the systematic monitoring, via homework, of the program at school and at home, which was recommended by Schneider et al. (2004). The monitoring and communication with the participants' parents through homework is an integral part of the *Superheroes Social Skills* program and reinforces the concepts that are taught.

<p align="center">Social Skills Conceptualization</p>

An exact definition of social skills is an idea that is somewhat indescribable yet it may be extremely apparent when a person lacks them. Some researchers have described social skills in a less defined way such as "social skills are what allow us to pass as normal" (Greenspan, 1980), while others describe them as a person's ability to demonstrate appropriate behavior to specific social situations while interacting with others or performing a social task. These skills facilitate interaction or communication with others and can be both verbal and nonverbal. This could include abilities such as cooperation, mutual understanding, and the ability to respond to or initiate socially (Elliott & McKinnie, 1994). An idea that is commonly used in conjunction with social skills is social competence. Social competence is defined as the appropriate use of social skills in conjunction with adaptive behavior in order to successfully demonstrate the particularly needed skill (Elliott & Gresham, 1987). These terms may be somewhat connected but they are not the same thing. To some extent, social competence is reliant upon social skills. Meaning, a person may possess social skills yet not be socially competent, but it is not possible to be socially competent without first acquiring social skills.

General Components of Social Skills Programs

Most social skills programs utilize similar methods and ideas for teaching social skills. McConnell (2002) evaluated the then currently available social skills programs and created five categories to encompass them. These categories are environmental modification strategies, collateral skills interventions, peer-mediated interventions, child-specific interventions, and comprehensive or a combined type.

Environmental modification strategies tend to focus on bringing about change by manipulating the environment to facilitate appropriate social interaction. Collateral skills focus on teaching basic skills such as interactive play and language in an attempt to improve social skills. Peer-mediated interventions rely on the use of appropriate peer models to teach the social skills and encourage the targeted individuals to use them. A comprehensive or combined approach is when two or more of the above strategies are used in conjunction to facilitate improvement in social skills. A training technique that can be incorporated with McConnell's five approaches is a demonstration-prompt-practice model. This type of approach starts with the explicit instruction and modeling of the social skill. After learning the skill, participants are prompted to use the skill in appropriate situations. Finally, the participants are prompted to practice the skill in several different situations.

Apart from the five categories of social skills programs that were conceptualized by McConnell, there are several other components that have demonstrated the ability to produce positive change when they are integrated into social skills programs. These components are foundation building, a behavior management system, incorporation of skill knowledge to other settings (i.e., homework), and skill acquisition assessment.

The first of the components is foundation building for the new skill. In order to achieve this, participants are provided a rationale as to the usefulness and importance of the skill, they are explicitly instructed in the steps of the skill, and they receive multiple models of how to successfully implement the skill.

A behavior management system that is incorporated into the social skills program can also be very beneficial. Such a system can aid in skill acquisition by addressing behaviors that could detract from the learning process. Inappropriate behaviors, lack of motivation, noncompliance, and other detracting factors can be addressed at both the individual and group level. Reinforcement can also be used to maintain social skills once they have been learned.

An important tool for incorporating skill knowledge to other settings can be the use of assignments or homework. Homework can help the skills to generalize to other settings, provide an opportunity for other adults (e.g., parents and teachers) in the participant's life to reinforce the social skills, as well as provide information for the program's facilitator to review information with the participant. Part of the homework can be a self-monitoring system, which would increase generalization by the participant recording their own use of the skill in nontraining settings.

A system that also provides the assessment of skill acquisition can benefit the participant by targeting appropriate skills and lessons for participants (McConnell, 2002). This assessment should occur on a continual basis to provide up to date information on what skills the participant may be lacking. Once these deficits are identified, lessons can be tailored to remediate deficiencies.

With many different approaches and strategies being used in social skills programs, the implementation can be challenging. In order to achieve a high degree of fidelity in implementation and avoid other pitfalls, it is essential that the program be a manualized and researched program. Using a manualized program ensures that the same methods that were used during the researching of the program are also presented in the same manner. In so doing, the likelihood of achieving similar results is increased.

Many manualized social skills programs are available. Some of these programs were designed for specific populations while other programs are more general in their approach. Regardless of the type of social skills program, there are some fundamental elements that should be included in social skills programs. These fundamental elements are: a way to identify skills that need to be remediated, teaching and modeling of the skills, teach target skills, coaching and prompting proper use and application of the skills, an opportunity for skill rehearsal, reinforcement and feedback for the skill use, reductive procedures to facilitate continued use, and a method for creating generalization (Gresham, 1995). This common structure can be used and modified depending on the needs of the children, but it may also be important to include more strategies that are identified by research as being effective.

<center>Common Social Skills Programs</center>

Numerous social skills programs or curriculum are available. Each of these programs may contain some common components of social skills programs that were listed in the previous section. The research behind each program is varied. Some may be supported by research while others are not. Listed in Table 2 are some of the more common programs available.

The *Tough Kids Social Skills Book* (Sheridan, 1995) was created to address social skills deficits in children with externalizing problems. The program attempts to teach social skills by first introducing and discussing the skill, role-playing the skill, and then providing opportunities for the skill to be used. In one study that examined the content effectiveness of this program when it was delivered in a computer format, they found the children with ADHD improved their social problem-solving skills (Fenstermacher, Olympia & Sheridan, 2006).

The Incredible Years Program (Webster-Stratton, 1984) includes parent, teacher, and child training programs. This program uses video vignettes that are watched in a group setting and then analyzed through a group discussion led by the facilitator. In the child component of this program, life-sized dinosaur puppets are used to help teach appropriate skills. Many research studies have been completed on the effectiveness of the Incredible Years Program, both by the developer and independent evaluators. The majority of studies (Taylor, Schmidt, Pepler & Hodgins, 1998; Webster-Stratton & Hammond, 1997; Webster- Stratton, Reid & Hammond, 2004) have found moderate to large ES for the use of the parent, teacher, or child programs when studied individually and when combined.

One common factor in some of the programs listed in Table 2 is the use of skill sequencing. Many programs vary in the types of skills that are taught. As mentioned, when discussing common components of social skills programs, when skill deficits and individual needs of the child can be identified, determining the most appropriate programs or individual lessons that may be most beneficial to the children can be easier (see Table 3). For instance, many programs target specific skills in the areas of

foundational skills, compliance skills, friendship making skills, cooperation skills, bullying skills, and coping skills. Table 3 provides a list of the skills and skill areas that some common social skills programs address in their training program.

<div align="center">Obstacles in Teaching Social Skills</div>

Children with ASD experience numerous deficits in their social skills yet the reasons for the lack of social skills, despite training, may be different. Research has explored why generalization of social skills does not always occur. The results of this research indicate that four types of deficits typically impede an individual's ability to learn and implement a social skill in a new setting (Elliot & Gresham, 1987). The first type of deficit is a skill deficit. A skill deficit is when an individual lacks or is deficient of the ability to interact appropriately with others. This deficit could be due to inadequate instruction or an overall inability to perform the skill. The second type of deficit is a performance deficit. A performance deficit is when an individual possesses the knowledge of the skill but fails to utilize the skill when it is required. This may be due to a lack of motivation or other various reasons for not utilizing the skill. The third and fourth types of deficits are self-control deficits. Self-control deficits can occur when a child is unable to learn a skill due to emotional arousal that impedes the learning or it can be a self-control performance deficit if the individual has learned the skill but emotional arousal or the inability to regulate one's emotions inhibits the use of the skill. Due to these impediments and other factors, social skills training programs often face obstacles when attempting to create generalization of social skills.

Methods for Assessing Social Skills

There is no set method for assessing social skills and different researchers have

opted to use a wide variety of methods. Six primary methods commonly used for

assessing social skills were outlined by Merrell (2001) and include: (1) behavioral

observation systems, (2) behavioral rating scales, (3) structured and unstructured

interviews, (4) self-report measures, (5) projective-expressive techniques, and (6) socio-

metric strategies. Each method for assessing social skills has inherent strengths and

limitations. The most appropriate method may best be determined by the type of

research, or the setting in which the research is conducted. However, Merrell (2001)

purports that naturalistic behavioral observation systems and behavioral rating strategies

more closely adhere to best practices, and that these methods should be included as

principal sources of data collection when assessing social skills. Gresham agreed with

this assessment of different measures and additionally proposed that socio-metric

strategies be considered (2001). In this study, the methods used to assess effectiveness of

the complete *Superheroes Social Skills* program for increasing social engagement were

behavior observations in a research and naturalistic setting as well as behavior rating

scales. These are both described below.

Naturalistic behavioral observation involves using trained observers to target and

record behaviors as they naturally occur through the execution of operationally defined

methods. Merrell (2001) asserts that the best settings to observe social behaviors of

children are places where the opportunity for interaction is at its greatest, such as at

school recess or lunchtime. Some potential problems of naturalistic observations include

the time required to implement the procedure and train observers as well as various

threats to internal validity such as observer reactivity. The naturalistic observations in this study will consist of video recordings of the participants during free play activities that were coded and analyzed for social interactions. The social skills interactions were coded according Bellini's social observation codes (see Appendix A). The bullying role-play scenarios were video recorded and coded according to the observation codes seen in Appendix B.

Behavior rating scales are questionnaires that can be given out to teachers, parents, and/or other individuals who have knowledge of the person being rated. These methods offer an advantage of providing information on essential social behaviors that have been observed over time in a naturalistic setting by observers familiar with the individual. Additionally, behavioral rating scales can be used to assess a wide array of social skills or a very specific set of skills (Merrell, 2001).

Social Skills Programs for Children with ASD

The idea of teaching social skills to children with an ASD is a logical conclusion since one of the core impairments in such individual is their social functioning. In order to address those social deficits, social skills programs for individuals with ASD have been widely developed (see Table 4). There have been a variety of techniques employed to teach social skills, yet the majority of current social skills programs available rely on a traditional didactic method, meaning that an adult clinician orally presents the information and then demonstrate the social skills. Some other techniques that have also been employed are video modeling, self-modeling, peer-mediated training, and self-management techniques.

Meta-Analysis of Social Skills Interventions for ASD

Even though the use of the social skills programs in a school setting is quite common, the results are not quite as clear. Some of this uncertainty in treatment effects may be due to the different methods of delivering the social skills curriculum. In order to determine the most effective method of instruction, a review of meta-analysis on the different types of social skills programs was conducted. In particular, programs that employed techniques such as video modeling, self-modeling, peer-mediated training, and self-management, were of particular interest since they are an integral part of the *Superheroes Social Skills* program.

A meta-analysis by Bellini, Peters, Brenner, and Hopf (2007) investigated the effects of school-based social skills programs. In the meta-analysis there were 147 students with ASD, all of whom received one of the aforementioned methods of social skills instruction. In the meta-analysis, the skill factors that were being examined for acquisition were group play, social initiations, and appropriate responding behaviors. The results of the study showed questionable intervention effects, mainly due to the fact the skills being taught in the instructional setting did not generalize to other settings and overall, most programs produced only moderate maintenance effects. It was also found that social skills programs show decreased efficacy when the social skills instruction is removed from the setting in which social interaction typically occurs. While traditional social skill instruction was shown to be relatively ineffective as a treatment for the acquisition of social skills for individuals with ASD, there are other forms of treatment such as video modeling, that have been successful in fostering acquisition and generalization of social behaviors.

Video and Video Self-Modeling

Video modeling is an instructional strategy that uses video presentation of the material where targeted behaviors are demonstrated with peers and adults serving as the models, whereas in video self-modeling the individual serves as the model (Bellini, Akullian & Hopf, 2007). Bellini and Akullian (2007) conducted a meta-analysis of 23 studies of video modeling and video self-modeling interventions for children with ASD. In order to determine treatment effectiveness, the authors used PND. Across all studies, a PND of 80% was observed, or a moderate intervention effect. PND was also calculated across three dependent variables: social-communication skills, functional skills, and behavioral functioning. Of those variables, video-modeling and video self-modeling interventions produced the greatest effects in functional skills. A PND of 77% was observed in social communication and a PND of 76% in behavioral functioning. Both scores would indicate a moderate intervention effect. Generalization effects and maintenance effects are other factors that differentiated video modeling and video self-modeling from other social skill programs for children with ASD. Generalization and maintenance has always been a problem with ASD specific social skills programs, yet with video modeling and video self-modeling the results were shown to have moderate maintenance effects (PND=83%) and generalization effects (PND=74%). Overall results suggest that video modeling and video self-modeling interventions are effective for improving social and functional skills in children with ASD.

Peer-Mediated

Another factor that was evaluated through meta-analysis was the use of peer-mediated interventions in the social skills training for children with ASD. Zhang (2008) examined 45 single-subject studies of interventions for children with ASD under 8 years of age. Effects were analyzed at the treatment and follow-up phases. Overall, across treatment it was found that peer-mediated interventions for children with ASD were effective, producing an effect size of 1.46. When the follow-up phase and generalization effects were determined, peer-mediated interventions produced ES of 1.49 and 1.51, respectively. Another result of the meta-analysis was the finding that that peer modeling was the most effective type of peer-mediated training (ES=3.16). Peer-mediated interventions were also evaluated in Miller's (2006) meta-analysis of interventions for social interactions in children with ASD. Miller's meta-analysis included 30 studies and evaluated collateral skill, child-specific, and peer-mediated interventions. Collateral skill interventions attempt to increase social interaction by training other skills that assist in social interactions such as play and academic behaviors. Child-specific interventions are interventions that directly teach and reinforce social behaviors. The results of the meta-analysis revealed large ES for collateral skill, child-specific, and peer mediated interventions. Collateral skill interventions produced an effect size of 2.37, child-specific interventions produced an effect size of 2.19, and peer-mediated interventions produced an effect size of 3.27. The results of Miller's (2006) analysis were consistent with Zhang's (2008) meta-analysis results in that peer-mediated interventions were found to produce large effects for individuals with ASD.

Lastly, Miller examined the relationship between a participant's age and collateral skill interventions and found a negative correlation. Meaning, as the participant's age increased, ES decreased for collateral skill interventions. The opposite relationship was found for peer-mediated interventions. The effect size increased with age for participants receiving peer-mediated interventions. Those findings suggest that collateral skill interventions are useful for young children, yet school age children with ASD may benefit more from peer-mediated interventions.

<center>Self-management techniques</center>

The utility of self-management techniques for children with ASD has also been evaluated through meta-analysis (Lee, Simpson & Shogren, 2007). Self-management techniques include processes such as self-monitoring, self-assessment, self-observation, self-recording, self-evaluation, self-instruction, and self-reinforcement. These techniques are the process of monitoring and directing one's own behavior toward a specific goal. These techniques attempt to increase the individual's social skills by increasing awareness and managing of behavior, thus empowering individuals to control their own behavior. The meta-analysis on self-management techniques included 11 articles with 34 total participants. Studies included management techniques listed previously. Overall, a PND of 81.9% was found for interventions using self-management strategies, which represents an effective treatment. Results of the study suggest that self-management is an effective treatment option for individuals with ASD. Another finding from the meta-analysis was that interventions that incorporated monitoring by coparticipants produced greater effects than self-management alone.

Social Stories

Another technique for teaching social skills is social stories. Social stories allow individuals with ASD to easily access social information that provides clear, order-based definitions of the desired behaviors. Social stories provide participants with information in a visual format, playing on strengths of individuals with ASD. Social stories targeting social communication skills such as maintaining eye contact, to the more complex skills like perspective taking, have shown promise in increasing the display of said skills. Quirmbach, Lincoln, Feinberg-Gizzo, Ingersoll and Andrews (2009) evaluated the use of social stories for increasing play skills. The results of their analysis determined that social stories produce significant changes in play behaviors. Social stories can also be an efficient, cost-effective intervention used to encourage generalization and maintenance of learned social skills. However, a drawback to the use of social stories is that when used alone, with no other intervention component, social stories are not effective in producing long-term changes in social skills (Sansoti, Powell-Smith & Kinkaid, 2004; Crozier & Tincani, 2007).

The research has shown that the majority of social skills interventions for children with ASD have been found to produce little effect, yet certain intervention strategies have been effective in increasing social interactions of children with ASD. Using meta-analyses, video modeling and video self-modeling, peer-mediated instruction, self-management strategies, and social stories have all been found to produce large improvements in social interaction skills of children with ASD. Therefore, it is expected that the inclusion of these components in a social skills program would produce greater results than currently existing social skills curricula. All of these strategies are

components of the *Superheroes Social Skills* program and have been developed through the use of evidence-based practice.

<div align="center">Evidence-based Practice</div>

Evidence-based practice (EBP) is an idea that has emerged over the last 20 years and originated in medicine. EBP indicates the effect of a specific service on the particular patient being targeted (e.g., child, adolescent, or family), and the extent of scientific research that supports the specific service (Hoagwood & Johnson, 2003). Since its original conception in medicine, EBP has spread into other professional fields that heavily rely on research to drive their practices. Some professions that have adopted EBP standards include the National Association of School Psychologists (NASP; Kratochwill & Shernoff, 2003), American Psychological Association (APA; Silverman & Hinshaw, 2008), Council for Exceptional Children (CEC; Odom, Brantlinger, Gersten, Thompson & Harris, 2005), Association for Behavior Analysis (ABA; O'Donohue & Ferguson, 2006), and the American Academy of Child and Adolescent Psychiatry (AACAP; AACAP Council, 2006). Each of those professional organizations subscribes to similar standards and reasons for those standards. Some of the evidence-based practices of those professional associations are discussed below.

NASP (2005) encourages the use of EBP in the effort to enhance student outcomes and promote quality services. However, there are some challenges in adopting EBP in schools, such as translating research into actual practice along with other secondary variables associated with the implementation of those services. To address these challenges, NASP emphasizes utilizing controlled studies in naturalistic environments that consider efficacy, feasibility, acceptability, social validity, treatment

integrity, sustainability, organizational, and contextual factors (NASP, 2005). To bring about student enhancement and promote quality services, NASP encourages collaboration among the individuals that would be involved with the process (e.g. researchers, school psychologists, parents, students, school personnel, administrators, and community members).

The APA (2005) is another professional organization that supports the use of evidence-based practices. The use of EBP in psychology is done to enhance effective psychological practice and promote public health wellbeing. The APA defines evidence-based practice as "the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences" (APA, 2006, p. 1). This conceptualization of EBP by the APA mirrors definitions used in medical contexts and encourages improving patient outcomes by informing practicing clinicians of the current best research (APA Presidential Task Force on Evidence-Based Practice, 2006). The APA Presidential Task Force on Evidence-Based Practices (2006) provided a report that addressed some of the issues with the implementation of EBP along with some recommendations for standards in research, education and practice. One point of emphasis was the usefulness of multiple sources of evidence. Even though randomized clinical trials and meta-analytic research are considered to hold the highest methodological rigor, other methods such as clinical observations, qualitative research, case studies, single case experimental designs, public health and ethnographic research, as well as process outcome studies were noted as providing helpful results that can contribute to our scientific knowledge of practices (APA, 2006). It was also noted that when evaluating intervention research, both treatment efficacy and clinical utility are

crucial components. The APA Task Force also stresses cost-effective mental health services and accountability of practitioners (APA, 2006). Like NASP, the APA recognizes the significance of forming partnerships between researchers and consumers to ensure better outcomes.

Another professional field that currently uses evidenced-based practice is the field of education. In 2003, the CEC's Division of Research initiated a task force to determine the effectiveness of special education practices and establish indicators of quality within that field (Odom et al., 2005). This task force was created not only for the purposes listed above (i.e., identifying and developing effective teaching practices in special education), but also for use in general education as a response to the No Child Left Behind Act. The reason for this is because the No Child Left Behind Act requires teachers to use research proven educational methods in their classrooms, or in other words, evidence-based practices. Even though educators are mandated to use these practices by law, the special education field has not yet identified specific criteria for the types and levels of evidence required to call a practice evidence-based. However, researchers have identified quality indicators for certain research designs. These research designs are experimental, single-subject, correlational, and qualitative research (Odom et al., 2005). In addition to those steps, the CEC made recommendations to the Institute of Education Services about best practices in the schools. One of those recommendations was suggesting that evidence-based practice research be expanded to include pre-school aged children and young adults. The CEC Professional Standards and Practice Committee are working on developing a set of criteria to identify evidence-based practices, yet no set criteria have been identified to date.

As noted, evidence-based practices are currently being incorporated into many professional fields. The use of EBP can drive research, treatment, and other patient oriented factors. The use of EBP is an essential part of research and should determine how research is conducted. The standards of EBP were used in both the creation of, and research regarding the *Superheroes Social Skills* Program.

<div align="center">The Superheroes Social Skills Program</div>

The *Superheroes Social Skills* training program was developed to be used with elementary-aged students with Asperger's Syndrome or high-functioning autism (Jenson Bowen & Clark, 2011), but since that time it has also been shown to be effective with other populations such as elementary students with externalizing disorders (Hood, 2011). The program is comprised of empirically-based strategies that have shown to be effective with children specifically on the autism spectrum. It has been designed to address the shortcomings of other social skills programs for children with ASD, including lack of maintenance and generalization. The program uses evidence-based practices such as video modeling, self-modeling, inclusion of nondisabled peers, and self-management strategies in order to increase social skill acquisition.

The *Superhero Social Skills* is comprised of 18 social skills lessons (classified as foundational, intermediate, or advanced skills) presented via DVD by animated superheroes. The program was designed to be conducted over an 18-week period with two 30-minute sessions each week. Each of the lessons is taught at the introductory session and then it is repeated in the second session that week. The 18 lessons focus on 18 social skills beginning with more foundational skills and working up to intermediate then advanced social skills. A new social skill is introduced each "new lesson" day and

then repeated the following lesson day. The lessons begin with more fundamental skills and progress to intermediate and then to advanced types of social skills. With each lesson the rationale for, exceptions to, and discrete steps, are provided for each skill. The program uses typical peer models to demonstrate the skills. After viewing the typical peers demonstrating the skills, the children with ASD and their nondisabled peers are prompted via video DVD to model and rehearse the targeted skills and are provided with immediate reinforcement, all done under the supervision of the facilitator. There are also social games used throughout the session in order to provide an opportunity to practice the newly taught social skills.

<div align="center">Research Studies on the Superheroes Program</div>

The effectiveness of the *Superheroes Social Skills* program for increasing the social engagement of children with ASD was recently assessed in three single subject AB research studies, all in different settings. The first research study included four elementary-aged students with an autism spectrum disorder (Block, 2010). The study used the *Superheroes Social Skills* program with the implementation lasting for 11 weeks, with lessons occurring for 30 minutes twice a week. All this occurred in a public elementary school. The effectiveness of the *Superheroes Social Skills* program was primarily assessed through 10-minute filmed observations of social encounters that occurred both after group lessons and at school recess. Observations were conducted for baseline, intervention, and follow-up phases. During these observations, each participant's percentage of time spent socially engaging, including both social initiations and responses, was coded using an adapted version of the Bellini (2007) social observation system. The 10-minute observations were divided into 10-second intervals

with each interval describing the type of engagement that the participant demonstrated. The intervals were then calculated into percentages and used to generate ES and PND. There was also an evaluation of pre- and posttreatment effects for the Social Responsiveness Scale (SRS) and the Autism Social Skills Profile (ASSP). The results obtained in this manner indicated the Superhero Social Skills program, when used with children with ASD, was successful in enhancing social engagement with peers and overall resulted in an effective size across participants and settings of 0.85. In that study the ES were much more moderate for social initiations (*ES*=0.39) and social responses (*ES*=0.72). Larger effects were demonstrated in the generalization setting (i.e., recess) than in the research setting (i.e., class setting). When the PND analysis was used it also showed positive increases in the participants' social skills and competencies, which were also reported by parents and teachers on the SRS and ASSP. Consumer ratings of the *Superheroes Social Skills* program described it as being socially valid, acceptable, and effective.

Two other studies also assessed the effectiveness of the *Superheroes Social Skills* program when used with elementary-aged students with ASD. One was conducted at a community mental health support program for preschoolers, the Carmen B. Pingree Center for Children with Autism (Radley, 2010), and the other was implemented in a university-affiliated psychiatric hospital, the University of Utah Neuropsychiatric Institute (Hood, 2010). These two studies were similar to the Block (2010) study, in that they both assessed the effectiveness of the *Superheroes Social Skills* program by measuring, through observation, the amount of pre- and postchange in the participants' social engagement. Both of those studies found the *Superheroes Social Skills* program to

be effective for increasing social engagement. The ES from those studies were *ES*=1.07 for the Hood (2010) study, with elementary age children who received the intervention at an outpatient clinical setting; and *ES*=1.54 for the Radley (2010) study of preschoolers at the community mental health program for children with autism. The results from the three studies on the *Superheroes Social Skills* program demonstrate that the *Superheroes Social Skills* program has been effective for significantly increasing the amount of time children with ASD socially engage with peers.

With the demonstrated success of the *Superheroes Social Skills* program when used with a population that has ASD, other studies have been conducted to assess the program's utility when used with a different population. Two studies were recently conducted to assess the program's effectiveness with a population of elementary students with externalizing disorders (Hood, 2011; Springer, 2012). The Hood (2011) study evaluated the effectiveness of the *Superheroes Social Skills* program for increasing the social engagement skills and decreasing the aggressive behavior of elementary students. The Hood (2011) study included four elementary children with high incidence disabilities and four peer buddies between the ages of 5 and 9. The 4 participants had a current medical diagnosis of conduct disorder, anxiety disorder, learning disability, or Attention Deficit Hyperactivity Disorder (ADHD) by a physician, psychologist, or psychiatrist; or an educational classification of emotional disturbance, specific learning disability, speech/language impairment, or other health impairment. The participants also had obtained scores on behavioral measures that indicated a significant behavioral or social impairment. The treatment consisted of 11 weeks of intervention using lessons from the *Superheroes Social Skills* program. The program effectiveness was determined by

increased use of social skills during free play observation periods following the lessons, observation of increased prosocial behaviors in a generalized recess setting, and completion of checklists including the Behavior Intervention Rating Scale, Social Skills Improvement System (SSIS), and the Children's Consumer Satisfaction Survey.

The data collected on aggressive behavior from the analog observations indicated large ES found for the group between baseline and treatment (*ES*=-2.33) as well as between baseline and follow-up (*ES*= -5.19). The group ES found for social engagement was small between baseline and treatment (*ES*= -0.046), but was large for baseline and follow-up (*ES*=2.19). The recess data indicated large effects for aggression from baseline to treatment (*ES*= -1.25), as well as baseline to follow-up (*ES*= -1.36). The data calculations for social engagement during the recess observations resulted in negligible ES. The pre- to postresults from the behavioral and social skills measures indicated a decrease in problem behaviors and a reported increase in the participants' social skills. Overall, the results of the Hood (2011) study indicated that *Superheroes Social Skills* is an effective way to teach social skills to children with externalizing behaviors and high incidence disabilities, that the program can be effective in producing generalization and maintenance effects, but that the intervention was more effective at minimizing aggressive behavior than increasing social engagement.

The Springer (2012) study evaluated the effectiveness the *Superheroes Social Skills* program in increasing the social engagement skills and decreasing the aggressive behavior of five elementary-aged students with externalizing behavior problems. The same design and inclusion criteria as the Hood (2011) study were used in the Springer (2012) study. The main difference between the two studies was in the Springer study the

intervention was implemented by a resource teacher in a class setting who was trained in how to implement the program; whereas in the Hood study, a researcher implemented the program in a pull out setting.

The observational data from the Springer (2012) study was used to generate ES and they indicate that aggressive behaviors decreased from baseline to treatment in both the analog (*ES*= -0.39) and recess settings (*ES*= -0.55). The ES for social engagement also demonstrate small increases from baseline to treatment in both the analog (*ES*=0.11) and recess setting (*ES*=0.40). The data generated from the follow-up observations were used to calculate ES and resulted in large ES for decreases in aggressive behavior. The ES for the recess data was large (*ES*=-1.45) and was medium for the analog setting (*ES*= -0.65). The results from both the Hood (2011) and Springer (2012) studies demonstrate that the *Superheroes Social Skills* program was effective for decreasing aggressive behaviors of elementary students in both naturalistic (i.e., recess) and research (i.e., analog) settings. The results from previous studies appear to demonstrate that the utility of the *Superheroes Social Skills* program may be beyond the intended population and could have a positive effect on other behaviors.

The effectiveness of *Superheroes Social Skills* for increasing the social engagement and decreasing aggression may be due to the various research-based methods that are used when implementing the program. The various methods used include typically developing peer involvement, peer and self video modeling, and self-management techniques. In order to overcome the problem of generalization, several strategies are employed. These strategies include methods such as public posting of demonstrated skills, self-recording of skills learned, parent and teacher reinforcement

outside of the training setting, and homework that uses social stories. The social stories are in the form of a comic book that contain a review of the lessons and are used at home. The program also incorporates behavior management methods, such as power cards and black hole cards, to encourage motivation and behavioral compliance. Additionally, by using an animated format for instruction as opposed to an adult didactic approach, the lessons are presented in an exciting and entertaining way that may better harnesses the focus and attention of youth with ASD (Jenson et al., 2010).

As previously noted, the *Superheroes Social Skills* program was designed to be used with children with ASD, yet recent research has demonstrated the program's utility with other populations. With the knowledge of a broader application of the program, one of the components that need further investigation is the effect it has on responding to bullying. There are 18 lessons in the *Superheroes Social Skills* program with the main focus of those lessons being social skills; however, two lessons are specifically tailored to teach children how to deal effectively with bullying. Those are Unit 16: "Recognizing and Reporting Bullying," and Unit 17: "Responding to Bullying." Unit 16 focuses on teaching students how to differentiate between bullying and nonbullying behavior (e.g. friendly teasing), how the students can report bullying, and how they can obtain help from and adult when it is needed. Unit 17 focuses on the way that the students respond as well as their body language. Some of the specific steps students are taught are: (1) stay calm and be cool, (2) ask yourself, "Do I need help?", (3) act confident (i.e., face the person, use eye contact, stand tall, hold your head high, and use a strong firm voice.), and (4) choose what to do: ignore, tell the bully to stop, walk away and look for friends, and/or talk to an adult.

These two units focus on important skills that victims of bullying could use, and since children with ASD are likely to be victims of bullying (Little, 2001), it would be useful to assess the effectiveness of the program. Along with those specific bullying lessons, there are two other lessons: Unit 4: "Reducing Anxiety (Be Cool)," and Unit 18: "Problem Solving and Safety," that could teach children useful skills to deal with bullying. As aforementioned, in none of the previous studies on the *Superheroes Social Skills* program was the variable of bullying examined, yet the program has two lessons specifically dedicated to bullying prevention.

Research Designs

The type of research design used in studies may often be dictated by factors outside the control of the researcher. Some of these factors can be the setting, number of participants, type of intervention, and targeted behavior. In previous research on *Superheroes Social Skills* the studies have been affected by these and other factors and therefore, have used a research design that is most appropriate for the parameters of their studies. The design approach that has been used is a single subject AB approach. An AB design means the targeted behavior is assessed at a baseline phase (A), then a treatment is implemented (B) with the targeted behavior being assessed again. If change occurs, the treatment is said to have an effect. This approach can be used and inferences drawn from it as long as the observations are conducted at both phases and the behavior being observed is measurable (Kazdin, 1992).

With the use of an AB single subject design there are certain threats to the internal validity. These threats include maturation, testing effects, and history threats. Historical confounding could also be a possible threat, yet can be minimized with the use of more

than one subject and frequent observations. According to Kratochwill (1978), threats of maturation are minimized if repeated measurement is used. Threats of history and testing effects can be minimized if there is not repetitive exposure to a pretest. Specifically, AB designs with replication are found to control for historical threats to internal validity if subjects are exposed to multiple and variable environments during the treatment period (Harris & Jenson, 1985). All of those threats to internal validity appear to be minimized in the studies on the *Superheroes Social Skills* program. Other necessary criteria for single-subject designs have been outlined by Kazdin (1982). He stated that single-subject designs are valid if they meet certain criteria. According to Kazdin, a study must include the following to be valid:

1.   The data are objective.

2.   The assessments occur on multiple occasions.

3.   The targeted behavior being treated is a frequent behavior.

4.   Participants form a heterogeneous group.

5.   The intervention produces immediate and marked effects.

Kazdin's criteria were expanded upon by Kratochwill and Levin (1992) with the addition of four more requirements. These additional criteria are:

1.   The study must be highly planned.

2.   The intervention must have high integrity.

3.   The treatment must be standardized, thus reproducible.

4.   The resulting ES must be large.

Using the criteria set forth by Kazdin (1982), and Kratochwill and Levin (1992), the previous research and the current study are considered to be a valid replicated AB

research study. The data are objective, meaning that the behaviors were well-defined and the system used for coding is an impartial means of collecting the data. The assessments took place on multiple occasions, thus meeting the criterion that observations be conducted multiple times during the course of the study. The targeted behaviors are considered to be frequent behavior. The participants were a heterogeneous group of children of varying ages, intellectual abilities, behaviors, language levels, and interests. There were commonalities among the participants within the different studies such as the groups that were being targeted and the admission criteria for the studies. But otherwise the groups were fairly heterogeneous. The current and previous studies were well-planned and include a manualized treatment implemented by trained graduate students; thus meeting the criteria for fidelity and standardization. Finally, the results from previous and the current study would suggest that there were large changes in behavior and that the data analysis produced large ES. Therefore, the previous research on the program and the results from the current study meet the outlined standards and imply that they are valid single-subject research studies as according to the criteria set forth by Kazdin (1982), and Kratochwill and Levin (1992).

<div align="center">Summary</div>

In summary, a wide variety of bully prevention programs and social skills interventions exist; however, few social skills programs have been shown to be successful in fostering the generalization of social skills, and most bully prevention programs show limited success. Since children with autism tend to lack social skills (Bellini et al., 2007), and a lack of social skills is a risk factor for being bullied (Card & Hodges, 2008), a social skills program that addresses both deficit social skills in children

with ASD, and incorporates an aspect of bully prevention (e.g., how to identify, report, and respond to bullying) could be very utilitarian as an intervention.

The current study was conducted to investigate the effectiveness the *Superheroes Social Skills* program when used with elementary students with ASD who have been identified by teachers or parents as being highly bullied at school. Measures that will be used to determine effectiveness of the program will include measurements of change in the amount of social engagement and appropriate responding to bullying, pre- to postchanges in self-report measures of bullying, pre- to postchanges in parent and teacher reports of the participants' social skills, and consumer satisfaction surveys.

<u>Research Questions</u>

1. What is the effectiveness of the 18-lesson *Superheroes Social Skills* program in increasing the social skills of students with an ASD who have been identified as being highly bullied, as measured by observational data taken during the analog free play period?

2. What is the effectiveness of the 18-lesson *Superheroes Social Skills* program in increasing the social skills of students with an ASD as measured by observational data taken during a naturalistic setting, that is, recess?

3. What is the effectiveness of the 18- lesson *Superheroes Social Skills* program in increasing the social skills of students with an ASD, as measured by pre- and postquantitative change scores from parent and teacher ratings on the SSIS?

4. What is the effectiveness of the 18-lesson *Superheroes Social Skills* program to increase participants' appropriate responding to bullying during role-play scenarios?

5. What is the effectiveness of the 18-lesson *Superheroes Social Skills* program for decreasing the participants' reports of victimization from pre- to postintervention on the student bullying survey from *The Tough Kid Bully Blockers Book* and on the "Bully Victimization Scale"?

6. What is the acceptability and consumer satisfaction of the *Superheroes Social Skills* program according to teachers and parents, as measured by the BIRS?

7. What is the social validity, according to teachers and parents, of the intervention as measured by the Social Validity Scale?

