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The Impact of Video Modeling Combined with Skillstreaming Teaching Procedures on the Social Interaction Skills of Middle School Aged Students with Autism Spectrum Disorders

Onur Kocaoz

University of Central Florida

University of Central Florida

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THE IMPACT OF VIDEO MODELING COMBINED WITH SKILLSTREAMING
TEACHING PROCEDURES ON THE SOCIAL INTERACTION SKILLS OF MIDDLE
SCHOOL-AGED STUDENTS WITH AUTISM SPECTRUM DISORDERS

by

ONUR EMRE KOCAOZ
B.S. Selcuk University, 2008
M.A. University of Texas at San Antonio, 2012

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Major Professor: Mary E. Little

ABSTRACT

This purpose of this study was to investigate the effectiveness of an intervention package that combined *Skillstreaming* procedures for the development of social skills with the use of video modeling for middle school students identified with ASD. Specifically, the purpose of this study was to determine if the video modeling intervention package has an impact on social skill performance of three middle school-aged students with ASD. A multiple probe design across participants was employed to assess the effects of the video modeling intervention package on two beginning social skills (i.e., initiate greetings and initiate a conversation). The participants were three middle school-aged students with ASD enrolled in a self-contained classroom. The dependent variable was the percentage of correct social skills components performed when greeting the teacher and initiating a conversation within in the first 10 minutes of class each morning. The independent variable was an intervention package that included video modeling and direct instruction for each social skill component with *Skillstreaming* procedures (i.e., modeling, role playing, feedback). The results of this research indicated that all three students improved their social skills performance following the implementation of the video modeling intervention package. Furthermore, during the maintenance phase, the social skills performance of each student was maintained. Recommendations for further study and for teachers of students with ASD are presented.

This doctoral dissertation is dedicated to my brother.

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successfully and work on behalf of education. It is still very hard not only for me, but also for my entire family, that we lost you at very young age. I and each family member believe that each of us will meet you one day. You are such a brave, wonderful and generous person who has sacrificed a lot for me and my family. I believe that whenever I do *good things* for humanity, I will become closer to you.

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CHAPTER ONE
THE PROBLEM AND ITS CLARIFYING COMPONENTS

Overview of the Problem

This research investigated the use of an intervention package designed with a video-modeling component to teach social skills to middle school students identified with autism spectrum disorders (ASD). A single-subject, multiple probe design across participants was used. The first chapter includes an overview of the research that serves as the background for this study, a description of the issues addressed, and an introduction of the purpose, with problem statements, research questions, and methodology presented.

Background of the Study

According to the Autism and Developmental Disabilities Monitoring Network (ADDM), in 2010, ASD affected one in 68 children aged eight years in the United States (Center for Disease Control, 2014). The ADDM have reported increases over ten years with ASD prevalence at one in 150 children aged eight years in Surveillance Year 2000 (CDC, 2007). Based on recent statistics, 498,000 students with ASD, ages ranged 3-21 years, attend public schools in the United States (US Department of Education, 2015). In addition, the number of students with disabilities, including students with ASD, receiving educational services in general education settings has increased as a result of educational legislation such as No Child Left Behind (NCLB, 2001). However, inclusion rates for students with ASD lag behind those for students in other disability categories. Among students with ASD in secondary grades (6-12), 40% spend more than three-fourths of their day in general education classrooms, while the other 60% spend half or less of their day with the general student population (USDOE, 2011). The

large number of students with ASD in self-contained settings highlights the need to better prepare students to interact more often and more independently during the school day with teachers and peers across educational settings (IDEIA, 2004).

Individuals identified under ASD's broad spectrum classification share common impairment characteristics; although, the severity of these challenges varies across each individual with ASD (APA, 2013; Crosland & Dunlap, 2012). Challenges with social skills affect inclusion for students with ASD (Bauminger, 2002). As defined by the Diagnostic and Statistical Manual of Mental Health (DSM 5), impairments in social communication and social interaction skills are the most common deficits for individuals with ASD which may potentially impact the individual's school, work, and personal life (APA, 2013; Bellini, Peters, Benner, & Hopf, 2007).

Individuals with ASD experience impaired social communication throughout life; social communication remains a pervasive problem (Bauminger, 2002; Weiss & Harris, 2001; White, Keonig, & Scahill, 2007). Bellini, Akullian, and Hopf (2007) stated that "Social skills are pivotal components to successful social, emotional, communication, and cognitive development" (p. 81). Communication skills and social interaction skills are necessary for daily tasks in school. Challenges with initiating social interactions and making friends impact opportunities to build meaningful social relationships and may result in isolation within their peer communities (Attwood, 2000; Bellini, Peters, Benner, & Hopf, 2007; Myles & Simpson, 2002). Lack of reciprocal interactions can also impede the acquisition of content information and lack of social skills can manifest in maladaptive transitions and engagement in the classroom (Ayres, Maguire, & McClimon, 2009; Myles & Simpson, 2002). Further, connections between students with ASD

engaging in disruptive behaviors can be attributed to their inability to communicate needs (Machalicek, O'Reilly, Beretvas, Sigafoos, & Lancioni, 2007; Strain, Wilson, & Dunlap, 2011). Social skill deficits in students with ASD may also lead to internal problems such as depression and loneliness and external problems such as aggression and off-task behaviors (Bauminger, Shulman, & Agam, 2003; Bellini, 2004; Locke, Ishijima, Kasari, & London, 2010; Myles & Simpson, 2002; White & Roberson-Nay, 2009).

Myles and Anderson (2001) noted that moving through adolescence can be a difficult transition period for all students, especially those with ASD, as the transitions are exacerbated by inadequate communication skills. The researchers stated that multiple challenges encountered during adolescence, including social expectations, physical and emotional changes, can increase stress, anxiety, and depression among students with inadequate communication skills (Bellini, 2004; Myles & Anderson, 2001). For adolescents with ASD, these challenges might incite more undesirable behaviors, like an increase in the amount of time engaged with special interests, more stereotypic behaviors, and an increase in anger or aggressive outbursts (Myles & Anderson, 2001).

In particular, individuals with ASD struggle with social greetings and initiating conversations (Simpson, Langone, & Ayres, 2004). Specific interventions that are designed to teach these skills may assist students with ASD improve their social competence (Attwood, 2000; Cartel et al., 2013; Church, Alisanski, & Amanullah, 2000; Weiss & Harris, 2001). Although a number of effective strategies have been used to teach and improve social interaction skills, individuals with ASD continue to have difficulty with more complex social interactions, such as initiating conversation following a greeting (APA, 2013; Kagohara et al., 2013; Simpson,

Langone, & Ayres, 2004). An inability to sustain conversation within relationships increases an individual with ASD's likelihood of social rejection and isolation (Bellini, 2004; Bellini, Peters, Benner, & Hopf, 2007).

An appropriate intervention system to address these deficits will require an on-going, intentional approach that helps students learn social strategies and generalize them into daily activities (Strain & Hoyson, 2000). According to researchers, inclusion into the general education setting may not facilitate students with ASD acquiring necessary social skills and active social engagement with peers (Myles, Simpson, Ormsbee, & Erickson, 1993; Simpson, de Boer-Ott, & Smith-Myles, 2003). Students with ASD are more likely to face difficulties when they change the environment (APA, 2013). As such, additional strategies must be incorporated to assist these students in developing the social skills necessary to be successful in the general education setting (Bellini, Peters, Benner, & Hopf, 2007; Harrower & Dunlap, 2001; Simpson et al., 2003).

As noted by the National Research Council, appropriate interventions need to be utilized to decrease problematic classroom behaviors, while increasing communication and social interactions that would otherwise impede a student's educational progression and transitions (National Research Council, 2001). Establishing meaningful social relationships with peers and adults will help students with ASD gain social competence which improves their ability to interact within social settings (Bellini, Peters, Benner, & Hopf, 2007; Reinchow & Volkmar, 2010). To achieve those goals, current interventions to teach social skills include Social Skills Training (SST) programs (Collet-Klingenberg, 2009), social narratives (Gray & Garand, 1993; Scattone, Tingstrom, & Wilczynski, 2006), peer mediated instruction and intervention (Lee,

Odom, & Loftin, 2007; McConnell, 2002), and, recently, video modeling (Bellin & Akullian, 2007; Delano, 2007).

Blake (2010) found, despite increasing empirical evidence for Social Skills Training (SST) programs, many secondary students with ASD do not have access to SST programs in school-based settings. Furthermore, many instructors do not have the professional development or understanding of ASD to use these SST programs, due to the lack of: (a) strategies for teaching social skills, (b) evidenced-based social skill curriculum, or (c) technology resources to create effective video-models (Blake, 2010, p. 2), such as video equipment, for the use of television in classrooms and during transitions.

Video modeling is a strategy that holds the potential to teach students with ASD the necessary skills to respond appropriately to teachers and peers (Bellini & Akullian, 2007; Delano, 2007; Ogilvie, 2011). Although video modeling interventions are becoming popular for teaching social skills to individuals with ASD; research extending to social interaction and communication for adolescents is limited (Delano, 2007; Ogilvie & Dieker, 2010; Reichow & Volkmar, 2010). Video modeling holds the potential to reform maladaptive behaviors and support transitions for adolescents with ASD and can support individual goals for the student.

Statement of the Problem

Most individuals with ASD have some difficulty in social functioning which may have direct and indirect effects on the quality of an individual's life (White et al., 2007). At the time of the present study, insufficient research had been conducted to fully investigate the impact of a video modeling intervention package on the development of social skills for middle school students with ASD. This research could provide insight into an instructional package using

technology and specific procedures for teaching social skills that are necessary for social skill development of individuals with ASD.

Purpose of Study

The present study examined the effects of video modeling combined with *Skillstreaming* teaching procedures on the acquisition of two beginning social skills (greeting and initiation of a conversation) by three middle school students with ASD in a self-contained classroom in a mid-sized public school district in central Florida. This research sought to extend the current evidence base for video modeling (Ogilvie & Dieker, 2010) by implementing a video modeling intervention package with adolescent students with ASD in a self-contained classroom setting.

Rationale

Individuals with ASD have a predilection toward visual stimulation, and as such, video or pictorial representations of desired behavior can be an impactful strategy for teaching social skills (Quill, 1997). Video modeling is an emerging practice to address communication deficits, behavioral challenges, and undesirable transition behaviors. Using video modeling, students with ASD can engage in appropriate behaviors in a classroom, learn the behavior needed to support transitions, and generalize the information learned. The use of video modeling integrates a powerful learning modality for adolescents with ASD by demonstrating socially acceptable visual cues for instruction (Bellini & Akullian, 2007; Cihak & Schrader, 2008). Researchers noted with ASD that positive gains made during video-modeling interventions were demonstrated as a result of the intervention in children and adolescents (Bellini & Akullian, 2007; Thiemann & Goldstein, 2001; Ogilvie & Dieker, 2010; Reichow & Volkmar, 2010).

However, there is little research available on the use of a video modeling intervention package to teach social skills to adolescents who have ASD. This study adds to a growing body of knowledge on the implementation of a video modeling intervention package to enhance communication and social skill development for students with ASD.

Research Questions

1) To what extent does the implementation of video modeling combined with *Skillstreaming* teaching procedures impact social skill acquisition of middle school students with ASD in a self-contained classroom setting as measured by percentage of correct social skills component performed?

2) Were the goals, procedures, and outcomes rated as desirable by teachers and students with ASD regarding the acquisition of targeted social skills?

Methodology

A single-subject, multiple probe design across participants (Gast & Ledford, 2010; Horner & Baer, 1978) research design was used to evaluate the impact of a video modeling intervention package on the acquisition of social skills by three middle school-aged students with ASD in a self-contained classroom. Visual inspection of each student's performance data was displayed using a simple graph to determine the functional relationship between independent variable and dependent variable (Gast, 2010).

Definition of Terms

Autism Spectrum Disorder is a complex neurodevelopmental disorder that occurs within the first

three years of life and continues throughout an individual's life. Individuals with autism most

likely struggle in the area of social interaction, verbal and/or nonverbal communication,

demonstrating repetitive behaviors, and restricted and limited interests (APA, 2013).

The severity level was shown in Table 1.

Table 1

Severity Levels for Autism Spectrum Disorder

Severity level	Social communication	Restricted, repetitive behaviors
Level 3 "Requiring very substantial support"	Severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. For example, a person with few words of intelligible speech who rarely initiates interaction and, when he or she does, makes unusual approaches to meet needs only and responds to only very direct social approaches	Inflexibility of behavior, extreme difficulty coping with change, or other restricted/repetitive behaviors markedly interferes with functioning in all spheres. Great distress/difficulty changing focus or action.
Level 2 "Requiring substantial support"	Marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others. For example, a person who speaks simple sentences, whose interaction is limited to narrow special interests, and how has markedly odd nonverbal communication.	Inflexibility of behavior, difficulty coping with change or other restricted/repetitive behaviors appears frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.
Level 1 "Requiring support"	Without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful response to social overtures of others. May appear to have decreased interest in social interactions. For example, a person who is able to speak in full sentences and engages in communication but to- and-from conversation with others fails, and whose attempts to make friends are odd and typically unsuccessful	

Diagnostic and Statistical Manual – Severity Level and Criterion (APA, 2014. p. 52).

Beginning Social Skills are basic to the functioning of the groups that are specifically including greetings others/ initiating a conversation (McGinnis, Sprafkin, Gershaw &Klein, 2012). *Skillstreaming* the Adolescent is an evidence-based intervention and internationally-known technique, developed in 1973 by Dr. Arnold P. Goldstein that involves systematically teaching social skills to address the needs of students who "display aggression, immaturity, withdrawal, or other problem behaviors. *Skillstraming* is a psychoeducational intervention having its roots in both psychology and education" (McGinnis et al., 2012, p. 2).