8. What is the participant satisfaction as measured by the Child Consumer Satisfaction Survey?

Table 1. Common Bully Prevention and/or Intervention Programs

Program Name	Author
The Olweus Bully Prevention Program	Olweus et al., 1999
Bully-Proofing Series	Garrity et al., 1994
Aggressors, Victims, and Bystanders	Slaby, 1995
Promoting Alternative Thinking Strategies	Greenberg, Kusché & Mihalic, 1998
Get Real About Violence Program	Meyer, 2004
Quit It Program	Froschl, Sprung & Mullin-Rindler, 1998
The Bullying Prevention Handbook	Hoover & Oliver, 1996
Bully Busters	Horne, Bartolomucci & Newman-Carlson, 2000
The Tough Kid Bully Blockers Program	Bowen, Ashcraft, Jenson & Rhode, 2008

Table 2. Common Social Skills Training Programs for Youth

The ACCEPTS Program	Walker et al., 1983
ASSET	Hazel, Schumaker, Sherman, & Sheldon-Wildgen, 1981
Tough Kids Social Skills Book	Sheridan, 1995
The Incredible Years	Webster-Stratton, 1985
Skill Streaming	McGinnis & Goldstein, 1984
Project First Step	Hedges & Hardin, 1972
Cool Kids	Fister et al., 1998
SMART Kids	Mulkey & Sprick, 2010

Table 3. Skills Sequences in Common Social Skills Programs

ACCEPTS (Walker, McConnel, Holmes, Todis, Walker, & Golden, 1983)	ASSET (Hazel, Schumaker, Sherman, & Sheldon-Wildgen, 1981)	The Tough Kid Social Skills Book (Sheridan, 1995)
CLASSROOM SKILLS • Listening to the teacher when the teacher tells you to do something. • Doing your best work • Following classroom rules BASIC INTERACTION • Eye contact • Using the right voice • Starting • Listening • Answering • Making Sense • Taking turns talking • Questioning • Continuing GETTING ALONG • Using polite words • Sharing • Following the rules • Assisting others • Touching the right way MAKING FRIENDS • Grooming • Smiling • Complimenting • Expressing Anger • Making Friends COPING • When someone says "no" • When someone teases you • When someone tries to hurt you • When someone asks you to do something you can't do • When things don't go right	• Giving positive feedback • Giving negative feedback • Accept negative feedback • Resisting peer pressure • Problem-Solving • Negotiations • Following Instructions • Conversation	SOCIAL ENTRY • Body Basics • Joining In • Recognize/express feelings MAINTAINING INTERACTIONS • Having a conversation • Playing cooperatively PROBLEM SOLVING • Solving problems • Using self-control • Solving arguments • Dealing with teasing • Dealing with being left out • Accepting "no"

Table 4. Social Skills Programs for Youth with ASD

- Social Skills Training for Children and Adolescents with Asperger Syndrome and Social-Communication Problems (Baker & Myles, 2003)

- Social Skills Solutions: A Hands-on Manual for Teaching Social Skills to Children with Autism (Mckinnon & Krempa, 2002)

- Navigating the Social World: A Curriculum for Individuals with Asperger's Syndrome, High Functioning Autism, and Related Disorders (McKinnon & Krempa, 2005)

- Building Social Relationships: A Systematic Approach to Teaching Social Interaction Skills to Children and Adolescents with Autism Spectrum Disorders and Other Social Difficulties (Bellini, 2006)

- S.O.S. Social Skills in Our Schools: A Social Skills Program for Children with Pervasive Developmental Disorders, Including High-Functioning Autism and Asperger Syndrome and Their Typical Peers (Dunn, 2005)

- Think Social: A Social Thinking Curriculum for School-aged Students (Winner, 2008)

CHAPTER 2

METHODS

This study was designed to evaluate the utility of the complete *Superheroes Social Skills* program (Jenson et al., 2011) as an evidence-based practice to teach social skills in a school setting to children with ASD who also report high rates of bullying. The current study measured the generalization and maintenance of these skills at follow-up. Another goal of the study was to assess the effectiveness of the program as a bullying intervention.

Before the recruitment of participants began, consent to conduct the research study by the school district institutional review board and the school was obtained. Approval from the University of Utah Institutional Review Board was also obtained by the primary researcher.

Participants

The current study was conducted with children with ASD who also reported being highly bullied, as well as typically developing peer buddies. The use of typically developing peers throughout the lessons is the suggested treatment model of the Superheroes program and they serve as appropriate models of the taught social skills. School staff nominated possible participants and the peer buddies. The researcher sent letters to the parents of the children who were nominated and the parents were asked to

contact the researcher by phone if they were interested. At that time the parents were

given more detailed information by phone. If the parent wanted to have their child

participate in the program, they met with the researcher to complete the parental consent

and child assent forms. The parents of the nominated children with ASD also completed

the Placement Checklist and the nominated children completed the Bully Victimization

Scale (Reynolds, 2003). The Bully Victimization Scale (BVS) and Placement Checklist

were completed to ensure the nominated child met criteria for being a participant.

Once all participants were recruited, parents attended a parent training orientation

meeting. The parents were provided with information about the intervention, the specific

lessons, and it was also explained how to help the child complete the homework and

properly check the power cards for reliability of the child's self-monitoring. They were

also asked to complete a SSIS at this time.

This study originally included four elementary children with ASD who were

reported by teachers as being frequently bullied. Before the study began and throughout

the first 6 weeks, Participant 4 reported being the target of frequent physical bullying, to

the extent that his parent decided that it was unsafe for him to be at school. Therefore,

Participant 4 withdrew from both the school and the study. No data was collected on

Participant 4 after he withdrew but the data collected up to that point can be viewed in the

Appendix FF. The remaining three participants completed the full study. Along with the

participants there were eight typically developing students, or peer buddies, that

participated in the group lessons. The peer buddies were split into two separate groups of

four students. The two groups of peer buddies rotated the days they came to group. This

was done to lessen the educational impact of pulling the regular education students out of

class, especially since the groups occurred three times a week. The three participants with ASD and eight peer buddies were all between the ages of 6 and 10.

Inclusion Criteria

All of the participants in the study met the following inclusion criteria:

1)   have an IDEIA educational classification of Autism and an Individualized Education Plan (IEP) containing goals objectives specific to social skills training.

2)   have received scores on the Autism Diagnostic Observation Schedule (ADOS) that meet or exceed the cut-off for ASD.

3)   have obtained a Full Scale IQ score of 70 or above on a Wechsler Intelligence Scale for Children, Fourth Edition, which was administered within the past 3 years by a qualified examiner.

4)   successfully pass the placement checklist (see Appendix C), which includes indicators for language, cognitive and problem solving abilities, behaviors and interests, motivations and learning style, attention span and persistence, memory abilities, and other psychological factors such as anxiety.

5)   have reported to either their parent or teacher in the last 5 months that they have been bullied, or the school staff has observed and documented occurrences of bullying.

6)   obtain a score on the BVS that places them in the clinically significant range for victimization ($T \geq 65$).

Participant 1

        Participant 1 is a 10-year-old Caucasian male in the fourth grade, with an educational classification of autism. He obtained a total score of 10 on the ADOS and 82 on the Gilliam Asperger's Disorder Scale (GADS). His cognitive abilities were assessed using the Wechsler Intelligence Scale for Children (WISC-IV), which was administered 4 months prior to the implementation of the study. He obtained a Full Scale IQ standard score of 93, a Verbal Comprehension score of 89, a Perceptual Reasoning score of 94, a Working Memory score of 102, and a Processing Speed score of 100. Participant 1 obtained a *T* score of 70 on the BVS, which places him in the clinically significant range. Based on parent ratings on the SSIS, Participant 1 was rated well below average (*SS*=67) on the Social Skills Scale, and above average (*SS*=122) on the Problem Behaviors Scale. His teacher rated him well below average (*SS*=61) on the Social Skills Scale and average (*SS*=128) on the Problem Behaviors Scale (see Table 5).

Participant 2

        Participant 2 is a 9-year-old Caucasian male in the third grade, with an educational classification of autism. He obtained a total score of 13 on the ADOS and 78 on the GADS. His cognitive ability was assessed the year prior to the study using the WISC-IV. On the WISC-IV he obtained a Full Scale IQ standard score of 97, a Verbal Comprehension score of 95, a Perceptual Reasoning score of 110, a Working Memory score of 94, and a Processing Speed score of 88. Before the intervention began Participant 2 completed a BVS and obtained a *T*-score of 66 on the BVS, which places him in the high-risk range.

Based on parent ratings on the SSIS, Participant 2 was rated below average (*SS*=70) on the Social Skills Scale and above average (*SS*=133) on the Problem Behaviors Scale. His teacher rated him below average (*SS*=73) on the Social Skills Scale and average (*SS*=106) on the Problem Behaviors Scale (see Table 5).

Participant 3

Participant 3 is a 6.8-year-old Caucasian male in the first grade with an educational classification of autism. He obtained a *T* score of 11 on the ADOS and 82 on the GADS. His cognitive ability was assessed using the WISC-IV, which was administered 5 months prior to the beginning of the study. On the WISC-IV he obtained a Full Scale IQ standard score of 94, a Verbal Comprehension score of 102, a Perceptual Reasoning score of 102, a Working Memory score of 86, and a Processing Speed score of 85. Participant 3 obtained a *T* score of 90 on the BVS, which is in the clinically significant range. Based on parent ratings on the SSIS, Participant 3 was rated below average (*SS*=80) on the Social Skills Scale and above average (*SS*=127) on the Problem Behaviors Scale. His teacher rated him below average (*SS*=74) on the Social Skills Scale and average (*SS*=134) on the Problem Behaviors Scale (see Table 5).

Participant 4

Participant 4 is a 10-year-old Caucasian male in the fourth grade with an educational classification of autism. He obtained a *T* score of 10 on the ADOS and 87 on the GADS. His cognitive abilities were assessed using the WISC-IV, which was administered a year prior to the implementation of the study. He obtained a Full Scale IQ standard score of 89, a Verbal Comprehension score of 95, a Perceptual Reasoning score

of 98, a Working Memory score of 80, and a Processing Speed score of 94. Participant 4 obtained a *T* score of 90 on the BVS, which places him in the clinically significant range. Based on parent ratings on the SSIS, Participant 4 was rated well below average (*SS*=77) on the Social Skills Scale, and above average (*SS*=119) on the Problem Behaviors Scale. His teacher rated him well below average (*SS*=72) on the Social Skills Scale and above average (*SS*=117) on the Problem Behaviors Scale. Participant 4 came into the study reporting very high levels of victimization. During the course of the study the parent of Participant 4 withdrew him from school and home-schooled him because she reported that the school was an unsafe environment for him. No further data were collected on Participant 4 (see Table 5). Other data on Participant 4 are in Appendix FF.

The eight peer buddies were all between the ages of 6 and 10. There were three females and five male peer buddies. Two of the females were in the fourth grade and the other one was in the third grade. Of the five male peer buddies, one was in the first grade, one was in the second grade, one was in the third grade, and two were in the fourth grade. All of the peer buddies were Caucasian and none of them had previously or were currently receiving special education services.

<div align="center">Setting</div>

The current study was conducted at a Title I elementary school, with 732 enrolled students. All sessions took place in the school psychologist's office. The office contained a 4-foot table, a video camera to record the analog free play session, a television monitor to play the social skills lessons via DVD format, and a bulletin board to list the group rules and post social skills materials.

The analog free time play was conducted in the same room in which the lessons were conducted. The participants and peer buddies had specific toys, both solitary and interactive toys, available to use during the analog free play. The same toys were used throughout the intervention and included LEGOS (LEGO), Ants in the Pants, Spongebob Squarepants Edition (Hasbro), Don't Break the Ice (Hasbro), toy cars with a track (Mattel), Transformers (Hasbro), and Jenga (Parker Brothers). The analog free plays lasted for 10 minutes and were videotaped for coding and reliability purposes. During the free play observation, the researcher was present but not actively engaged with the participants nor the peer buddies. In comparison with the recess observations, the analog free play sessions were more behaviorally restrictive. Since all the participants and peer buddies were in the same room and there were only the predetermined toys to play with, the participants and peer buddies would have less of a behavioral repertoire.

The recess observations were conducted on one of the two playgrounds located at the school. One playground is designated for kindergarten through second grade students and the other playground is for third through sixth grade students. The ground of both playground areas is covered by wood chips. The kindergarten through second grade playground consists of two slides, a jungle gym with monkey bars, a small grass field, and a large playground system. The third through sixth grade playground includes a large grass field, a large playground system, a cement area with basketball hoops, and a baseball diamond. During the recess observations, the participants had more behavioral options than during the analog free play. Participants could play either by themselves or with peers, and on any of the various playground structures.

Dependent Measures

Observation System

In order to assess the social skills of the participants, an observation system was adapted from Bellini's Social Observation System (2007) and Ross and Horner (2009). The observation system was used to code social behaviors during the videotaped 10-minute analog free play and recess periods. Observations were recorded during baseline, following treatment sessions on Fridays and at a 9-day follow-up.

The observations of the participants were coded for the following behaviors: social initiations, social responses, social engagement, solitary play, parallel play, disruptive behavior, and neutral behavior. However, only the social initiations, social responses, and total social engagement of the participants were reported in the results section. Social initiations consisted of behaviors such as requesting assistance, requesting information or participation, independently joining an activity, providing information/greeting, and offering comfort/affection. Social responses consisted of behaviors such as providing assistance, responding to requests, joining activities when asked, and responding to social initiations by others. Social engagement is the total time that the participant is engaged with other people and consists of the combination of social initiations and social responses. Solitary play was defined as taking part in an activity without having any interaction with others. Parallel play was defined as mirrored social play but without interaction or a predetermined objective between participants. Neutral behavior was behavior when the participant did not engage or interact with others but was also not demonstrating solitary or parallel play.

The analog and recess observations were coded using a time sampling system for observing behaviors. Using this method, an observer watches the participant for 5 seconds and then records the occurrence of the behavior during the next 5 seconds. Two common methods of time sampling are partial interval recording and momentary time sampling. In partial interval recording, the targeted behavior is recorded if it occurs at any time during an interval. In momentary time sampling, the targeted behavior is recorded if it occurs during a predetermined time. Both methods have been demonstrated to be accurate and provide similar results to continuous recording methods such as frequency or duration recording (Meany-Daboul, Roscoe, Bourret & Ahearn, 2006). However, research has demonstrated that momentary time sampling may be a more accurate estimate than partial interval recording (Saudargas & Zanolli, 1990). The method used in this study was similar to momentary time sampling in that the observer watched for a set time and then recorded the behavior during the next interval; however, because the observational period lasted for 5 seconds, the method used does not completely fit the criteria for being momentary time sampling and rather is a type of time sampling (Meany-Daboul, et al., 2006).

The observations for free play periods and recess were all recorded and coded by the researcher while 33% of all of the total observations were separately coded by another graduate student. The separate codings were compared using Kappa to determine interrater reliability. The formula that was used to calculate Kappa is $K = (Po – Pe) / (1-Pe)$. *Po* is the observed proportion of agreement and *Pe* is the proportion of agreement expected by chance. Kappa was calculated by entering each rater's codes into a website (http://cosmion.net/jeroen/software/kappa/).

Bully Role-Play Scenarios

Bully role-play scenarios were used in order to assess the bullying aspect of the program. All of the participants engaged in a total of six bullying scenarios. One role-play occurred preintervention, four during the course of the intervention, and one at follow-up. The role-play scenarios were taken from the scenarios that are part of the *Superheroes Social Skills* curriculum. All of the role-plays were video recorded and then analyzed according to the percentage of intervals that the targeted behaviors were demonstrated (see Appendix B). The targeted behaviors were taken from the progress monitoring forms that are used with Unit 17: "Responding to Bullying," and are the steps that are taught in that lesson. The steps that the students are taught to do are; (1) stay calm and be cool, (2) ask yourself, "Do I need help?" (3) act confident (i.e., face the person, use eye contact, stand tall, hold your head high, and use a strong firm voice), and (4) choose what to do: ignore, tell the bully to stop, walk away and look for friends, and/or talk to an adult. From those steps the behaviors assessed were staying calm, eye contact/face the person, voice, posture, and the response type (see Appendix B). The bully role-play scenarios occurred after Unit 4: "Reducing Anxiety," Unit 7: "Body Basics," Unit 16: "Recognizing and Reporting Bullying," and Unit 17: "Responding to Bullying."

Social Skills Improvement System (SSIS)

The SSIS (Gresham & Elliott, 2008) is a rating scale that measures the domains of social skills, problem behaviors, and academic competence. Teacher and parent rating forms were completed for each participant both pre- and postintervention. Each

participant's classroom teacher completed the teacher rating forms and all of the

participants had different teachers. For each question on the SSIS, the rater indicated

how frequently the participant performed the behavior. The options were: never, seldom,

often, and almost always. The ratings were then transferred to a corresponding number

(0 = Never, 1 = Seldom, 2 = Often, 3 = Almost Always) and these scores were then

converted into standard scores and percentile ranks.

The SSIS was created with a sample of 4,700 children between the ages of 3 and

18. The population sample used to norm the scale was representative of a national

sample. The internal consistency of the SSIS was assessed using coefficient alpha.

When the internal consistency of the scale was evaluated it generated a reliability

coefficient in the mid to upper 0.90s for every age group and on each form. The test-

retest reliability of the SSIS was assessed using a mean interval of 43 days for the teacher

form and 61 days for the parent form. For the teacher form the mean adjusted coefficient

for test-retest reliability is 0.81. On the parent form the mean adjusted coefficient is 0.71.

The interrater reliability of the different forms of the SSIS was also assessed. The

adjusted median interrater reliability for the teacher form was 0.58, and 0.59 for the

parent form. The SSIS was used to help identify the participants' use of social skills

before the intervention and to measure improvements in their social skills based on post

intervention scores. Pre- to postscore changes were examined on the composite scales as

well as the individual subscales. All change scores were recorded according to the

precedent set forth by the SSIS manual.

Bully Victimization Scale (BVS)

The BVS (Reynolds, 2003) is a self-report measure designed to assess bullying behavior and bully victimization experiences in children and adolescents. It is comprised of two subscales, the Bully Scale and the Victimization Scale, and designed for use with students in the third through twelfth grade. The BVS is typically used as a screening device for the identification of bullies, victims, and bully victims.

The BVS was developed using a national sample of 2,405 students from grades 3 through 12. The internal consistency of the scale was generated using Cronbach's coeffecient alpha, and when assessed resulted with a high reliability of 0.93. The test-retest reliability of the BVS was examined in a sample of 207 students using a 1- to 2-week interval between the testing periods. The assessment of the test-retest reliability for the entire sample resulted in reliability coefficient of 0.80. The BVS was completed by the three participants both pre- and postintervention. The BVS provides T scores from normative data set forth by gender and grade, or a combination of both (Reynolds, 2003). The results provided in this study used the specific gender and grade norms for each participant. Descriptive statistics of pre- and postscores were used to evaluate treatment differences.

Tough Kid Bully Blockers Survey

The student bully survey is from the *Tough Kid Bully Blockers Book* (Bowen, Ashcraft, Jenson & Rhode, 2008), which is an intervention program intended for weekly implementation in either the classroom, group, or at a schoolwide level. The student bully survey is a way to assess a student's subjective experience of bullying, areas in the school where bullying is occurring, and what ways the student has responded to bullying.

There are no normative data to compare responses to, yet the measure can provide both quantitative and qualitative data that can be examined.

Behavior Intervention Rating Scale (BIRS)

The BIRS (Elliot & Treuting, 1991) is a rating scale intended to measure the acceptability and effectiveness of a treatment. Treatment acceptability and treatment effectiveness do not always coincide. A treatment may be very effective but not acceptable, as well as the converse. However, research has shown that people's view of treatment acceptability can impact their judgment of the treatment's effectiveness. The BIRS has been shown to be a valid measure of treatment acceptability and perceived effectiveness and to also be able to distinguish between those to concepts (Elliott & Treuting, 1991).

In order to assess the acceptability and perceived effectiveness of the intervention, the BIRS was completed by both the teachers and the parents of the participants. The administration of the BIRS occurred following the completion of the intervention. Each question assessed the effectiveness of the treatment with responses being on a six-point scale, from 1 to 6. The numbers were connected with the descriptions: 1=strongly disagrees, 2=disagrees, 3=somewhat disagrees, 4=somewhat agrees, 5=agrees, or 6=strongly agrees. The means were calculated for each item and used to determine the level of treatment acceptability and perceived effectiveness.

Social Validity Scale

The social validity scale is a report measure that was originally developed by Bellini (2007) for research and was adapted and utilized in the current study to assess

how teachers and parents perceived the intervention. The scale investigates whether the intervention disrupted normal classroom activity, was distracting, was easy to implement, the degree of student enjoyment and benefit, as well as other pertinent factors. This scale has been used in previous studies on the *Superheroes* program and can be used to make comparisons to previous research.

Child Consumer Satisfaction Survey

The Child Consumer Satisfaction Survey was administered to the participants and the peer buddies following the intervention in order to determine the acceptability of the treatment from the children's perspective. The Child Consumer Satisfaction Survey (CCSS) was developed for a previous study assessing the social skills of students with autism (Block, 2010) and used with adaptation in this study. Questions were read aloud to the children and they circled the answer they thought was most accurate. There were four possible choices for responses to the questions (Strongly Disagree, Disagree, Agree, and Strongly Agree). Means were calculated based on the responses and were used to determine the participants' perceptions of the *Superheroes Social Skills* program.

Design

Data analysis was completed using a replicated AB single subject design. Single subject research is a design approach for analyzing the effectiveness of interventions. The design in this study consisted of baseline, treatment, and follow-up phases. Baseline observations were used to determine a trend in the baseline and establish stability. The treatment phase then began with the implementation of the intervention. After the completion of the intervention, the participants were observed again. Observations from

the phases were then compared to determine whether or not the intervention had an effect. The observations occurred in both an analog free play and recess setting. In the analog free play setting the participants were observed three times during the baseline phase, ten times throughout the intervention, and twice at follow-up. In the recess setting, the participants were observed three times during the baseline phase, six times during the treatment phase, and twice at follow-up.

As previously mentioned, the data from the observations in each phase are compared in order to determine the effectiveness of the intervention.

<div align="center">Baseline</div>

There were three free play observations and three recess observations completed during the baseline phase. Each observation was 10 minutes in duration. After the observations were downloaded to a computer, an audio track was added to the audio of each video with cues of when to watch the behavior and when to record the observed behavior during the 10-second time sampling intervals. The overlaid audio track consisted of the words "watch" and "record," with a 5-second pause between them. The audio recording simplified the coding process by instructing the coder when to watch and when to record the observed behavior. During the free play observations, six toys (LEGOS, Ants in the Pants Spongebob Squarepants Edition, Don't Break the Ice, toy cars with a track, Transformers, and Jenga) were brought out in a large plastic bin and the participants were able to choose the toys they preferred to play with. All of the toys were available during each analog free play and could be used for solitary play or for interactive play. The typical peer buddies who attended the treatment session also participated in the free play period, but their social behaviors were not coded.

Three recess periods were videotaped for each participant during the regular recess time. The observations lasted for 10 minutes and occurred on one of the two playgrounds at the elementary school. The observations were coded according to the same method as the analog free play. During the recess observations, the participants were able to choose any activity that they wanted to engage in. The researcher followed the participants and recorded their interactions in a minimally intrusive manner. A handheld digital video recorder, that was approximately 4 by 3 inches, was used to record the recess observations. A camera of this size was chosen because it was small enough to fit in the researcher's hand and could be used without viewing though an eyehole. The researcher recorded the observations while holding the camera at his hip in order to make it less noticeable. For two weeks prior to the onset of the baseline phase, the researcher went out during the participants' recesses and walked around with the camera, but not recording, in order to desensitize the students on the playground to the presence of the researcher and the video camera.

The participants also engaged in a bully role-play scenario during the baseline phase. The scenarios were recorded and coded according to the percentage of the intervals that they demonstrated the targeted behaviors. The behaviors that were being targeted were staying calm, making eye contact/facing the person, using an appropriate voice, using appropriate posture, and the type of response they demonstrated.

<div align="center">Treatment</div>

The *Superheroes Social Skills* program was used as the curriculum in the treatment phase of this study. The *Superheroes Social Skills* program was used to teach the participants specific social skills and how to recognize, report, and respond to

bullying (see Table 6). The Superheroes program includes 18 lessons (lessons are initially taught and then reviewed the following session) that are generally taught twice per week for 18 weeks.

In this study, all 18 of the lessons were taught, yet with greater frequency. Instead of twice a week, the lessons were taught three times a week. The lessons occurred on Monday, Wednesday and Friday each week, with the analog free play being recorded on Fridays after the lesson. According to the *Superheroes Social Skills* manual, lessons are taught during an initial session and then repeated in the following session. This same method of instruction and review was used for this study with a slight modification. All 18 of the lessons were taught, but four of the lessons were not repeated. This was done since it was determined that they had already acquired some of the beginning skills, and in order to address the specific needs of participants. Each session was approximately 30 minutes long.

In the program, each lesson incorporates a video that teaches the new social skill. The videos contain animated superhero characters that discuss the new social skill. The *Superheroes Social Skills* introduce the skill, provide rationale for use of the skill, and outline steps for correct demonstration of the skill. The superheroes then introduce a video with children demonstrating the skill. After viewing several video modeling scenarios of the skill, the facilitator demonstrated role-plays, both an incorrect and a correct example of the skill. The participants and their peer buddies then role-played the skill. The scenarios for the role-plays are provided in a supplemental booklet in the program. The scenarios are designed to coincide with the specific social skill that is being taught in the each lesson. After role-playing, the participants and peer buddies

watched a digital comic book, which is a social story of the skill. Finally, the participants and peer buddies played a social game that incorporates the skill they had just learned.

In addition to the use of the DVDs to present social skills, a reinforcement strategy for demonstrating the social skills was used. It involved the use of "Power Cards." Power Cards are similar in size to baseball cards or other trading cards that children may be familiar with. The participants received Power Cards when they demonstrated the social skills being taught. The participants would fill in a circle on the Power Cards every time they used the skill on the card. This provided the participants with feedback as a way to self-monitor their use of the skills. In the program, different power cards are used for each skill. The participants would bring back their Power Cards each time and at the beginning of the session, they filled in their Power Poster with the number of Power Charges they had earned since the last lesson. The Power Posters served as a public posting procedure. Social Stories were also a part of the *Superheroes Social Skills* program and were used in this study. The social stories in the program are in the form of a printed comic book that follows along with the information from the digital comic books on the video. The participants were given the comic books as homework.

Following each of the Friday sessions of the *Superheroes Social Skills* program, there was an analog free play period in which the social interactions of the participants were observed and recorded. The three participants were also observed six times at recess during the treatment phase. There were also four bully role-play scenarios that occurred during the treatment phase. The analog free play, recess observations, and bully

role-play scenarios completed during the treatment phase were conducted the same way the baseline observations were completed.

<center>Follow-up</center>

Nine days after the last lesson, the three participants had their social interactions recorded in two analog free play sessions and two recess periods. The follow-up observations were completed in the same way the observations in the baseline and treatment phase were conducted. The participants also engaged in a bully role-play scenario during the follow-up. The data from the follow-up were analyzed along with the treatment data.

After the last social skills lesson was completed, the participants and their peer buddies were given the Child Consumer Satisfaction Survey. The researcher explained what each possible answer meant and then read out loud all of the items to ensure they understood the questions. Also after the last lesson the parents and teachers of the participants completed the BIRS and the SSIS. These measures were then collected by the primary researcher and scored.

<center>Data Analysis</center>

In this study, there were four methods of analysis used to determine the effectiveness of the program. The methods used were ES, PND, PAND, and descriptive statistics of measures that were administered pre- and postintervention, along with descriptive statistics of the results from the role-plays and the measures that were only administered post intervention.

ES were computed for each participant to determine the effectiveness of the social skills intervention. ES were used to analyze the observational data from both the analog free play and recess periods. ES were generated using two different methods. One method for obtaining ES from the observational data was the following: the percentage of intervals during which the participant engaged in social initiations, social responses, and social engagement, was calculated during baseline, treatment, and follow-up. Means and standard deviations for each of the phases were calculated from those percentages using the descriptive statistics function of the StatPlus program. The difference between the baseline means and the treatment or follow-up means was divided by the pooled standard deviation of the baseline and treatment or follow-up for each subject. The formula used for this calculation is $d = [(Mt-Mb)/\sqrt{((s1+s2)/2)}]$. ES were calculated for both individual participants and the group as a whole. Along with the ES calculations, descriptive categories were used to describe the findings. The descriptive categories were according to Cohen's (1988) system for ES. Using Cohen's system there are three descriptive categories that ES come under. The categories are small, medium, and large. Cohen defines a small ES as one that falls between 0.1 and 0.3, a medium ES as those falling between 0.3 and 0.8, and a large ES as those 0.8 and above.

ES can be generated for group or single subject designs, but they should only be compared to studies of the same design. Therefore, the ES that were obtained in this study should only be compared to ES from other single-subject research design studies. Using ES can have limitations such as the limitation previously described and lack of comparability, but overall ES can provide useful information. The utility of ES was highlighted in an article by Jenson, Clark, Kircher, and Kristjansson (2007), "Rather than

simply rejecting a null hypothesis, effect sizes emphasize a difference between groups

that is not confounded by sample size" (p. 491). Thus, in this study ES provided a way to

measure the magnitude of the change of the participants' social engagement, especially

since there were only three participants. The other method for calculating ES was

through the use of a PAND analysis, which will be described along with the other method

for determining the effectiveness of the intervention.

The other method used to determine the effectiveness of the intervention was the

PND (Scruggs & Mastropieri, 1998). With this method, the PND between the baseline

and treatment conditions was calculated and compared to determine the extent to which

there was overlap. This calculation was obtained by dividing the number of data points

in the treatment phase that exceed the highest or lowest point in the baseline phase by the

total number of data points in the treatment phase, thus yielding a percentage. Once the

percentage is calculated it is simply put into one of four categories: (1) very effective -

PND scores of over 90 (i.e., 90% of treatment observations exceed the highest baseline

observation), (2) effective - scores between 70 and 90, (3) questionable - scores of 50 to

70, and (4) ineffective - scores below 50 (Scruggs & Mastropieri, 1998). This provides a

means for classifying and comparing interventions done in single-subject research. PND

was calculated for each individual participant along with ES calculations. However,

PND can be inaccurate if outliers are found in the baseline phase or when the treatment

has a detrimental effect (Scruggs & Mastropieri, 1998).

A method similar to the PND calculation is the PAND (Parker & Vannest, 2009).

This method is considered to be a more accurate measure of effect and more closely

related to ES than PND. One of the main differences between PND and PAND is that

PAND uses all of the data points and is less likely to be affected by one extreme data point. Another difference between the two is that PAND can be translated into Pearson's Phi and a calculation of ES. If Pearson's Phi is used, calculations can be made for confidence intervals, which can be used to determine ES reliability. Two limitations of PAND that should be considered when analyzing the data include the insensitivity when there is no data overlap between baseline and treatment, and that PAND cannot account for a positive baseline trend.

In this study, PAND was calculated using the method explicitly described by Riley-Tillman and Burns (2009). The formula that was used is $d = (2\Phi) / (1 - \Phi2)$ with the formula to calculate Φ being $\phi = [\ a\ /\ (a+c)]\ -\ [\ b\ /\ (b+d)]$. The values for $a, b, c,$ and d are derived from a 2 x 2 table created from the data. The table was created by determining the percentage of intervention/follow-up data points that overlap with the baseline data points for all of the subjects. This percentage is then divided by two and placed in cells c and b. The value of cells c and b are subtracted from the percentage of baseline data points and intervention data points and the resulting values are placed in cells a and d. An example of the 2 x 2 table can be seen in Table 7. The PAND analysis provided the second method for calculating ES.

The observational data from the role-play scenarios were analyzed using descriptive statistics that compared baseline, treatment and follow-up data.

For evaluating the results from the SSIS, change scores that are provided in the manual were used to document significant change and categorical changes. The final method of data analysis used in this study relied on descriptive statistics for the BVS, Tough Kid Bully Survey, BIRS, social validity scale, and the Child Consumer

Satisfaction Survey. The SSIS, BVS, and Tough Kid Bully Blocker Survey were all administered both pre- and postintervention. This provided pre- and postscores that were compared using visual analysis and measures of significant change. Since the BIRS, social validity scale, and Child Consumer Satisfaction Survey were administered only postintervention, simple descriptive statistics were used to describe the data derived from those measures.

Intervention Fidelity

To assess the fidelity of implementation of the *Superhero Social Skills* program, an intervention fidelity checklist was used. The checklist includes sequential list of the steps for the *Superhero Social Skills* program and was completed at the conclusion of the social skills lessons by the social skills instructors. The treatment fidelity in this study was calculated to be 100%, meaning the implementation was correct.

Reliability of Observations

With most of the data consisting of observations, a high degree of interrater reliability was necessary to ensure accurate results. Interrater reliability is the degree of agreement between the raters and is provided with a percentage of agreement or concordance. Interrater reliability was calculated using 33% of the analog free play and recess observations, and 100% of the role-play scenarios. The reliability of the observations was calculated by dividing the number of agreements by the number of agreements and disagreements. Interobserver agreement was calculated to be 89.7% for the analog free play and recess observations, and 91.4% for the role-play scenarios. A method for determining both the occurrences and nonoccurrences of behavior is the use

of Kappa, which provides a percentage of agreement. In this study Kappa was calculated

to be 0.78 for the observer agreement, which is considered substantial agreement (Sim &

Wright, 2005).

Table 5. Demographic Information for Participants

	Participant 1	Participant 2	Participant 3	Participant 4
Male Age	10	9	6	10
WISC-IV Scores (*M*=100, *SD*=15)				
Full Scale IQ	93	97	94	89
Verbal Comprehension	89	95	102	95
Perceptual Reasoning	94	110	102	98
Working Memory	102	94	86	80
Processing Speed	100	88	85	94
Social Skills Improvement System (SSIS) (*M*=100, *SD*=15)				
Social Skills Scale				
Parent	67	70	80	77
Teacher	61	73	74	72
Problem Behaviors				
Parent	122	133	127	119
Teacher	128	106	134	117
Bully Victimization Scale (*M*=50, *SD*=10)				
T scores	70	66	90	90
Autism Diagnostic Observation System (Autism Cutoff=>10)				
Total Score	10	13	11	10
Gilliam Asperger's Disorder Scale (Quotient: ≥80=High/Probable)				
Parent Form	82	97	82	87

Table 6. Superheroes Social Skills Lessons

Unit 1:   Understanding the Group and How it Works

Unit 2:   Get Ready

Unit 3:   Following Directions*

Unit 4:   Reducing Anxiety (Be Cool) (S)

Unit 5:   Participate

Unit 6:   Imitation*

Unit 7:   Body Basics (S)

Unit 8:   Expressing Wants and Needs*

Unit 9:   Joint Attention*

Unit 10:   Turn Taking

Unit 11:   Responding to Questions and Requests

Unit 12:   Conversation

Unit 13:   Recognizing Emotions in Yourself and Others

Unit 14:   Perspective Taking

Unit 15:   Reporting a Problem

Unit 16:   Recognizing and Reporting Bullying (S)

Unit 17:   Responding to Bullying (S)

Unit 18:   Problem Solving and Safety

Note: Asterisks denote units that were only instructed a single time. 'S' indicates when role-plays occurred.

Table 7. Example of a PAND 2 x 2 Table

	Intervention	Baseline	Total
Higher	cell a	cell b	a + b
Lower	cell c	cell d	c + d
Total	a + c	b + d	100%

CHAPTER 3

RESULTS

<u>Research Question #1</u>

What is the effectiveness of the 18-lesson Superheroes Social Skills program in increasing the social skills of students with an ASD who have been identified as being highly bullied, as measured by observational data taken during the analog free play period?