Video modeling is "visual model of the targeted behavior or skill (typically in the behavior, communication, play, or social domains), provided via video recording and display equipment to assist learning in or engaging in a desired behavior or skill" (Wong et al., 2014, p. 22).

CHAPTER TWO
REVIEW OF LITERATURE

This chapter presents an overview of the literature on instruction in social skills with a specific focus on students with autism spectrum disorders (ASD). An overview of ASD will be described, including definitions and prevalence. This section is followed by a description of social skill development of students with ASD. Next, a review of evidence-based practices for students with ASD will be described. Following, specific evidence-based instructional practices in social skills are described and discussed including social narratives, peer-mediated instruction, and video-modeling. Previous research and meta-analyses on these specific evidence-based practices is summarized. An overview of an instructional package including social skills and technology to be implemented within the classroom is described.

Introduction to Autism Spectrum Disorder (ASD)

American psychiatrist Leo Kanner (1943) first described ASD as early infantile autism. By studying eleven students in depth, Kanner identified common characteristics among the students, such as unwillingness to talk with peers and spending long periods of time engaged in unstructured, repetitive play. At the same time, the Austrian psychiatrist Hans Asperger was also studying a group of children identified with a combination of behaviors he referred to as "autistic psychopathy" (Asperger, 1944).

Autism Criteria Changes in DSM-5

The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM) has included references to ASD since the mid-1900s. Baker (2013) tracked the historical development of autism through the DSM and provided the following outline:

1) 1950s-1960s: Autism categorized as childhood schizophrenia

2) 1970s: Autism seen as a biological disorder

3) 1980s: Autism no longer related to childhood schizophrenia by third edition of DSM

4) 1987: DSM- III developed checklist to be used in the diagnosis process of autism

5) 1994-2000: Asperger Syndrome added under the category of Autism by fourth edition of DSM

6) 2013: Fifth edition of the DSM added subcategories under the title of autism spectrum disorder (ASD)

The fifth edition of the DSM (DSM-5) includes significant changes to the medical classification of autism after a 14 year revision period (APA, 2013). DSM-5 combined different autism-related disorders under a single category of Autism Spectrum Disorder (ASD). DSM-5's ASD classification included: (a) autistic disorder, (b) Asperger's disorder, (c) childhood disintegrative disorder, and (d) pervasive developmental disorder-not otherwise specified (PDD-NOS) (APA, 2013). While the ASD classification was controversial among some researchers and parents (Worley & Matson, 2012), the Neurodevelopmental Working Group (2013) supported the re-classification as a way to improve consistency in diagnosing the

disorder as "a single umbrella disorder will improve diagnosis of ASD without limiting the sensitivity of the criteria, or substantially changing the number of children being diagnosed" (Neurodevelopmental Working Group, 2013, p. 1). The DSM-5 also introduced severity levels (level I, level II and level III) of ASD based on the amount of support an individual would need as a result of their ASD symptoms. The three severity levels of ASD are: I) requiring support, II) requiring substantial support, and III) requiring very substantial support (APA, 2013). To determine the level of support needed in an educational setting, the characteristics of the individual's ASD are compared to the two domains within the DSM-5 ASD definition- social communication impairments and restricted repetitive patterns of behavior domains (APA, 2013). Previous editions of the DSM used three domains of characteristics to identify ASD. The fifth edition combined the social skills domain and the communication domain into one social communication skills domain that, in conjunction with the restricted repetitive patterns of behavior domain, are used as the primary factors determining ASD severity (APA, 2013). Additionally, DSM-5 noted ASD symptoms should become apparent during early childhood development (APA, 2013).

<div align="center">Definition of ASD</div>

According to American Psychiatric Association (APA, 2013), autism is a complex neurodevelopmental disorder that occurs within the first three years of life and continues throughout an individual's life. Individuals with ASD most likely struggle in the area of social interaction, verbal and/or nonverbal communication, by demonstrating repetitive behaviors, and restricted and limited interests (APA, 2013). Based on DSM 5 diagnostic criteria, individuals can be diagnosed with ASD once they exhibit a minimum of five out of seven symptoms,

across the two main domains. Specifically, three symptoms should be identified from social communication areas and two symptoms from restricted range of activities/repetitive behaviors during early childhood (APA, 2013).

Beyond the clinical definition of ASD, an educational classification of ASD was established by the Individuals with Disabilities Education Improvement Act (IDEIA, 2004) to provide educational and related services for students with ASD between three and twenty-one years of age. As defined by IDEIA (2004),

> Autism means a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before the age of three that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences.

The definition of ASD was limited by IDEIA (2004) by excluding children whose educational performance is hindered by an emotional disturbance. Both clinical and educational definitions of ASD include much of the same language related to the main characteristic features of ASD. The clinical definition provides a more detailed list of criteria. Impairments in social interaction, communication and repetitive activities are included in both clinical and educational ASD definitions as primary diagnostic criteria for a student to be eligible to receive educational and related services with an ASD diagnosis. Autism Spectrum Disorders are seen in all races, ethnic groups and socioeconomic classes and the combination and severity of ASD symptoms varies for each individual diagnosis (Volkmar & Lord, 2007). As a consequence of the myriad of presentations of ASD, use of the label has steadily increased since first identified.

Prevalence of ASD

The specific cause of autism is still unknown. Researchers suspect ASD to be caused by a combination of genetic and environmental factors (Folstein & Rosen- Sheidley, 2001). Campbell and colleagues (2011) estimated the rate of individuals with ASD worldwide based on 27 published studies in 8 different countries between 1999- 2011. The result of their comprehensive investigation suggested 1 out 143 people were identified with ASD at that time (Campbell, Davarya, Elsabbagh, Madden, & Fombonne, 2011). Recent statistics from the U.S. Centers for Disease Control and Prevention (CDC) (2014) indicated ASD affects 1% of the global population. Approximately three million people in the U.S. have been diagnosed with ASD (CDC, 2014). The prevalence rate of ASD has increased rapidly over the past 15 years. According to the latest CDC report, the current prevalence rate of ASD in children aged is 14.7 out of every 1000 children which indicate an increase from 6.7 per 1000 children in 2000 (CDC, 2014). At present, one in every 68 children in the U.S. is affected by ASD (CDC, 2014). In addition, the prevalence of autism is almost five times higher in boys than in girls (CDC, 2014). The CDC examined the intellectual ability of children diagnosed with ASD and found that 31 percent of children with ASD have an intellectual disability ($IQ \leq 70$), 23 percent of children with ASD were in the borderline range ($IQ = 71\text{-}85$), and almost 46 percent of children with ASD average or above intellectual ability ($IQ > 85$) (CDC, 2014).

Identification of ASD and its implications for the educational environment were not fully explored until the middle of the twentieth century. The Individuals with Disabilities Education Act (IDEA, 1990), federal legislation identified autism as a separate disability

category. Prior to that time, the USDOE did not specifically identify nor collect statistical information about autism.

Characteristics of Individuals with ASD

Autism Spectrum Disorder is an umbrella term describing a wide range of disorders with similar signs and symptoms. The primary characteristics of ASD are categorized under two main domains: 1) "persistent deficits in social communication and social interaction across multiple contexts; and 2) restricted, repetitive patterns of behavior, interests, or activities" (APA, 2013, p. 809). Although the severity of ASD symptoms varies significantly, the supports needed are determined by the two domains (APA, 2013).

Social Communication Skill

Since the early description of autism by Kanner (1943), social communication deficits have been a primary indicator of ASD in children. While early versions of DSM regarded social and communication skills as separate and distinct domains, DSM 5 incorporated the two domains under one model. The social communication domain has three symptoms present in all individuals with ASD (APA, 2013). Carpenter (2013) described these symptoms as problems with social initiation and response, nonverbal communication, social awareness and insight, as well as with the broader concept of social relationships.

Restricted Repetitive Patterns of Behavior

The second main domain of ASD is restricted, repetitive patterns of behavior, interests, or activities. The DSM 5 identified four symptoms under this category, at least two of which must be exhibited by an individual to be diagnosed with ASD (APA, 2013). Examples of this

behavior include "atypical sensory behaviors, rituals and resistance to change, preoccupations with objects or topics, atypical speech, movements, and play" (Carpenter, 2013, p. 2).

<div align="center">Social Skill Development in Individuals with ASD</div>

Social communication skill deficits are often the most pronounced challenges for individuals with ASD (Bellini, Peters, Benner, & Hopf, 2007; Weiss &Harris, 2001; White, Keonig, & Scahill, 2007). Many researchers have focused on social communication skill acquisition and development (e.g., Bellini 2004; Sansosti & Powel- Smith, 2008). Social skills include "the ability to interact with others in a given social context in specific ways that are socially acceptable or valued and at the same time personally beneficial, mutually beneficial, or beneficial primarily to others" (Combs & Slaby, 1977, p. 162). Social communication skill development is important for individuals with ASD to gain social competency, independent living, and a better quality of life (Autism Society of America, 2013; Bellini, 2011; Carter et al., 2013). Lacking social skills, individuals with ASD, regardless of cognitive ability or age, are likely to struggle with social interactions throughout their lives (Strain & Hoyson, 2000). Therefore, long-term outcomes for students with ASD would benefit from specific skill instructions and supports to learn, practice, and achieve competence in social skills across multiple settings.

The number of students with disabilities in general education settings has increased as a result of educational legislation such as No Child Left Behind (NCLB, 2001). The benefits of inclusion for students with ASD in academic areas and in the development of social skills are well-established in the literature (e.g., Downing & Eichinger, 2003; Harrower & Dunlap, 2001). However, for inclusive classroom settings to provide meaningful benefits for students

with disabilities, social isolation in these classes must be actively avoided (Simpson, de Boer-Ott, & Smith-Myles, 2003). To accomplish this goal, Lane, Pierson, and Givner (2003) noted that students with ASD need to master social skills in order to receive expected benefits from inclusive environments. To facilitate the development of social skills for students with ASD, it is important to identify evidence-based practices for teaching social skills to students with ASD that can be easily applied to inclusive classrooms (McConnel, 2002; Reichow & Volkmar, 2010).

Research on Social Interactions of Individuals with ASD

The characteristics of students with ASD often impact a number of social communication competencies, including social initiation and response, nonverbal communication, social awareness and insight, as well as with the broader concept of social relationships (APA, 2013; Bellini, 2011; Carpenter, 2013). Social skill deficits of students with ASD increase their susceptibility to developing unhealthy interpersonal relationships, avoiding initiating communication with others, having difficulty expressing themselves, and avoiding problems (APA, 2013; Carter et al., 2013). Researchers found individuals with ASD are less likely to engage in pro-social behavior compared to their peers (Bellini, Akullian, & Hopf, 2007; Carter et al., 2013). The findings are consistent with both clinical and educational definitions of ASD. Identifying deficits in the social skill areas is important because of the development of social functioning and improved academics and behavior (Bellini, Peters, Benner, & Hopf, 2007; Laugeson, Frankel, Gantman, Dillon, & Mogil, 2012; Rao, Beidel, & Murray, 2008). As children with ASD progress into adolescence, the complexity of their social environments increases as their social skill deficits become more pronounced (Tantam, 2003;

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White et al., 2007). Students with ASD benefit from special education efforts and services that use evidence-based interventions and strategies to meet each individual's unique needs (McConnell, 2002; Rao et.al. 2008; Rogers, 2000; Simpson, 2005).

<u>Evidence-Based Practices</u>

The importance of evidence-based practices (EBP) for the education of students with disabilities has been highlighted by and included within federal legislation such as NCLB (2001) and IDEIA (2004) (Simpson, Myles, & Ganz, 2008). The use of effective teaching methods has received greater attention, in part due to legislative mandates that required school districts provide meaningful educational services to meet the unique learning needs of students with disabilities. Since 1975, students with disabilities have been guaranteed access to a free and appropriate public education (IDEIA, 2004). Teachers, parents and caregivers can use specific methods considered as EBPs, as effectiveness of the EBPs has been investigated in a number of research studies. Researchers posit the use of EBPs will assist students with disabilities in closing the academic achievement gap with their typically developing peers, enhance overall learning outcomes, and improve socialization (Odom et al., 2003; Reichow, Volkmar, & Cicchetti, 2008). Therefore, EBPs have received great attention by researchers, educators and practitioners to provide appropriate instruction for students in special education. As a result, a large body of research investigated a variety of intervention practices in different settings, as well as with various student populations, to determine whether a particular method meets the criteria of being a EBP (Cook, Tankersley, Cook, & Landrum, 2008; Simpson, 2005).

Simpson (2005) identified the most critical need areas for individuals with ASD. These areas included "interpersonal relationships, cognitive, physiological, and neurological skill-

based socialization" (p. 146). Implementing the most effective practices to facilitate social skill development is important to meet the individualized needs of students with special needs; however, no particular EBP works for every individual with ASD.

Research synthesis organizations such as the National Professional Development Center on ASD (NPDC), What Works Clearinghouse (WWC), and National Autism Center (NAC) have conducted comprehensive reviews of the literature, using specific criteria, to identify potential EBPs. The NPDC identified the following specific criteria for an intervention to be considered evidence-based practice:

1. "Randomized or quasi-experimental design studies: Two high-quality experimental or quasi-experimental group design studies conducted by at least two different researchers or research groups;

2. Single-subject design studies: Five high quality single subject design studies conducted by three different investigators or research groups and having a total of at least 20 participants across studies;

3. A combination of evidence: One high-quality randomized or quasi-experimental group design study and at least three high-quality single subject design studies conducted by at least three different investigators or research groups (across the group and single subject design studies)" (Wong et al., 2014, pp. 15-16).

Most recently, a research team from NPDC identified 27 evidence-based practices (EBPs) for children and youth with ASD from a study of 456 journal articles, published between 1990 and 2011 (Wong et al., 2014). This recent NPDC study contributed to the findings of a 2009 meta-analysis of 775 research articles by the National Autism Center (NAC,

2009) and previous study of the NPDC in 2007. As a result of both studies, a number of common EBPS identified by the NAC in 2009 and NPDC in 2007. Whereas NAC's National Standards Project (NAS) identified 11 interventions that were considered established treatments and 22 that were emerging treatments, the NPDC identified 24 interventions as EBPs. While NAC classified some practices as intervention packages that incorporated more than a specific intervention, NPDC's review indicated it classified EBPs as a single intervention. For example, the behavioral package which is classified in NAC's review as a single intervention incorporated seven NPDC EBPs (Wong et al., 2014).

The subsequent study by NPDC in 2014 identifying 27 EBPs for youth and children with ASD added five new EBPs, including cognitive behavior interventions, exercise, modeling, scripting, and structured play group; while structured work systems was eliminated from the previous EBPs list (Wong et al., 2014). Further, computer-aided instruction and speech generating devices/VOCA were combined under the name of technology-aided instruction and intervention (Wong et al., 2014).

EBPs for Social Skill Development

The necessary supports for social skill development in students with ASD can be met by providing the appropriate EBPs, as noted by many researchers (Parson, 2006). Researchers have evaluated several instructional strategies for the development of social skills in students with ASD, including peer-mediated instruction and intervention, social stories, social skills training groups, and Video-Based Modeling (VBM). One of the recent meta-analysis of research on social skill development in students with ASD, ages 2-17, by Wang and Spillane (2009) found mixed results among the instructional strategies. The meta-analysis included 38

studies on social skill interventions published between 1997 and 2008 and found only social stories, peer-mediated instruction, and video modeling satisfied the criteria for EBPs based on the framework established by Horner et al. (2005). Wang and Spillane (2009) concluded video modeling was the most effective social skill intervention because of its high percentage of non-overlapping data (PND) and mean score of 84.25%.

Social Narratives

Since social narratives were introduced as an intervention strategy for students with ASD (Gray & Garand, 1993), many researchers have highlighted their effectiveness at promoting social skills and enhancing academic skills for students with ASD (Reichow & Sabornie, 2009; Scattone, 2008). Leaf and colleagues (2012) defined social stories as "brief passages, written by a teacher, that describe a behavior to be displayed by a participant" (Leaf et al., 2012, p. 281). Social stories involve the use of personalized stories that are developed with the support of visual icons to address a targeted behavior of students with ASD. While social stories can be implemented in a variety of settings, the most common place is in school. Furthermore, this strategy can easily be implemented in combination with other intervention models like video self-modeling.

Reichow and Sabornie (2009) investigated the impact of Social Stories interventions on the initiation of social interactions with peers or adults. The study focused on acceptable verbal greetings, defined by the researchers as "a verbal greeting that was initiated by the participant to the adult" (p. 1741). The frequency of verbal greetings was measured using a withdrawal design with a comparison across baseline, intervention, and maintenance phases in which cue

cards were used. The results found the number of acceptable greetings of an eleven year old

student increased during both intervention and maintenance phases.

Peer-mediated Instruction

Peer-mediated (PM) instruction is an effective method for developing social skills in

students with disabilities (Harper, Symon, & Frea, 2008; Lee, Odom, & Loftin, 2007). PM

instruction uses multiple formats, including Peer-Assisted Learning Strategy (PALS) and

Class-Wide Peer Tutoring (CWPT) (Fuchs & Fuchs, 2005; Veerkamp, Kamps, & Cooper,

2007). Peer-mediated instruction "involves one or more peers without disabilities that provide

academic and social support to students with disabilities" (Carter, Cushing, Clark, & Kennedy,

2005, p. 16). While peer-matching strategies can be used to focus on academic achievement in

reading, math, and science, many studies also noted improvements in social skills (Carter et al.,

2005; Trembath, Balandin, Togher, & Stancliffe, 2009). Other researchers have supported this

finding, directly studying PM strategies and their impact on social skills of students with ASD

from elementary to secondary years (Petursdottir, McComas, McMaster, & Horner, 2007).

Although PM has been found to be an effective strategy for teaching and improving social

skills of students with ASD in different settings, generalizability effects were not included in

many studies (Holloway, Healy, Dwyer, & Lydon, 2014).

Intervention Package

Intervention packages were used as a single intervention to teach different skill areas,

including social skills, for individuals with ASD. Intervention packages incorporate multiple

interventions together under a single intervention model, allowing for additional strategies or

components to be added, as needed. For example, a target social behavior can be taught within video modeling by adding various procedures, such as discussions, role models, feedback, reinforcement or other components. One of the limitations of using intervention packages is that identifying the impact of individual methods or components is difficult; conclusions can only be drawn about the effectiveness of an intervention package rather than one specific component.

Sansosti and Powell-Smith (2008) examined the effectiveness of an intervention package consisting of computer presented social stories and video model in teaching communication skills for students with ASD. Researchers assigned the two methods simultaneously to the participants aged 6-10. A multiple baseline design, across three participants, was used to display the impact of the two methods on students' target behaviors: joining in and maintaining conversation. Researchers created social stories based on participant's target behavior and the stories were introduced using video modeling. Findings from the study suggested that the students' improved social communication from the baseline condition was a result of the intervention package. However, two of the participants were not able to generalize the use of target skills outside the study unless prompted by a teacher's follow-up phrase (Sansosti & Powell-Smith, 2008).

A similar study by Scattone (2008) used an intervention package that included social stories and video model to measure the impact on the development of three target behaviors: eye contact, smiling, and initiation of conversation for a male student with ASD. The results of this study are similar to the previous study, as the participant demonstrated improvement of the eye contact *(d = .9)* and initiation of conversation *(d = .8)*. However, Scattone (2008) noted,

due to the simultaneous use of treatment intervention within the intervention package, it was impossible to determine whether the social story or video model was more effective during the experiment.

Social Skills Training Groups

Impairments in social communication skills are primary characteristics of individuals with ASD (APA, 2013; White et al., 2007). Social Skill Training Groups (SSTGs) were designed to assist students, with a variety of disabilities (e.g., childhood social phobia, specific learning disabilities, and ASD), learn and develop specific social skills. A number of different social behaviors, including perspective-taking, participatory conversation, peer relationships, social competence, emotional recognition and theory of mind, can be taught through SSTGs. According to the NPDC report, the SSTGSs were validated as an effective, evidence-based practice in a number of research studies evaluating the teaching of social behaviors to student with ASD, ages 4-12 (Wong et al., 2014).

The primary objective of SSTGs is to create social interaction opportunities within a social group setting for students with social skill deficits. SSTGs divides a broad social behavior into small components in a structured time period over the course of 12 sessions (Collet-Klingenberg, 2009). Groups vary in number of students based on the target behavior, participant ages, and the developmental stage of participants. Students have the opportunity to join social skill behavior activities that allow them to experience modeled behaviors from peers that correlate to their individual social skill needs. While different types of social skills training interventions use different implementation steps, many SSTGs use the following the procedural

steps: (a) introduction, (b) topic focus, (c) modeling, (d) practice, (e) coaching, and (f) feedback (Collet-Klingenberg, 2009; Palmen, Didden, & Arts, 2008).

Skillstreaming for Adolescents

Skillstreaming is an internationally-known technique, developed in 1973 by Arnold P. Goldstein, as a social skill training approach to teach and develop the social skills of children and youth with or without disabilities (Goldstein & McGinnis, 1997). The curriculum teaches social skills using explicit, systematic, and structured instruction and is organized to target different age groups (e.g., kindergarten, elementary, and middle school). The general steps of *Skillstreaming* curriculum include: (a) an introduction to the target social skill behavior; (b) model the skill; (c) practice/role model; (d) provide feedback; and (e) assign homework with related skills (Goldstein & McGinnis, 1997). The *Skillstreaming* curriculum for adolescents consists of 50 different social skill areas, under six main categories: (a) beginning social skills; (b) advanced social skills; (c) skills for dealing with feelings; (d) alternatives to aggression; (e) skills for dealing with stress; and (f) planning skills (Goldstein & McGinnis, 1997). Most recently, Ogilvie and Dieker (2010) designed a study to examine the impact of video modeling and peer mediated strategies using *Skillstreaming* procedures when teaching five social skills to middle school students with ASD. A multiple baseline across subject design was used to exhibit the effectiveness of the intervention package on the five social skills that included "greeting a peer/teacher, participating in a conversation, asking a question, following directions, and tracking the talker" (Ogilvie & Dieker, 2010, p. 53). The results of the study demonstrated that the intervention package had positively impacted the five social skills of the three students with ASD.

Social Learning Theory and Video-Based Learning

Social learning theory, which became the dominant social cognitive theory, was first developed by psychologist, Albert Bandura (Bandura, 1977). Bandura's early work focused on the acquisition of knowledge and observational learning, which influenced both cognitive and behaviorist theories. Bandura's general theory became a bridge between these two theories by linking acquisition of knowledge (cognitive theory) and reinforcement (behaviorism). People gain general and integrated patterns of behavior, beliefs, and knowledge through observational learning and modeling instead of trial and error (Bandura, 1977). Few behaviors require direct experimentation to be learned. Rather, dozens of behaviors can be learned through observation and behavior modeling. According to Bandura's theory, learning takes place by either modeling or reaction to the consequences of others' behaviors. The primary concept of social learning theory consists of modeling, observational learning, imitation, internalization and identification (Bandura, 1977).

Learning through modeling is based on transferring knowledge. Observers gain a symbolic understanding of the modeled behavior during the observation. Bandura identified three different modeling types: (a) direct modeling; (b) symbolic modeling; and (c) synthesized modeling (Bandura, 1986). The modeling process consists of four aligned stages (Bandura 1986). The first stage of modeling is attention. Individuals need to be attentive to transfer and recall knowledge of observed behavior. Also, the features and characteristics of the model being observed are important to increase the level of attention by the observer. The second stage is remembering; observed behaviors must be remembered by an observer. The third stage is reproduction, which is required for an individual to repeat the modeled behavior. The last

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stage of the modeling process is motivation. Observers should be willing to apply what they observed from the model (Bandura, 1986).

Video modeling originated from Bandura's Social Learning Theory (Bandura, 1977). Wong and colleagues (2014) defined video modeling as a "visual model of the targeted behavior or skill (typically in the behavior, communication, play, or social domains), provided via video recording and display equipment to assist learning in or engaging in a desired behavior or skill" (Wong et al., 2014, p. 22). Video modeling includes: (a) video self-modeling; (b) point-of-view video modeling; and (c) video prompting (Bellini & Akullian, 2007; Wong et al., 2014). Video modeling and video self-modeling are the most often cited in studies.

Individuals with ASD are often considered to be visual learners (APA, 2013), making the visual cues and imitations of video model particularly beneficial as an intervention tool (Ganz, Earles-Vollrath, & Cook, 2011). McCoy and Hermansen (2007) stated, "Instructional modeling, teacher demonstration of expected behaviors or skills, complements the visual strengths of students with autism" (p. 183). Video or visual aids of the expected behavior can be very helpful due to the predisposition of students with ASD to respond to visual prompts (Parsons, 2006; Quill, 1997). With the development of communication and visual technology, learning with the use of various technological devices has become commonplace (Delano, 2007; Spence-Cochran & Pearl, 2011). Researchers emphasized four general features of ASD such as "over-selective attention, restricted field of focus, preference for visual stimuli and visually cued instruction, and avoidance of face-to-face interactions" (Corbett and Abdullah,

2005, p. 4) to describe why video modeling is an appropriate instructional strategy for individuals with ASD.

There is an emerging body of research that identifies the importance of video modeling as an intervention modality for individuals with ASD to manage challenging social skill behaviors (Nikopoulos & Keenan, 2004; Parsons, 2006; Thiemann & Goldstein, 2001). Ogilvie (2011) recommended video modeling for social skills instruction as the ideal intervention type for individuals with ASD. Video modeling programs are beneficial for repeating of social content, generalizing to authentic social experiences, and reinforcing social skill development with peer mentors to extend learning outcomes (Ogilvie, 2011). Video modeling is considered an effective method of intervention for students with ASD in the acquisition of social skills (Bellini & Akullian, 2007; Delano, 2007). Closing the gaps in social skills development between students with ASD and their peers requires an understanding of students' learning needs and a closely coordinated set of effective social skills practices.

Since the 1970s, numerous research studies have investigated the utility of video modeling interventions for students with ASD (Charlop & Milstein, 1989; Nikopoulos & Keenan, 2004). Video modeling has been used as an intervention strategy for a wide range of areas including behavior, academic, and functional skills (Bellini & Akkaulin, 2007). The effectiveness of the strategy is well-documented in the literature and shows positive results for students with ASD within a variety of settings, with multiple behaviors, academic or functional skills, and with students in various age groups (Bellini & Akullian, 2007).

A number of different types of skill sets have been taught through the implementation of video modeling such as perspective taking (Charlop-Christy & Daneshvar, 2003), play skills

(Boudreau & D'Entremont, 2010; D'Ateno, Mangialpanello & Taylor, 2003: Reagon, Higbee, & Endicott,2006; Sani-Bozkurt & Ozen, 2015), conversation skills (Charlop & Milstein, 1989; Sherer et al.,, 2001; Thiemann & Goldstein, 2001), social initiations (Nikopoulos & Keenan, 2004), social engagement (Bellini, Akullian, & Hopf, 2007), and daily living skills (Charlop-Christy, Le & Freeman, 2000; Shipley-Benamou et al., 2002). While there are a number of comprehensive reviews and meta-analyses in which video modeling was examined across various populations and settings (Ayres & Langone, 2005; Bellini & Akullian, 2007; Delano, 2007), a few number of studies were focused on teaching students with ASD (Ayren & Langone 2005; Bellini & Akullian, 2007).