All Participants

Analog free play observations occurred three times during baseline, ten times during treatment, and twice at follow-up. The percentages of the intervals during which the participants engaged in social initiations, social responses, and social engagement were averaged for the individual participants and the group. These results can be seen in Table 8. As a group, the participants engaged in social initiations on average 13.6% of the baseline phase, 18.7% of the treatment phase, and 23.7% of the intervals during the follow-up phase. The group average data points can be seen in Appendix D. Participants demonstrated, on average, social responses during the baseline phase in 23.7% of the intervals, 23.6% of the treatment intervals, and 33.3% of the intervals during the follow-up phase (see Appendix E).

Total social engagement for all the participants was calculated to be 37.3% of the intervals during baseline, 42.3% during the treatment, and 55.3% during the follow-up (see Appendix F).

ES were calculated to quantify the difference between the baseline and treatment, and baseline to follow-up. The three social behaviors being coded were social initiations, social responses, and social engagement. ES were calculated using the no assumptions method and also Cohen's *d*, which was derived from the PAND analysis. These results can be seen in Table 9. When Cohen's *d* was calculated from the PAND analysis, the results were medium for social initiations (*ES*=0.58) and social responses (*ES*=0.58), and small for total social engagement (*ES*=0.27). Using the no assumptions method, the ES was medium for social initiations (*ES*=0.63), no ES for social responses (*ES*=-0.009), and was small for total social engagement (*ES*=0.30).

When the no assumption method was used to generate ES the results were similar for social initiations and social engagement. However, a large difference was observed in social responses.

The PAND was calculated for the group. The results of the PAND calculation were 74.4% for social initiations, 74.4% for social responses, and 69.2% for social engagement. The results of the PAND calculations for the group along with the PND calculations for the individual participants are summarized in Table 10.

Participant 1

Participant 1 attended all baseline, treatment, and follow-up sessions (three baseline, 29 treatment, and two follow-up) of the program. Observations occurred during

all three of the baseline session, ten of the treatment sessions, and on both of the follow-up sessions.

During the analog free play Participant 1 demonstrated social initiations, on average, during 15.3% of the intervals in the baseline phase, 19.9% of the treatment phase, and 23.0% of the intervals during follow-up (see Appendix G and Table 6). Participant 1 social responded, on average, during 17.7% of the intervals in the baseline phase, 22.5% in the treatment phase, and 35.5% of the intervals during follow-up (see Appendix H). When the total social engagement of Participant 1 was calculated he demonstrated social engagement during 33.0% of the intervals in the baseline phase, 42.4% during the treatment phase, and 58.5% of the intervals during follow-up (see Appendix I).

ES were calculated for social initiations, social responses, and total social engagement of Participant 1. The individual calculations of the ES used the no assumptions method and compared baseline to treatment and baseline to follow-up. Using Cohen's criteria the ES was medium for social initiations (*ES*=0.47), social responses (*ES*=0.39), and total social engagement (*ES*=0.45). At follow-up the ES was large for social initiations (*ES*=1.04), social responses (*ES*=1.08), and total social engagement (*ES*=1.11). Larger ES from the follow-up data may indicate a continued upward trend in the total social engagement of Participant 1. For participant 1 PND was calculated to be 20.0% for social initiations, 20.0% for social responses, and 20.0% for total social engagement (see Table 11). All of those PND percentages would indicate questionable treatment effects but they may be more of a reflection of an outlier during baseline (see Appendix I).

Participant 2

Participant 2 attended all baseline, treatment, and follow-up sessions of the programs (three baseline, 29 treatment, and two follow-up). Observations occurred during all three of the baseline sessions, ten of the treatment sessions, and on both of the follow-up sessions.

During analog free play, Participant 2 demonstrated social initiations, on average, during 14.3% of the intervals in the baseline phase, 24.3% of the treatment phase, and 29.0% of the intervals during follow-up (see Table 6 and Appendix J). Participant 2 social responded, on average, during 26.7% of the intervals in the baseline phase, 27.9% in the treatment phase, and 44.0% of the intervals during follow-up (see Appendix K). When the total social engagement of Participant 2 was calculated, he demonstrated social engagement during 43.0% of the intervals in the baseline phase, 52.2% during the treatment phase, and 68.0% of the intervals during follow-up (see Appendix L). The averages for the social initiations, social responses, and total social engagement for Participant 2 in the analog free play setting increased across each phase. Those results suggest an overall increase in social engagement that continued throughout the treatment and during the follow-up.

ES were calculated for social initiations, social responses, and social engagement of Participant 2 at both treatment and follow-up. Using the treatment data the ES was large for social initiations (*ES*=1.50), minimal for social responses (*ES*=-0.06), and medium for total social engagement (*ES*=0.56). The ES obtained from the follow-up data suggest a larger effect. The ES was large for social initiations (*ES*=1.52), social responses (*ES*=1.37), and total social engagement (*ES*=1.66). The large ES from the

follow-up data suggest that the social engagement of Participant 2 continued to increase over the course of the intervention and that he demonstrated significantly more social interaction after the completion of the intervention than he did before the intervention began.

For Participant 2, PND was calculated to be 70.0% for social initiations, 10.0% for social responses, and 40.0% for total social engagement (see Table 12). Only social initiations, which obtained a PND of 70.0%, would be considered an effective treatment.

Participant 3

Participant 3 attended all baseline, treatment, and follow-up sessions of the program (three baseline, 29 treatment, and two follow-up). Observations occurred during all three of the baseline sessions, ten of the treatment sessions, and on both of the follow-up sessions.

During analog free play Participant 3 demonstrated social initiations, on average, during 11.3% of the intervals in the baseline phase and 11.9% of the intervals during treatment, and 19.0% of the intervals during follow-up (see Table 6 and Appendix M). Participant 3 social responded, on average, during 24.7% of the intervals in the baseline phase, 20.3% of the intervals during treatment, and 20.5% of the intervals during follow-up (see Appendix N). When the total social engagement of Participant 3 was calculated, he demonstrated social engagement during 36.0% of the intervals in the baseline phase, 32.3% of the intervals during treatment, and 39.5% of the intervals during follow-up (see Appendix O).

ES were calculated for social initiations, social responses, and social engagement for Participant 3 in the analog free play setting. The ES at treatment was small for social

initiations (*ES*=0.10). There was also a medium negative effect for social responses, (*ES*= -0.51), and another negative effect for total social engagement, (*ES*= -0.30). Those ES suggest an overall decrease in the percentage of time that Participant 3 social engaged with others. When ES were calculated using the follow-up data, a large ES was found for social initiations (*ES*=1.60), a small negative effect for social responses (*ES*=-0.30), and a small effect for social engagement (*ES*=0.22).

Participant 3 was the only participant to demonstrate an overall decrease in his total social engagement across the treatment phase. Some of this may be explainable due to the constraints of the analog free play. The participants had limited persons that they could interact with so if other participants did not want to interact with, or limited their social interactions with a specific person, he had no other people that he could interact with. This is likely what occurred with Participant 3. He would sometimes demonstrate annoying behavior toward the peer buddies and other participants, which may have lessened their desire to interact with him. This factor may account for the inconsistency and the decrease in Participant 3's total social engagement during treatment. For Participant 3 PND was calculated to be 40.0% for social initiations, 10.0% for social responses, and 10.0% for total social engagement (see Table 13). All of those PND percentages would indicate questionable treatment effects. In the analog free play setting Participant 3 demonstrated social behavior that was the least affected by the social skills intervention and a decrease in the amount of social responding he exhibited.

Based on the results of the data analysis for the group and individual participants there were mixed results as to whether this intervention increased the participants' social engagement in the analog free play setting. As a group, the total social engagement

during treatment resulted in a small ES (*ES*=0.30), and the social responding resulted in

an ES that signified no change (*ES*=-0.009). However, the group obtained a medium ES

for social initiations (*ES*= 0.63). Social initiations demonstrated the greatest ES across

the group and this trend was the same for the individual participants. The most consistent

result across all three participants was an observed increase in their social initiations.

Participant 1 obtained an ES of 0.47, participant 2 obtained a large ES of 1.50, and

Participant 3 exhibited an increase in his social initiations resulting in an ES of 0.10.

Participant 1 and 2 also demonstrated improvements in their total social engagement but

Participant 3 did not. The data suggest that statistically noticeable improvements were

seen in 2 of the 3 participants in the analog free play setting. Therefore, when the group

is analyzed as a whole, the data suggest that the *Superheroes Social Skills* program was

effective in increasing the social skills of 2 of the participants, as defined by increasing

their social engagement. Of the two general components that comprise social

engagement, social initiations and social responses, social initiations was the component

that increased the most and it appears that the intervention was most successful at

increasing the participants' ability to initiate social interactions with others. Based on the

data collected from this study, this research question was satisfied.

Research Question #2

What is the effectiveness of the 18-lesson Superheroes Social Skills program in

increasing the social skills of students with an ASD as measured by observational data

taken during a naturalistic setting, that is, recess?

Each participant was observed at recess three times during the baseline, six times

during the treatment phase, and twice during follow-up. The observations were

videotaped and then coded for social behaviors using an adapted momentary time sampling observation system. This was done in order to measure whether there was an increase in the participants' social engagement in a naturalistic setting. The concept of social engagement is comprised of two social behaviors: social initiations and social responses. The intervals in the recess observations were coded according to the percentage of the observation intervals in which the participants engaged in social interactions. The data were calculated in the baseline, treatment, and follow-up phases. The data from these observations were used to calculate the ES, and PND for each participant. For the group, the PAND was calculated, Cohen's *d* was derived from the PAND scores, as well as ES using the no assumptions method. The group results will be discussed first followed by the individual results.

All Participants

Throughout the recess baseline phase the participants, on average, engaged in social initiations 7.9% of the time, 13.8% of the time during treatment, and 18.8% of the intervals during follow-up (see Table 14 and Appendix P). Participants demonstrated, on average, positive responses to social interactions during the recess baseline phase during 15.6% of the intervals, 24.7% of the intervals during treatment, and 23.8% of the intervals during follow-up (see Appendix Q). Total average social engagement for all the participants occurred during 23.4% of the intervals during baseline, 38.5% during treatment, and 42.6% of the intervals during the follow-up (see Appendix R). ES were calculated for social initiations, social responses, and total social engagement for the group. These were calculated using both the no assumptions method as well as ES derived from a PAND analysis. Using the no assumptions method, a large ES was

observed for social initiations (*ES*=0.78) and total social engagement (*ES*=0.76), and a

medium ES for social responses (*ES*=0.65). When a PAND analysis was used to generate

ES the results were more significant. Large ES were observed for social initiations

(*ES*=0.92) and total social engagement (*ES*=1.15), and a medium ES for social responses

(*ES*=0.71) (see Table 15).

The PAND was calculated for the group as being 74.1% for social initiations,

70.4% for social responses, and 77.8% for total social engagement (see Table 16). The

PAND results from the recess observations were more consistent and generated higher

percentages than the results from the analog free play setting. However, none of the

resulting PAND percentages alone were high enough to suggest an effective treatment.

Yet, when the PAND percentages are examined along with the ES (both no assumptions

method and PAND generated), the data would suggest that the treatment was effective.

Participant 1

Participant 1 was observed at recess three times at baseline, six times during the

treatment, and twice at follow-up. During the recess observations Participant 1

demonstrated social initiations, on average, during 9.3% of the intervals in the baseline

phase, 12.2% of the intervals during treatment, and 31.0% of the intervals during follow-

up (see Appendix S and Table 14). Participant 1 social responded, on average, during

13.3% of the intervals in the baseline phase, 22.8% during treatment, and 25.0% of the

intervals during follow-up (see Appendix T). When the total social engagement of

Participant 1 was calculated, he demonstrated social engagement during 22.6% of the

intervals in the baseline phase, 35.0 % during the treatment phase, and 56.0% of the

intervals during the follow-up (see Appendix U).

ES were calculated for the individual participants using the no assumptions method. A PAND analysis was not conducted for the individual participants since 20 data points are recommended in order to use a PAND analysis. For Participant 1 ES were calculated for social initiations, social responses, and social engagement using treatment data as well as follow-up data. At treatment the ES were medium for social initiations (*ES*=0.40), social responding (*ES*=0.66), and total social engagement (*ES*=0.58). The ES that was calculated from the follow-up data was large for social initiations (*ES*=1.80), social responses (*ES*=2.45), and total social engagement (*ES*=1.99). These data suggest that the increase in the overall social engagement of Participant 1 continued to increase as the intervention progressed and that the skills were maintained after the completion of the intervention (see Table 17). For Participant 1 PND was calculated to be 50.0% for social initiations, 50.0% for social responses, and 50.0% for total social engagement (see Table 17).

Participant 2

Participant 2 was observed at recess three times during baseline, six times during treatment, and twice at follow-up. During the recess observations Participant 2 demonstrated social initiations, on average, during 4.0% of the intervals in the baseline phase, 13.8% during treatment, and 8.0% of the intervals during follow-up phases (see Table 14 and Appendix V). Participant 2 socially responded, on average, during 10.7% of the intervals in the baseline phase, 15.2% during the treatment phase, and 14.0% of the intervals during follow-up (see Appendix W). When the total social engagement of Participant 2 was calculated, he demonstrated social engagement during 14.7% of the 22.0% of the intervals during follow-up (see Appendix X). The percentage of intervals

from treatment to follow-up during which Participant 2 demonstrated social initiations appears to have decreased. During treatment Participant 2 demonstrated social initiations during 13.8% of the treatment phase and 8.0% of the intervals during follow-up. However, during the first treatment observation and the first follow-up observation the participant appeared to be upset and elected to go and sit alone under a slide instead of interacting with other children. Similar behavior was not observed during any other of the observations. Those two observations may account for less of an increase in the participant's social initiations.

ES for Participant 2 were calculated for social initiations, social responses, and social engagement using comparisons of both treatment to baseline and follow-up to baseline (see Table 18). The ES that was calculated from the treatment data resulted in a large effect for social initiations (ES=1.12), a medium effect for social responses (ES=0.33), and a medium to large effect for total social engagement (ES=0.74) (see Table 15). The ES that were generated from the follow-up data indicated a slight decrease from treatment to follow-up. They were medium for social initiations (ES=0.65), social responses (ES=0.31), and total social engagement (ES=0.50). Those results suggest that Participant 2 exhibited a similar level of social responding but that he decreased the amount of time that he social initiated with others across the intervention to follow-up. For Participant 2, PND was calculated to be 83.3% for social initiations, 33.3% for social responses, and 33.3% for total social engagement (see Table 18). With the exception of the PND for social initiations, which would be considered valid treatment effects, the other percentages would indicate questionable treatment effects.

Participant 3

Participant 3 was observed at recess three times during baseline, six times during treatment, and twice at follow-up. During the recess observations Participant 3 demonstrated social initiations, on average, during 10.3% of the intervals in the baseline phase, 15.3% during the treatment phase, and 17.5% of the intervals during follow-up (see Table 14 and see Appendix Y). Participant 3 social responded, on average, during 22.7% of the intervals in the baseline phase, 36.2% during the treatment phase, and 32.5% of the intervals during follow-up (see Appendix Z). When the total social engagement of Participant 3 was calculated, he demonstrated social engagement during 33.0% of the intervals in the baseline phase, 51.5% during the treatment phase, and 50.0% of the intervals during follow-up (see Appendix AA).

ES were calculated for social initiations, social responses, and social engagement. They were calculated comparing treatment to baseline and follow-up to baseline. The ES calculated at treatment were medium for social initiations (*ES*= 0.68), and large for social responses (*ES*=1.19) and total social engagement (*ES*= 1.18) (see Table 19). When ES were calculated from the follow-up data they were all large: social initiations (*ES*=0.88), social responses (*ES*=2.03), and total social engagement (*ES*=1.38). The ES generated from both the treatment and follow-up data suggest that the intervention was effective at increasing the social engagement of Participant 3. The large ES at follow-up suggest that the changes in the social engagement of Participant 3 were maintained after the completion of the intervention. The PND was calculated for Participant 3 and resulted in 50% for social initiations, 75% for social responses, and 75% for total social engagement (see Table 19).

Based on the results of the recess observation data analysis for the individual participants, the results suggest this intervention was effective in increasing the social behaviors of the participants involved. Participants 1 had large ES for social initiations, social responses, and total social engagement. Participant 1 appeared to make strong gains overall and the results seen in the recess setting were very similar to those found for Participant 1 in the analog free play setting. Participant 2 obtained the most significant gain in social initiations, yet still had a large ES in total social engagement. The results for Participant 2 in the recess setting were very similar to his results from the analog free play setting; meaning, Participant 2 demonstrated the greatest increase in his social initiations and had smaller gains in social responding. Participant 3 obtained the largest ES of the group for total social engagement in the recess setting. The results for Participant 3 in the recess setting were very different from the analog free play results. In the analog free play Participant 3 demonstrated small improvements in social initiations yet his overall social engagement decreased slightly as the intervention progressed. However, in the recess setting Participant 3 demonstrated a larger increase in social engagement than the other two participants. It appears that even though the social engagement of Participant 3 did increase in the research setting (analog free play), the intervention still generalized to the naturalistic setting of recess. Based on the data collected from this study, this research question was satisfied.

Research Question #3

What is the effectiveness of the 18-lesson Superheroes Social Skills program in increasing the social skills of students with an ASD, as measured by pre and post-quantitative change scores from parent and teacher ratings on the SSIS?

Parents and teachers completed the SSIS as a pre- and postintervention measure to determine the participants' severity of social impairments and to determine the effects of the intervention for improving their overall social skills. Pre- and postmeasures of the SSIS were completed on all of the participants by their teachers and parents. For all of the participants, the SSIS was completed by their mothers. The scores are reported as standard scores (M=100, SD=15). Standard deviation changes in scores were used to determine treatment effects as recommended in the SSIS manual. In general, scores on the Social Skills scale below 100 indicate lower than average social skills, and above 100 indicates above average social skills. The Problems Behaviors scale is the opposite. Score above 100 indicate more problems than average and below 100 indicate fewer than average problems.

All Participants

Parent Ratings

The scores obtained from the parent ratings on the Social Skills scale were averaged across the participants and showed an increase from pre- to postintervention. The group average preintervention standard score on the Social Skills scale was 72.3 and at postintervention it was 77. The mean difference between the average pre- and postintervention scores was 4.7 standard points, meaning on average an increased reporting of social skills from the participants' parents (see Table 20).

The group average parent ratings on the Problem Behaviors scale showed little change from pre- to postintervention. The group average preintervention score was 127.3, and the group average score at postintervention was 126.7.

<u>Teacher Ratings</u>

All three participants had different teachers and were rated by the same teacher pre- and postintervention. The group average teacher rating on the Social Skills scale preintervention was 69.3 and postintervention the group average was 77.7. The average group increase in score was 8.4 standard points. In general, at preintervention the teachers rated the participants lower in social skills than the parents did, but postintervention it was the opposite. Postintervention the teachers rated the participants higher in their social skills than the parents did. The results suggest that the teachers reported more improved change in the participants' social skills than the parents did (see Table 20).

The group average teacher rating on the Problem Behaviors scale was 122.7 preintervention, and 116.3 postintervention, with a decrease of 6.4 standard points. Overall, the teachers rated the participants as having more of an increase in their social skills and more of a decrease in problem behaviors than the parents rated them. On the academic competence scale, which was only completed by the teachers, there was little difference between pre- and postscores. The group average score preintervention was 76 and it was 76.3 at postintervention.

<div align="center">Participant 1</div>

<u>Parent Ratings</u>

Parent ratings for Participant 1 improved from pre- to postintervention on both the Social Skills scale and the Problem Behaviors scale (see Table 21). On the Social Skills scale, Participant 1 was rated with a preintervention score of 67, which is considered to be well below average. He was rated with a postintervention score of 72, which is still

considered below average. On the Problem Behaviors scale, Participant 1 received an

above average preintervention score of 122 and at postintervention a similar score of 121.

The parent ratings of Participant 1 indicate no change in the ratings for the Problem

Behaviors scales and both scores indicate problematic behaviors. Even though there was

not a statistically significant change from pre- to postintervention on either scale, there

was categorical change on two of the Social Skills subscales for Participant 1. The

subscales that improved descriptive categories from pre- to postintervention were

Cooperation and Self-control. Both of these subscales on the SSIS changed from the

below average to the average range (see Table 22).

Teacher Ratings

The teacher ratings for Participant 1 indicate improvements in the scores on both

the Social Skills scale and Problem Behaviors scales of the SSIS. Participant 1 had a

preintervention score of 61 on the Social Skills scale and a postintervention score of 75,

indicating a difference of 14 points, or almost a standard deviation. On the Problem

Behaviors scale, Participant 1 had a preintervention score of 128 and a postintervention

score of 117, indicating an 11-point decrease. There was a 1-point decrease in the

teacher ratings of the participant's academic competence (see Table 21). The subscales

that changed from pre- to postintervention were Cooperation, Engagement, and Self-

control (see Table 23). Cooperation and Engagement changed from a below average

level at preintervention to an average level postintervention.

A 4-point increase in the raw score was also seen in Self-control, yet that subscale

did not change descriptive categories and remained at a below average level.

Cooperation is the subscale that both the teacher and the parent of Participant 1 rated as

increasing from a below average level to an average level. Increases on the subscales of

Self-control and Engagement were also reported by both the teacher and parent indicating

those subscales assess social skill areas that were likely affected by the intervention.

Participant 2

Parent Ratings

Parent ratings for Participant 2 indicated no significant changes from pre- to

postintervention on either the social skills scale or the problem behaviors scale (see Table

24). On the Social Skills scale, Participant 2 obtained a preintervention score of 70,

which is considered to be below average. He obtained a postintervention score of 77,

which is still considered below average but was an increase of 7 points from pre- to

postintervention. On the Problem Behaviors scale, Participant 2 received a

preintervention score of 133 and a postintervention score of 135, indicating an increase in

the parent's reporting of the participant's problem behaviors. Even though the increase in

score on the Social Skills scale was not significant, two subscales improved from the

below average to the average range. These were the subscales of Cooperation and

Communication (see Table 25).

Teacher Ratings

The teacher ratings for Participant 2 were not noticeably different from pre- to

postintervention. Participant 2 obtained a preintervention Social Skills score of 73 and a

postintervention score of 76 (see Table 24). Both pre- and postscores are below average.

Even though there appears to be little difference between the pre- and post-Social Skills

scores, Participant 2 improved from the below average to the average range on the Social

Skill subscale of Cooperation (see Table 26). On the Problem Behaviors scale Participant 2 obtained a prescore of 106 and a postscore of 105, both of which are in the average range. The academic competence of Participant 2 was rated 81 preintervention and at 83 postintervention (see Table 24). Both scores are below average.

Participant 2 was rated preintervention as being in the below average range by both his teacher and his parent on the social skills subscale of Cooperation. However, at postintervention the Cooperation subscale was the single scale that was reported by both his parent and teacher as improving from the below average to the average range.

Participant 3

Parent Ratings

Parent ratings for Participant 3 indicated no significant changes from pre- to postintervention on the social skills scale and the problem behaviors scale (see Table 27). On the Social Skills scale, Participant 3 was rated with a preintervention score of 80, which is considered to be below average. At postintervention Participant 3 was rated with a score of 82, which is still considered to be below average. Of the SSIS subscales, the subscale of Engagement improved from the below average range to the average range on the parent report (see Table 28). On the Problem Behaviors scale, Participant 3 received a prescore of 127 and a postscore of 124, indicating a slight decrease in reported problem behaviors. However, both the pre- and postscores for the problem behavior scale were in the significant range and indicated problematic behaviors.

<u>Teacher Ratings</u>

The teacher ratings for Participant 3 demonstrated greater change from pre- to postintervention than the parent ratings. However, none of the changes were statistically significant. Participant 3 obtained a pre-Social Skills score of 74 and a postscore of 82 (see Table 27). Both the pre- and postscores are below average. Even though the difference between the pre- and postsocial skills scores was not statistically significant, all seven subscales that comprise the Social Skills scale increased in raw score. Also, the subscales of Cooperation and Engagement improved from the below average range to the average range (see Table 29). The subscale of Engagement improved from the below average to the average range on both the teacher and parent ratings. On the Problem Behaviors scale Participant 3 obtained a prescore of 134 and a postscore of 127. Both the pre- and postscores are above average and indicate numerous problem behaviors that are being reported by the teacher of Participant 3, yet there was a decrease in the standard score from pre- to posttest.

<div align="center">Research Question #4</div>

What is the effectiveness of the 18-lesson Superheroes Social Skills program to increase the participants' appropriate responding to bullying during role-play scenarios?

All of the participants in the study were students with an ASD who had also reported high rates of being the victims of bullying. Two of the 18 lessons of the *Superheroes Social Skills* program directly addressed the issue of bullying. At predetermined times throughout the intervention the participants engaged in a role-play scenario in which they were the victim of bullying. These scenarios were videotaped and

then analyzed according to an observation system adapted from the progress monitoring used in the manual. There was one role-play that occurred during baseline, four role-plays throughout the intervention, and one at the follow-up phase. The participants were rated according to percentage of intervals during which they appropriately demonstrated the targeted skills. All of the scenarios were independently rated and an interrater reliability coeffecient of 91.4% was obtained. The four skills that were being assessed were staying calm and cool, eye contact/face the person, posture, and voice (see Appendix B). Skills were considered "demonstrated" when they were appropriately used in 70% or more of the intervals. Skills were considered to be "somewhat demonstrated" when they were appropriately used during 40% to 69% of the intervals. Skills were considered to be "not demonstrated" if they were appropriately used in 39% or less of the intervals.

<div align="center">All Participants</div>

The percentage of intervals during which they appropriately demonstrated the skills was averaged across all participants during baseline, the four treatment role-plays, and during the follow-up (see Table 30).

Across the participants, the largest improvement in the role-plays was noticed in their ability to "stay calm and cool" in the way that they responded to the bullying situations. The second largest group improvement was in the way they used an appropriate voice. The participants' use of appropriate eye contact/facing the person, along with appropriate posture (standing tall with their heads up and not fidgeting or slouching) showed the smallest change from pre- to postintervention but improvements

were still observed. Overall, improvements were seen in each of the four skills that were

being assessed and as a group all four of the skills were "demonstrated" at follow-up.

<div align="center">Participant 1</div>

Participant 1 was present for all of the role-play scenarios. In the baseline role-

play Participant 1 did not demonstrate using an appropriate voice (33.3%), using

appropriate posture (33.3%), nor staying calm (33.3%). He was able to "demonstrate"

using eye contact and facing the person during 66.6% of the intervals (see Table 31).

Participant 1 also chose an inappropriate response during the baseline role-play and

responded by calling names. The two skills that showed the greatest improvement from

baseline to follow-up were staying calm and using an appropriate voice, both of which

were appropriately demonstrated during the follow-up role-play. Participant 1 also

improved the responses he used. The first two role-plays he immediately reacted to the

verbal bullying situations by calling the "bullies" names. However, as the intervention

continued he began using the responses of going and telling a teacher or just walking

away.

<div align="center">Participant 2</div>

Participant 2 engaged in all six role-plays. In the baseline role-play Participant 2

demonstrated the skill of staying calm and cool during 25.0% of the intervals, made eye

contact during 25.0% of the intervals, used an appropriate voice during 75.0% of the

intervals, and had appropriate posture during 100.0% of the intervals. During the

baseline role-play Participant 2 chose an aggressive response style of pushing. However,

it was only during the baseline role-play that Participant 2 demonstrated an aggressive

response. In all of the other role-plays he either walked away, attempted to talk to them, or chose to go and tell a teacher (see Table 32). In the follow-up role-play Participant 2 appropriately demonstrated staying calm, using eye contact, and an appropriate voice during 100% of the intervals, but he demonstrated appropriate posture only during 66.6% of the intervals. Overall, the greatest gains for Participant 2 were obtained in the skills of staying calm and cool and using appropriate eye contact/facing the person. The appropriate use of posture by Participant 2 decreased from baseline to follow-up.

Participant 3

Participant 3 engaged in all six role-plays. During the baseline role-play Participant 3 obtained the lowest scores of the three participants. Of the four skills that were being rated, Participant 3 was only able to "somewhat demonstrate" the skill using appropriate eye contact/facing the person (40.0%) (see Table 33). The rest of the skills he did "not demonstrate," meaning they were demonstrated in less than 39.0% of the intervals. During the intervention role-plays Participant 3 increased the appropriate use of all of the skills and at follow-up he was able to demonstrate staying calm, using an appropriate voice, and posture during 100.0% of the intervals. However, his use of appropriate eye contact varied little throughout the intervention. Participant 3 also increased his use of appropriate response throughout the intervention. During the baseline and first intervention role-play Participant 3 chose the responses of calling names and pushing. In later role-plays he chose going and telling a teacher and at follow-up he chose to walk away.

When the group and individual data from the role-plays are examined it appears that the two skills of staying calm and cool and using an appropriate voice were the two

skills that all three of the participants demonstrated large improvements from baseline to the follow-up role-play. The curriculum from *Superheroes Social Skills* addresses the behavioral skills that were being observed in the bully role-plays, yet the skill of staying calm and cool had a lesson that specifically addressed that issue (Lesson 4- Reducing Anxiety- "I can be cool"). This may account for a consistent gain across participants in the skill of staying calm. The use of eye contact was also explicitly taught in the program, and its more frequent use by the participants is reflected in the group results, but the individual gains varied. The consistent gains in the skill of using an appropriate voice may be a reflection of the relationship between staying calm and using an appropriate voice. The skill of using appropriate posture was the least affected by the intervention.

Research Question #5

What is the effectiveness of the 18-lesson Superheroes Social Skills program for decreasing the participants' reports of victimization from pre to post intervention on the student bullying survey from The Tough Kid Bully Blockers Book and the "Bully Victimization Scale"?

All of the participants completed the BVS and the bullying survey from *The Tough Kid Bully Blockers Book* both pre- and postintervention. The scores from the BVS are given in *T*-scores with the mean being 50 and the standard deviation being 10. According to the BVS manual a *T*-score of 65 or higher is considered clinically significant. Grade and gender norms were used to determine the participants' *T*-scores.

The student survey from the *Tough Kid Bully Blockers Book* was completed by all of the participants. The survey provides a way to qualitatively assess the participants'

experience with bullying, where it occurs, as well as ways that the participants respond to bullying situations when they occur. Quantitatively, the survey provides data on the frequency of certain bullying behaviors (e.g., verbal aggression and physical aggression). However, there are no normative data for the measure so the results can only be compared to the pretreatment participant data.

All Participants

Bully Victimization Scale (BVS)

The pre- and postBVS scores were averaged across the participants (see Appendix BB). The average score for the group at preintervention was T=75.3, which is at a clinically significant level and more than two standard deviations from the mean. The average score for the group at postintervention was T=65.3. The reported levels of victimization decreased from pre- to postintervention by one standard deviation. Even though it was a large decrease in reported victimization, the postintervention T-score would still be considered clinically significant. At the pretreatment completion of the BVS, all of the participants reported high enough levels of bullying to be included in the study (see Table 34). At postintervention every participant reported less victimization than at preintervention, and Participant 1 and 2 were no longer in the clinically significant range (T-score of 65 or greater).

Participant 1

Bully Victimization Scale (BVS)

Participant 1 completed the BVS both pre- and postintervention. At preintervention, completion the BVS score for Participant 1 was T=70 (see Appendix

CC). The postintervention score for Participant 1 was $T=64$. The T-score for Participant 1 decreased by six points from pre- to postintervention. The T-score for Participant 1 also decreased from a level that is considered clinically significant ($T \geq 65$), to a level that is still higher than average, but not clinically significant. The particular items that Participant 1 reported less of at postintervention were items that related to physical aggression.

Tough Kid Bully Blocker Survey

Participant 1 completed the student survey from the *Tough Kid Bully Blocker Book* both pre- and postintervention. The *Tough Kid Bully Blocker* survey provides data on how frequently and where the participants experienced bullying, the type of bullying that they experienced, and the coping strategies they used to try to deal with bullying (see Table 35).

On the *Tough Kid Bully Blocker* survey, Participant 1 did not report any change in the places where he was being bullied, meaning that he still reported being bullied on the bus, in class, on the playground and in the cafeteria. However, quantitatively, Participant 1 reported overall lower rates of being bullied, which is consistent with the decrease in T-score on the BVS. On the *Tough Kid Bully Blocker* survey both physical and verbal bullying were reported to decrease. The types of verbal bullying that decreased in being reported by Participant 1 were less teasing and name calling. Participant 1 also reported two new methods for dealing with bullying situations that were not reported preintervention. These methods are talking to the kid or ignoring it. At neither pre- nor postcompletion of the survey did Participant 1 report fighting back as a strategy attempted to solve the problem.

Participant 2

Bully Victimization Scale (BVS)

Participant 2 completed the BVS both pre- and postintervention. At preintervention completion the BVS score was T=66 (see Appendix DD). Participant 2 reported the lowest levels of bullying out of all the participants at preintervention. A T-score of 65 or greater was one of the criteria for being considered "highly bullied," which Participant 2 obtained by one point. The postintervention score for Participant 2 was T=52. The T-score for Participant 2 decreased by 14 points from pre- to postintervention. It also decreased from a level that is considered clinically significant ($T \geq 65$) to a level that is considered within the average range. Participant 2 showed the greatest decrease of all of the participants in his levels of reported victimization from pre- to postintervention.

Tough Kid Bully Blocker

On the *Tough Kid Bully Blocker* survey, Participant 2 reported overall decreased rates in bullying (see Table 36). Participant 2 reported preintervention that he had experienced bullying on the playground, cafeteria, classroom, and on the school bus; however, postintervention the only place where Participant 2 reported experiencing bullying was on the playground. Quantitatively, Participant 2 also reported lower frequency of being bullied postintervention; with the only bullying he reported being verbal bullying (i.e., kids saying mean things to him, teasing him, or calling him names). Participant 2 also reported preintervention that he did not feel safe at school yet at postintervention he reported feeling safe at school.

Preintervention, Participant 2 reported the occurrence of physical bullying but this was not reported postintervention. Postintervention, Participant 2 also reported the acquisition of new methods for responding to bullying. The new reported coping methods were talking to the kid or ignoring the kid.

Participant 3

Bully Victimization Scale (BVS)

Participant 3 completed the BVS both pre- and postintervention. At preintervention completion the BVS score was $T= 90$ (see Appendix EE). The postintervention score for Participant 3 was $T= 80$. Both the pre- and postscores on the BVS for Participant 3 were in the clinically significant range. There was a decrease of one standard deviation from pre- to postcompletion, yet the postcompletion T-score remained clinically significant. Participant 3 had the highest pre- and postscores of any the participants.

Tough Kid Bully Blocker Survey

On the *Tough Kid Bully Blocker* survey Participant 3 reported overall decreased rates in bullying yet it was still at a high level (see Table 37). Participant 3 reported preintervention that he had experienced bullying on the playground, cafeteria, classroom, halls, classroom, bathroom, and on the school bus. At postintervention the only places different from preintervention, in that bullying had not occurred in that place, were the bathroom and halls. Participant 3 reported two changes in the way that he responded to bullying. Postintervention he reported he does not fight back and he tries to ignore them. Preintervention Participant 3 reported fighting back and that he had never tried ignoring

the bullying behavior. Participant 3 also reported a decrease in amount of name calling and physical aggression experienced.

<div align="center">Research Question #6</div>

What is the acceptability and consumer satisfaction of the Superheroes Social Skills program according to teachers and parents, as measured by the BIRS?