Ayres and Langone (2005) reviewed a total of 15 single case studies published between 1987-2004 regarding the effectiveness of video modeling on teaching social skills (N=9) and functional skills (N=6). While the participants' ages ranged from 3 to 20, most participants were in elementary school and most (92%) were diagnosed with ASD. Their review suggested video modeling is an effective strategy for both target skills (Ayres & Langone, 2005).

Bellini and Akullian (2007) conducted a meta-analysis of 23 single case studies published between 1985-2005 that examined the effectiveness of video model and video self-modeling. The researchers found that a majority of studies used multiple baseline or probe design, while one study used a reversal design. Effect sizes across intervention, maintenance, and generalized phases had been measured by reporting PND score. The results of this meta-analysis demonstrated social-communication skills, behavioral functioning, and functional skills can be taught through video modeling and video self-modeling. While the mean PND

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score, across categories, was reported at 80 percent, the individual social communication PND score was lower than functional skills at 77%.

More recently, Wang, Cui, and Parrila (2010) conducted a meta-analysis of 14 single subject research studies published between 1994 and 2008. Hierarchical linear modeling (HLM) was used to measure the effectiveness of peer-mediated intervention and video modeling intervention. The results indicated both interventions were effective in teaching social skills. Specifically, the reported effect size of the effects of implementing video modeling as an intervention across five studies was 1.22.

Nikopoulous and Keenan (2004) investigated the effectiveness of video modeling to enhance the social initiation and reciprocal play skills of three students with ASD at the elementary level. A single case design, using multiple baseline across subjects, was applied. The findings supported video modeling as an effective intervention method to improve social initiation and reciprocal play skills when compared to baseline condition. In addition, these skills were maintained after the intervention was withdrawn (Nikopoulous & Keenan, 2004).

Therefore, previous research and meta-analyses have demonstrated results illustrating the effects of video modeling when used as an intervention focused on various social skills for students, especially students with ASD. The purpose of the current research extends and enhances this research by adding to a growing body of knowledge on the implementation of a video modeling intervention package to enhance communication and social skill development for students with ASD.

CHAPTER THREE
METHODOLOGY AND PROCEDURES

In the following sections, the research design, methodology, and procedures for the study are described. The researcher obtained permission from the Institutional Review Board (IRB) from both the University of Central Florida and the school district (see Appendix A). The purpose of this study was to investigate the effectiveness of the implementation package which included video modeling combined with *Skillstreaming* teaching procedures on teaching greetings/initiating a conversation for three middle school students with ASD.

Research Questions

1) To what extent does the implementation of video modeling combined with *Skillstreaming* teaching procedures impact social skill acquisition of middle school students with ASD in a self-contained classroom setting as measured by percentage of correct social skills components performed?

2) Were the goals, procedures, and outcomes rated as desirable by teachers and students with ASD regarding the acquisition of targeted social skills?

Research Design

A single-subject, multiple probe design across participants (Gast & Ledford, 2010; Horner & Baer, 1978) was used to evaluate the impact of video modeling on the acquisition of social skills by three middle school students with ASD in a self-contained classroom. The variability in the percentages of correct social skills components for each participant are

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reported through graphs. One of the advantages of using a multiple probe design is that it allows the investigator to examine the effectiveness of a particular intervention method on a dependent variable. Thus, using this design allows data collection to be completed concurrently (Gast & Ledford, 2010). Single-subject research documents a practice as evidence-based when multiple criteria are met: "(a) the practice is operationally defined; (b) the context in which the practice is to be used is defined; (c) the practice is implemented with fidelity; (d) results from single subject research document the practice to be functionally related to change in dependent measures; and (e) the experimental effects are replicated across a sufficient number of studies, researchers, and participants to allow confidence in the findings" (Horner et al., 2005, pp. 175-176).

<div align="center">Dependent Variable</div>

The dependent variable was the percentage of correct social skills components performed for greeting the teacher and initiating a conversation within the first 10 minutes of each morning class. Goldstein and McGinnis (1997) identified greeting others and initiating a conversation as two of six beginning social skills that form the foundation for teaching students to build advanced and complex social skills. The skills were determined in consultation with the classroom teacher and informal observations. An appropriate greeting, followed by initiation of a conversation includes the following behaviors: (a) within 1 minute of arrival, the student walks over to the teacher; (b) the student waits until the teacher is not engaged in another conversation to verbally or physically gain attention; (c) the student orients body and face towards teacher; (d) the student holds and maintains eye contact with the teacher for 2 seconds; (e) the student offers verbal greeting to the teacher in the form of a word or phrase

(e.g., Says, "Hello", "Good morning", etc.); (f) the student waits for the teacher to return a greeting; (g) the student then asks a question or makes a comment in an appropriate topic and content that is acceptable in a school setting; (h) the student waits for first opportunity to communicate partner's complete response without interrupting; (i) the student uses a pleasant, audible, and understandable volume and tone; and (j) student maintains appropriate physical personal space throughout the interaction.

<center>Independent Variable</center>

The independent variable was an intervention package that includes video modeling, direct instruction for each social skill component, discussion the component with visual cards, role playing and visual cue cards for use in prompt session. The teacher agreed to utilize the modified *Skillstreaming* curricula procedures with the video modeling intervention package strategy to improve the greeting/initiating conversation skills of the students who are identified as participants. The *Skillstreaming* procedures in the research package include: (a) introduce the target social skill behavior; (b) model the skill; (c) discuss/review the components of target social skills with visual cards; (d) practice/role model; (e) provide feedback and; (g) present visual and oral prompt. The necessary components of this combination of skills with video modeling intervention package for social skills was taught to three middle school students identified with ASD. For this study, intervention was implemented by the teacher one on one. Teacher followed the structured lesson plan in which the component of each target skills was included. The lesson plan was prepared by the researcher and validated by a special education professor before the introduction to the intervention. In addition, the teacher reviewed the lesson plan to ensure that the language of the lesson was appropriate for the students. The

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intervention started by explaining the goal of the lesson, after which the students watched one of the four video models. Students reviewed each component with screen shot cards. Students and teacher role-played greetings and starting a conversation in a separate classroom. Teacher gave feedback based on student's performance on the 10 components of the target skill. The next day, before the social skill performance in the morning routine, visual and oral prompt cards were provided to the students outside the classroom door by the classroom paraprofessional.

<center>Participants</center>

Three middle school students participated in this study. The participants' eligibility was determined based on the following criteria: (a) identified on an Individual Education Plan (IEP) as having ASD according to the criteria of federal and state law; (b) possessed verbal communication skills that include the ability to hold simple conversations; (c) needed to improve social skills as noted in the student's IEPs and confirmed by the student's teacher/paraprofessional; and d) received special education services in a self-contained classroom setting in a public school.

The current special education teacher and one paraprofessional were asked to complete a portion of the *Skillstreaming* checklist related to the targeted social skills (see Appendix B) to determine which students might be appropriate for the intervention package. Participants were included in the study if the checklist evaluation for greeting /initiating conversation shows that the student does not or rarely offer an appropriate greeting and initiate conversation each day in the morning without prompting from adults. Once students were identified, parent permissions

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were received. Each of the following descriptions accurately reflects the three participants

within this study, although a pseudonym has been assigned to each to maintain confidentiality.

Table 2

Participant Demographic Data

Name	Gender	Grade	IQ	Primary Exceptionality
Michael	Male	8	88	ASD
Charlie	Male	8	78	ASD
Nancy	Female	7	81	ASD

Michael

Michael was 14 year old male student in the eighth grade. He was identified with ASD

based upon the results of the Gilliam Autism Rating Scales (GARS) evaluation. He has also

language impairment as additional exceptionality. Based on evaluation, Michael's cognitive

ability is below average range. He has difficulty staying focused in class and completing his

work. Michael enjoys anything with racing and he has several collections of cars. The computer

is his favorite activity, as well. Based on the evaluation of the Behavioral Assessment for

Children (BASC-II), Michal has the clinical significant range on the externalizing composite

and behavior symptoms index, his adaptive skill composite is within the at risk range. These

behavioral problems interfere with his potential in the classroom.

Charlie

Charlie is a 14 year old, Caucasian male student, who is also in the eighth grade. He was identified as having autism based upon the results of the Gilliam Autism Rating Scales (GARS) evaluation. Charlie's evaluation also determined that he possesses language impairment, as well. Based on the Differential Ability Scales-Second Edition–School Age Battery, Charlie's intellectual functioning level is below average. He has difficulty learning abstract concepts and ideas. Currently, he receives math instruction at a 3rd grade instructional level. While he spends most of his school time in a self-contained classroom, he currently attends an art class and a physical education class with non-disabled peers in general education. Charlie is easily distracted and often focuses his attention on specific subjects, such as the weather and theme parks. He sometimes exhibits frustration that makes him very nervous and unsettled. As noted in his IEP, prompting assists him in monitoring his behavior successfully. Charlie loves roller coasters and baby ducks.

Nancy

Nancy is a 13 year old, female student of Hispanic background in the seventh grade. She has a diagnosis of autism according to results on the Gilliam Autism Rating Scales-2 (GARS-2) evaluation. She also has been diagnosed with language impairments, as well as Attention Deficit Hyperactivity Disorder (ADHD). First, she was diagnosed initially with Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS) by a pediatric neurologist at the age of three. She has below average intellectual functioning in verbal and

perceptual organization based on the results of the Weschler Intelligence Scale for Children-IV (WISC-IV).

Nancy prefers to remain by herself. Before interacting with others, she initially observes the social situation, and then approaches her peers. Age level tasks involving social skills with other people are very difficult for Nancy. Nancy has difficulties with receptive and expressive skills and conversational skills. Her repetitive behaviors, at times, interfere with establishing friendships and she demonstrates marginally serious problem behaviors such as unusual or repetitive habits, socially offensive and uncooperative behavior, and disruptive behaviors. In addition, she has a Behavioral Intervention Plan (BIP) to address the observed behaviors. Nancy requires a great deal of structure and routines to maintain focus, as she becomes easily distracted. She has limited fine-motor skills when compared peers. The greatest strengths are in the areas of personal living skills. Nancy enjoys YouTube, playing games on the computer, listening to music and participating in water activities.

Research Team

Four persons, one male primary researcher, one female special education teacher, one female paraprofessional, and one male inter-observer, were involved in the study, each having different responsibilities during the course of this investigation.

The primary researcher is an international doctoral candidate who received his bachelor's degree in elementary education in 2008 in Turkey. He had master's degree in special education from University of Texas at San Antonio. He has taken numerous classes at the graduate and doctoral levels that were directly related to special education. He was provided several opportunities during the Ph.D. program to complete multiple observations

within various classrooms at public schools, charter schools and private schools in the US to observe students with special needs. The primary researcher responsibilities included: (a) design the study; (b) provide lesson plans and instruments that were used during the intervention; (c) create the video models, examples, and visual cards; (d) collect observable behaviors on students' social skills performance and procedural fidelity; (e) attend teacher and inter-observer training; and (f) consult with any other research team member, as needed.

The special education teacher graduated from a large, metropolitan university in December, 2012 with a bachelor's degree in exceptional student education. She has taught as a teacher of students with ASD in a self-contained classroom at public middle school in central Florida for 2 years. She is currently pursuing her master's degree in exceptional student education with a focus in ASD. She also has state endorsements in reading and English for Speakers of Other Languages (ESOL). The teacher's primary responsibilities were to: (a) identify the target behavior; (b) deliver the intervention plan to students; (c) present each phase of the intervention daily (baseline, intervention, and maintenance); and (d) complete the social validity questionnaire.

The paraprofessional has a bachelor's degree in science. She has been in the roles as both a paraprofessional in the self-contained ASD classroom for 2 years and a substitute teacher in a self-contained ASD classroom in an elementary school for 3 years previously. Her responsibilities were to: (a) meet the student participants outside of the classroom; and (b) provide visual cards for students during the intervention sessions.

The inter-observer is a male, international doctoral student from Turkey. He received his master's degree in the counselor education from the University of Texas at San Antonio.

He has two years of teaching experiences in Turkey and attended numerous supervision courses

and experiences during the higher education programs. The responsibility of the second

observer was to attend a one hour session for inter-observer training before the initiation of the

intervention package.

Setting

All video demonstration sessions and data collection took place in a self-contained

special education classroom within a public, middle school in central Florida. A total of 1,154

students were enrolled in this middle school for students in grades 6-8. The school received a

school grade of an "A" for 14 consecutive years based on Florida school evaluation criteria.

Based on demographic information reported by the school, 68 percent of the enrolled students

are white; 17 percent of students are Hispanic; 9 percent of the students are African-American;

and 5 percent of the students are Asian. The self-contained classroom consisted of six male

and four female middle school-aged students with ASD. A special education teacher and three

paraprofessionals served the ten students with ASD in this self-contained classroom. During

this research, most of the components were completed in the self-contained classroom (e.g.,

viewing video model, discussing/reviewing the components of social skills activities). The role

play activities, however, were performed in another classroom. The classroom used for the role

play activity was located across the hall from the original classroom and was approximately the

same size and layout. During the role play activities, the classroom was not occupied by other

students.