Following the treatment, parents and teachers completed an adapted version of the BIRS. There were 29 questions included in the rating scale. The raters answered the questions by indicating if they strongly disagree, disagree, slightly disagree, slightly agree, agree, or strongly agree with each question. The answers were then given a score (1=strongly disagree, 2=disagree, 3= slightly disagree, 4= slightly agree, 5= agree, or 6=strongly agree). Descriptive statistics were used to analyze the social validity of the intervention. Parent, teacher, and overall mean scores are listed below by item and total score (see Table 38). Overall, the parent mean for the BIRS was 4.56 and the teacher mean was 4.25. Both of those means would fall between the description of slightly agree (4) to agree (5). There was some agreement between the parents and the teachers on certain items. Overall the mean parent and teacher scores have a correlation of $r2=0.69$, which is a fairly strong correlation and indicates that both the parents and teachers had a fair amount of agreement in their ratings of the intervention. The three questions that obtained the highest ratings across both parents and teachers were Question 13- *Superhero Social Skills would not result in negative side effects for the child/student*, Question 20- *Overall, Superhero Social Skills would be beneficial for my child/student*, and Question 16- *Superhero Social Skills is a fair way to teach social skills.* The three questions that received the lowest ratings were Question 23- *Superhero Social Skills*

would improve a child's behavior to the point that it would not noticeably deviate from other peer's behavior, Question 28- *Superhero Social Skills should produce enough improvement in social skills so the behavior is no longer a problem*, and Question 21- *Superhero Social Skills would quickly improve a child's behavior.* In general, teachers and parents tended to report the intervention would be beneficial for the participants but that it would not completely change the participants' behavior, and that the change would not occur very quickly.

<center>Research Question #7</center>

What is the social validity, according to teachers and parents, of the intervention as measured by the Social Validity Scale?

After completion of the treatment, the parents and teachers completed an adapted version of the SVS (Bellini, 2006). The scale contains nine questions that can be answered according to how strongly the rater agrees or disagrees with each question. There are four options: strongly disagree, disagree, agree, or strongly agree. The answers are then scored with a rating of 1through 4 (1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree). Descriptive statistics were used to analyze the social validity of the intervention. Parent and teacher scores are listed below by item and mean scores (see Table 39).

Overall, parents and teachers rated the social validity of this program favorably (*M*=3.29). Based on the parent and teacher ratings, the three items rated most favorably indicated that the children enjoyed the comic books, the use of the power cards, and that the children enjoyed being part of the intervention. Overall, the items rated least

favorably indicated that the home and school components were not easy to implement and that the intervention interfered with the children's normal classroom activities.

Parent ratings of the most favorable items indicated the children enjoyed participating in the intervention, they enjoyed the videos and power cards, and that the parents enjoyed participating in the intervention. All of those items received average ratings of 4, or strongly agree. Two items received lower ratings from the parents. Those responses concerned the home components of the program and whether the program had interfered with class activities. Neither item was rated as being a negative aspect of the program but both items received the lowest scores of all items.

Teacher ratings of the most favorable items indicated the children enjoyed participating in the intervention and they enjoyed the comic books. The items that received the lowest scores from the teachers concerned whether the intervention had interfered with class activities, if it easy to implement, and that it had been distracting to other students. However, even though the teachers rated the implementation of the intervention with lower scores, they still reported that they believed the intervention had been beneficial and could recognize that their students had enjoyed it.

Overall, the parents and teachers rated the *Superheroes Social Skills* program as being enjoyable for the children, and they thought the program was beneficial for their children. The lower scores on how much the intervention interfered with normal class activity could be expected since the intensity of the intervention included three sessions a week. The data available from the social validity scale are sufficient to satisfy the research question.

Research Question #8

What is the participant satisfaction as measured by the Child Consumer

Satisfaction Survey?

All participants and peer buddies completed a child consumer satisfaction survey

following the last treatment session. The questionnaire was administered to the group as

a whole. There were a total of eight peer buddies that completed the survey along with

the 3 participants. The primary researcher explained the possible answers to the

participants and peer buddies and then read each question aloud, providing them time to

circle the answer they agreed with. The response options for the survey were: strongly

disagree (SD), disagree (D), agree (A), and strongly agree (SA). After completion of the

surveys, the responses were converted into numerical scores (1=strongly disagree,

2=disagree, 3=agree, and 4=strongly agree), with Item 1 being reverse scored.

Descriptive statistics were used to analyze the social validity of the intervention with the

overall mean scores for each group listed below by item and total score (see Table 40).

The average total score for the participants was a 3.8, and the peer buddies averaged 3.28.

Those averages suggest that both groups rated the *Superheroes Social Skills* program

quite favorably. The participants either strongly agreed or agreed with every question,

whereas the peer buddies reported only slightly less satisfaction with the program. Two

of the questions the peer buddies rated the lowest, neither agreeing nor disagreeing (score

between 2 and 3), were Questions 10- *The things we talked about in the lessons are*

important, and Question 11- *I would like the Superheroes to teach me more.* Even

though the peer buddies did not completely agree with the importance of the things

discussed in the lessons, and that they would want to continue with more lessons, they

still strongly agreed that they enjoyed participating in the program. Since peer buddies were chosen because they already possessed adequate social skills and would serve as role models for using those skills, it would seem understandable that the peer buddies would not highly agree with the notion that the material was important. There was one question that received a 4, or strongly agree, from both groups. That was Question 5- *I like watching the videos*. The strong endorsement between both groups for the video format of instruction reinforces the idea of using a video modeling delivery method and the overall appeal of the Superhero characters.

The participants averaged a higher overall rating of the program (*M*=3.8) than the peer buddies. All questions received a score between agree and strongly agree. There were four questions that received a score of "strongly agree" from all of the participants. These were Question 4-*Superhero Social Skills helped me learn how to respond to bullying*, Question 5- *I liked watching the videos*, Question 8- *I believe that Superhero Social Skills has helped me*, Question 9- *I enjoyed participating in Superhero Social Skills*, and Question 10- *The things we talked about in the lessons are important*. With Question 5 addressing bullying, and since one of the research questions of the study addressed the effectiveness of the *Superheroes Social Skills* program for teaching the participants how to recognize and respond to bullying, it is promising that the self-report data from participant satisfaction survey confirms this objective was met. To summarize the participants' ratings, overall, the participants felt that the program helped them, it was important information, it helped them learn how to deal with bullying, and they enjoyed being in the group. The data available from the child consumer satisfaction survey

support the use of the *Superheroes Social Skills* program and the data are sufficient to

satisfy this research question.

Table 8. Percentage of Intervals During Analog Observations for All Participants

		Social Initiations	Social Responses	Total Social Engagement
Follow-Up	Average	23.7%	33.3%	55.3%
	Participant 3	19.0%	20.5%	39.5%
	Participant 2	29.0%	44.0%	68.0%
	Participant 1	23.0%	35.5%	58.5%
Treatment	Average	18.7%	23.6%	42.3%
	Participant 3	11.9%	20.3%	32.2%
	Participant 2	24.3%	27.9%	52.2%
	Participant 1	19.9%	22.5%	42.4%
Baseline	Average	13.6%	23.7%	37.3%
	Participant 3	11.3%	24.7%	36.0%
	Participant 2	14.3%	26.7%	43.0%
	Participant 1	15.3%	17.7%	33.0%

Table 9. Individual and Group Analog Observation ES

	Group Effect, calculated through PAND analysis	Group Effect, calculated through No Assumptions	Participant 1	Participant 2	Participant 3
Social Initiations	0.58	0.63	0.47	1.50	0.10
Social Responses	0.58	-0.009	0.39	-0.06	-0.51
Total Social Engagement	0.27	0.30	0.45	0.56	-0.30

Table 10. Participant Analog PND and PAND Observation Results

	Participant 1 PND	Participant 2 PND	Participant 3 PND	Group PAND
Social Initiations	20.0%	70.0%	40.0%	74.4%
Social Responses	20.0%	10.0%	10.0%	74.4%
Social Engagement	20.0%	40.0%	10.0%	69.2%

Table 11. Analog PND and ES for Participant 1

Participant 1	PND	Treatment ES	Follow-up ES
Social Initiations	20.0%	0.47	1.04
Social Responses	20.0%	0.39	1.08
Social Engagement	20.0%	0.45	1.11

Table 12. Analog PND and ES for Participant 2

Participant 2	PND	Treatment ES	Follow-up ES
Social Initiations	70.0%	1.50	1.52
Social Responses	10.0%	-0.06	1.37
Social Engagement	40.0%	0.56	1.66

Table 13. Analog PND and ES for Participant 3

Participant 3	PND	Treatment ES	Follow-up ES
Social Initiations	40.0%	0.10	1.6
Social Responses	10.0%	-0.51	-0.30
Social Engagement	10.0%	-0.30	0.22

Table 14. Percentage of Intervals During Recess Observations for All Participants

		Social Initiations	Social Responses	Total Social Engagement
Follow-Up	Average	18.8%	23.8%	42.6%
	Participant 3	17.5%	32.5%	50.0%
	Participant 2	8.0%	14.0%	22.0%
	Participant 1	31.0%	25.0%	56.0%
Treatment	Average	13.8%	24.7%	38.5%
	Participant 3	15.3 %	36.2%	51.5%
	Participant 2	13.8%	15.2%	29%
	Participant 1	12.2%	22.8%	35%
Baseline	Average	7.9%	15.6%	23.4%
	Participant 3	10.3%	22.7%	33.0%
	Participant 2	4.0%	10.7%	14.7%
	Participant 1	9.3%	13.3%	22.6%

Table 15. Group and Individual Recess Observation ES

	Group Effect, calculated through PAND analysis	Group Effect, calculated through No Assumptions	Participant 1	Participant 2	Participant 3
Social Initiations	0.92	0.78	0.40	1.12	0.68
Social Responses	0.71	0.65	0.66	0.33	1.19
Total Social Engagement	1.15	0.76	0.58	0.74	1.18

Table 16. Participant Recess PND and PAND Results

	Participant 1 PND	Participant 2 PND	Participant 3 PND	Group PAND
Social Initiations	50.0%	83.3%	50.0%	74.1%
Social Responses	50.0%	33.3%	66.7%	70.4%
Social Engagement	50.0%	33.3%	83.3%	77.8%

Table 17. Recess PND and ES for Participant 1

Participant 1	PND	Treatment ES	Follow-up ES
Social Initiations	50.0%	0.40	1.8
Social Responses	50.0%	0.66	2.45
Social Engagement	50.0%	0.58	1.99

Table 18. Recess PND and ES for Participant 2

Participant 2	PND	Treatment ES	Follow-up ES
Social Initiations	83.3%	1.12	0.65
Social Responses	33.3%	0.33	0.31
Social Engagement	33.3%	0.74	0.50

Table 19. Recess PND and ES for Participant 3

Participant 3	PND	Treatment ES	Follow-up ES
Social Initiations	50.0%	0.68	0.88
Social Responses	66.7%	1.19	2.03
Social Engagement	83.3%	1.18	1.38

Table 20. Group Average Parent and Teacher SSIS Ratings

	Pre	Post
Social Skills Scale (*M*=100, SD=15)		
Parent	72.3	77
Teacher	69.3	77.7
Problem Behaviors Scale (*M*=100, *SD*=15)		
Parent	127.3	126.7
Teacher	122.7	116.3
Academic Competence Scale (*M*=100, *SD*=15)		
Teacher	76	76.3

Table 21. Participant 1 Parent and Teacher SSIS Ratings

	Pre	Post
Social Skills (*M*=100, *SD*=15)		
Parent	67	72
Teacher	61	75
Problem Behaviors (*M*=100, *SD*=15)		
Parent	122	121
Teacher	128	117
Academic Competence (*M*=100, *SD*=15)		
Teacher	74	73

Table 22. Participant 1 Parent Ratings on the SSIS Subscales

SSIS SUBSCALES	DESCRIPTIVE CATEGORY		RAW SCORE	
	PRE	POST	PRE	POST
Communication	Below Average	Below Average	7	8
Cooperation	Below Average	Average	8	10
Assertion	Average	Average	12	12
Responsibility	Below Average	Below Average	8	8
Empathy	Below Average	Below Average	7	7
Engagement	Below Average	Below Average	6	7
Self-Control	Below Average	Average	8	10

Table 23. Participant 1 Teacher Ratings on the SSIS Subscales

SSIS SUBSCALES	DESCRIPTIVE CATEGORY		RAW SCORE	
	PRE	POST	PRE	POST
Communication	Below Average	Below Average	9	9
Cooperation	Below Average	Average	2	8
Assertion	Average	Average	8	9
Responsibility	Below Average	Below Average	4	4
Empathy	Below Average	Below Average	4	5
Engagement	Below Average	Average	8	10
Self-Control	Below Average	Below Average	3	7

Table 24. Participant 2 Parent and Teacher SSIS Ratings

	Pre	Post
Social Skills (*M*=100, *SD*=15)		
Parent	70	77
Teacher	73	76
Problem Behaviors (*M*=100, *SD*=15)		
Parent	133	135
Teacher	106	105
Academic Competence (*M*=100, *SD*=15)		
Teacher	81	83

Table 25. Participant 2 Parent Ratings on the SSIS Subscales

SSIS SUBSCALES	DESCRIPTIVE CATEGORY		RAW SCORE	
	PRE	POST	PRE	POST
Communication	Below Average	Average	9	13
Cooperation	Below Average	Average	9	11
Assertion	Average	Average	11	11
Responsibility	Average	Average	10	11
Empathy	Below Average	Below Average	6	6
Engagement	Below Average	Below Average	8	10
Self-Control	Below Average	Below Average	7	7

Table 26. Participant 2 Teacher Ratings on the SSIS Subscales

SSIS SUBSCALES	DESCRIPTIVE CATEGORY		RAW SCORE	
	PRE	POST	PRE	POST
Communication	Below Average	Below Average	7	7
Cooperation	Below Average	Average	6	10
Assertion	Below Average	Below Average	7	7
Responsibility	Below Average	Below Average	7	6
Empathy	Average	Average	8	8
Engagement	Below Average	Below Average	6	8
Self-Control	Below Average	Below Average	7	7

Table 27. Participant 3 Parent and Teacher SSIS Ratings

	Pre	Post
Social Skills Scale (M=100, SD=15)		
Parent	80	82
Teacher	74	82
Problem Behaviors Scale (M=100, SD=15)		
Parent	127	124
Teacher	134	127
Academic Competence Scale (M=100, SD=15)		
Teacher	73	73

Table 28. Participant 3 Parent Ratings on the SSIS Subscales

SSIS SUBSCALES	DESCRIPTIVE CATEGORY		RAW SCORE	
	PRE	POST	PRE	POST
Communication	Below Average	Below Average	12	12
Cooperation	Below Average	Below Average	9	9
Assertion	Average	Average	11	11
Responsibility	Below Average	Below Average	9	9
Empathy	Average	Average	13	12
Engagement	Below Average	Average	11	14
Self-Control	Below Average	Below Average	6	7

Table 29. Participant 3 Teacher Ratings on the SSIS Subscales

SSIS SUBSCALES	DESCRIPTIVE CATEGORY		RAW SCORE	
	PRE	POST	PRE	POST
Communication	Below Average	Below Average	7	8
Cooperation	Below Average	Average	7	8
Assertion	Average	Average	11	12
Responsibility	Below Average	Below Average	5	7
Empathy	Average	Average	10	12
Engagement	Below Average	Average	6	10
Self-Control	Below Average	Below Average	4	5

Table 30. Role-Play Scenarios for All Participants

Skills	Baseline	T1	T2	T3	T4	Follow-up
Staying Calm	26.1%	47.2%	83.3%	75.0%	87.7%	100.0%
Eye Contact/ Face the Person	43.8%	66.7%	59.7%	44.4%	75.6%	75.0%
Voice	42.7%	63.9%	79.2%	91.7%	100.0%	91.2%
Posture	51.1%	58.3%	43.1%	49.9%	85.9%	72.2%

Table 31. Role-Play Scenarios for Participant 1

Skills	Baseline	T1	T2	T3	T4	Follow-up
Staying Calm	33.3%	50.0%	50.0%	25.0%	83.0%	100.0%
Eye Contact/ Face the Person	66.6%	50.0%	50.0%	50.0%	100.0%	75.0%
Voice	33.3%	75.0%	50.0%	75.0%	100.0%	75.0%
Posture	33.3%	50.0%	25.0%	50.0%	100.0%	50.0%
Response	Called Names	Called Names	Go Tell Teacher	Called Names	Go Tell Teacher	Walk Away

Table 32. Role-Play Scenarios for Participant 2

Skills	Baseline	T1	T2	T3	T4	Follow-up
Staying Calm	25.0%	66.7%	100.0%	100.0%	100.0%	100.0%
Eye Contact/ Face the Person	25.0%	100.0%	66.7%	16.6%	66.7%	100.0%
Voice	75.0%	66.7%	100.0%	100.0%	100.0%	100.0%
Posture	100.0%	100.0%	66.7%	33.3%	77.7%	66.6%
Response	Push	Go Tell Teacher	Walk Away	Walk Away	Talk to them	Go Tell Teacher

Table 33. Role-Play Scenarios for Participant 3

Skills	Baseline	T1	T2	T3	T4	Follow-up
Staying Calm	20.0%	25.0%	100.0%	100.0%	80.0%	100.0%
Eye Contact/ Face the Person	40.0%	50.0%	62.5%	66.6%	60.0%	50.0%
Voice	20.0%	50.0%	87.5%	100.0%	100.0%	100.0%
Posture	20.0%	25.0%	37.5%	66.6%	80.0%	100.0%
Response	Call Names	Push	Go Tell Teacher	Go Tell Teacher	Go Tell Teacher	Walk Away

Table 34. Pre- and PostBVS Scores for All Participants

	Pre	Post
Participant 1	70	64
Participant 2	66	52
Participant 3	90	80

(Note: M=50, SD=10)

Table 35. Tough Kid Bully Blocker Survey for Participant 1

Question	Pre	Post
Is bullying a problem at this school?	Yes	Yes
Do you feel safe at this school?	Yes	Yes
If you are bullied, do you tell your teacher?	Yes	Yes
Where have you been bullied?		
Playground	Yes	Yes
Cafeteria	Yes	Yes
Halls	No	No
Classroom	Yes	Yes
Bathroom	No	No
School Bus	Yes	Yes
What do you do when you are bullied?		
Fight back	No	No
Talk to the kid	No	Yes
Tell someone	Yes	Yes
Ignore them	No	Yes
How often do other kids pick on or bully you by:		
Hitting, kicking, or pushing you	3	2
Saying mean things to you	4	3
Teasing you	4	2
Calling you names	4	2
Saying mean things about you	1	1
Threatening you	2	1
Ignoring you	1	1
Purposefully leaving you out	1	1
How often do you pick on or bully others?	1	1

Note: (1=Never, 2=Once or twice, 3=Sometimes, 4=Often)

Table 36. Tough Kid Bully Blocker Survey for Participant 2

Question	Pre	Post
Is bullying a problem at this school?	Yes	Yes
Do you feel safe at this school?	No	Yes
If you are bullied, do you tell your teacher?	Yes	Yes
Where have you been bullied?		
Playground	Yes	Yes
Cafeteria	Yes	No
Halls	No	No
Classroom	Yes	No
Bathroom	No	No
School Bus	Yes	No
What do you do when you are bullied?		
Fight back	No	No
Talk to the kid	No	Yes
Tell someone	Yes	Yes
Ignore them	No	Yes
How often do other kids pick on or bully you by:		
Hitting, kicking, or pushing you	2	1
Saying mean things to you	4	2
Teasing you	4	2
Calling you names	4	2
Saying mean things about you	1	1
Threatening you	2	1
Ignoring you	1	1
Purposefully leaving you out	1	1
How often do you pick on or bully others?	1	1

Note: (1=Never, 2=Once or twice, 3=Sometimes, 4=Often)

Table 37. Tough Kid Bully Blocker Survey for Participant 3

Question	Pre	Post
Is bullying a problem at this school?	Yes	Yes
Do you feel safe at this school?	Yes	Yes
If you are bullied, do you tell your teacher?	Yes	Yes
Where have you been bullied?		
Playground	Yes	Yes
Cafeteria	Yes	Yes
Halls	Yes	No
Classroom	Yes	Yes
Bathroom	Yes	No
School Bus	Yes	Yes
What do you do when you are bullied?		
Fight back	Yes	No
Talk to the kid	No	No
Tell someone	Yes	Yes
Ignore them	No	Yes
How often do other kids pick on or bully you by:		
Hitting, kicking, or pushing you	3	2
Saying mean things to you	4	4
Teasing you	4	4
Calling you names	4	3
Saying mean things about you	1	1
Threatening you	2	2
Ignoring you	1	1
Purposefully leaving you out	1	1
How often do you pick on or bully others?	1	1

Note: (1=Never, 2=Once or twice, 3=sometimes, 4=Often)

Table 38. Behavior Intervention Rating Scale (BIRS)

Item	Parent Mean	Teacher Mean
1. Superhero Social Skills would be an acceptable intervention to improve social skills.	5	4.67
2. Most parents/teachers would find Superhero Social Skills appropriate for social skills intervention.	5	3.67
3. Superhero Social Skills should prove effective in targeting social skills.	5.33	3.67
4. I would suggest the use of Superhero Social Skills to other parents/teachers.	4.33	3.33
5. Poor social skills in my child/student are severe enough to warrant use of Superhero Social Skills.	4.33	4.5
6. Most parents/teachers would find Superhero Social Skills suitable in targeting social skills.	4.67	4
7. Superhero Social Skills is an effective intervention for children who are bullied.	4.67	4.67
8. Superhero Social Skills improved my child's/student's ability to recognize bullying.	4	5
9. Superhero Social Skills lessened the amount of bullying my child/student experiences.	4	3.67
10. Superhero Social Skills improved how my child/student responds to bullying.	4	4.67
11. My child/student more appropriately responds to bullying situations now than before using the Superhero Social Skills.	5.33	4.67
12. I would be willing to use Superhero Social Skills in my home/class.	4.33	5
13. Superhero Social Skills would not result in negative side effects for the child/student.	5.67	6
14. Superhero Social Skills would be an appropriate intervention for a variety of children.	4.33	5
15. Superhero Social Skills is consistent with other social skills programs I have used at home or in class.	5	4
16. Superhero Social Skills is a fair way to teach social skills.	5.67	5
17. Superhero Social Skills is reasonable for difficulties that arise from social skills.	5.33	5
18. I like the procedures used in Superhero Social Skills.	5	3.33
19. Superhero Social Skills is a good way to handle social skills at home or in class.	5	5
20. Overall, Superhero Social Skills would be beneficial for my child/student.	5.33	5.67
21. Superhero Social Skills would quickly improve a child's behavior.	3.67	3
22. Superhero Social Skills would produce a lasting improvement on a child's behavior.	4	4
23. Superhero Social Skills would improve a child's behavior to the point that it would not noticeably deviate from other peer's behavior.	2	1.67
24. Soon after using Superhero Social Skills, parents/teachers would notice a positive change in social skills.	4.67	4.67
25. The child's behavior will remain at an improved level even after Superhero Social Skills is discontinued.	4	3.67
26. Using Superhero Social Skills should not only improve the child's behavior in the home, but also in other settings (e.g., classrooms, playground)	5.33	4
27. When comparing a participant with a non-participant peer before and after use of Superhero Social Skills, the participant's and peer's behavior would be more alike after using Superhero Social Skills.	4.33	4
28. Superhero Social Skills should produce enough improvement in social skills so the behavior is no longer a problem.	3	2.67
29. Other behaviors related to social skills also are likely to be improved by Superhero Social Skills.	5	5

Table 39. Mean Scores on the SVS

Item	Parent Mean	Teacher Mean
1. The intervention has interfered with my child/student's normal class activity.	2	4
2. The intervention is distracting to the other students.	1	2
3. My child/student enjoys watching the videos	4	3.33
4. My child/student enjoys reading the comic books.	3.66	4
5. My child/student enjoys the Superhero power cards.	4	3.66
6. The school/home component of the intervention is easy to implement.	3	3
7. I believe the intervention is beneficial to my child/student.	3.66	3.33
8. My child/student enjoyed being part of this intervention.	4	4
9. I enjoyed being part of this intervention.	4	3.33
Total Average Score for Questions 3-9	3.76	3.52

Note: 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree

Table 40. Mean Scores on the Child Consumer Satisfaction Survey

Item	Participant Mean	Peer Buddy Mean
1. Superhero Social Skills has interfered with my other classes.	1.3	1.63
2. Superhero Social Skills helped me learn how to make friends.	3.6	3.38
3. Superhero Social Skills helped me learn how to recognize bullying.	3.6	3.25
4. Superhero Social Skills helped me learn how to respond to bullying.	4	3.13
5. I liked watching the videos	4	4
6. I liked reading the comic books.	3.3	3.25
7. I liked the Superhero Social Skills power cards.	3.6	3.5
8. I believe that Superhero Social Skills has helped me.	4	3.38
9. I enjoyed participating in Superhero Social Skills.	4	3.88
10. The things we talked about in the lessons are important.	4	2.88
11. I would like the Superheroes to teach me more.	3.6	2.63
Total Average Score	3.8	3.28

Note:1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree

CHAPTER 4

DISCUSSION

The current study investigated the effectiveness of the *Superheroes Social Skills*
program for children with ASD who were identified as being highly bullied. Other
studies have investigated the effectiveness of the *Superheroes Social Skills* program as a
social skills intervention for children with ASD and the program has been shown to be
effective. However, this is the first study to assess the entire *Superheroes Social Skills*
program and also focus on the bully prevention aspect of the program. The effectiveness
of the program was assessed through pre- and postreport measures of the participants'
social skills and victimization, along with data derived from observations of the
participants' social interactions and their ability to appropriately respond to bullying role-
play scenarios.

Main Findings

The results of the current study add to the research on the effectiveness of the
Superheroes Social Skills program as a social skills intervention as well as provide
information about the effectiveness of the program for addressing bullying. The research
studies of Block (2012), Hood (2010), and Radley (2010) all reported large ES indicating
the program was effective for increasing the social engagement of children with ASD.
Another research study by Hood (2011) broadened the utility of the program by

discovering that the program was also effective for minimizing aggressive behavior when used with children with externalizing behaviors. The results of the current study support findings from previous studies in demonstrating that the program was effective for increasing social engagement of the participants. The program was also shown to be effective for increasing participants' appropriate responding to bullying and decreasing their reported levels of victimization. Some of the specific findings will be addressed in this section.

<div align="center">Was the Program Effective as a Bullying Intervention?</div>

Although the *Superheroes Social Skills* program was not specifically designed as an intervention for individuals with ASD who are highly bullied, such individuals may be more at risk for bullying due to social functioning deficits (Card & Hodges, 2008) and individuals with ASD do report higher rates of victimization (Rao, Beidel & Murray, 2008). Incorporated into the *Superheroes Social Skills* program are lessons that specifically address the problem of bullying. It is possible that previous studies on the *Superheroes Social Skills* program included participants that were highly bullied, yet that aspect of the program was never previously assessed. In the current study the effectiveness was determined by self-report measures and observational data. The participants completed the BVS, which is a self-report measure that assesses the reporter's level of victimization, as well as the *Tough Kid Bully Blocker* survey, which provided qualitative data about the frequency of bullying behavior, methods that had been used to deal with bullying, and type of bullying. Both of these measures were administered both pre- and postintervention to assess the effectiveness of the program to address issues surrounding bullying. Overall, the average group BVS *T*-score at

preintervention was *T*=75.3, and was *T*=65.3 at postintervention, meaning a decrease by one standard deviation from pre- to postintervention.

The other report measure was The *Tough Kid Bully Blocker* survey, which provided information about settings where bullying occurred, how often and what type of bullying is happening, and the coping methods the participants utilized to respond to bullying situations. The results from the survey indicated the participants reported being bullied less, that bullying occurred in fewer areas around school, and that they tried new strategies for responding to bullying. All of the reported decreases in victimization could be attributed to the effectiveness of the program. This decrease may be accountable by the participants having improved their social skills and learned appropriate ways to respond to bullying that lessened their risk for being bullied. However, it is also possible that that the decrease is due to observer effects. As part of the study, the participants were video recorded on 11 occasions during their recesses. When the participants were recorded, the observer was generally within hearing distance of the participants. The observer might have inadvertently provided adult supervision, thus lessening the chance that the participants would be bullied.

The second method used to assess the effectiveness of the intervention was an analysis of the observational data from the participants' role-plays. The video-taped role-plays were analyzed and provided information on how the participants initially responded to the scenarios, and the improvements that were observed in their response styles as the intervention progressed. The results indicated that the participants made gains in their ability to appropriately respond to bullying role-play scenarios with the largest increases being observed in the skill of "staying calm." This improved ability to role-play

scenarios could account for the participants' reported decreases in being victims of bullying. This can be understood in such a way if the intent of the bullying behavior was to create an intense reaction in the victim, then the increased ability to 'stay calm' could lessen the likelihood of being repeatedly bullied. Overall, the results from the bully role-plays and the self-report data together suggest that when the *Superheroes Social Skills* program is used with children with ASD who have been highly bullied, the children will report less victimization, demonstrate more appropriate responding to bullying situations, and report new methods for dealing with a bullying situation.

The effectiveness of the program may be due to the use of similar methods as seen in other effective interventions for bullying. The *Superheroes Social Skills* program addresses the issue of recognizing what bullying is and how to report it. This skill is a part of both the *Olweus Bully Prevention Program* (Olweus, et al., 1999), and the *Quit It!* Program (Froschl, et al., 1998). The *Superheroes* program also discusses appropriate ways to respond to bullying, which is a skill in *Aggressors, Victims, and Bystanders* (Slaby, 1995), and *Quit It!*, as well as many others. *Superheroes* also emphasizes the skills of staying calm and cool and using problem solving. Both of those skills are components in bullying interventions and can be seen in programs such as *The Tough Kid Bully Blockers Book* (Bowen, et al., 2008), *PATHS: Promoting Alternative Thinking Strategies* (Greenburg, et al., 1998), and *Get Real About Violence* (Meyer, 2004). The success of *Superheroes Social Skills* may be due to the effective teaching of those skills then providing the participants with opportunities to use those skills in role-plays.

Were Improvements Reported in the Participants' Social Skills?

The SSIS was used in this study to assess the participants' social skills both pre- and postintervention. The participants were rated by both their parents and teachers on the SSIS. Preintervention, the participants' parents rated them in the below average range (M=72.3) for the Social Skills scale and in the low average range (M=77) postintervention. The group average change score was not statistically significant but more improvement was observed on the individual subscales. The subscale of Engagement was observed to improve in all three participants. Those results suggest the behaviors that define Engagement might be most affected by the intervention. On the Social Skills scale, teachers also rated the participants in the below average range (M=69.3) at preintervention, but their ratings increased into the low average range (M=77.7) at posttest. There was a larger increase in the participants' social skills reported by the teachers than the parents.

There were no significant differences for any of the participants between pre- and postscores, yet there was consistent improvement in the participants' subscales. Two subscales that showed increases in raw scores across all three participants were the subscales of Cooperation and Engagement. Engagement was reported as increasing by both the teachers and parents of all three participants. The reported improvements in Cooperation and Engagement across participants, suggests the intervention improved the participants' social skills associated with those subscales. The effectiveness of the *Superheroes Social Skills* program is likely due to the use of evidence-based practices such as video-modeling, peer mediation, self-monitoring, and social narratives. All of these strategies are an integral part of the *Superheroes Social Skills* program.

Did the Skills Generalize to Other Settings?

A common obstacle of most social skills programs is a lack of generalization of newly acquired skills to naturalistic settings. Often recipients of social skills instruction may only demonstrate skills in the instructional setting. Lack of generalization has been found to be due to skill, performance, or other deficits that impede the demonstration of new skills (Gresham & Elliot, 1987). However, the results of this study are not the opposite of what one might expect given previous research. Not only did generalization occur, but larger improvements were observed in the naturalistic setting (i.e., recess) than in the research setting (i.e., analog free play). In the naturalistic setting the ES was medium for social initiations (ES=0.78) and social responses (ES=0.65), and social engagement (ES=0.76). Whereas, in the research setting the ES was medium for social initiations (ES=0.63), small for social engagement (ES=0.30), and negligible for social responses. The intervention proved effective for increasing the social initiations and social engagement in both settings; yet with larger ES being in the naturalistic setting. The generalization of the skills to the recess setting is something that was not only found in the current study. Similar results were found in the Block (2010) study of the *Superheroes* program. In that study the participants also demonstrated larger increases in their social engagement in the recess setting than in research setting. The results from both of those studies provide evidence and optimism that in certain circumstances social skills training programs can create new skills that have the ability to generalize.

Were Social Initiations or Social Responses Most Affected?

Social engagement is comprised of two separate concepts: social initiations and social responses. Social initiations consist of behaviors such as requesting assistance, requesting information or participation, independently joining an activity, providing information/greeting, and offering comfort/affection. These behaviors are all dependent upon the participant. Social responses consist of behaviors such as providing assistance, responding to requests, joining activities when asked, and responding to social initiations by others. These behaviors are dependent upon the participant responding, yet peers must first initiate in order for the possibility of a social response to occur. Therefore, the concept of social responding is dually dependent on the participants as well as peers and could more easily be impacted by peer behavior. Without addressing, at this time, the limitations of the coding of social engagement, the results did vary according to the type of social engagement with the participants making larger gains in their social initiations.

In the analog setting, the calculated ES was *ES*=0.63 for social initiations, and *ES*=-0.009 for social responses. With the individual participants in the analog setting, two of the three participants showed increases that resulted in medium to large ES in social initiations, with the third analysis resulting in a small ES. The individual results for social responses indicate that Participant 1 obtained a medium ES (*ES*=0.39), and the other two participants obtained negative ES, meaning a decrease in the social responding. Based on results from the individual and group analysis of the analog setting, the intervention was more effective for increasing the social initiations of two of the three participants, but only increased the social responding of one of the participants.

In the naturalistic or recess setting the calculated group ES was *ES*=0.78 for social initiations, and *ES*=0.65 for social responses. The individual ES for social initiations and social responses of all 3 participants were in the medium to large range. One of the participants showed larger gains in his social initiations and the other 2 participants showed larger gains in their social responses. Based on the results from the individual and group analysis of the recess setting, the intervention was effective for increasing both the social initiations and social responses for the all of the participants. These results differ slightly from the results of other studies on the *Superheroes* program, in that the larger increases were observed in social initiations. In the Block (2010) and Hood (2011) studies, the program was proven effective for increasing the overall social engagement of the participants, yet larger increases were observed in the participants' social responses than in their social initiations. However, both aspects of social engagement were reported as increasing.

In summary, the intervention proved to have a greater impact on the participants' social initiations than their social responding in the analog setting, and was effective for increasing both social initiations and responses in the recess setting.

Do the Results Differ with Each Analysis Method?

The observational data collected on the participants' social engagement in this study were analyzed using three techniques. These techniques were ES, PND, and PAND. The results from these three methods followed the same trend but they were not always consistent with the magnitude of effect.

Effect Size (ES)

       Calculations of individual and group ES were conducted in the current study. In the ES calculations for the individuals, greater improvement was observed in the naturalistic or recess setting than in the research or analog setting. In the analog setting 2 of the 3 participants obtained ES that indicated a medium to large effect. However, for 1 of the 3 participants, Participant 3, there was a slight decrease in social engagement. A possible reason for the decrease may be that Participant 3 was the youngest of the participants and would often bother the participants and peer buddies in the study by taking things without asking, making rude comments, and not sharing. Therefore, the resulting decrease in social interactions observed in Participant 3 may be due to the other participants and peer buddies in the study interacting less with him and trying to avoid him because of those behaviors. This explanation would then account for why Participant 3 had large ES in the recess setting but not the analog setting. In the recess setting Participant 3 was able to implement the skills taught in the lessons with peers who were already his friends and/or possibly not as bothered by his behaviors. In the recess setting all three participants obtained ES that were considered medium to large and indicate a significant increase in the participants' social interactions. When the group ES were calculated, a large effect was found in social initiations in the analog setting and large ES were found for social initiations, social responses, and social engagement in the recess setting. The ES calculations in this study, derived using the no assumptions method, appeared to be the most consistent measure, the least affected by extreme data points, and better at conveying the magnitude of the change.