Video Model

The video model was created prior to delivering the intervention using the procedures described by the NPDC in 2014 (Appendix C). The researcher was responsible for arranging necessary equipment and the creating the script for the video model. The video model script consisted of the identified, correct social skills components for the greeting/initiating conversation. Each component for the social skill sequence of morning greeting/initiating a conversation with the teacher was performed in a video model by a student of similar age. Before creation of the video examples, the teacher provided some possible conversation topics of interest to students when they initiate conversation. One middle school student and one adult performed the script outlined by the researcher for the video (see Appendix D for the video script). Four video model examples were created for use during this investigation. The two actors (one male and one female) were enrolled in the same school and at the same age range of the participants. Both actors were familiar with the participants. The conversation topics that were used by actors in video model varied such as movie, sport, class schedule. The iPad was used for recording the video examples and to show to the participants. The researcher ensured all necessary components of the greeting/initiating a conversation scripts were included and performed with fidelity prior to implementation of the video model.

Visual Cards

Visual cards of two different sizes (16 x 9 and 3 x 5) were created for student use during discussions of the social skills components by using screenshots of the video model. Both visual cards included all components of social skills. The primary researcher created a visual

card for each of the social skills component by using the Microsoft PowerPoint slide template. Each card was laminated, hole-punched, and secured in sequential order on a metal ring. These cards were used as a visual support prompt during the intervention phases. The validation of visual cards was done by classroom teacher and an expert who is a special education professor. Figure 1 displays one of the visual card examples used during the discussion and review of the components. A smaller version of the visual cue card was used during the prompt session.

Figure 1

Example Visual Cue Card

Video Validation

The validation of the video model was evaluated based upon a panel review protocol (Appendix E) which was created by an earlier researcher (Ogilvie, & Dieker, 2010). For this

investigation, two special education professors evaluated the four sample videos that were used during the intervention sessions. Responses from the video panel validation protocol evaluation demonstrated that both professors found the video examples were appropriate and clearly presented the target social behavior components. Specifically, they expressed their strong agreement with each of the following statements: (a) the video models demonstrate clear components for each of the two social skills; (b) the actors are representative of typical middle school-aged students; and (c) the actors represent sufficient diversity. Overall, the four video models were found as appropriate and ready to use for this investigation.

Data Recording Form

Data were collected using an event-recording sheet. Participants' performance was measured using a data collection form which was created by the researcher. Components for the social skills measured were based on multiple resources including *Skillstreaming* curricula (Goldstein & McGinnis, 1997) and published literature (Kiburz, Miller, & Morrow, 1984; Litras, Moore, & Anderson, 2010; Ogilvie & Dieker, 2010) (See Appendix F for a copy of the data collection form). Validation of the data collection form was conducted by two special education professors and ten doctoral students in exceptional education. The doctoral students attended a discussion meeting where they reviewed each social skill component for validity.

Procedures

The researcher conducted informal observations to ensure specific, identified social skills were needed for the students. Before initiating the study, the teacher filled out the abbreviated section of the *Skillstreaming* assessment tool contained in Goldstein and

McGinnis' curriculum (1997). The *Skillstreaming* checklist consisted of 50 social skills within six sets. The first set of social skills was categorized as the beginning of social skills and includes listening, starting a conversation, having a conversation, introducing yourself, introducing the other person, asking a question, saying thank you, and giving a compliment.

Professional Development

The special education teacher was responsible for delivery of instruction to each participant. Before starting the intervention, the teacher attended a thirty minute training session about the video modeling intervention package which was conducted by the researcher. At the training, the entire video modeling intervention package, including all steps for implementation, were introduced to the teacher. The teacher did a teaching practice with researcher by following intervention procedure. The teacher confirmed that the procedure and material of current study are appropriate to use for her students (e.g., language of structured lesson plan).

Baseline Phase Procedures

During baseline, data were collected daily while each student participated in his/her natural social environment. The researcher concurrently collected baseline data for a minimum of five and maximum of ten social skill probes for each participant. For each probe, the percentage of correct components of the social skill sequence was calculated. The intervention was assigned when a participant's performance data was stable as indicated by the baseline for each participant. The criteria for stability was determined by the researcher to be no changes of more than 20 percent of correct skills components across a period of five days. The baseline

data collection continued for the other three participants until they were identified as stable as evidenced by Table 2. Once a participant's data were stable, the baseline data collection discontinued. Data were then collected following the multiple probe design prior to intervention.

<div align="center">Intervention Phase Procedures</div>

The intervention was delivered daily to each student individually in a one-on-one setting at a table located in the back of the self-contained classroom. The environment was controlled so there was no contamination across participants. Instruction took place during the last class period of each day. Students attended seven class periods within their self-contained unit. The classroom teacher delivered the intervention. The researcher prepared the scripted instruction plan which was then validated by a content area expert and classroom teacher (see Appendix G for scripted lesson plan).

Delivery of the intervention began with the video model demonstrating the desired greeting and teacher initiated conversation. Then, after viewing the video, the components to complete an appropriate greeting were reviewed and discussed with the student during the intervention stage. Additionally, the students were shown the visual cards with screen shots for each component. Finally, the students role played the social skills sequence with the teacher in another classroom.

Data were collected for correct components in greeting/initiating a conversation each morning following intervention the previous afternoon. The performance of participants was measured by the researcher and a research assistant, who attended and completed inter-observer data collection for 25% each phase, using the data collection form. Each participant received

the intervention until 80% mastery was reached over three sessions or they had received a maximum of six intervention sessions. The next participant received the intervention after the researcher ensured there was evidence of change in level and slope within three cumulative days for the first participant. This process was repeated for the other two participants.

Maintenance Phase Procedures

Once the first participant received six days intervention, the maintenance phase began. The number of maintenance data varied each participant. For instance, five maintenance data point for first participant, three maintenance data point for second participant and two maintenance data point for the third participant were collected.

Inter- rater agreement (IRA)

The researcher scored all components of the defined social skills. In addition, a second research assistant observed at minimum 33 % of the observation sessions in each phase for the targeted behaviors. In preparation for data collection, a video example was watched by both the researcher and the second observer to ensure that the correct skill performance was measured by each observer during a training session. The result of each observer was compared and discussed to resolve any discrepancies with data collection. During the training sessions, the total agreement was conducted again when 80 percent criterion for agreement was not reached. Total agreement reliability was calculated by dividing the number of agreements by the number of disagreements and number of agreements then multiple by 100. Total agreement between the two observers was at 100% at the end of the training session. For this

study, the agreement of each phase across student was reported and explained in the following chapter.

Data Analysis

Visual analysis was used as the data-analysis strategy for the dependent measure (percentage of correct components of greeting skills followed by initiation a conversation) for each probe. Visual analyses were completed by interpreting changes in mean level, trend data, and overall variance (Gast & Spriggs, 2010). A data collection form was designed to report the correct social skills component across phases. This study employed a single subject design, multiple probe design across participants. Primary sources of data were utilized for this study. The result of each participant's performance was shown in a visual graph with a multiple probe design format. In addition, the functional analysis, Percent of Non-overlapping Data (PND) score for each participant between baseline and intervention phases was calculated to report effect size.

Social Validity

Social validity was introduced by Wolf (1978) in the field of Applied Behavior Analysis (ABA) to explore whether or not an applied intervention was considered valuable in society. Two questionnaires were designed to measure social validity upon completion of this study. The social validity questionnaires were completed using a self-report survey which consisted of eight Likert scale questions and completed by each participant at the end of the study. The researcher read the survey aloud to each participant in a one-on-one setting. The teacher's survey was modified from a previous study (Lane et al., 2009), in which the beliefs of

the teacher about a specific intervention were investigated. The teacher completed the survey

at the end of the study and returned it to researcher.

CHAPTER FOUR
RESULTS

Chapter Overview

As stated in Chapter 1, the purpose of this study was to examine the effects of video modeling, combined with *Skillstreaming* teaching procedures, on the acquisition of two beginning social skills (greeting/initiation of a conversation), by three middle school students with ASD in a self-contained classroom within a mid-sized public school district in central Florida.

The following research questions were addressed:

1. To what extent does the implementation of video modeling combined with *Skillstreaming* teaching procedures impact social skill acquisition of middle school students with ASD in a self-contained classroom setting as measured by percentage of correct social skills components performed?

2. Were the goals, procedures, and outcomes rated as desirable by teachers and students with ASD regarding the acquisition of targeted social skills?

To address the research questions, a multiple probe design across participants (Gast, 2010) was used. After a brief review of the research process, results of the analyzed data from the research are reported in this chapter. Inter-observer agreement (IOA) and treatment fidelity results are reported. Next, the social validity measures of the investigation are described. Then, performance scores of beginning social skills by each participant in this study are reported in narrative and visual form.

Procedural Fidelity of Investigation

In order to ensure the experimental procedures of the instructional package were accurately implemented, as proposed in Chapter III, data measuring procedural fidelity were collected during each intervention session. Specifically, procedural fidelity data were collected for each student for each of the instructional phases of the intervention package: implementation of the scripted instructional plan and role play sessions; prompt sessions; and teacher responses to the student during application of the skill in the morning routine. A procedural fidelity checklist of implementation components was used to collect observational data of each phase of the intervention package (See Appendix H). The procedures of instruction and role play were followed with 100 % accuracy for all three participants. The fidelity percentage calculated during the prompt presentation phase was observed at 90% for Michael and Charlie and observed at 80% for Nancy. In order to ensure that the teacher responses to the student during the application of the social skills were consistent with the intervention script, data for treatment fidelity were also collected during the student demonstration of the social skills during the ten minute morning routine. The fidelity percentage for the morning routine was 100 % for all students. However, there were several days that data were not collected due to either student or teacher absence. Table 1 provides the percentage fidelity of intervention, prompt session and morning routine.

Table 3:

Fidelity of Intervention, Prompt session and Morning routine

Student	Intervention Fidelity	Prompt Session Fidelity	Morning Routine Fidelity
Michael	100%	90%	100%
Charlie	100%	90%	100%
Nancy	100%	80%	100%
Mean Across Participants	100%	86%	100%

Inter-Observer Reliability

Gast (2010) defined inter-observer agreement (IOA) as the degree of agreement among two or more researchers when observing and recording the same behavior. IOA measurement is often completed in single subject design research. The agreement level provides confidence as to the results of the observed and recorded behaviors (Gast, 2010). Observational data collected using the point by point method is the most commonly reported measurement form in single subject research (Gast, 2010). The point by point method was used to calculate the percentage of IOA for this study. Using the data collection form, two trained observers collected observational data four times for each student's performance of the social skills during the baseline phase, which is 40 percent of the total baseline observations. The inter-observer also observed each student's performance of the social skill two times during each student's intervention phase, which is 33 percent of total of the intervention observations across students. After observations, calculations of IOA were made. The numbers of agreements were divided by the number of agreements plus disagreements with the quotient multiplied by

100 (see Figure 2 below). For this investigation, the agreement on the performance of correct

social skills components across participants and phases was measured by using the formula

below.

$$Percent\ Agreement\ = \frac{Agreements}{Agreements + Disagreements}$$

Figure 2:

Equation for Calculation of Point by Point Inter-Observer Agreement

Inter-observer agreement (IOA) was reported across participants and phases. The

percentage IOA agreement for each phase for Michael was as follows: 95% during the baseline,

90% during the intervention, and 95% during the maintenance phase. A similar value was

reported for participant two, Charlie. The percentage of IOA for Charlie was as follows: 95%

during the baseline, 95% during the intervention and 90% during the maintenance phase. The

IOA for Nancy was reported for baseline and intervention phase at 85%. Overall, inter-

observer agreement across three participants measured with a mean of 92% for baseline, with a

range from 80%-100%; and 90% for intervention phase, with a range from 80 to 100%. The

IOA for maintenance was calculated for two participants (Michael and Charlie) with a mean of

92.5% and with a range from 90 to 100% (See Table 4)

Table 4

Mean and Range of Interobserver Agreement (IOA) Across Phases and Participants

IOA Measurement	Participant Means (Range)			Mean Across Participants
	Michael	Charlie	Nancy	
Baseline IOA	95% (90%-100%)	95% (90%-100%)	85% (80%-90%)	92%
Intervention IOA	90% (85%-95%)	95% (85%-95%)	%85 (80%-90%)	90%
Maintenance IOA	95% (90%-95%)	90% (90%-100%)		92.5%

Data Analysis Procedures

Visual analysis is the most applied data analysis process in single subject research (Gast & Spriggs, 2010). In this data analysis strategy, the impact of the video model intervention package on a dependent variable is represented in the visual form. For this study, the dependent variable measures (the percentage of correct social skills components) was demonstrated as a graph of data points for each session across participants and phases (e.g., baseline, intervention, maintenance). Three common concepts (mean, trend, and variability) were analyzed to evaluate each student's acquisition of beginning social skills when the social skills intervention package was implemented. Measuring the percentage of data overlap (PND) between phases is also included.

<u>Multiple Probe Design across Participants</u>

Multiple probe design across participants is a form of multiple baseline design (Horner & Baer, 1978; Gast & Ledford, 2010). In order to determine the functional relationship between variables, the multiple probe design was chosen. One of the notable differences between two single subject designs is that researchers who use multiple probe design do not have to collect data continuously on the dependent variable. Intermittent data collection can provide a meaningful interpretation on behavior stability (Gast & Lenford, 2010). The probe was taken for each participant before introduction the intervention to determine the baseline stability level.

Sprigs and Gast (2010) discussed five areas that graphed data demonstrate visual analysis of the performance of each participant: "(a) sequence of experimental conditions and phases; (b) time spent in each condition; (c) independent and dependent variables; (d) experimental design; and (e) relationship between variables" (Spriggs & Gast, 2010, p. 167). The data for each phase of this investigation were reported point by point in simple line graphs. The data collection form was used within all phases of the study to evaluate the effectiveness of the video model intervention package with each of the three students. Percentage of correct social skill components demonstrated per session for all three participants was calculated to determine how each participant's social skill performance was affected once instruction with the *Skillstreaming* instructional package was provided.