Percentage of Nonoverlapping Data (PND)

For the individual observational data analysis, one method used was PND. PND is a commonly employed method for data analysis in single-subject research and is fairly easy to calculate. PND is simply the percentage of data from the intervention or treatment phase that are more extreme in the desired direction than the most extreme data point from the baseline phase. Some advantages of PND are the ease of calculation, acceptability to visual analysis, and applicability to single subject research. However, there are some limitations to using PND. PND does not provide an ES but rather relies upon interpretation guidelines, has unknown reliability with the inability to calculate confidence intervals, lacks sensitivity or discrimination ability, and only calculates the percentage of treatment data points that do not overlap with baseline data points, meaning an overreliance on the most extreme data point from baseline (Parker, Hagan-Burke & Vannest, 2007). The limitation concerning extreme data points was evident in the results of the current study. There were some participants who had one high outlier baseline point that led to very low PND calculations since none of the treatment data points exceeded this outlier, yet overall the rest of the treatment data points well exceeded the average baseline data points. For example, in the recess setting Participant 2 obtained a PND score of 33.3% and an ES of 0.74 for social engagement. The PND analysis would indicate no observed effect yet the ES indicates a medium effect. Such discrepancies between the PND and ES did occur in this study. The results from this study indicate that PND can be helpful as a supplementary analysis but it does not convey meaningful data about the magnitude of change that occurred, and is too susceptible to baseline outliers.

Percentage of All Nonoverlapping Data (PAND)

A visual data analysis method that is similar to PND is PAND. PAND uses all of the data points to calculate a percentage, so it is less susceptible to being affected by outliers in the baseline data points. Also, the PAND formula can also be used to calculate Cohen's *d*, which is an ES calculation. In order to use PAND, there must be a minimum of 20 data points; therefore, PAND and Cohen's *d* could only be used for the group calculations. A goal in this study was to utilize the PAND calculation to minimize the effects of outliers in the data and to calculate Cohen's *d* as a group ES. When the ESs for the analog setting were calculated from a PAND analysis they were medium for social initiations (*ES*=0.58) and social responses (*ES*=0.58), and small for social engagement (*ES*=0.27). The resulting percentages from the PAND calculations were 74.4% for social initiations, 74.4% for social responses, and 69.2% for social engagement. When the ES for the recess setting were calculated from a PAND analysis they were large for social initiations (*ES*=0.92) and social engagement (*ES*=1.15), and medium for social responses (*ES*=0.71). The resulting percentages from the PAND calculations were social initiations= 74.1%, social responses= 70.4%, and social engagement= 77.8%. All of those percentages would be interpreted as moderate treatment effects.

A PAND analysis does provide some general useful information but both the percentages and ES derived using a PAND method appear to be susceptible to a couple of problems. From the analog data above one can see that the PAND percentages and the ES for social initiations and social responses are exactly the same (i.e.,74.4% for the percentages and an ES of 0.58). The fact that both the resulting percentages and ES are exactly the same, demonstrates the limited ability of a PAND analysis to convey the

magnitude of the change and its dependency on data overlap alone without regard for the magnitude of change. ES calculated through the no assumptions method for the same data resulted in a medium effect for social initiations (*ES*=0.63), and no effect for social responses (*ES*=-0.009).

The results from this study suggest that from those three data analysis methods (i.e., ES, PND, and PAND) the calculation of ES through the 'no assumptions' method provided the most interpretable information and had the fewest limitations.

Limitations and Future Research

The current study evaluated the effectiveness of the *Superheroes Social Skills* program; however, there are some limitations to the study that will be discussed. The first limitation involves the participants. Originally there were 4 participants that met the criteria for being included in the study. However, Participant 4 withdrew midway during the study. The participant who withdrew reported high rates of victimization on the BVS and numerous instances of physical bullying on the *Tough Kid Bully Blocker* survey at preintervention. During the course of the study the participant continued to experience physical bullying from peers. The school administrators were aware of the bullying and put measures in place to protect the participant, yet the parent of the participant decided that the school climate was still too unsafe and withdrew him from school. Therefore, it is unknown how the inclusion of that participant would have affected the outcome of the study. The observational data on Participant 4 were collected until he withdrew from the study. The data were not analyzed with the data from the other participants but they can be seen in Appendix FF. Another limitation connected with the participants was the small number of total participants. Due to the constraints of the admission criteria (i.e.,

student with ASD who is highly bullied) there were very few children at the research site that were able to be included. Therefore, the results are applicable to a specific group and it is unknown how the inclusion of more participants would have affected the outcome. Future research could include the effectiveness of the program on a broader range of students and include more participants to both lessen the impact of attrition and provide more data.

A second limitation is the design of the study. The study used an AB single-subject design that included children with ASD who were highly bullied. There were few children who met those two criterions along with the other necessary criteria. In order to conduct a study with so few participants it was necessary to use a single subject design; however, it was not a multiple baseline design. The intervention was developed to be group-based, meaning all children began the group at the same time. Therefore, it was not possible to structure the design of the study differently to include a multiple baseline. A multiple baseline design allows the researcher to better determine if the intervention is responsible for observed changes due to greater control of threats to internal validity. Some internal validity threats could be maturation effects, previous exposure to or outside exposure to social skills instruction, along with other confounding variables. Since the current study only lasted 12 weeks, it is not expected that maturational effects greatly contributed to the results of the study. The current study did not account for other confounding variables, such as previous exposure to social skills training, and teacher and parental implementation of the current social skills curriculum. It was known that all of the participants had attended social skills groups in the past, but what skills had previously been acquired or what programs were used was not assessed. However, no

other social skills curriculum, apart from the *Superheroes Social Skills* program, was used

with the participants during the course of the study. Even though some threats to the

internal validity of the study existed, the study met the four criteria outlined by Kazdin

(1982): (1) using multiple assessments, (2) a stable target behavior, (3) heterogeneous

group of participants, and (4) producing an immediate and marked effect; and the

additional three criteria outlined by Kratochwill (1992): (1) using a planned study with a

high level of treatment integrity, (2) delivering a standardized treatment, and (3)

producing a large ES, for being a valid AB design and it is expected that the results of the

current study are valid.

A third limitation is the lack of data on the opportunities for participants to

respond during the observations. Even though the observation system provided an

opportunity to record actual responses and quantify them, opportunities for the participant

to respond were not considered. Meaning, a participant's opportunities to respond to

peers varied with each observation. How often peers socially initiated with the

participants was a variable that could not be controlled. During some observations the

participants were provided with more opportunities to respond than in other observations,

which may have resulted in an increase in the percentage of time they engaged in social

responding. During other observations the participants may not have encountered as

many opportunities to respond to peers, thereby decreasing the percentage of time spent

social responding, although no such decrease actually existed. Future research should be

aimed at evaluating how opportunities to respond impact social responding.

A fourth limitation is the observer effect. It is unknown how the presence of the

researcher during the recess observations impacted the social engagement of the

participants. The researcher attempted to desensitize the students to his presence during recesses by walking around with a camera 2 weeks prior to the implementation of the study. However, it is unknown to what extent the researcher's presence impacted the study. The researcher's presence alone may have prompted the participants to use the social skills they were being taught when they otherwise would have not. The observer effect may have also impacted the bully prevention aspect of the program. The decreases in the participants' reported victimization could be a result of adult supervision. As part of the study the participants were observed and recorded during their recesses by the researcher. From baseline to follow-up there were a total of 33 observations or time periods when an extra adult was within hearing distance of the participants. It is possible that simply the presence of the researcher discouraged other students from bullying the participants, or in some way contributed to a reported decrease in bullying.

A fifth limitation is lack of data on the generalization of the skills assessed in the role-plays. As with any role-play scenario, it is only a role-play. The participants were aware that the situations were role-plays, so even though they did not know beforehand exactly what would occur, they might have felt less nervous than in a real situation and might have also been thinking about how to respond before the situation began. With the role-plays there would also be practice effects. All of the participants showed improvements in the way they responded to the role-plays, yet it may have been that the participants were simply gaining skills in their ability to appropriately role-play. It is hopeful; yet difficult to say whether or not these same skills that increased in the role-play scenarios would transfer to a real situation.

A sixth limitation is the unknown impact in the different utilization of the home and teacher components. The extent to which the participants' teachers and parents practiced and reinforced the skills at home and in the class varied. The reinforcement each participant received in both of those areas could impact the extent to which the skills generalized. Therefore, the use of program by the teachers and parents was an uncontrolled variable. Future research could investigate the impact of those components.

The final limitation is that the social skills training sessions were conducted in a pull-out service format. A pull-out service format means the training sessions occurred in the facilitator's office instead of the participants' classrooms. Even though large overall effects were observed, it is unknown how implementation in the classroom would have impacted the effectiveness of the program. Future research could address the effectiveness of the program as implemented in other settings such as the child's natural environment (e.g., general education classroom, or schoolwide), with other facilitators (e.g., parents), and with diverse populations of students (e.g., children with internalizing behavioral disorders or developmental delays). Investigating these other variables would possibly enhance the overall generalization of the program and provide information on the effectiveness of the program with other populations.

Along with the previously mentioned ideas for future research, one might also evaluate the effectiveness of the different lessons of the *Superheroes Social Skills* program and which lessons are necessary, if single lessons can be used and be effective, and also use follow-up studies to evaluate the long-term efficacy of the *Superhero Social Skills* program for increasing social skills.

Implications for Practice

The findings of the current study on the effectiveness of the *Superheroes Social Skills* program for increasing the social engagement of children with ASD are congruent with previous studies (Block, 2010; Radley, 2010; Hood, 2010), in that the program is effective for increasing the social engagement of the targeted population. The results of the study also indicate that the *Superheroes Social Skills* program could be effective in reducing reported bullying and increasing appropriate responding and reporting of bullying. The results focused on the bullying aspect demonstrate a broader treatment application of the program as seen both in the current results and the results from studies that demonstrate the program's effectiveness for decreasing aggression in students with externalizing problems (Hood, 2011; Springer, 2012).

Responses from the parents and teachers of the children involved suggest that the *Superhero Social Skills* program is an acceptable treatment option for addressing social skill deficits in children with ASD who are highly bullied, that the parents, teachers and children involved in the study view the program as highly acceptable, that they are willing to participate in the program, and that they think that the program addresses the social skills deficits of the children involved. The results of the current study and previous studies on the *Superheroes Social Skills* program suggest that it may be an effective evidence-based intervention to address a variety of issues in children with ASD.

APPENDIX A

SOCIAL OBSERVATION CODES

Social Observation Codes

Social Engagement:

Participation in activity or play sequence with peer involving shared toys, objects, and play items. Parallel play with separate play items is excluded from this code; however, an exchange of play items during the interval should be coded as social participation. Examples include being pushed in a wagon, taking turns during a board game, playing jointly with paint, play dough, building blocks, brushes, cars, dolls, etc. Also, asking questions, or responding to questions, and engaging in conversations should be coded as participation. Any unprompted social response or initiation during an observation interval should be recorded as social engagement for that interval (see codes below).

Social Initiation

    a. Request Assistance
    b. Request Information
    c. Request Interaction/Participation
    d. Joining-in Play Activity or Interaction
    e. Greeting/Compliment
    f. Giving/Sharing/Showing
    g. Offer Comfort/Physical Affection

Initiation: defined as the child beginning a new social sequence, distinguished from a continuation of a previous sequence by a change in partner, change in activity, or a discontinuation of the previous play sequence for at least 5 seconds.

- Requesting (non-verbal) using a sign or other nonverbal behavior (e.g., handing or bringing an object to other person to request an activity, interaction, or assistance (e.g., raise hand) with others

- Requesting (verbal) using questions or directives to obtain items or to get others to engage in actions or interactions, or to request assistance

- Play initiation--gets other person's attention by gesturing, holding up an object, tapping a child on the shoulder, asking other person to play, or calling his or her name, joining-in a play activity or interaction with other children (w/o being requested to do so)

- Asking social questions and requesting information. Questions that are not for the purpose of requesting objects or interactions. Asking questions

about what is happening; what will happen next; how people feel; or who is doing what

- o Comments. Talking about feelings or what is happening during the social situation.

- o Giving/ sharing. Giving an object to other person or sharing an object with which the child is already playing.

- o Praise/Compliment/Greeting. Statements of approval, affection, greeting, or admiration of other. Also include non-verbal gestures of greeting, such as waving "hello" or "goodbye."

- o Physical affection—Positive physical contact such as hugging, kissing, holding hands.

- o Play organizer-- Verbally specifies an activity, suggests a play area, or directs other person to engage in any activity related play behavior; verbally or nonverbally offers or requests an object from the other person

- o Comfort/Reassurance—Verbal or physical consolation when another person is in some way distressed

Social Responses

a. Request for Assistance
b. Request for Information
c. Request for Interaction/Participation
d. Greeting/Compliment
e. Offer to Share to Object
f. Physical Affection

- o Provides assistance to other person following a request

- o Verbally responds or responds non-verbally (e.g., nods head) to questions directed at him by others

- o Joins in activity following request or invitation

o   Verbally or non-verbally (gesture, such as a wave, or facial expression, such as a smile) responds to greeting or compliment from others

o   Accepts toy or object from other person when offered, by grabbing, looking, or holding object. Looks in the direction of an object when directed by other person to do so

o   Accepts physical affection (i.e., touch or hug) from other person without moving away from, or physically rebuking other person's attempt at physical affection (e.g., pushing other person away, running away, etc.)

APPENDIX B

CODING FOR BULLYING ROLE-PLAYS

Coding System for Role-Plays

Participant_____
Date_____ Time_____
Role Play Scenario_____Response Type_____

Mark each interval that the participant demonstrated appropriate use of the following behaviors:

Staying Calm and Cool: Remaining in a composed state and not reacting negatively or becoming disturbed. (Non-Examples: Getting angry, aggressive, withdrawn, or anxious)

Eye Contact/Face the Person: Facing the person and looking directly into their eyes but not in a threatening way or intimidating way. (Non-Examples: Looking at the floor, looking away, or not facing the person)

Using Appropriate Posture: Standing tall with their chin up, arms and hands are visible, and they are not fidgeting. (Non-Examples: Hunching one's shoulders and fidgeting with their hands and feet)

Using an Appropriate Voice: Using a voice that is firm and of an appropriate noise level (i.e., not too loud and not too quiet) and that represents what would occur in a normal conversation. (Non-example: whining, yelling, or whispering). If the participant did not speak during that interval mark a zero.

Staying Calm and Cool															
Eye Contact/Face the Person															
Using Appropriate Posture															
Using an Appropriate Voice															

Notes:

Staying Calm and Cool															
Eye Contact/Face the Person															

Using Appropriate Posture															
Using an Appropriate Voice															

Notes:

Staying Calm and Cool														
Eye Contact/Face the Person														
Using Appropriate Posture														
Using an Appropriate Voice														

Notes:

APPENDIX C

SOCIAL SKILLS PLACEMENT CHECKLIST

Social Skills Placement Checklist

Purpose: Have caregivers and educators complete to assist in making group constellation and inclusion decisions

Directions: Please answer the following questions as best as you can. Pick only one answer and try to complete all items. If you are unsure about how to answer a question, use your best judgment and answer based on the child's behavior over the past two weeks.

Background Questions

Respondents's Name: _____   Relationship to child:_____

Child's Name: _____   Child's Date of Birth: _____

At what developmental age does the child function? _____

What grade is the child in at school? _____

Language Abilities

How would you describe the child's language abilities? (Circle one)

Nonverbal (or Echolalic)   Use of 1-2 words   Phrase speech   Verbally fluent

Cognitive/Problem Solving Abilities

How would you describe the child's cognitive abilities? (Circle one)

Superior   Above average   Average   Below Average   Impaired

If the child has been given an IQ test, please provide the information below:

Name of test: _____   Who administered the test? _____

When was the test given? _____   Where was the test given? _____

What were the scores? _____

Diagnosis of Autism Spectrum Disorder

Does the child carry a diagnosis of an ASD? (Circle one)   Yes   No   Not Sure

If so, what is it? (Circle one)
            Autistic Disorder/Autism   Asperger's Disorder   PDD-NOS

Is this an educational classification or a clinical diagnosis? _____

Behaviors and Interests

Does the child have any particularly intense or unusual interests/behaviors that interfere with his/her social interactions with others? Yes/No

Does the child demonstrate self-injurious behavior? Yes/No

If so, please describe below:

_____
_____
_____

Motivation and Learning Style

What is the child's typical motivational level? (Circle one)

Very motivated   Somewhat motivated   Not motivated

What kinds of toys does the child like?_____

What kinds of toys does the child not enjoy?_____

What kinds of games does the child like? _____

What kinds of games does the child not enjoy?_____

Please rate how well your child enjoys the following things using the scale below:

1= dislikes very much, 2=does not like, 3=has no preference, 4=likes, 5=likes very much

Legos/building blocks _____   Cars/Trucks_____   Books_____

Dolls/Figurines_____   Board games_____   Playdoh_____

Art materials (color, paint, draw)_____

What kinds of things does the child find reinforcing or rewarding (e.g. small treats or food items)? _____

Does the child have any food allergies and/or food items you would not like him//her to have during group time? _____

Is the child more of a visual or auditory learner? _____

Attention Span and Persistence

Describe the child's activity level (Circle one)

Extremely active   Somewhat active   Average   Below average   Lethargic

Memory Abilities

Describe the child's memory abilities (Circle one)

Excellent   Good   Average   Fair   Poor

Anxiety and other Psychological Factors

What causes the child to become upset? (Circle all that apply)

New situations   New people   Change in routine   Frustrating activities

Can the child calm himself when upset or does s/he need help in doing so?
_____

What strategies have assisted the child in managing negative feeling states?
_____

Other relevant factors

Are there any other important factors or considerations we should know about your child?
_____
_____

Thanks for your help in completing this. The information is very useful!

APPENDIX D

GROUP ANALOG MEASURE OF SOCIAL INITIATIONS

Group Average Percentage - Social Initiations
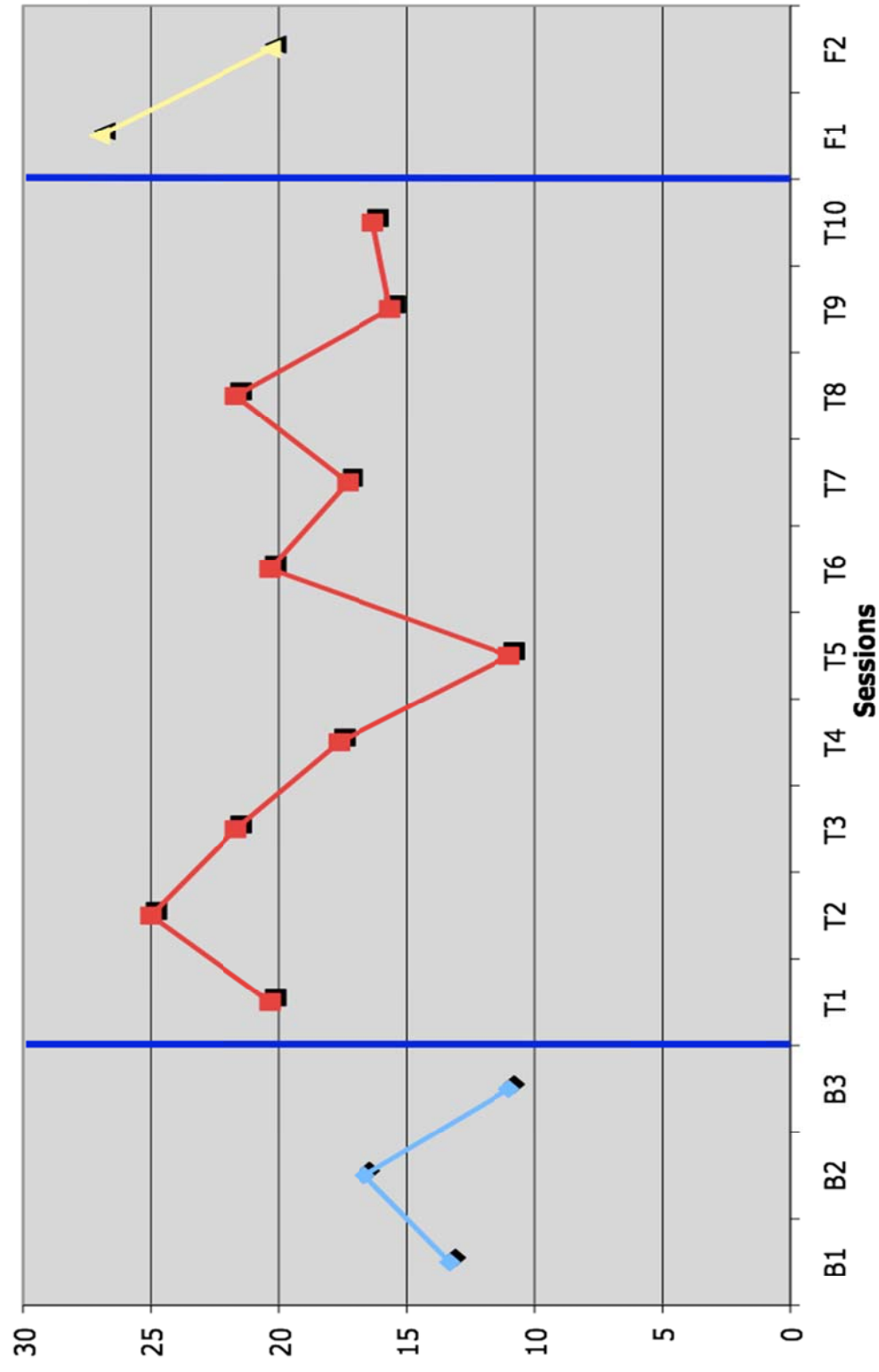
APPENDIX E

GROUP ANALOG MEASURE OF SOCIAL RESPONSES

Group Average Percentage - Social Responses
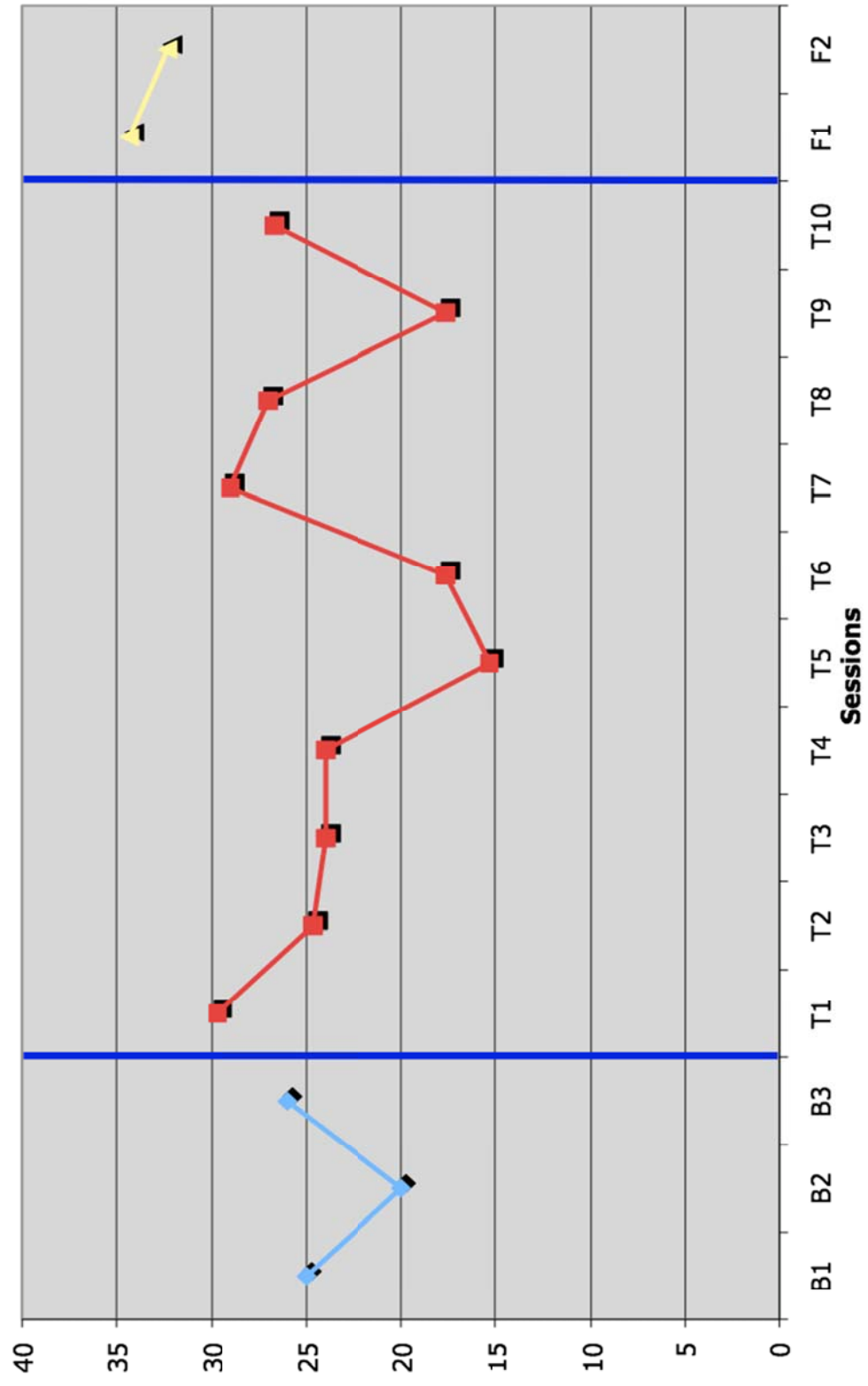
APPENDIX F

GROUP ANALOG MEASURE OF SOCIAL ENGAGEMENT
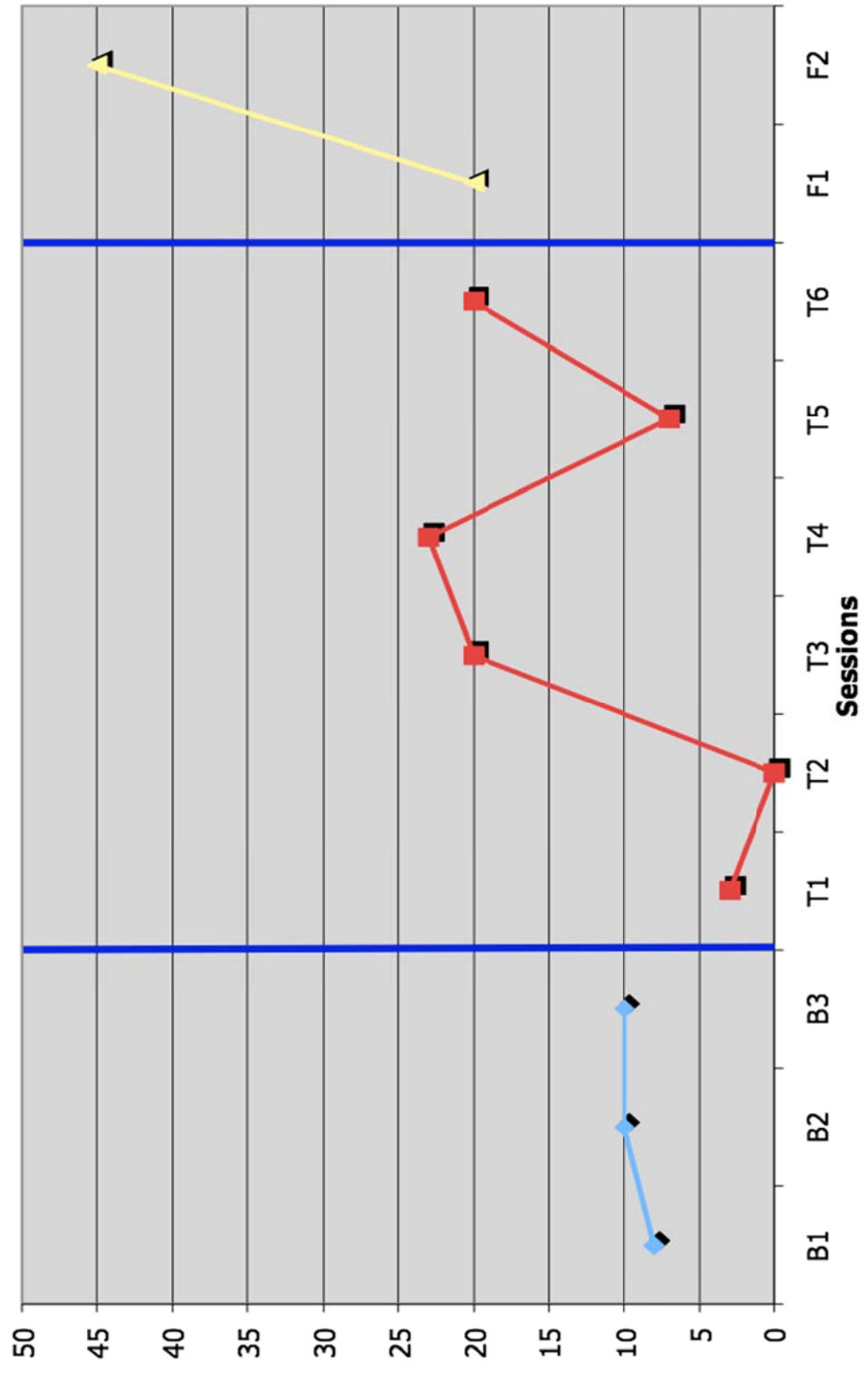
Group Average Percentage - Social Engagement
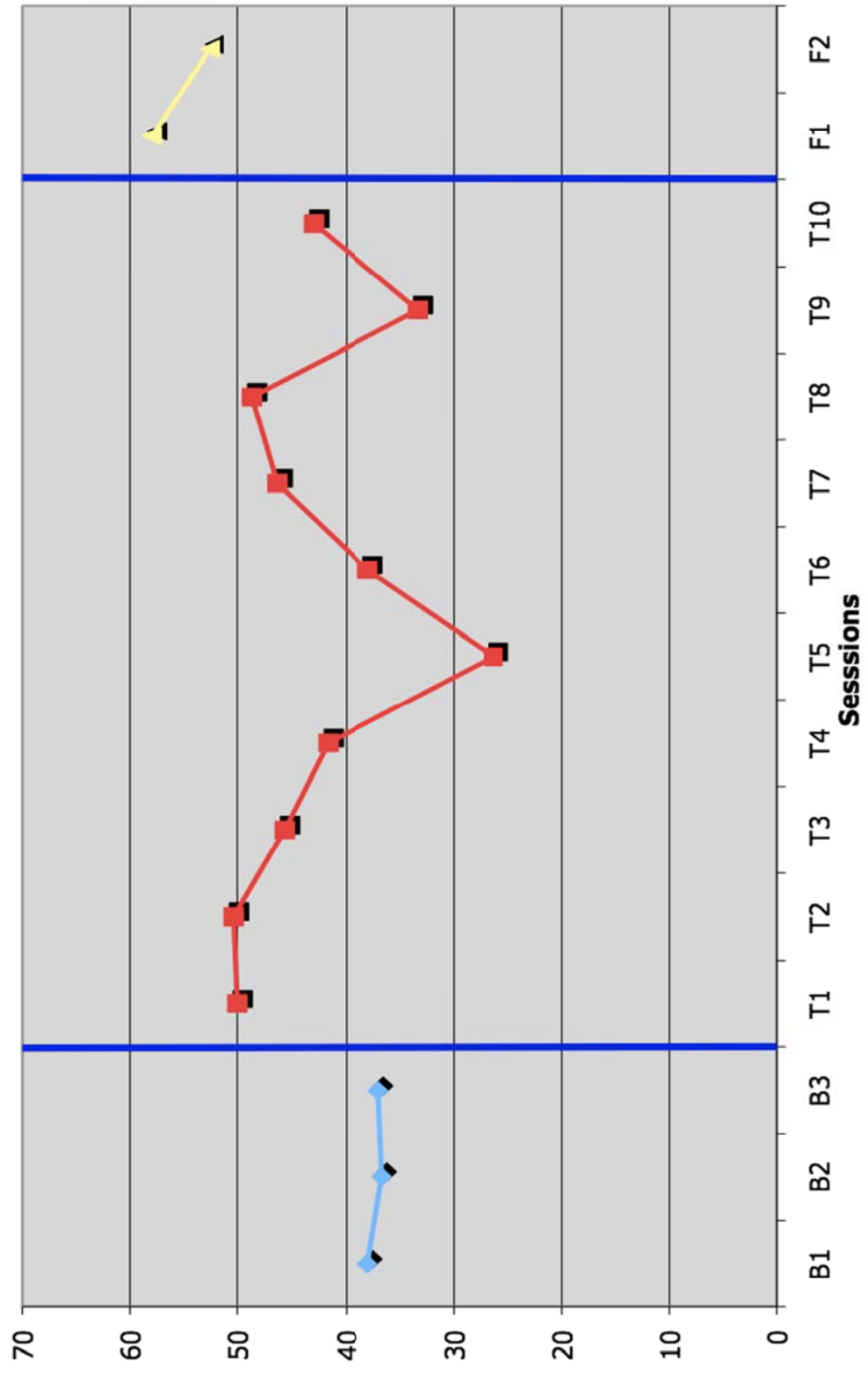
APPENDIX G