Research Question One

The first research question addressed in this study is addressed initially: to what extent does the implementation of video modeling, combined with *Skillstreaming* teaching procedures, impact social skill acquisition of students with ASD in a self-contained classroom setting as measured by percentage of correct social skills components performed?

Figure 2 provides a graph in which each participant's correct social skill performance was shown after implementation of the video modeling intervention package. The percentage of correct social skills components for each session was calculated by dividing the number of correct components by the total number of components within a session, then multiplying 100. All three participants showed increases in total number of social skill components after receiving instruction with the video modeling intervention package. During the maintenance phase, two participants performed over the mastery level and one participant's maintenance percentage was 75%. A visual graph of overall performance is presented in Figure 3 for visual analysis of the results of this study. Please note: each participant has been given a pseudonym to ensure confidentiality.
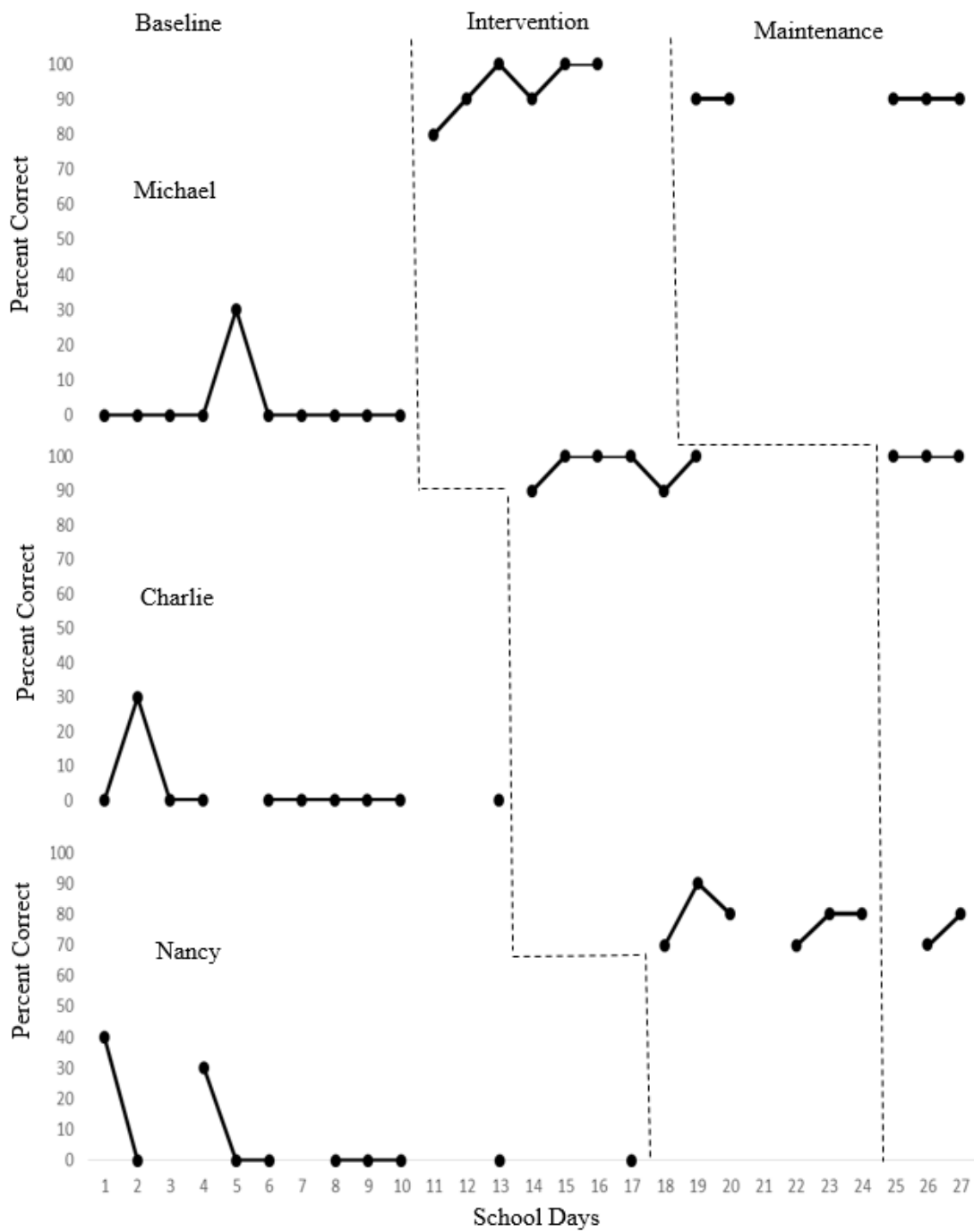
Figure 3

Percent of Correct Social Skill Components across Participants

Michael

The visual analysis of baseline measures for Michael revealed a mean score of 3% of targeted behaviors during ten observations, with behavioral components ranging from 0% to 30%. The data pattern was almost perfectly stable, with no variability during nine baseline sessions. For one of the ten sessions during baseline data collection, Michael scored a total of three correct social skill competencies (30%). Following the introduction of the video modeling intervention package, Michael demonstrated a dramatic and substantial increase in mean level of performance from 3% during baseline to a mean level of 93% during intervention for the percentage of beginning social skills components correctly performed. The first three days of visual inspection of the data for Michael indicated an accelerating trend. This was followed by one session of a decreasing trend on the percentage value with low variability. The final data points exhibited a stable trend over two days, where Michael demonstrated 100% of the necessary components. Through visual analysis, Michael scored the same value of 100% three times and a value of 90% twice. Overall, visual analysis of intervention phase shows stability over time with the mean level of 93%. Data were collected during five maintenance sessions for Michael. The results show a stable pattern in scores at the mean value 90 % with zero accelerating or decelerating. While the first two maintenance probes were collected only two days after the intervention package was implemented, the last three maintenance probes were collected two weeks after Michael completed the intervention package. The visual inspection of results during the maintenance phase shows a predictable pattern of stability in scores for this participant.

Charlie

A similar result was reported for participant two, Charlie. A total of ten baseline data points were taken for participant two and the last baseline probe was collected one day before intervention initiated, during the13th session. Baseline data and results showed a low level of implementation, with a mean score of 3%, displaying a stable pattern of scores. As illustrated in Figure 3, visual analysis of data collected during implementation of the intervention package showed there was an immediate, increasing trend when compared the last baseline probe score. Following the intervention, the mean of correct social skills from a total of six intervention sessions was computed at 96%. The visual graph of intervention phase shows stability, with a relatively flat line over time. Following the intervention phase which was two weeks later after the last intervention data point gathered, Charlie performed 100 % of total correct social skill components for each of three days. The maintenance pattern of scores is stable at 100% across all three maintenance probes.

Nancy

During the baseline phase, the visual display of data was initially variable, but stabilized following the fourth session. The baseline mean was 7% and the last seven baseline observations yielded scores of 0%. Her performance during the intervention phase increased to 70% and visually illustrated an upward trend for the first two intervention sessions; however, the stability pattern of data was not seen during the intervention phase. A 90% performance score was reported on the second session and the mean for the intervention phase was 78.3%. The baseline mean for Nancy's social skill performance was 7% and this level increased to a

mean of 78% for intervention. During the intervention phase, an increasing trend was noted on the first two sessions, followed by a low level of decreasing trend. Data evidenced stability in scores for the last two sessions. While watching the video models, Nancy became somewhat distracted and was reminded by the teacher to watch and focus on the video for four of the six sessions. Data for a total of two maintenance sessions were collected for Nancy because of limited time. The mean level for the maintenance phase was 75%.

Summary

Three students received the same number of intervention sessions (6) in which a video modeling package was implemented to teach beginning social skills (i.e.., greeting teacher/ initiating a conversation). All three students demonstrated a stable baseline pattern with very low scores for demonstration of the components of targeted social skills across the ten baseline sessions. Following the baseline, all participants responded to intervention during the first session and continued to improve during the intervention phase. Visual analysis of data revealed all students immediately increased their social skills performance. While two students (Michael and Charlie) reached the mastery level of 100% during intervention and maintenance phases, Nancy's performance was demonstrated at a mean of 78.3 % for intervention phase and 75% for maintenance phase. It is important to note that the three students identified with ASD have a below average intellectual ability that is within the borderline IQ range and may need level II, substantial supports, as well.

<u>The Percentage of Non-Overlap Data (PND)</u>

The percentage of non-overlapping data (PND) is one of most commonly used forms of assessing the effect size in single subject design (Gast, 2010). With this study, PND was calculated with data across baseline and intervention phases. A PND value of less than 50% reflects unreliable treatment, a PND score between 50% and 70% can be considered as questionable effectiveness, a PND score ranging between 70% and 90% reflects fairly effective, and if the PND score is higher than 90%, the independent variable would be considered highly effective (Campbell & Herzinger, 2010; Scruggs et al., 1987). As illustrated in Table 5, the results for PND calculations for Michael, Charlie and Nancy were 100% across all three participants.

Table 5

Mean Scores and PND Scores

Student	Baseline	Intervention	Maintenance	Total PND
Michael	%3	93.3%	90%	100%
Charlie	%3	96.6%	100%	100%
Nancy	%7	78.3%	75%	100%
Mean Across Participants	3.4%	85%	87%	100%

<u>Research Question Two</u>

Wolf (1978) highlighted three dimensions of social validity: (a) goal, (b) procedures, and (c) outcomes. These areas were addressed for the measurement of the social validity of this investigation. The second research question for this study was: Were the goals,

procedures, and outcomes rated as desirable by teachers and students with ASD regarding the acquisition of targeted social skills?

To address this research question, a teacher survey was administered to the participants' teacher. The survey consisted of 15 questions to rate her level of agreement and satisfaction with the video modeling intervention package (see Appendix I for survey). In addition, two open-ended questions were asked of the teacher. The questionnaire items were categorized by using Wolf's (1978) three dimensions of social validity: (a) goal, (b) procedures, and (c) outcomes. The results of the survey indicated 14 items were rated as "strongly agree" and one item was rated as "agree". The teacher stated, "It is a very successful intervention that kept the students engaged and met their needs". She also suggested this intervention for use with a variety of children. Therefore, strong agreements are expressed by the teacher for the goal, procedures, and outcomes of video modeling intervention package. She also expressed her views about this current intervention with her responses to two open-ended questions. One question asked about what she would change if she planned to implement this intervention with the same students again. She stated, "I do not have any suggestions for change. This is a very appropriate, well planned, and easy to implement."

For this study, three areas of social validity measurement were examined using students' responses to a questionnaire and two open-ended questions. All three students evaluated the video modeling intervention package after the intervention was completed. The results of student participants' reflections about the video modeling intervention package are reported, along with a rating mean score, in Table 6. All student participants reported that the video modeling package intervention assisted their learning social skills of greeting the teacher

followed by starting a conversation. All three participants expressed that they enjoyed their involvement in this study. An open-ended question was asked to determine which part of intervention package the participants identified as the most useful in learning the social skills. All three students reported that viewing the video was the most useful part of intervention package. They believed this package could also help other students in learning these skills. Two participants noted that the actors represented the social skills perfectly: one student rated the video modeling as "its ok". All three participants expressed their belief that learning beginning social skills is useful for them to create a friendly classroom environment. None of participants' scores were negative about this study. Overall, responses from the student participants demonstrated positive results for the goals, procedures, and outcomes of video modeling intervention package.

Table 6

Social Validity: Student Survey Results by Participant

Statement	Michael	Charlie	Nancy
I liked learning the social skill.	5	5	5
I think that learning the social skills is beneficial to create a friendly classroom environment.	5	5	5
I like the videos I just watched.	5	5	5
I think that the actors in the video clearly exhibit the social skills that I am learning.	5	3	5
I feel that this strategy helped me to learn how to give a greeting.	5	5	4
I feel that this strategy helped me to learn starting a conversation.	5	4	5
I think that other friends of mine can use this strategy to learn these skills.	5	3	5

Note. Likert Scale (5= "Very much!", 4= "It's good", 3= "It's okay", 2= "Not really",1= "No Way!")

CHAPTER FIVE
SUMMARY AND DISCUSSION

Chapter Overview

The final chapter summarizes the research from this study and develops conclusions, implications, and recommendations for further research. Initially, this chapter restates the research problem and reviews the methods used in the study. Then, a summary of findings, conclusions, limitations and recommendations for further study is presented

Purpose of the Study

As stated in earlier chapters, the prevalence of children and youth with Autism Spectrum Disorders (ASD) is increasing (CDC, 2014). The need to utilize evidence-based practices (EBP) becomes one of the primary focus areas for teachers, parents, and educators to enhance educational opportunities for this population. Furthermore, persistent deficits in social communication and social interaction have been identified as one of the main diagnostic criteria for ASD (APA, 2013). Limited social communication skills may have a negative impact on social interactions for individuals with ASD (Carter et al., 2013). The vast majority of this population has some degree of difficulty in this area that impacts the ability to socially participate in society. In order to overcome these difficulties and improve social skill performance of individuals with ASD, a number of educational strategies and practices have

been validated (Ayres & Langone, 2005; Bellini, Peters, Benner, & Hopf. 2007; Reichow & Volkmar, 2010; Wong et al., 2014)

One strategy, video modeling, has been researched as an EBP in which numerous social skills were taught across settings and participants with ASD (Ayers & Langone, 2005; Bellini & Akullian, 2007; Cihak & Schrader, 2008; Nikopoulos & Keenan, 2004; Palmen, Didden, & Arts, 2008; Sani-Bozkurt & Ozen, 2015). The National Autism Center (NAC, 2009) and National Professional Development Center on ASD (2014) reported video modeling is an EBP based upon comprehensive reviews of research. A variety of social skills can be taught to individuals with ASD using video modeling. Delano (2007) suggested video modeling produces positive learning outcomes when it is combined with other strategies for students with ASD. Therefore, the current study was designed as an intervention package that combined *Skillstreaming* procedures with the use of video model for middle school students identified with ASD. Specifically, the purpose of this study was to determine if the video modeling intervention package had an impact on the social skill performance of three middle school-aged students with ASD. This study also adds to the examination of *Skillstreaming* curriculum procedures on teaching social skills to adolescents with ASD.