ANALOG MEASURE, SOCIAL INITIATIONS,

PARTICIPANT 1

159

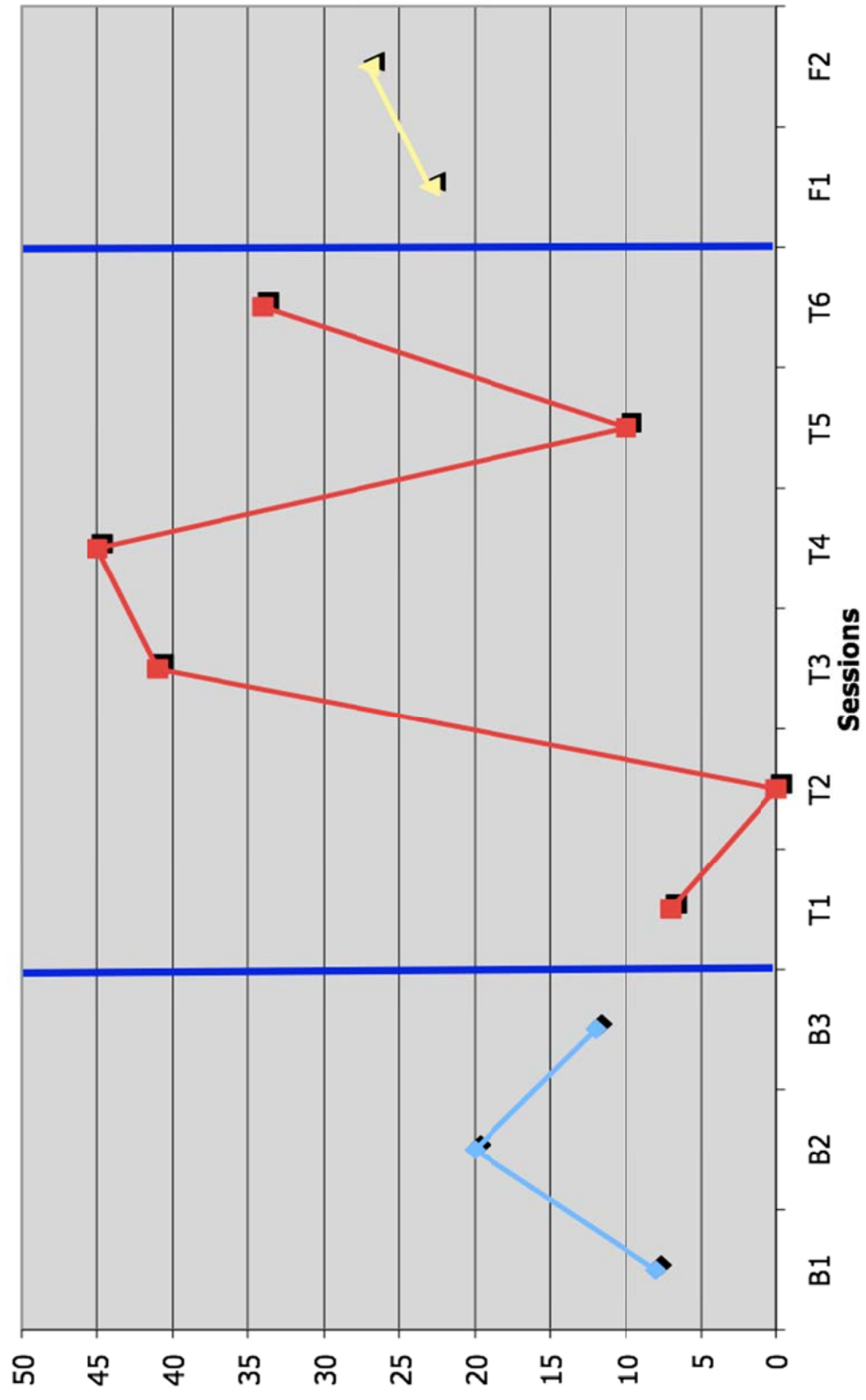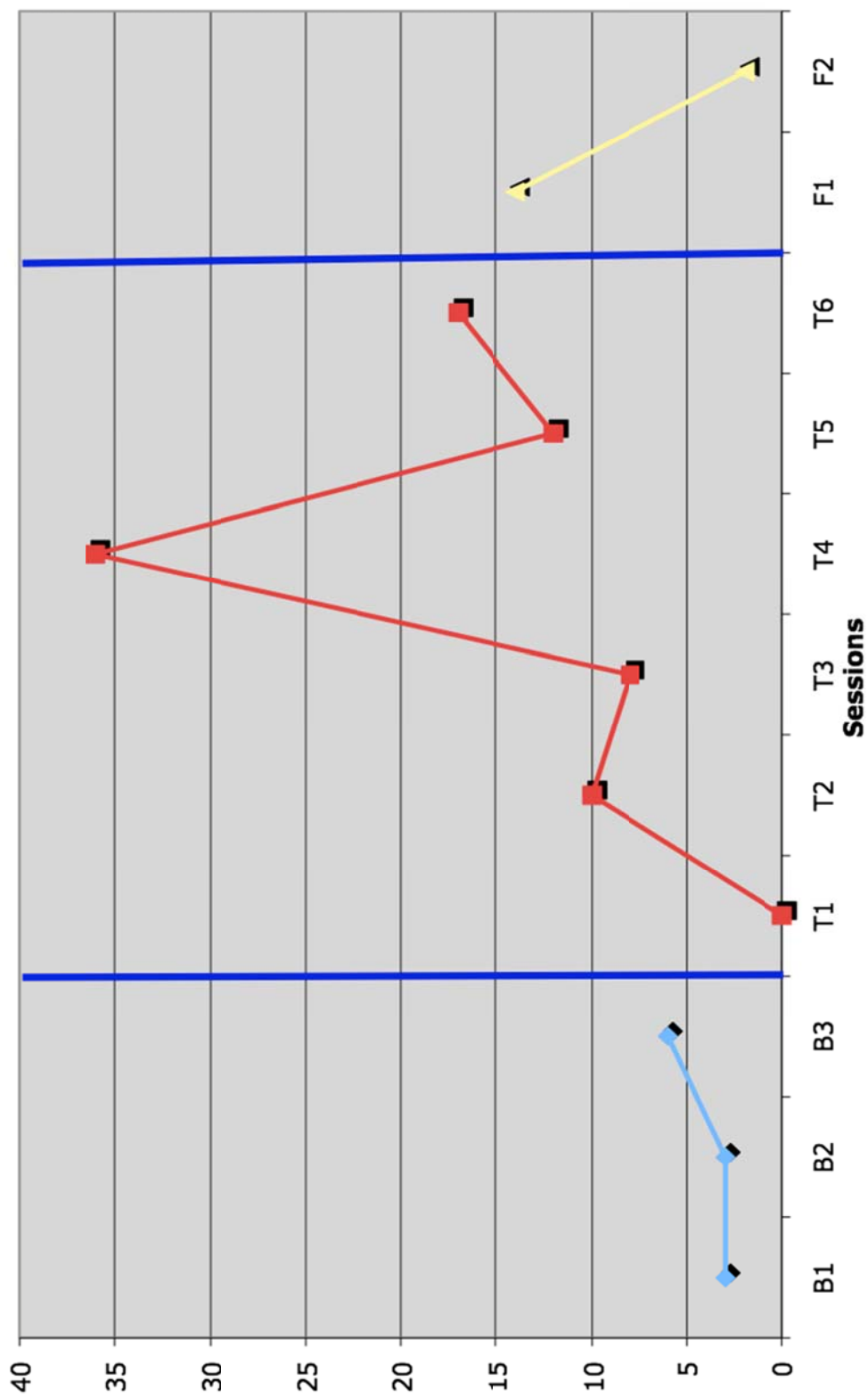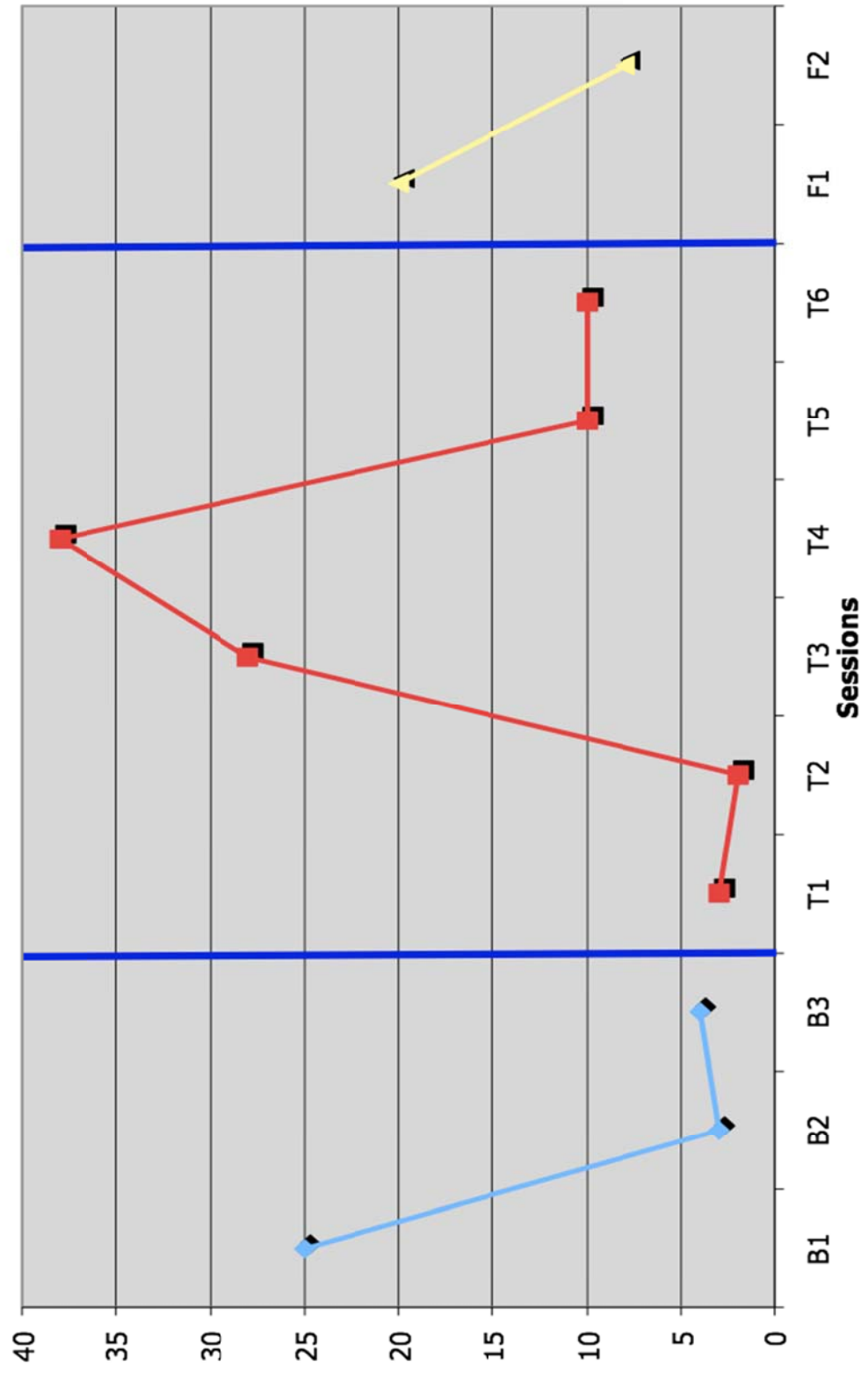Participant 1 - Percentage of Social Initiations
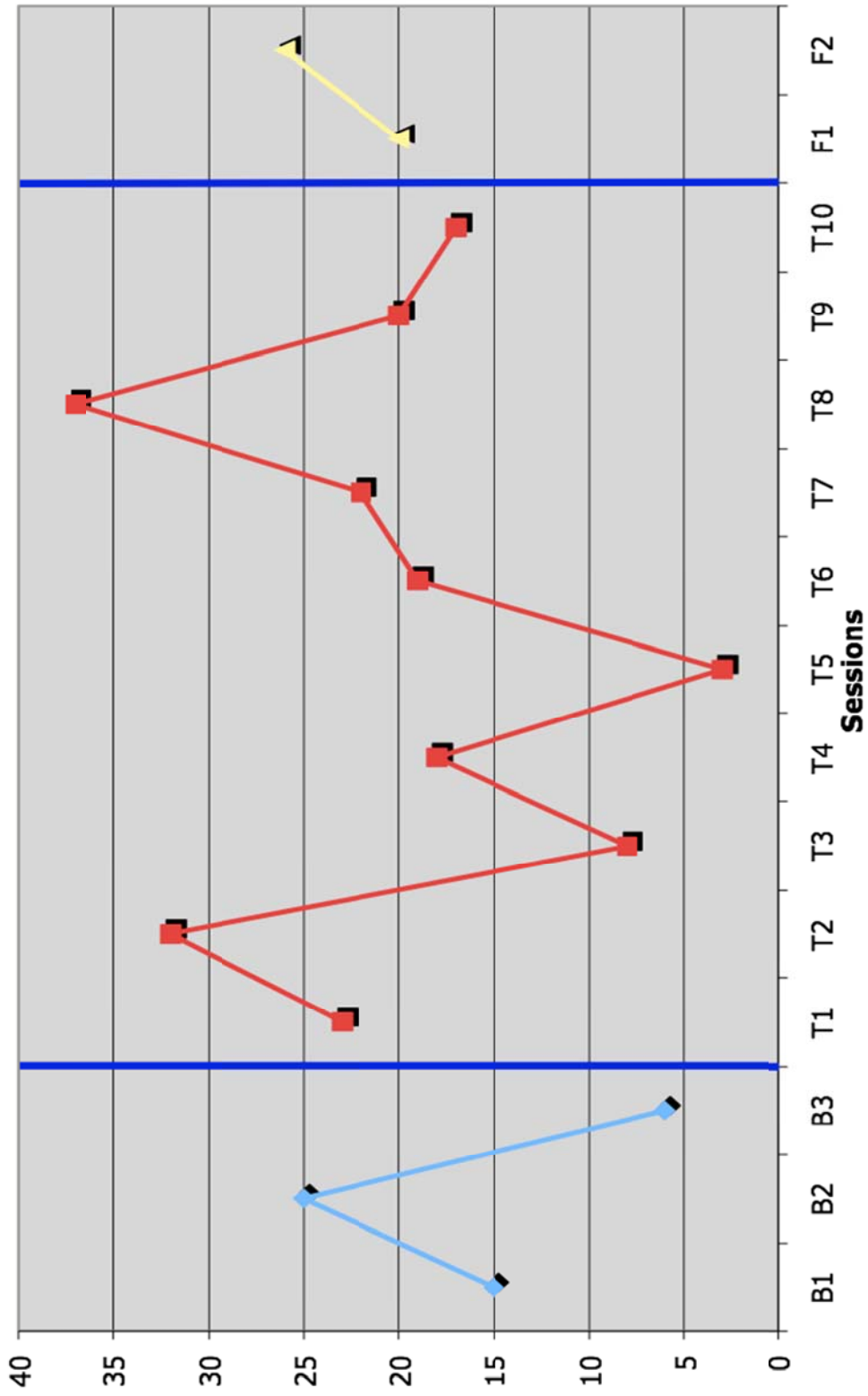
APPENDIX H

ANALOG MEASURE, SOCIAL RESPONSES,

PARTICIPANT 1
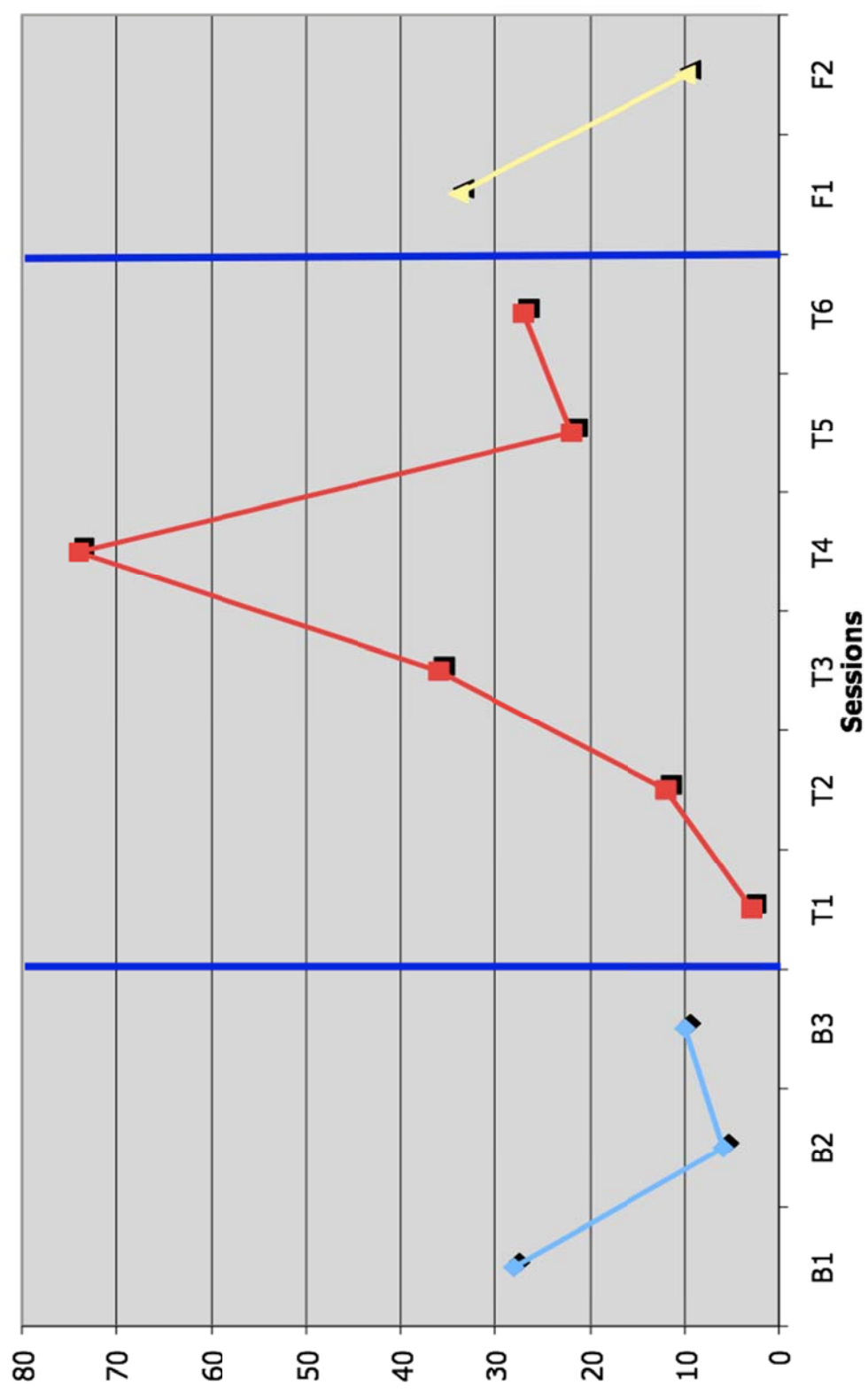
Participant 1 - Percentage of Social Responses
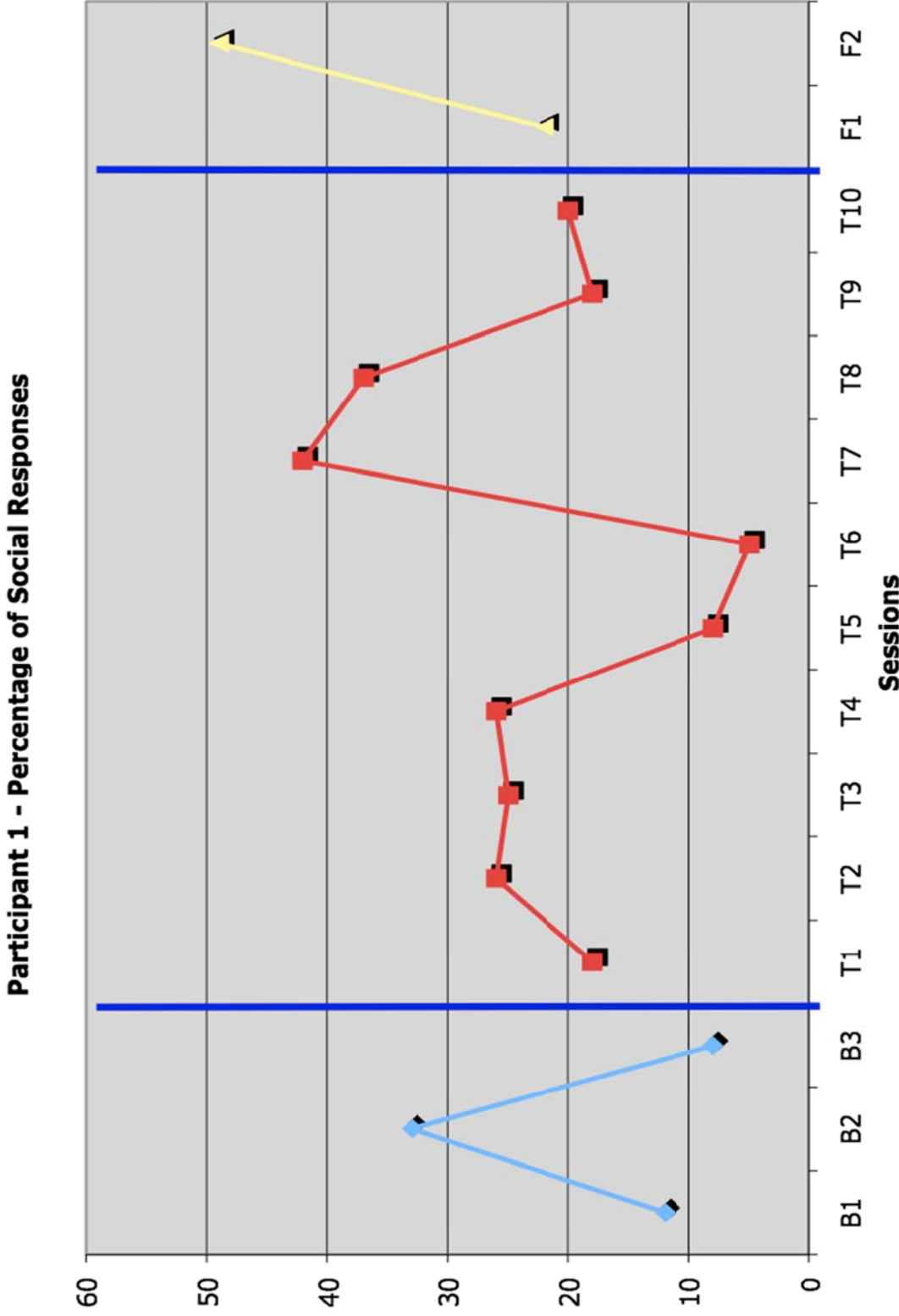
APPENDIX I

ANALOG MEASURE, SOCIAL ENGAGEMENT,

PARTICIPANT 1

Participant 1 - Percentage of Social Engagement
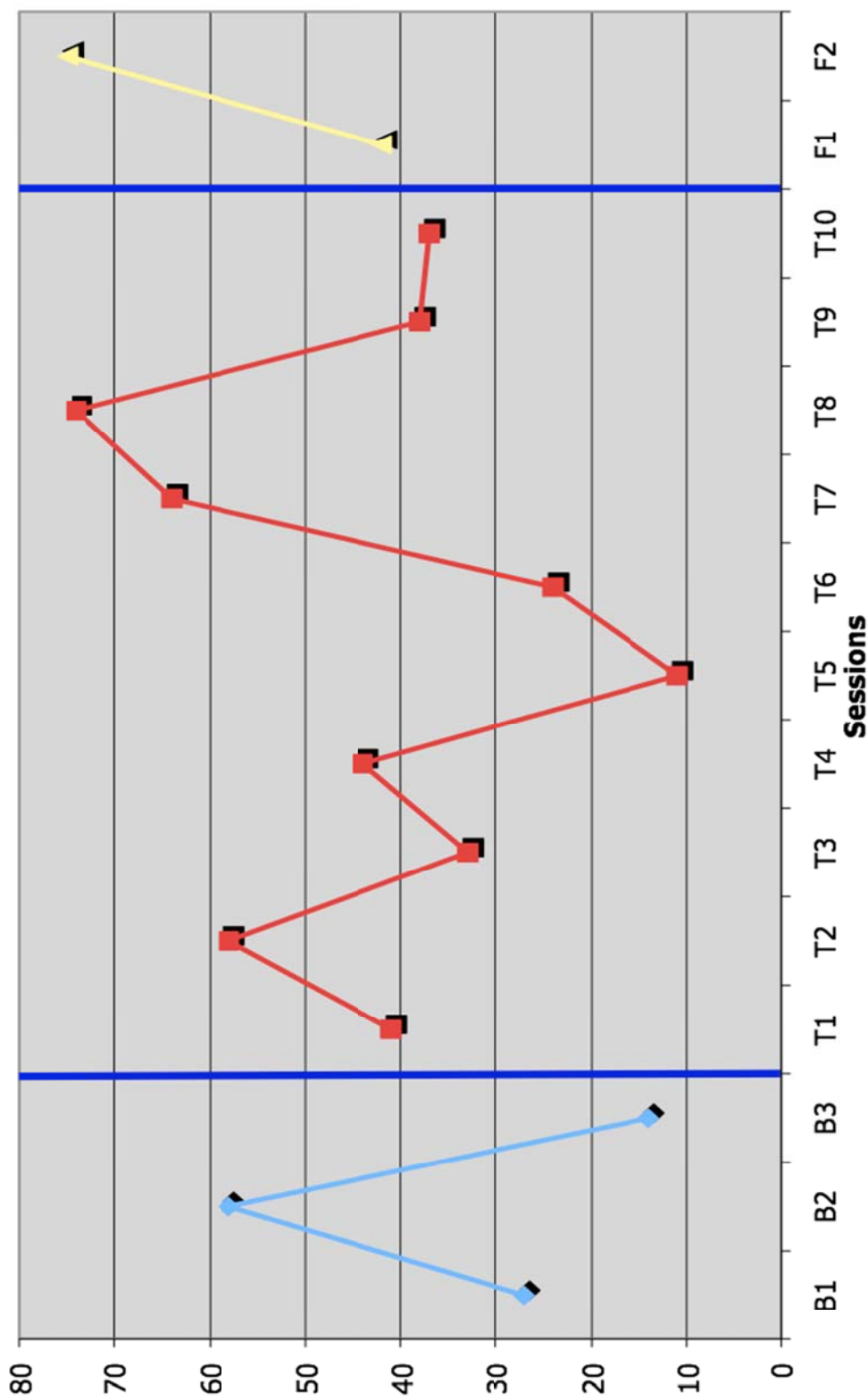
APPENDIX J

ANALOG MEASURE, SOCIAL INITIATIONS,

PARTICIPANT 2

165

Participant 2 - Percentage of Social Initiations
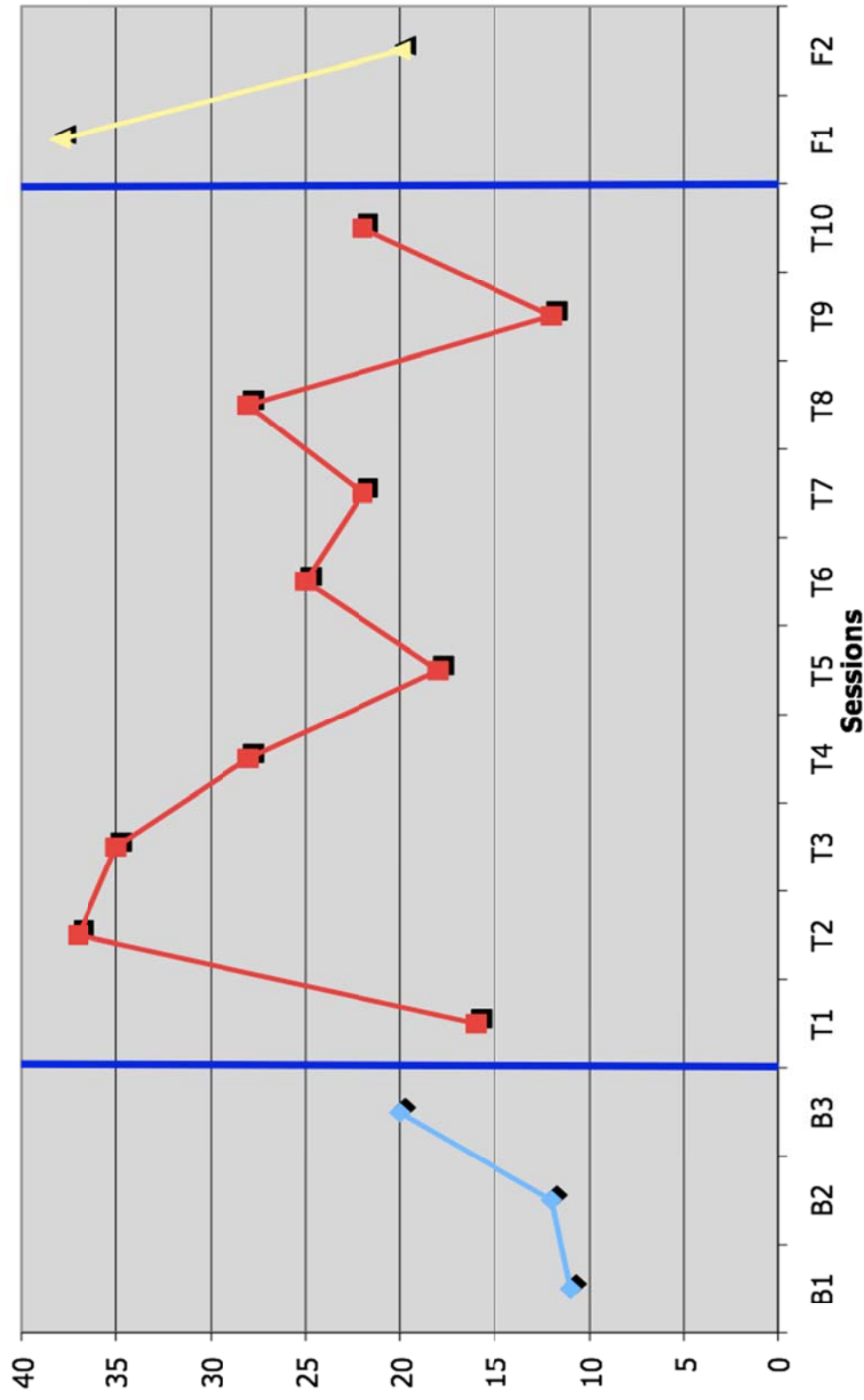
APPENDIX K

ANALOG MEASURE, SOCIAL RESPONSES,

PARTICIPANT 2

Participant 2 - Percentage of Social Responses
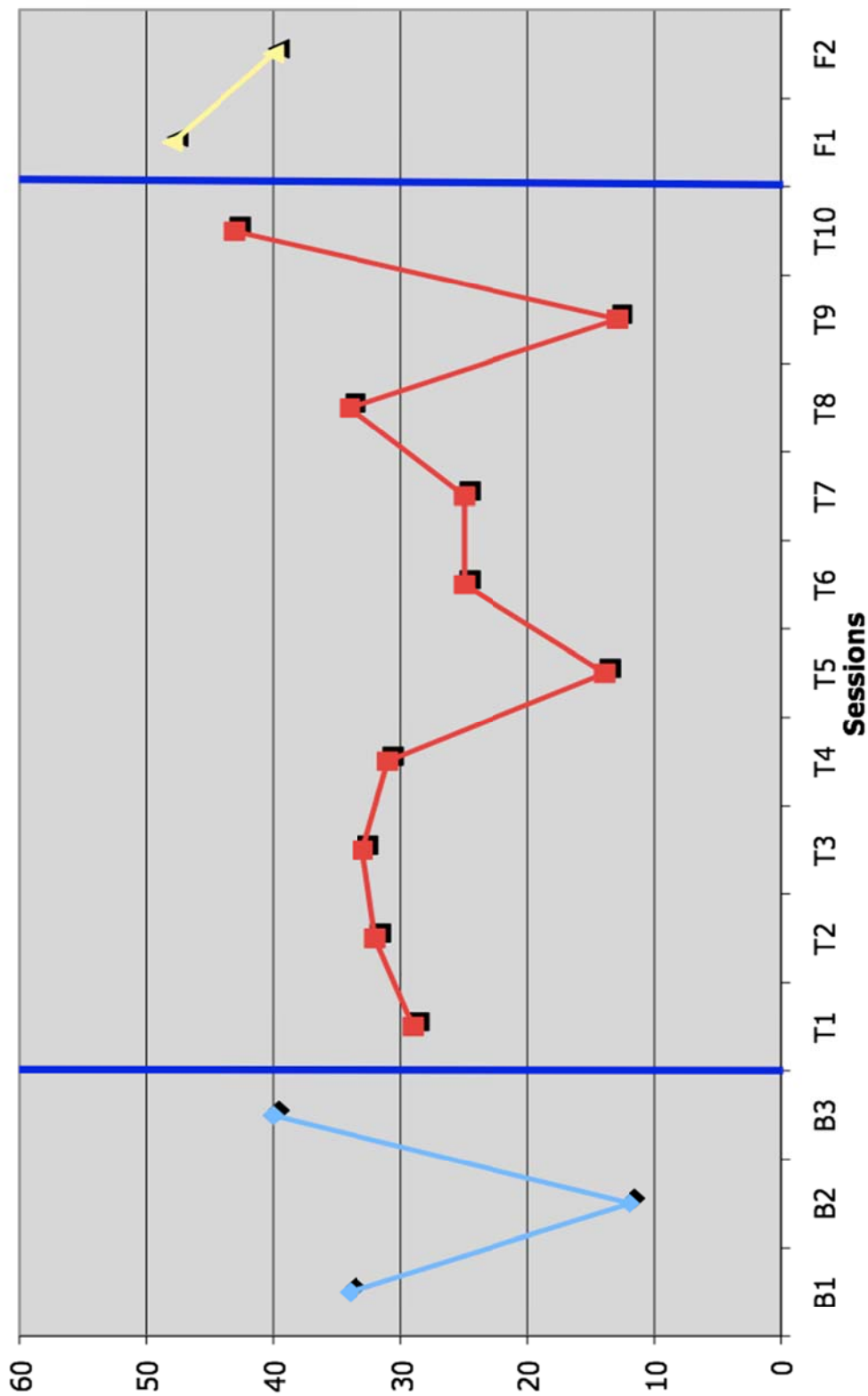
APPENDIX L

ANALOG MEASURE, SOCIAL ENGAGEMENT,
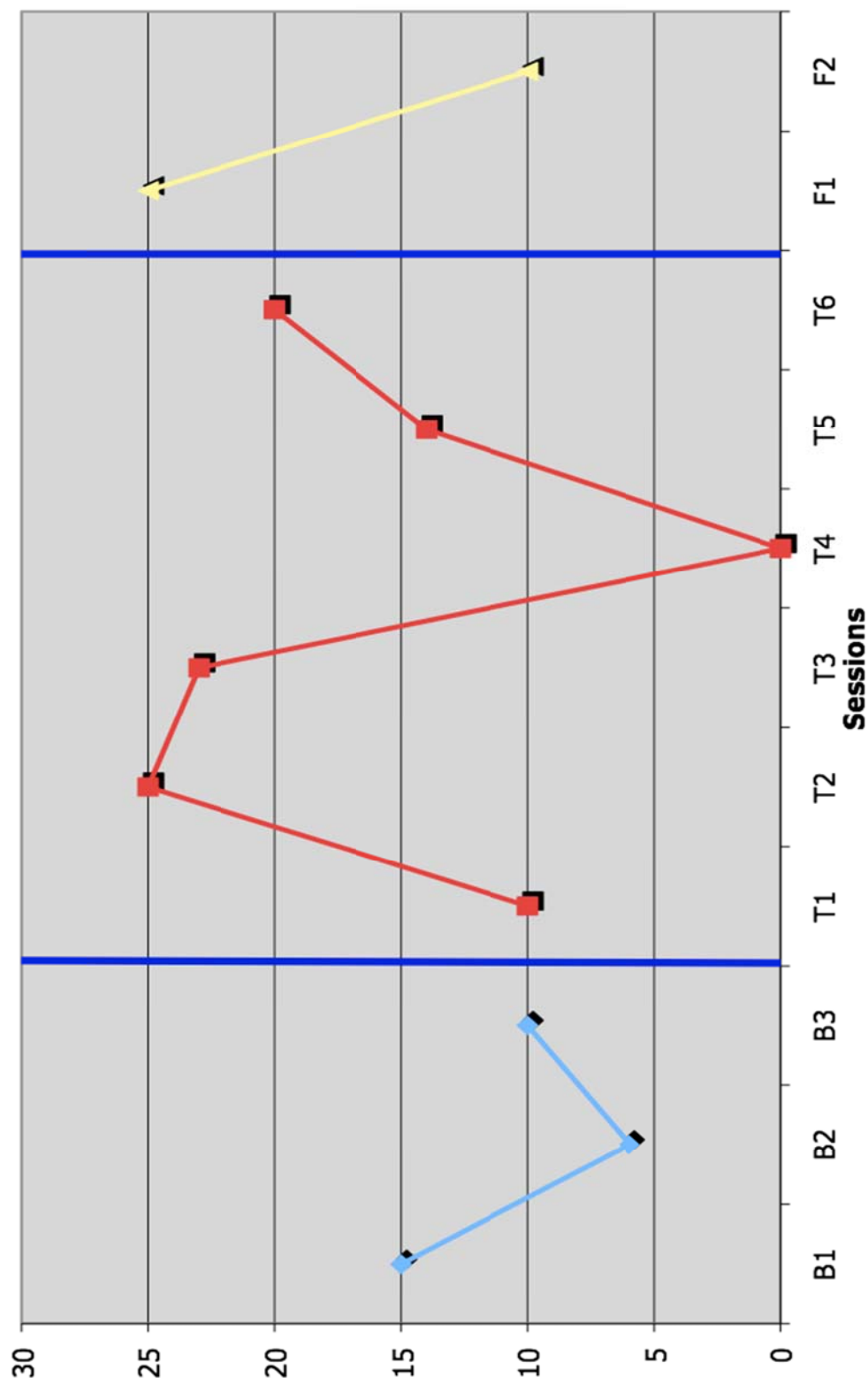
PARTICIPANT 2

Participant 2 - Percentage of Social Engagement
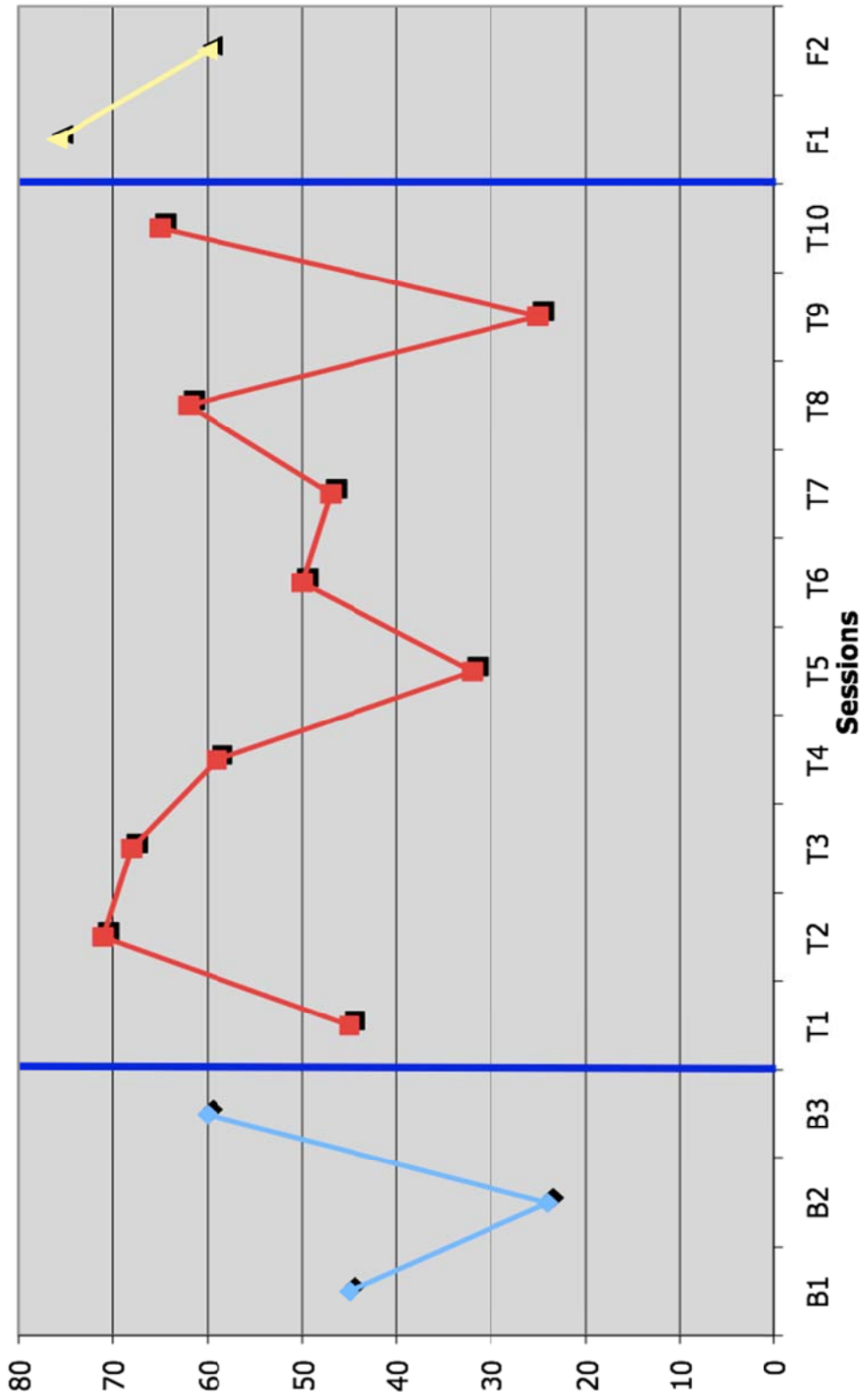
APPENDIX M

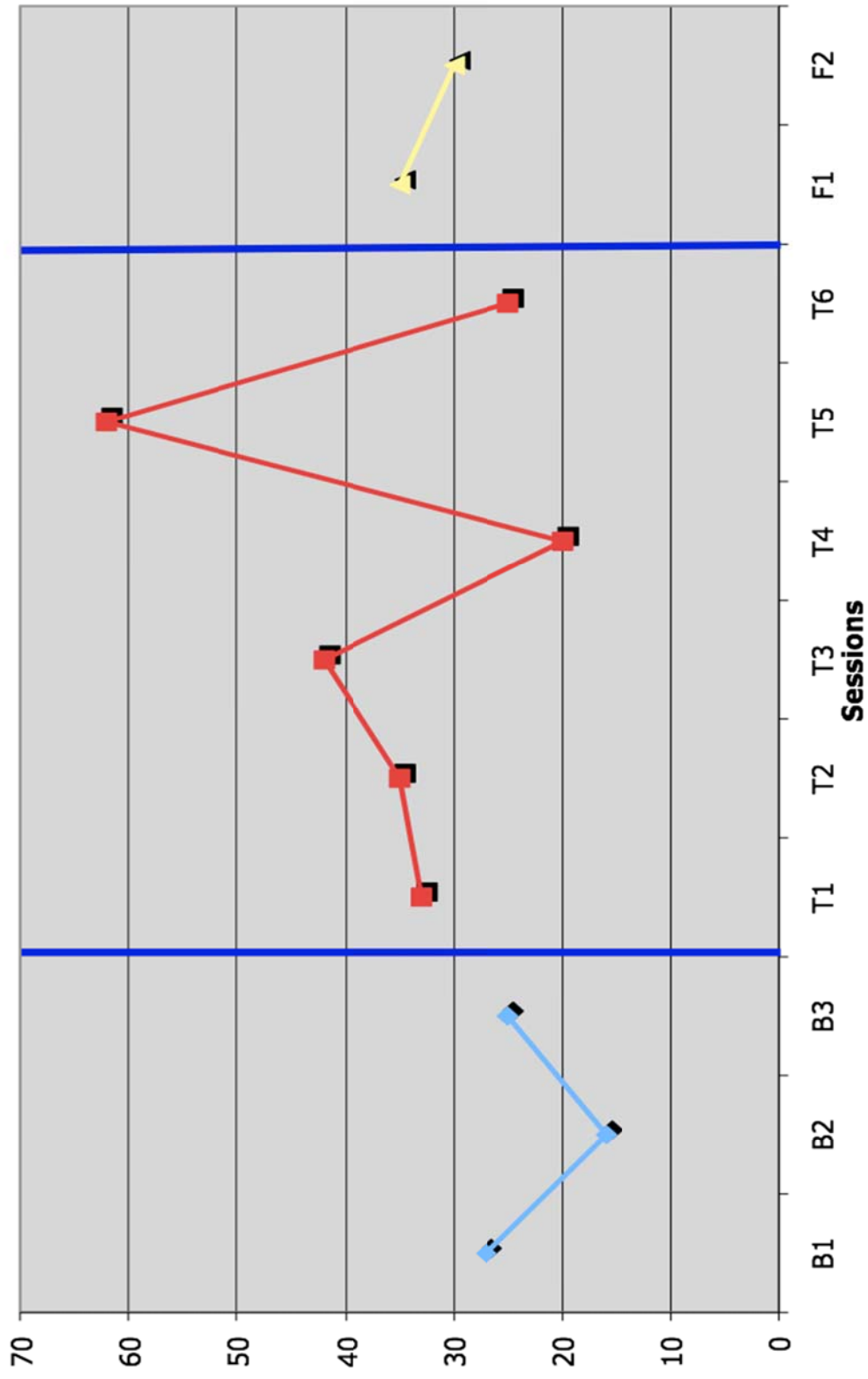ANALOG MEASURE, SOCIAL INITIATIONS,

PARTICIPANT 3

Participant 3 - Percentage of Social Initiations
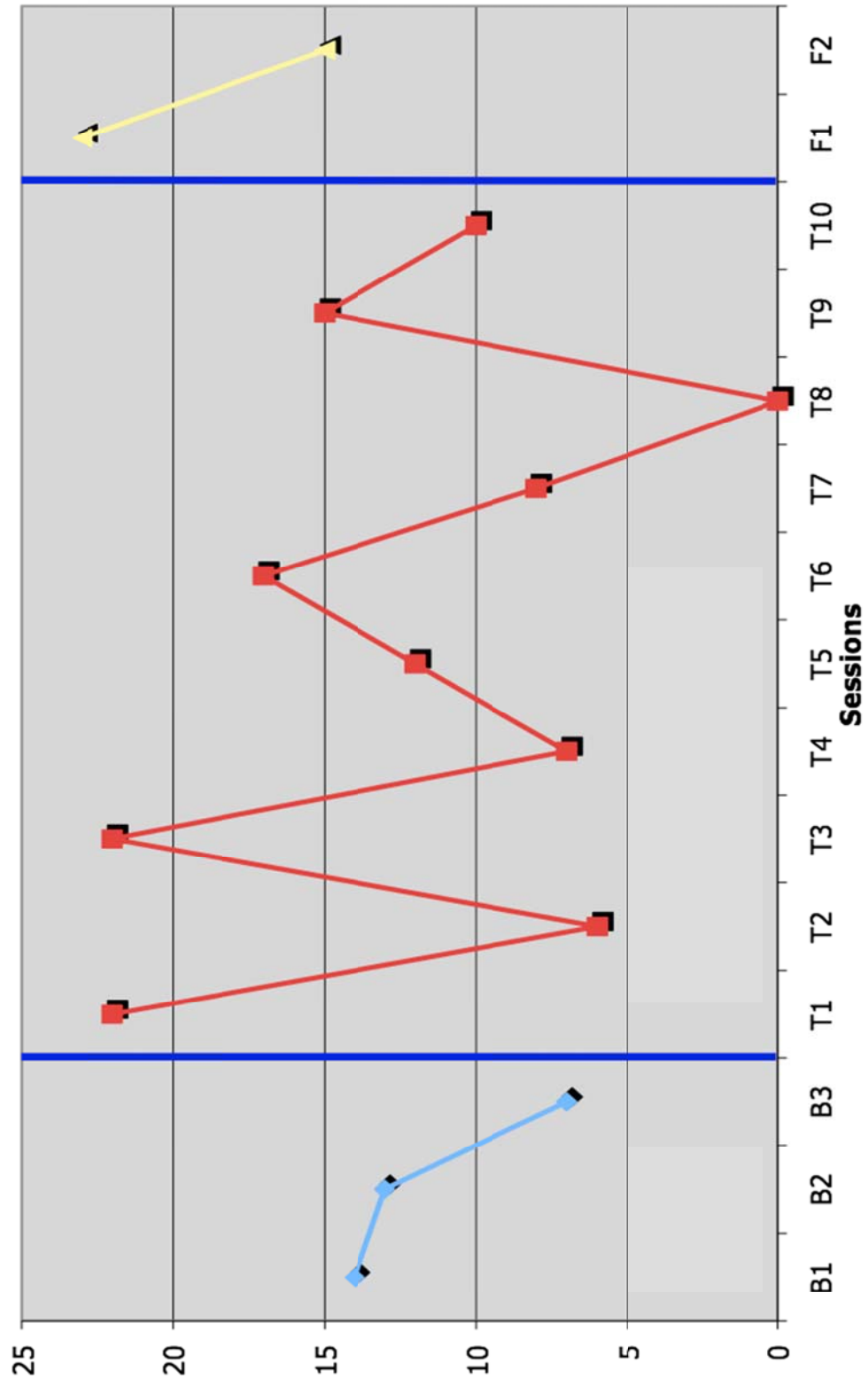
APPENDIX N

ANALOG MEASURE, SOCIAL RESPONSES,

PARTICIPANT 3

Participant 3 - Percentage of Social Responses
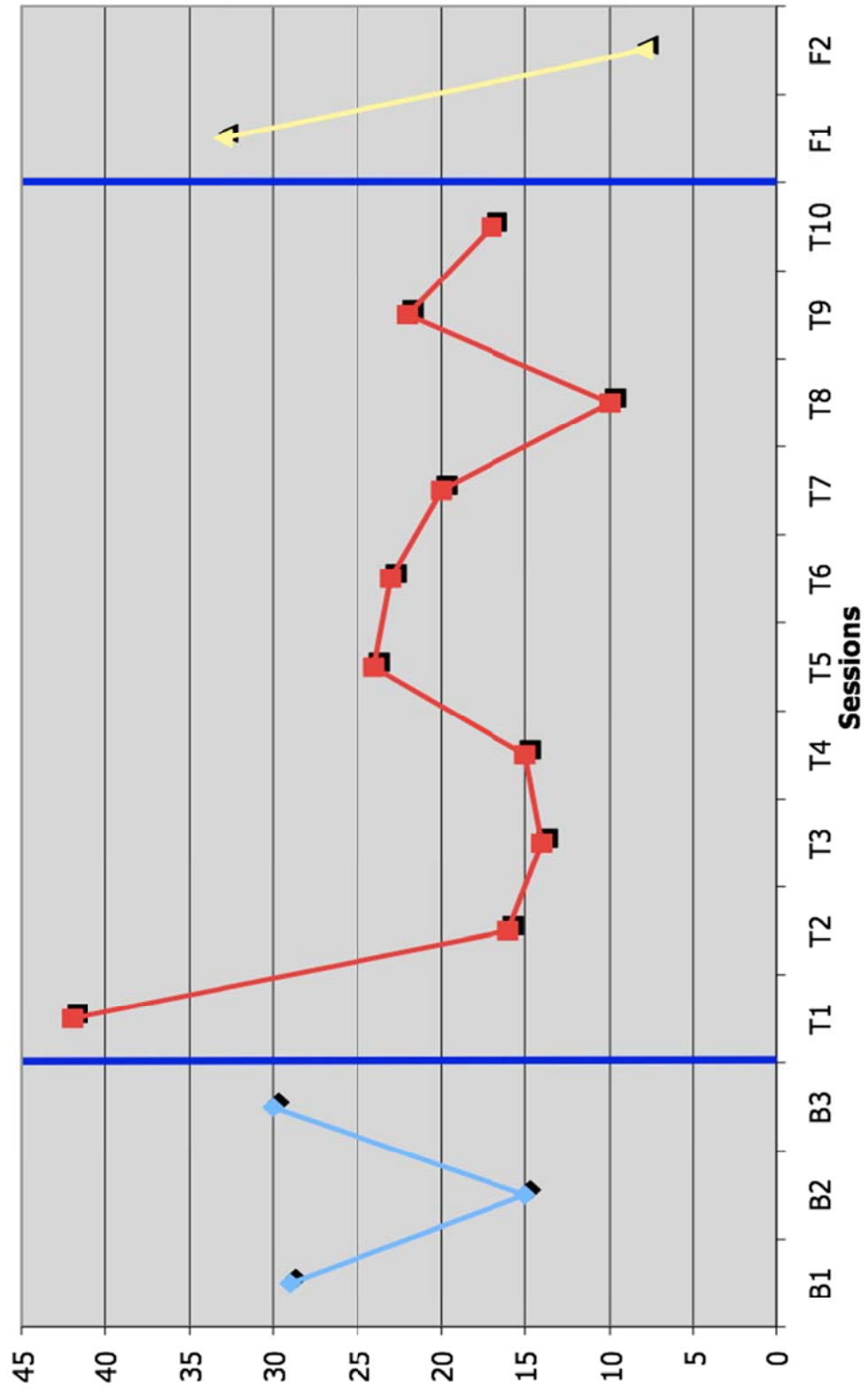
APPENDIX O

ANALOG MEASURE, SOCIAL ENGAGEMENT,

PARTICIPANT 3

Participant 3 - Percentage of Social Engagement
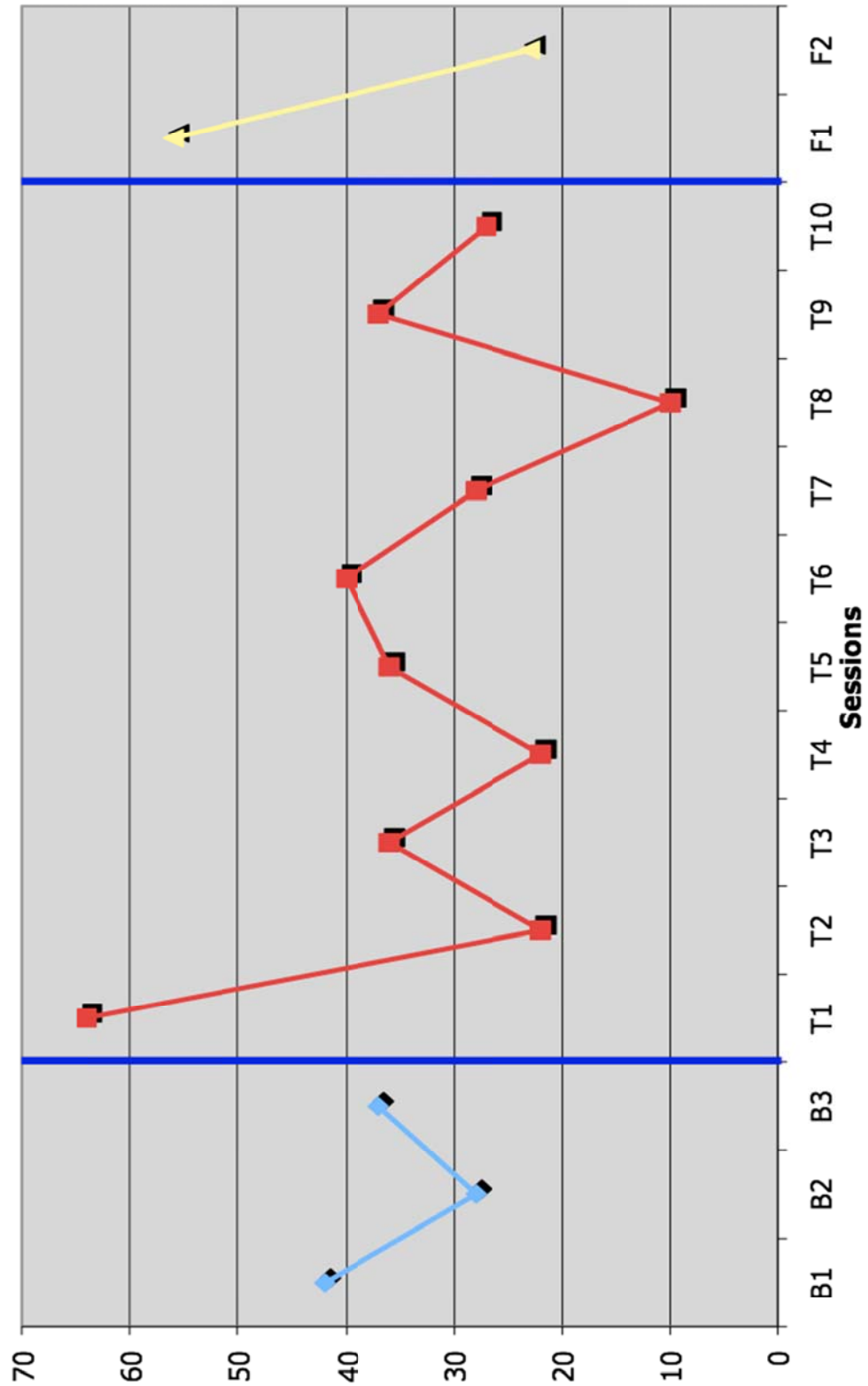
APPENDIX P

GROUP RECESS MEASURE OF SOCIAL INITIATIONS

Group Average - Percentage of Social Initiations
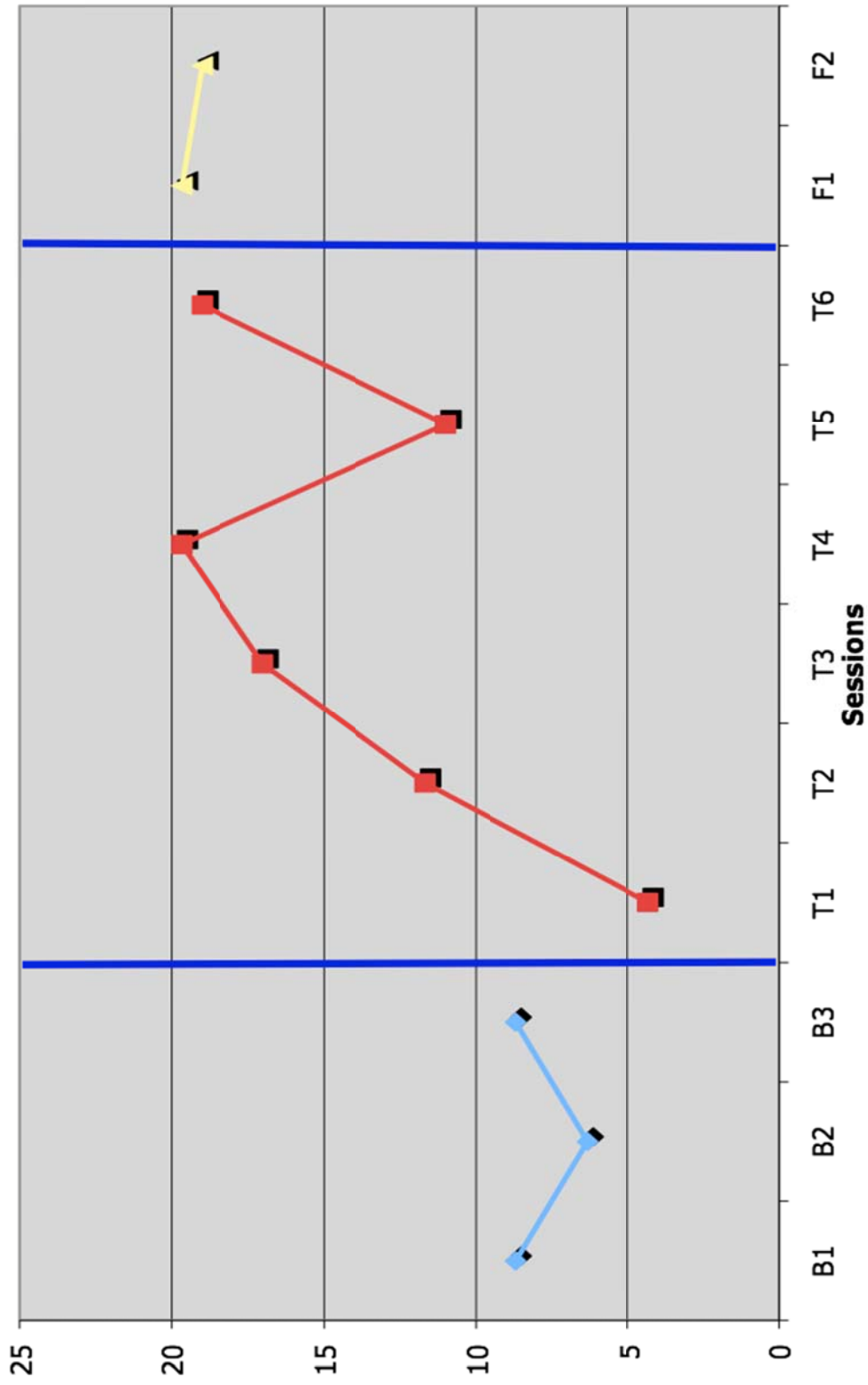
APPENDIX Q

GROUP RECESS MEASURE OF SOCIAL RESPONSES

179

Group Average – Percentage of Social Responses
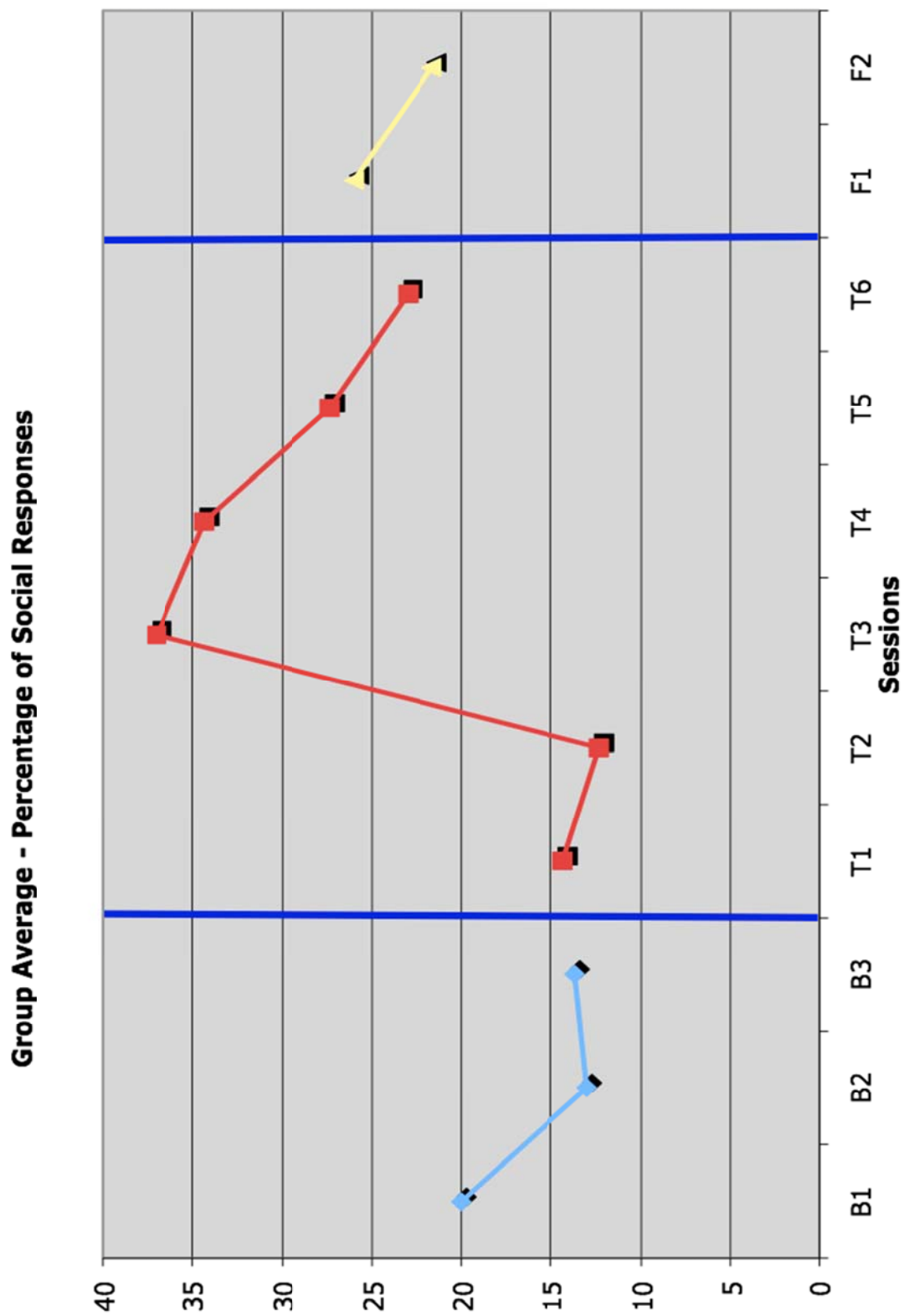
APPENDIX R

GROUP RECESS MEASURE OF SOCIAL ENGAGEMENT

Group Average - Percentage of Social Engagement
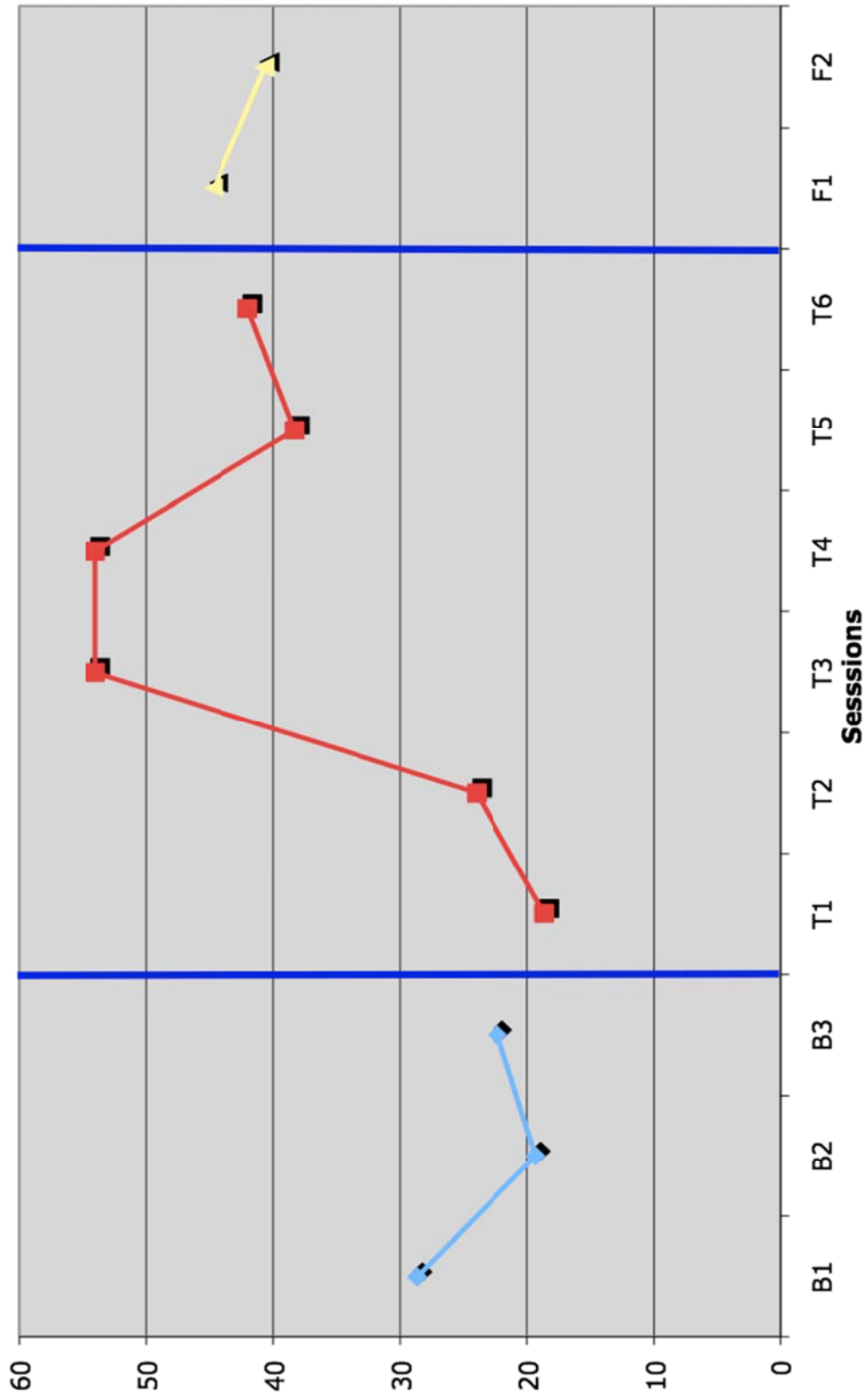
APPENDIX S

RECESS MEASURE, SOCIAL INITIATIONS,

PARTICIPANT 1

Participant 1 - Percentage of Social Initiations

APPENDIX T

RECESS MEASURE, SOCIAL RESPONSES,

PARTICIPANT 1

Participant 1 - Percentage of Social Responses
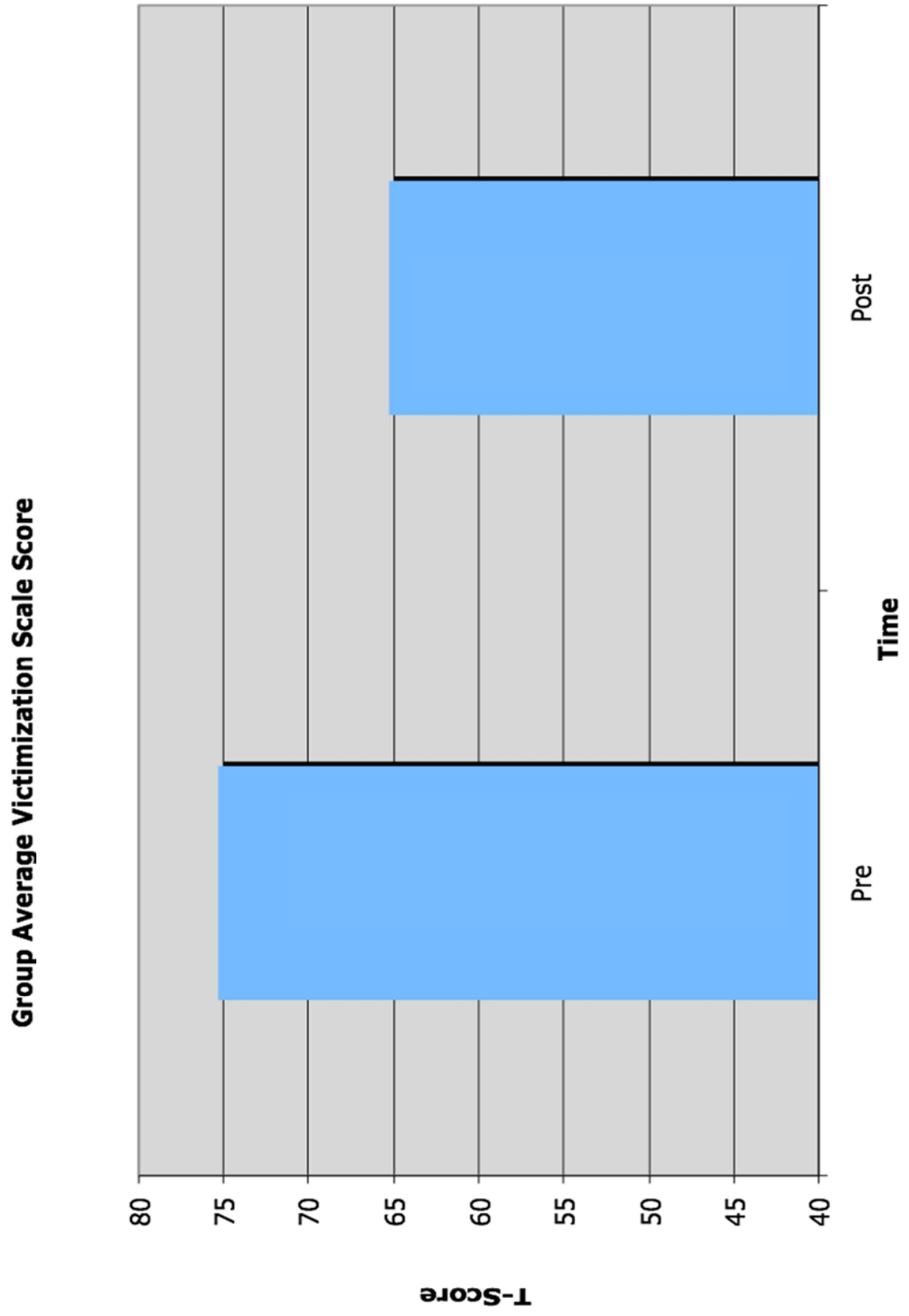
APPENDIX U