A multiple probe design across participants was employed to assess the effects of the video modeling intervention package on two beginning social skills (i.e., initiate initial greetings and initiate a conversation). The participants were three middle school-aged students with ASD enrolled in a self-contained classroom. The dependent variable was the percentage of correct social skills components performed when greeting the teacher and initiating a conversation within in the first 10 minutes of class each morning. The independent variable

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was an intervention package that included video modeling and direct instruction for each social skill component with *Skillstreaming* procedures (i.e., modeling, discussion, role playing, feedback, and visual prompt).

<center>Procedures</center>

For this investigation, a video modeling intervention package was developed to teach social skills to initiate a morning greeting followed by an initial conversation with the teacher by identified middle school students with ASD. Four video model was used in which two beginning social skills were modeled by a middle school student and classroom teacher. The teacher used a structured lesson plan to teach the components of target social skill behavior. The participant viewed one of the video example at the intervention day and participated discussion to each components in the social skill with using a screen shot of each component. Intervention ended with role play activities and receiving and feedback. Next day, each participant used a visual prompt card before the actual data collection occurred. The procedure of this intervention package was introduced to all three students during the intervention phase. The *Skillstreaming* curriculum procedures were followed during the implementation of the intervention process across participants. Within this single subject research design of multiple probe design across participants, baseline, intervention and maintenance phases were conducted. Ten baseline and six intervention sessions were conducted for each participant; however, maintenance sessions varied for each participant. During the baseline phase, each participant demonstrated a stable baseline prior to intervention and all three participants' last social skill performance, before introduction of the intervention, was reported at a level of 0%.

While all three participants received the intervention at the end of class each day during the intervention phase, data collection of the targeted social skills performance was observed in the first ten minutes of each morning. Inter-observer agreement (IOA) across phases (except maintenance phase for Nancy) for each participant was reported to show the agreement among observers. The average IOA for baseline was 92% and for intervention phase was reported at 90%.

Data Analysis

A data collection form was designed to collect observed behaviors of the social skill components across phases for each of the participants. The results of each participant's performance were shown in a visual graph within the multiple probe design format. Changes in mean, level, and variability were discussed across participants. In addition to the functional analysis from the visual graph of results per participant, the Percentage of Non-Overlapping Data (PND) score for each participant between baseline and intervention phases was calculated to report effect size. The PND score was observed and reported at mean level of 100% for each participant.

Research Question One

To what extent does the implementation of video modeling combined with Skill-streaming teaching procedures impact social skill acquisition of middle school students with ASD in a self-contained classroom setting as measured by percentage of correct social skills components performed?

The research question investigated if the video modeling intervention package had an impact on the performance of two beginning social skills by three middle school students with ASD during the morning greeting routine in a self-contained classroom setting. The results of

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this investigation suggest that a functional relationship existed between the independent variable and dependent variable. Therefore, a possible interpretation can be made that the current intervention package has a notable impact on two beginning social skills for all three students. Even though the improvement was reported at different mean levels across students, the immediate increase on social skills has been reported for all. Two participants' mean levels of social skill performance (Michael and Charlie) were higher than the third participant's performance (Nancy).

<u>Michael</u>

Michael reached mastery level immediately after introducing intervention. Michael sustained his social skills performance at an average of 85% during the intervention phase and at an average 90% during the maintenance phase. The greatest amount of maintenance data among the three participants was collected for Michael (five days). During the intervention activities, he was very focused and excited to see his friends in the video. As described in the study protocol, the video model was viewed only one time per intervention session by all students. Michael was able to answer questions during the discussion time that were related social skills components. Role play activities were not an issue for him and he was willing to perform the social skills components. While he used the same conversation topics with actors presented in the video model during the role model activities, he was prompted to choose a conversation topic only one time out of six intervention sessions by the paraprofessional before actual performance occurred. The topics he used to initiate a conversation with the teacher were related to a movie (from last night), a cartoon character (Pokémon), class schedule, lunch and a story book that he received from the school library with a paraprofessional before the class

started. Furthermore, he responded well to the presentation of the prompt by the paraprofessional. The procedural fidelity data for prompt sessions as collected by the researcher were reported at a mean value of 90%. Michael performed all social skill components with 85% accuracy during the intervention phase and 90% during the maintenance phase. In terms of missing components, Michael failed to perform only one of the components during the maintenance session (student waits for completion teacher response without interrupting). Overall, Michael's social skill performance was increased and maintained at 90% and exhibited a 100% PND score.

Charlie

      Charlie was the second participant in the study to receive the intervention, 11 days after his first baseline session. Similar to Michael, Charlie made substantial gains on the percentage of accurately demonstrated social skills components. The average improvement from baseline to intervention was reported at 93 % for the intervention phase and 97% for the maintenance phase. During the intervention activities, he also viewed the video one time and accurately answered the questions during the discussion. Role modeling activities were not an issue for him with the exception of identifying a conversational topic. He used the same topic that the actor used in video. Further, Charlie had difficulty generating conversation topics during actual morning greeting time as much as he did in the role modeling activities. It was noted that the paraprofessional provided conversation topics five out of the six intervention sessions. The topic he generated without prompting was about his peer's birthday. On that day, the classroom was prepared for a birthday party. Another component Charlie needed to work on was keeping personal space. He could not perform that specific component two times during the

intervention phase. Despite the difficulty generating the conversation topic, Charlie overall

responded to the intervention immediately and increased his social skills performance.

Nancy

Visual inspection of Nancy's data suggested that she improved her social skill

performance from baseline immediately. Although she did not reach mastery level (80%), she

performed at a mean level of 78.3% during the intervention phase. Only two data points were

collected during the maintenance phase for Nancy. Her performance of the social skill

components was observed at 75% mean level for two maintenance sessions. Based on a visual

analysis of the graph of Nancy's observed social skill components during the intervention, it

was difficult to interpret her data trend. Nancy performed 90 percent of all components during

one observation; however, the intervention data score pattern was not stable. Overall, Nancy

had difficulty performing all components during the same session. The most difficult

components for Nancy were holding and maintaining eye contact with the teacher for 2

seconds, waiting for the teacher to complete her response, and orienting her body to face her

teacher. Given the lack of perceivable trends from visual inspection of the data observed either

during intervention or maintenance phases, there may be some explanatory factors. As

reported and depicted in the demographic information section of the participants in Chapter III,

Nancy has a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD). During the

intervention activities, specifically viewing the video model and subsequent discussions, Nancy

was reminded by the teacher to focus on the video. Nancy exhibited behaviors of distraction

during the intervention phase. Moreover, she often complained about the session activities.

Procedural fidelity data for presenting prompt sessions were collected and recorded by the

researcher at a mean of 80%. Difficulties generating a conversation topic for Nancy were also noted by the researcher. She was prompted by the paraprofessional four times out of six intervention sessions. Nancy's diagnosis of ADHD and the observed lack of focused attention during intervention may have impacted the observed results. More maintenance data could not be collected for her as this research was conducted close to the end of the school calendar year.

In a summary, two out of three students performed above the mastery level of 80%, and all three students' maintained levels of at least 75% or higher in either intervention or maintenance phase. The immediate change in level with the introduction of the intervention was noted from baseline to intervention for all three participants. The generation of a conversation topic was an issue for the participants. The Percentage of Non-Overlapping Data (PND) score was reported across each student's performance as highly effective (100%).

Research Question Two

Were the goals, procedures and outcomes rated as desirable by teachers and students on the skill acquisition for students with ASD?

The second research question was answered by reporting a measure of social validity of the intervention. The questionnaire was used to assess the perceptions of the three student participants and one teacher, focusing on the goals, procedures and outcomes of the current study. Positive social validity was reported by the classroom teacher. Responses from the teacher's survey indicated that she perceived the teaching of initial social skills with the video modeling intervention package as important and valuable for the students with ASD. She strongly agreed the video modeling intervention package produced notable, positive effects on students' social skills. In terms of the procedures of the intervention package, the teacher indicated the very structured and planned procedures of the intervention package were easy to

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implement. The teacher also felt other teachers could use this intervention package to teach

social skills.

Responses from all three students indicated positive feedback regarding the intervention

package. Overall, the results of this study revealed all three participants felt their social skill

performance increased after the introduction of intervention package. The video modeling was

reported by all three students to be a more useful component when compared to other

components of the intervention package (role play, discussion, and feedback) to learn specific

social skills.

Link to Previous Studies

The findings of the current study demonstrated an improvement in the social skill

performance by three students with ASD. The results of this study are consistent with

previously published studies in which a positive impact on social skill development was found

as a result of an intervention package including video modeling (e.g., Charlop-Christy, Le, &

Freeman, 2000; Nikopoulos & Keenan, 2004; Sansosti, & Powell-Smith, 2008). The results of

this study confirm the procedure of an intervention package (i.e., combination of two or more

different teaching strategies), focused on development of social behavior, as beneficial for

students with ASD (Kagohara et al., 2013; Ogilvie & Dieker, 2010). The current study's

results also confirm previous studies and reviews suggesting the use of a familiar character

(peer model of same age range) in the video model with students with ASD will improve the

results of the intervention (Bellini & Akullian, 2007; Delano, 2007; McCoy & Hermansen,

2007). Four video examples were created prior to introduction of the intervention for use

during intervention activities. The students were able to share the same video models and, therefore, the researcher did not have to create one for each student.

The current study shares some similarities with the study by Ogilvie and Dieker (2008) in which five critical social skills of three middle school-aged students across subject design were researched. The intervention package used in their study consisted of a peer-mediated teaching strategy and video modeling. Similarities of the two studies include: (a) target behavior; (b) participants' grades and age range; (c) use of an intervention package instead of teaching the target behavior with a single intervention; (d) research conducted in a public school; and (e) implementation of the intervention by special education teacher.

Despite the similarities between the Ogilvie and Dieker (2010) study, several differences exist. First, although both studies' findings showed an improvement on social skills performance of students, the results of their study showed an improvement level for three students across five critical social skills with peer/adults in general education classrooms; the current results indicated three students with ASD demonstrated immediate improvements in acquisition of two identified social skills using an intervention package within a self-contained classroom setting. Second, this video modeling intervention package differed by adding an additional component to the intervention package (discussion/reviewing technique with visual cards prior to performance of the targeted social skills). Third, although role play of social skills was a part of the intervention package for both studies, role play was done with peers in Ogilvie and Dieker's (2010) investigation. For this study, the role play occurred between teacher and student in another classroom. Finally, the research design of the studies differs..

Although both studies used single subject design, their study employed multiple baselines across subjects.

The current findings provide support to previous studies in which the effectiveness of video modeling on social skills for students between the ages of 9 to 15 were reported (Nikopoulos & Keenan, 2003; Ogilvie & Dieker, 2010). For this investigation, the students received the intervention package during one school day, then used a visual prompt (card) the following day to complete the social skills related to greetings and conversations at the beginning of the next school day. The researcher noted, since the target behavior of this study was two beginning social skills that should be observed in the first ten minutes of class time during greetings, the intervention needed to be implemented with the students the day before. The results of the current study showed positive results. Therefore, this current study may have contributed to the existing literature by modifying the procedural steps.

Limitations

The results of this investigation indicated that all three participants demonstrated high effect sizes and improvements of the targeted social skills as observed within their classrooms. However, several limitations existed. First, the sample size limits generalization. This limitation, however, is inherent to single subject design as this design is intended to allow the researcher to research the impact of an intervention with a small sample size. For this study, three participants with ASD were chosen. However, three participants can be considered a small sample size that limits the external validity of the investigation (Kazdin, 1982). Furthermore, as mentioned Chapter II, due to the variations in behaviors of individuals with ASD, it cannot be guaranteed that the findings of this investigation could be replicated with

individuals across the ASD spectrum. For example, Nancy has identified with ASD and ADHD. During the intervention implementation process Nancy responded differently when compared first two participants of this study. In addition, this study was restricted to the collection of data on greeting teacher/starting a conversation with teacher during the first ten minutes morning greeting routine. Given the initial results, however, replication studies should be completed (See recommendations).

Time restriction was another limitation of this study. The results of the study may have improved with an extended period of time to collect intervention and maintenance data from all three students. Therefore, additional results may have provided additional conclusions regarding the current study's impact on the social skills of the three participants. Specifically, the third participant, Nancy might have improved her social skill performance if the number of intervention sessions increased. The maintenance data were collected in a short period of time across participants due to the ending of the school year. The maintenance sessions varied across participants and only two maintenance data points were collected for the last participant (Nancy). Thus, more maintenance data points would determine if the student can perform the learned social skills behavior without a prompt and achieve at the mastery level of performance. Further, with more time, data regarding generalization of the social skills could also have been collected.

Procedural fidelity was collected by one primary researcher during most of the intervention phases across participants. The second observer attended only data collection periods. Using a scripted instructional plan allowed the second researcher to follow and collect procedural fidelity data accurately. Although data collection of the observed, procedural

fidelity was not an issue for the primary researcher due to using a scripted instructional plan, doing so with only one observer can be considered a limitation of the current study.