RECESS MEASURE, SOCIAL ENGAGEMENT,

PARTICIPANT 1

Participant 1 - Percentage of Social Engagement
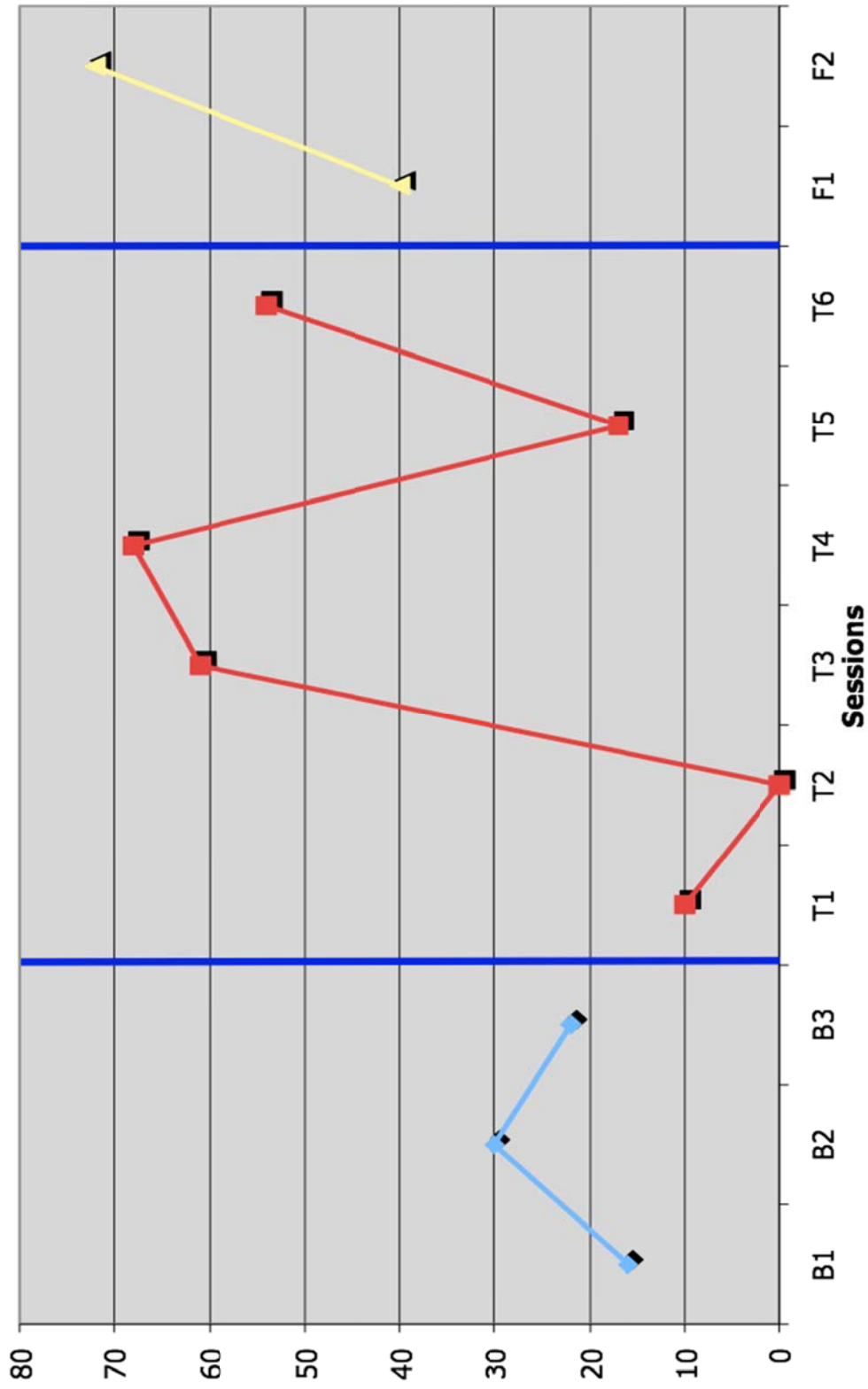
APPENDIX V

RECESS MEASURE, SOCIAL INITIATIONS,

PARTICIPANT 2

Participant 2 - Percentage of Social Initiations

APPENDIX W

RECESS MEASURE, SOCIAL RESPONSES,

PARTICIPANT 2

Particpant 2 - Percentage of Social Responses

APPENDIX X

RECESS MEASURE, SOCIAL ENGAGEMENT,

PARTICIPANT 2

Participant 2 - Percentage of Social Engagement

APPENDIX Y

RECESS MEASURE, SOCIAL INITIATIONS,

PARTICIPANT 3

Participant 3 - Percentage of Social Initiations

APPENDIX Z

RECESS MEASURE, SOCIAL RESPONSES,

PARTICIPANT 3

Participant 3 - Percentage of Social Responses

APPENDIX AA

RECESS MEASURE, SOCIAL ENGAGEMENT,

PARTICIPANT 3

Participant 3 - Percentage of Social Engagement
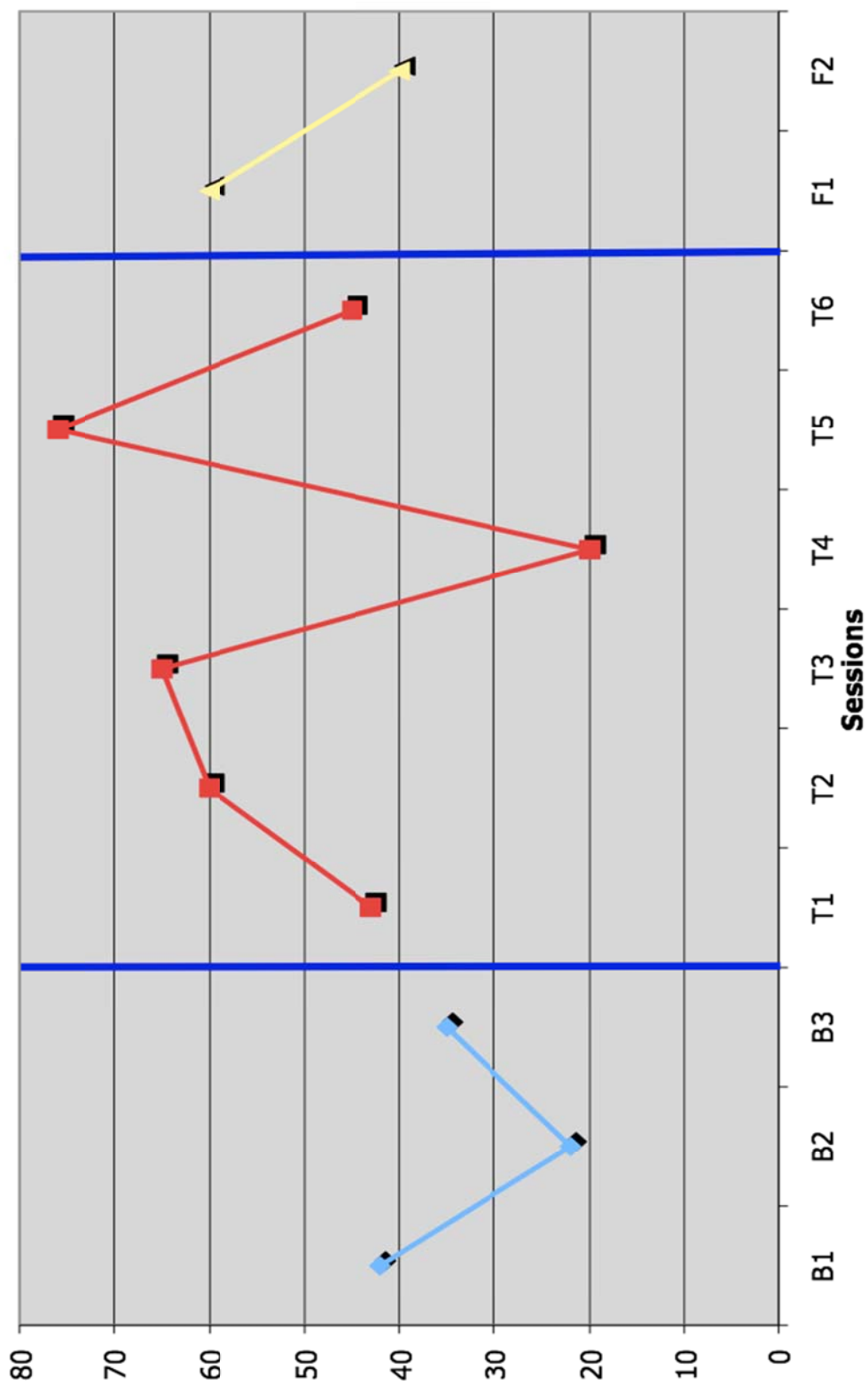
APPENDIX BB

GROUP AVERAGE VICTIMIZATION SCALE SCORE

Group Average Victimization Scale Score

APPENDIX CC

VICTIMIZATION SCALE SCORE, PARTICIPANT 1

Participant 1 - Victimization Scale Score
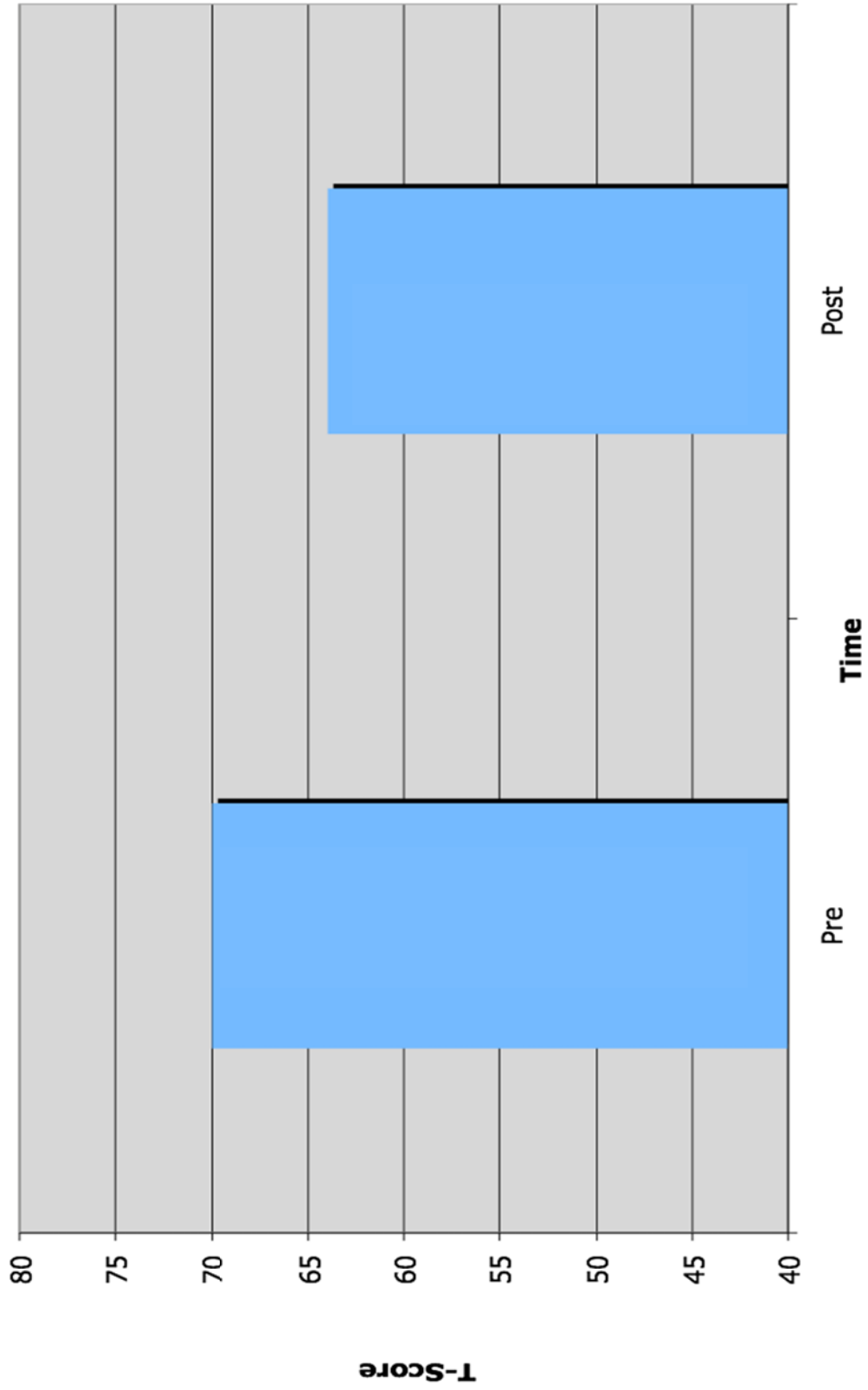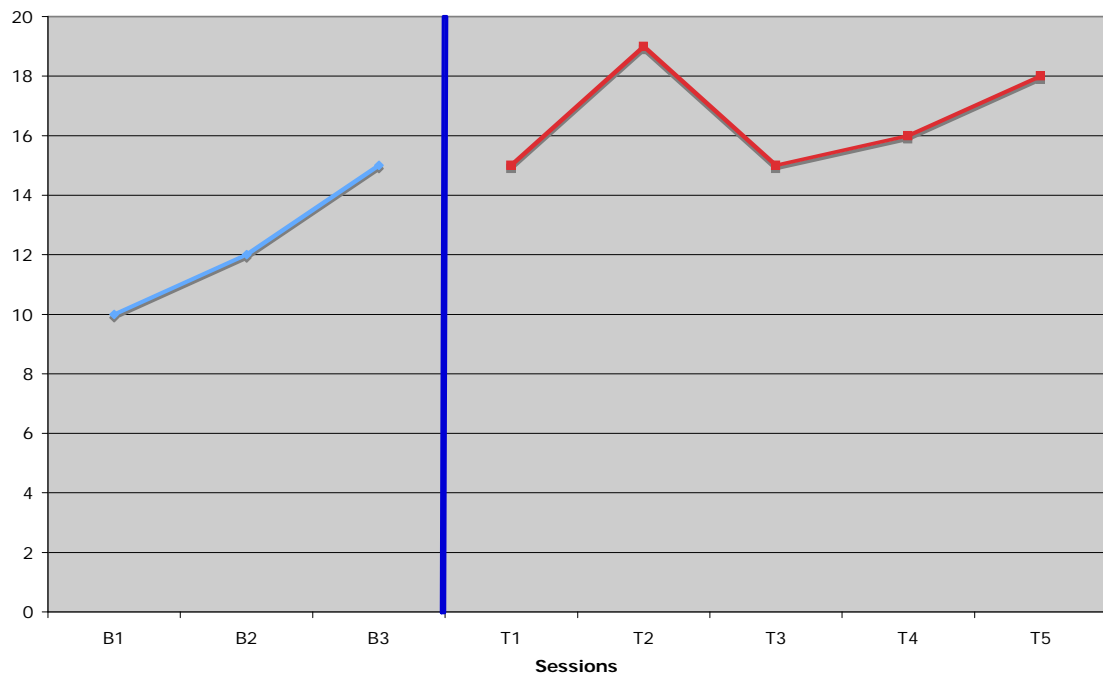
APPENDIX DD

VICTIMIZATION SCALE SCORE, PARTICIPANT 2

Participant 2 - Victimization Scale Score
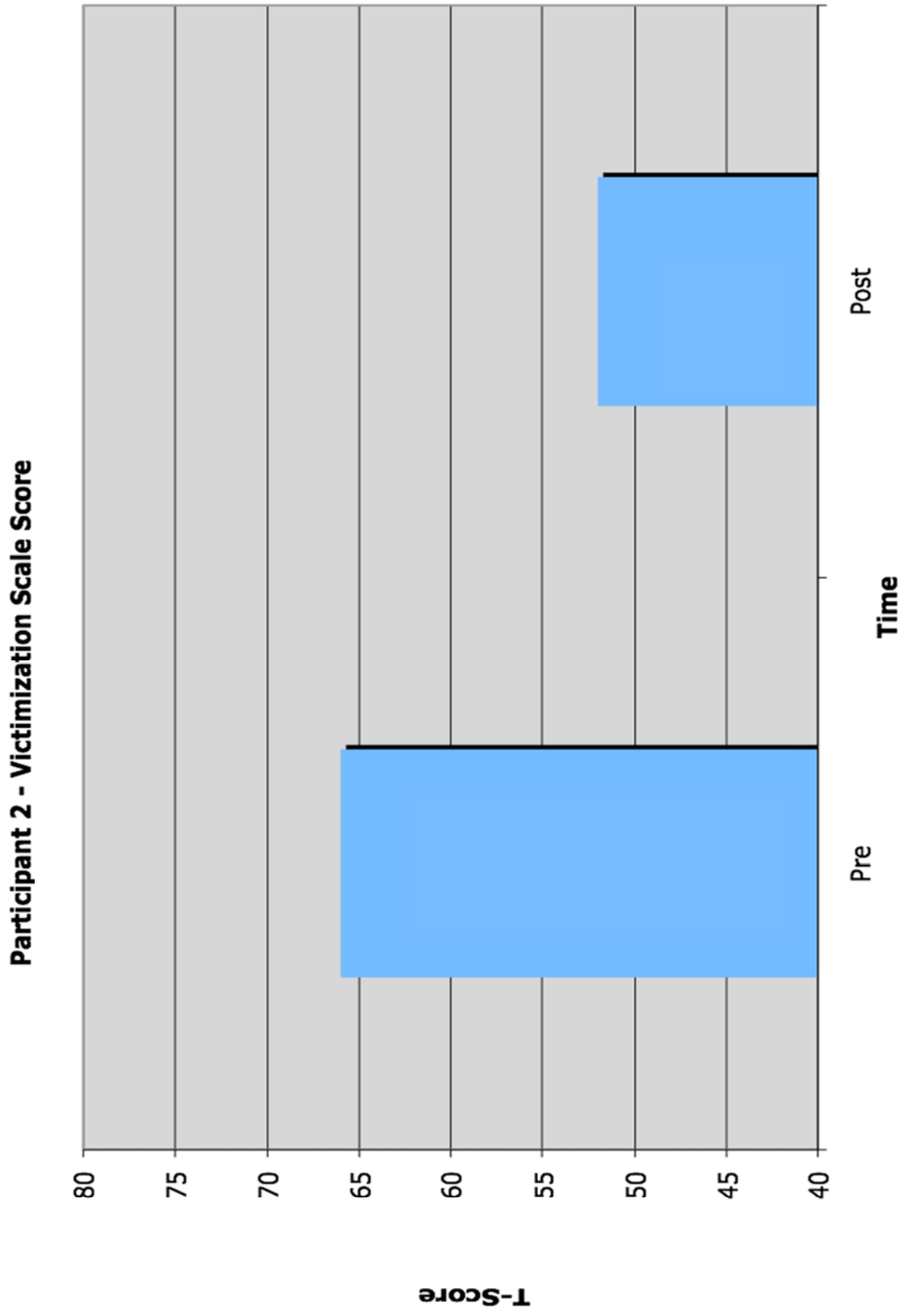
APPENDIX EE

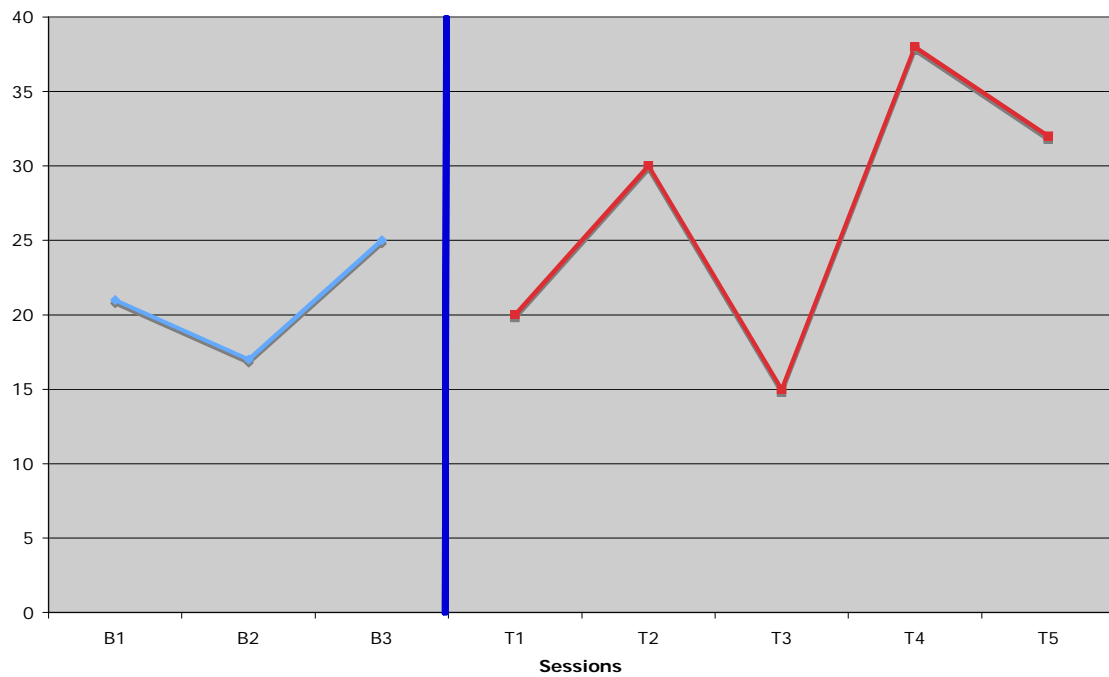VICTIMIZATION SCALE SCORE, PARTICIPANT 3
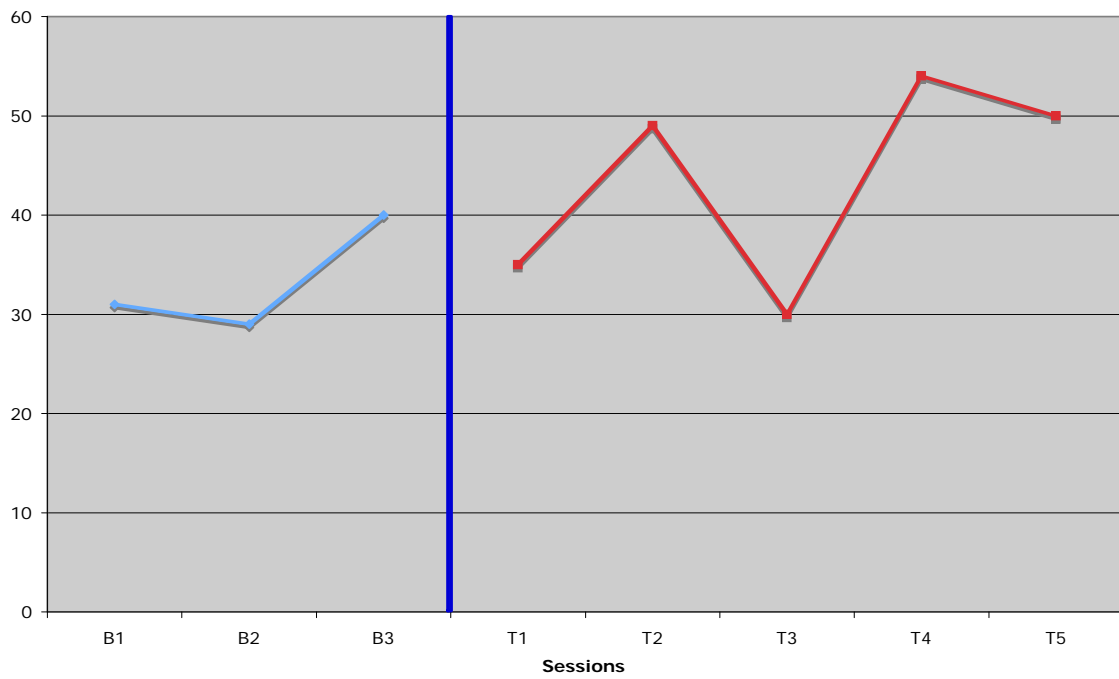
Participant 3 - Vicimization Scale Score
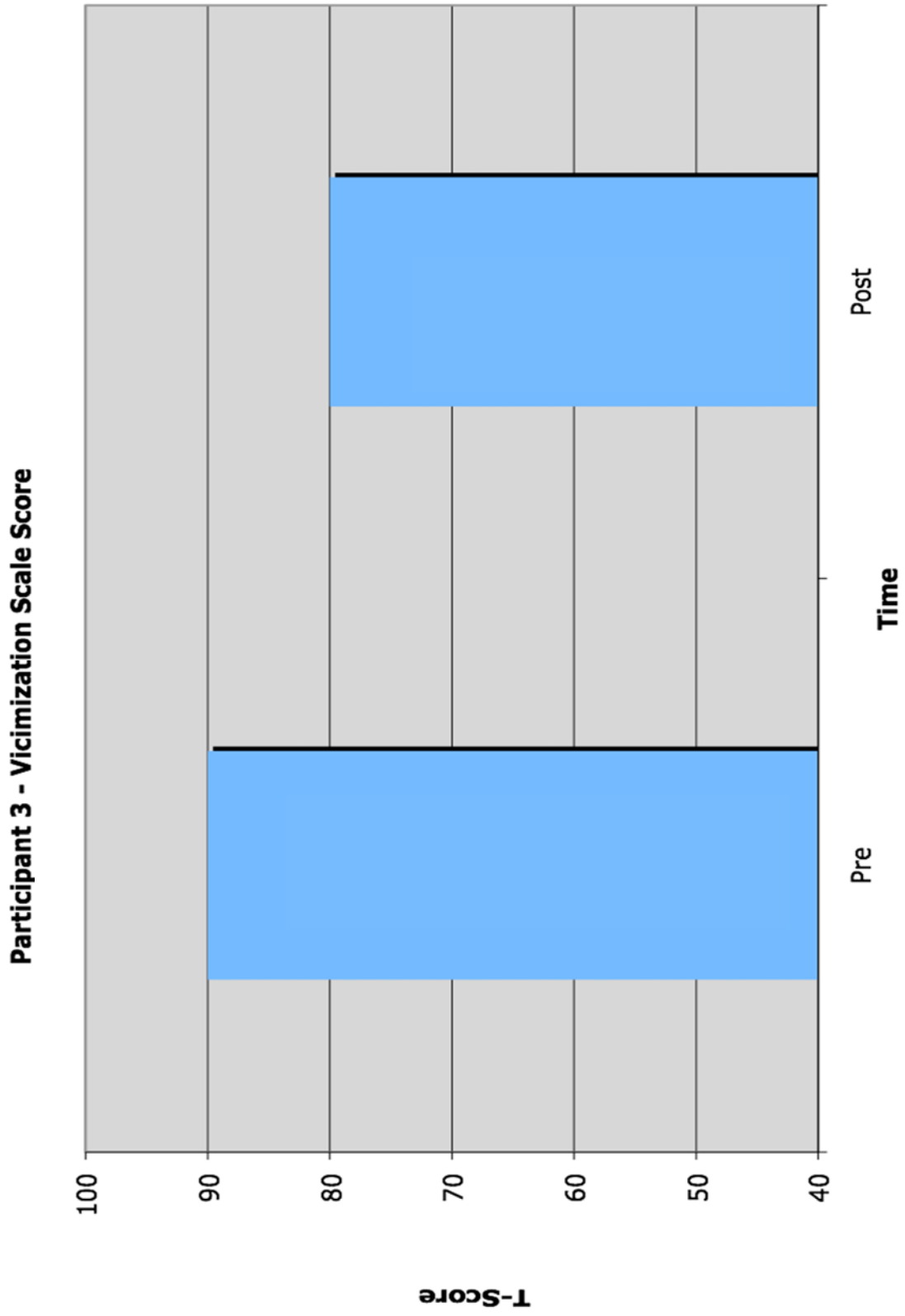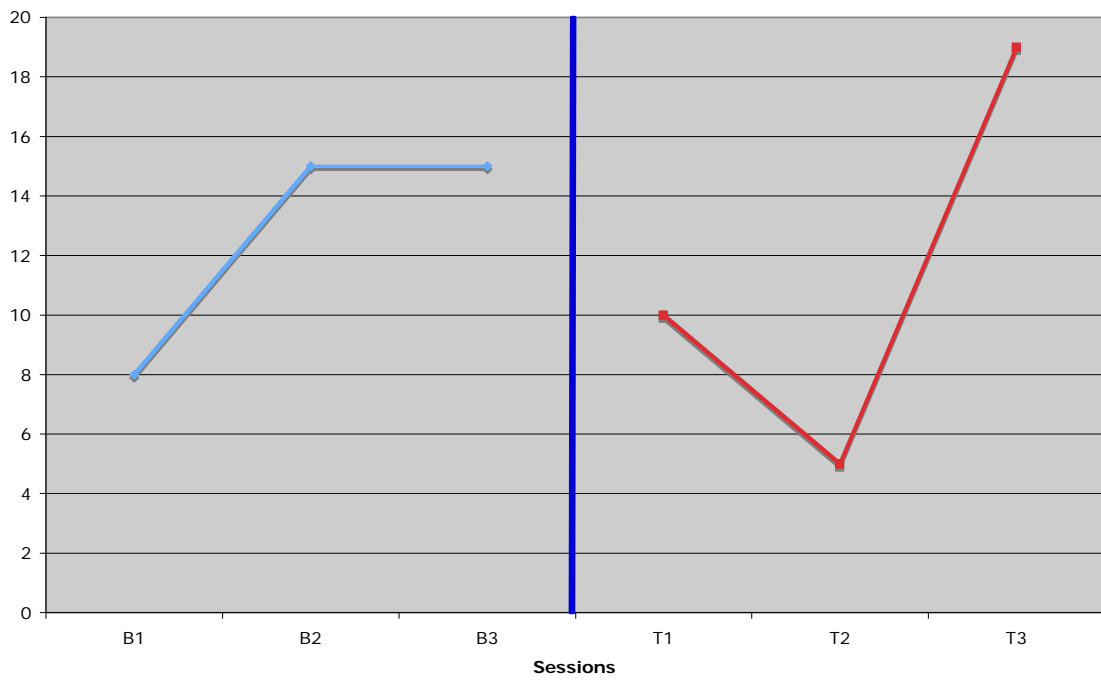
APPENDIX FF

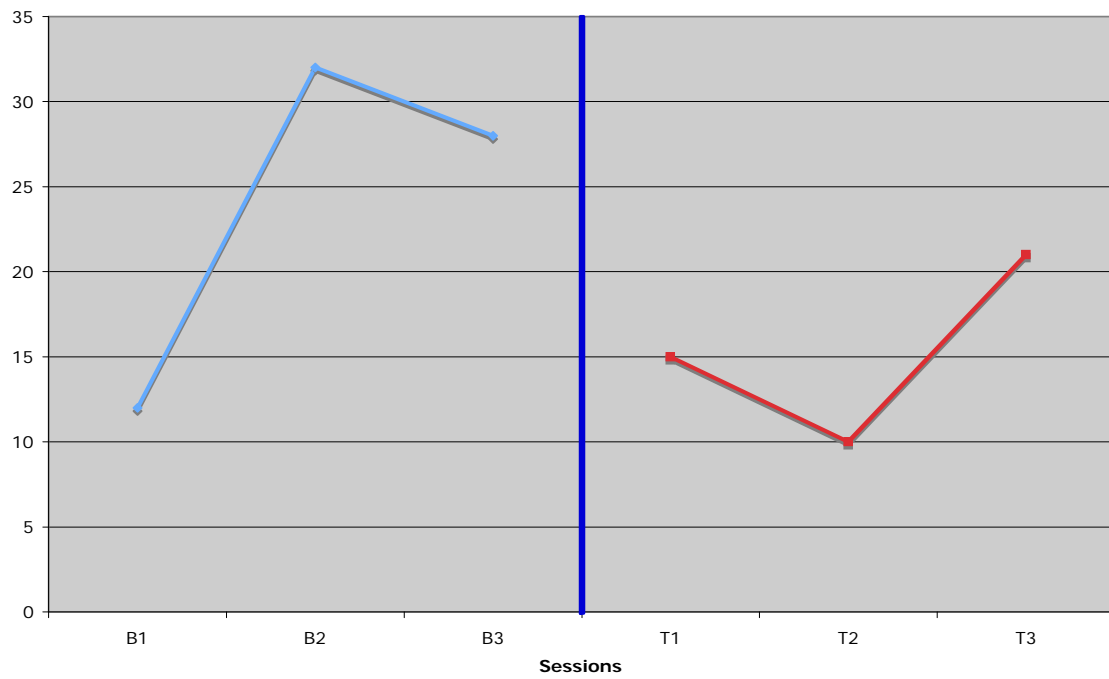OBSERVATION DATA, PARTICIPANT 4

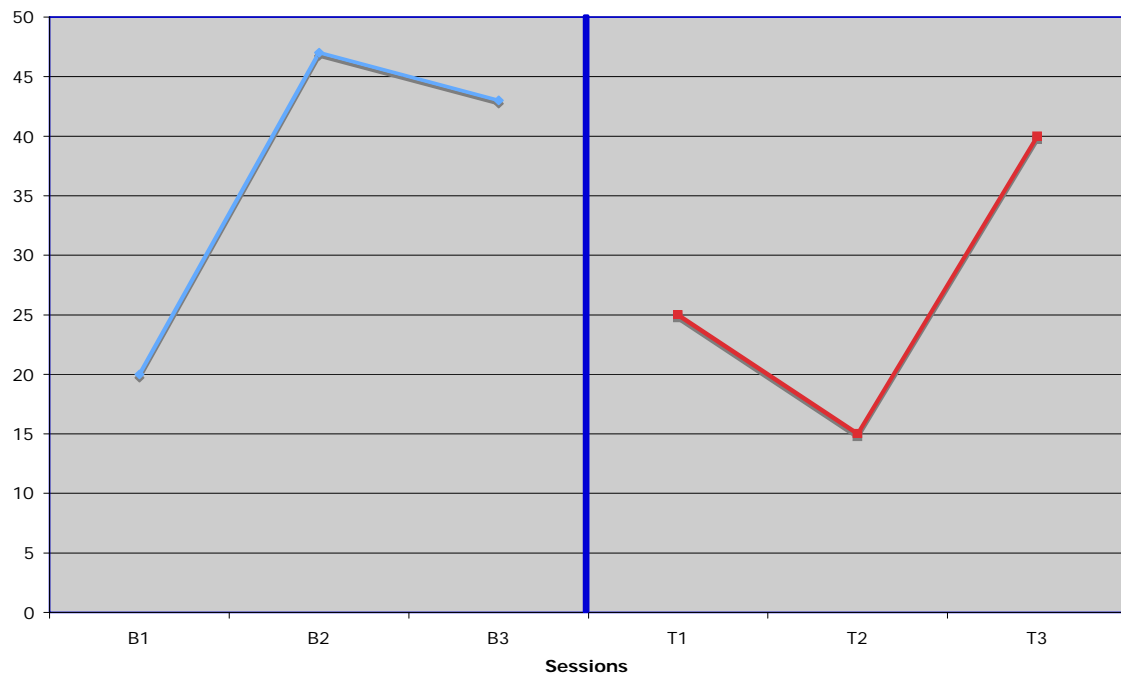**Analog, Social Initiations, P4**

Analog, Social Responses, P4

Analog, Social Engagement, P4

Recess, Social Initiations, P4

Recess, Social Responses, P4

Sessions

Recess, Social Engagement, P4

Sessions

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