<u>Recommendation for Future Studies</u>

The use of video model intervention packages for social skills instruction needs to continue to be researched for students ASD. This investigation was designed to examine video modeling combined within an intervention package in which *Skillstreaming* procedures were followed. Although video modeling has been demonstrated as an EBP in many research studies, the published research articles utilizing the *Skillstreaming* curriculum when used as part of an instructional package to develop social skills of students with ASD is limited. Therefore, in agree on with Horner et al. (2005), replication of this study is also needed across subjects, by additional researchers, and settings.

A focus of future research could include the development of social skills with peers or other adults in inclusive settings using similar instructional packages. Thus, future researchers could change the target behavior to greeting and/or start the conversation with a peer instead of the teacher if students are provided opportunities to interact with their typical peers within either general education or self-contained classroom settings, the research focus would be of interest to the field.

Future research may also make some modifications to the intervention components. For this investigation, the participants received the intervention during the last period of class and data collection occurred the next day, after the intervention session. Future research may consider implementation of the intervention with a shorter latency period between intervention and data collection. For example, intervention may be provided just before class begins by a

paraprofessional or parents within the student's home. In particular, a comparison of results based on latency period may have important implications for classroom practice since there are advantages to a longer latency period in terms of scheduling and implementing social skills instruction. Future research may also investigate the same intervention package either without or with a fading of the prompt components of the intervention procedures. It would be important to determine if more streamlined procedures could be found to yield similar results.

Additional research could involve modifications to the design of this study by adding more intervention and maintenance sessions to determine the number of sessions required for mastery of social skills across all participants. In this research, if the intervention could have been implemented for a longer period of time, Nancy possibly could have performed more components of the social skills accurately. Future research studies with other students with ADHD are warranted. This might include students with ADHD as well as ASD.

Although the target social skill behaviors of this study were identified with teacher consultation and probe measurement from the *Skillstreaming* curriculum (assessed by the students' teacher), future researchers may use other validated social skills checklists to determine a broader range of targeted social behavior skills to be taught. Since two of the three students struggled with selecting a conversational topic, more specific focus on conversational skills warrants investigation.

Recommendations for Teachers of Students with ASD

Although individuals with ASD share some common characteristics, no two individuals with ASD are alike. However, social skill development and communication are identified as primary areas in which most of individuals with ASD struggle. Therefore, providing social

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interaction support should be an important part of the individual education plan (IEP) for a student with ASD. There are several evidence based practices that have been identified to use when teaching academic, behavioral and functional skills for students ASD. Simpson (2005) highlighted the need for special education teachers to know how to implement EBPs in a more efficacious way in order to generate expected positive learning outcomes. Results of the current study support the use of an intervention package that includes video model with the *Skillstreaming* teaching procedures on beginning social skills (e.g. initial greeting, followed by initiating a conversation) with middle school-aged students with ASD.

There are several promising points when using an intervention package including video model for teachers of students with ASD. First, the students may benefit from using a structured instructional plan combined with different teaching techniques (e.g. video model, discussion, role play, feedback, and prompting). Teaching the target behavior with video modeling may lead to increased student attention and motivation during the process of learning by students with ASD. It is important to note the characteristics of the video model and setting may be important as stimuli in the learning process. Although there is not agreement among researchers whether live or videotaped models are more effective when teaching new skills for students with ASD, special education teachers might have difficulties frequently finding an appropriate live model for daily application. Videotaped models have two distinct advantages, they can be used over time for accuracy in demonstration of the target behavior, and they can be repeated as often as needed during the process of teaching target behavior to mastery. There are a number of technological devices that should be considered and used when creating videos for educational purposes. The school may have professional video recording equipment for use

by teachers. It may even have technology support personnel who could assist the teacher in planning for and completing the recording. If it is not available, teacher can easily create the video by using a simple camera or handheld device to record target skills as they are modeled for teaching students with ASD. It will be important to use a tripod to assure the camera or other recording devise does not move while recording. As was mentioned earlier, teachers need to take into account the students' unique needs to determine which behavior would need be taught and modeled. A thoughtful concept analysis is critical when determining the target behavior.

In addition to video demonstration, when teaching various components of target behaviors, teachers might consider the use of visual cards as visual prompts to assist students in remembering what they learned. These visual prompt cards can be used by the students with ASD as they often need to remember the steps when targeted skills include multiple components. The time period between introduction the intervention and performing the learned skills can be another significant factor that impacts the need to use visual cards for students with ASD. Therefore, presenting visual prompt cards of each component of the target social behavior can help students with ASD recall the components of the new skills. The teacher can further explain the components of the target skills in isolation, as needed. Finally, role modeling is another important component of *Skillstreaming* teaching procedures that includes student demonstration of the targeted skills during practice opportunities. At the end of practice, the teacher can provide immediate and corrective feedback related specifically to the observed behaviors of the skills to be learned by the students. Implementing the intervention with the same teacher, same procedures and same setting might have a positive effect on

teaching new skills to mastery before maintenance and generalization to other settings.

Consistency is an important factor when learning and demonstrating new skills. Further, the

teacher may need to focus on a specific component of target behavior in isolation with students

who have difficulties performing one or more specific component correctly or at desired level.

The correctly performed social skill component can be represented by creating a quick video or

screen shot.

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

Social interactions with peers and adults are important to building social competency

for individuals with ASD. However, individuals with ASD often face difficulties when

learning social skills. Therefore, teachers, caregivers, and parents may apply various

instructional strategies to teach new skills or improve the performance of social skills of

students with ASD. Teaching new skills to students with ASD can be effective when multiple

means of teaching are provided (e.g.; role model, visual cue cards, video modeling, etc.). The

findings of this research demonstrated that three middle school-aged students with ASD

responded positively to the video modeling intervention package in learning to perform the

target behaviors and were able to maintain the acquisition of the skills learned. Therefore, the

results of this study support the efficacy of employing a video modeling intervention package

to teach social skills for students with ASD.

APPENDIX A
IRB APPROVAL LETTER

Approval of Human Research

From: **UCF Institutional Review Board #1**
              FWA00000351, IRB00001138

To: **Onur Kocaoz** and Co-PI: **Abdi Gungor**

Date: **April 07, 2015**

Dear Researcher:

On 4/7/2015 the IRB approved the following human participant research until 04/06/2016 inclusive:

Type of Review:	Submission Response for UCF Initial Review Submission Form Expedited Review
Project Title:	The Impact of Video Modeling Combined with Skillstreaming Teaching Procedures on the Social Interaction Skills of Middle School Aged Students with Autism Spectrum Disorders
Investigator:	Onur Kocaoz
IRB Number:	SBE-15-11197
Funding Agency:	
Grant Title:	
Research ID:	N/A

The scientific merit of the research was considered during the IRB review. The Continuing Review Application must be submitted 30days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study.   All forms may be completed and submitted online at https://iris.research.ucf.edu .

If continuing review approval is not granted before the expiration date of 04/06/2016, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

All data, including signed consent forms if applicable, must be retained and secured per protocol for a minimum of five years (six if HIPAA applies) past the completion of this research. Any links to the identification of participants should be maintained and secured per protocol. Additional requirements may be imposed by your funding agency, your department, or other entities. Access to data is limited to authorized individuals listed as key study personnel.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

APPENDIX B
SKILLSTREAMING CHECKLIST

Social Skill Checklist

Beginning Social Skills	Strongly Disagree	Disagree	Slightly disagree	Slightly Agree	Agree	Strongly Agree
1. Initiate Greeting Teacher	1	2	3	4	5	6
2. Initiate Conversation with Teacher	1	2	3	4	5	6

Note. Adapted from Skillstreaming curriculum (Goldstein & McGinnis, 1997).

APPENDIX C
IMPLEMENTATION VIDEO MODELING CHECKLIST

1. Identify a learning objective

2. Align the objective with the student IEP goals

3. Choose video modeling

4. Create a task analysis

5. Collect baseline data

6. Choose two person to model the behavior

7. Choose an environment to make the video

8. Create the video using a camera or iPad

9. Set up the iPad

10. Edit and save the video

11. Test it out

    Modified according the National Professional Development Center on Autism Spectrum

    Disorders (NPDC, 2014).

APPENDIX D
VIDEO MODEL SCRIPTS

Video Model Script 1

Student: Good morning Ms. Smith. How are you today?

Teacher: Good morning John. Great. How are you?

Student: I am good. Thank you.

Student: Ms. Smith, I have recently seen a movie called, Grown Ups. Have you seen it?

Teacher: No, I have not. Did you like it?

Student: Yes, it is very popular.

Teacher: Good!

Video Model Script 2

Students: Good morning Ms. Smith. How are you today?

Teacher Good morning John. Great. How are you?

Student: Good!

Student: Ms. Smith, what we are going to do today?

Teacher: We are going to do a little bit of reading, writing and have the lunch.

Student: OK. I like it.

APPENDIX E
VIDEO MODEL VALIDATION PROTOCOL

VIDEO PANEL VALIDATION PROTOCOL					
Please indicate your level of agreement based on following statements. **START HERE**	**Strongly disagree**	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
1. The video model demonstrates clear components for each of the two social skills.	☐	☐	☐	☐	☐
2. The actors are representative of a typical middle school-aged student.	☐	☐	☐	☐	☐
3. The actors represent a sufficient level of diversity.	☐	☐	☐	☐	☐
4. What were the limitations of the video model?					
5. What were the strengths of the video model?					

Note. (Adapted from Ogilvie & Dieker, 2010)

APPENDIX F
DATA COLLECTION FORM

Data Collection Form

Baseline

Intervention

Maintenance

Student: Date: Session number:

Instruction: Record a (+) if component is performed, a (-) if component is not performed.

Task components -All completed with 10 minutes.

Correct Components	Record (+) or (-)	Comments
Within 1 minute of arrival, the student walks over to the teacher.		
Student waits until teacher is not engaged in another conversation to verbally or physically gain attention.		
Student orients body and face towards teacher		
Student holds and maintain eye contact with the teacher for 2 seconds.		
Student offers verbal greetings to teacher in the form of a word or phrase (e.g., Says, "Hello", "Good morning", etc.)		
Student waits for the teacher to return greeting		
Student then asks a question or makes a comment in appropriate topics and content that acceptable in a school settings		
Student waits for first opportunity communication partner's complete response without interrupting		
Student uses a pleasant audible and understandable volume tone.		
Student maintains appropriate physical personal space throughout interaction		

APPENDIX G
SCRIPTED INSTRUCTION PLAN

Intervention Session

Teacher: *Today we are going to learn how to give a morning greeting and start a conversation. Starting the day by greeting the teacher will help create a friendly classroom environment. Let's begin learning these important social skills.*

Teacher: *First, let's watch this video clip as an example of how to do an appropriate morning greeting and how to start a conversation.*

Teacher presses the start button. (For each session, the teacher will show one of the four videos in rotation).

Student watches the video.

Teacher: *The student in the video showed how to give a morning greeting and start a conversation with a teacher.*

Teacher: *Here is a card set that includes all the components for offering a greeting and starting a short conversation.*

Teacher: *Please read each of the components and make a mark on the card if it is a component that you saw in the video clip that we just watched.*

Teacher: *Now, let's look at each* component *together. I am going to show each component by using a screen shot from the video.*

Teacher shows each screenshot and states the *component* as noted below.

Teacher: *First component: The student walks over to the teacher.*

Teacher: *Second component: The student waits until the teacher is not talking to another person before starting the greeting.*

Teacher: *Third component: The student turns his/her body and face towards the teacher.*

Teacher: *Fourth component: The student greets the teacher by saying "Good morning/Hello".*

Teacher: *Fifth component: The student waits for the teacher to return greeting.*

Teacher: *Sixth component: The student starts a conversation by asking a question or making a comment.*

Teacher: *Seventh component: The student waits for the teacher to respond without interrupting.*

Teacher: *Notice the student stands near the teacher, but not too close.*

Teacher: *Also notice the student uses a pleasant, audible and understandable volume in tone.*

Teacher: *There are many topics that you can use in a conversation. In this video the student started a conversation about…" What are some topics that you could use to start a conversation?*

Student responds with at least one topic. Teacher may prompt if needed.

Teacher: Now it is time to practice an appropriate morning greeting and how to start a conversation.

Student and teacher move to another setting, out of the view of other study participants.

Teacher: *I want that you to practice the component for greeting the teacher and starting a conversation that we watched and reviewed together.*

Teacher represents the card set pointing to each of the component and reading the directions.

Teacher: *I want you to step out of the classroom and come back in and practice greeting me and starting a conversation.*

Students completes the role play.

Teacher goes through the card set and praises the student for each component performed correctly

Teacher then reviews each *component* that the student needs to work on.

Teacher: *You performed X number of components out of ten. During the next practice, you will need to focus more on X component.*

Teacher: *Let's try it one more time.*

Student completes the role play.

Teacher: *Teacher goes through the card set and notes each component performed correctly and then each component that the student needs to work on.*

Teacher: *You may go back to your classroom now.*

Prompting Session.

Paraprofessional and student meet before entering classroom.

Paraprofessional makes sure that the student has his/her card set.

Paraprofessional: *Remember you watched and video and practiced greeting and starting a conservation yesterday.*

Paraprofessional: *Show me the cards and tell me each of the components.*

Student goes through the card set, reading each direction in order.

Paraprofessional: *What will your conversation be about today?*

Student provides a topic. If the student does not have a topic, the paraprofessional will make

Paraprofessional: It is time to go into the classroom and greet the teacher and start a conversation.

APPENDIX H
INTERVENTION FIDELITY CHECKLIST

Stages of Procedure Fidelity	Yes	No

Intervention

The materials are ready (IPad, speaker, lesson script plan and, screen shot card)

Teacher explains the goal of lesson.
Teacher presses the start button.
Student watches one minute video.
Student reviews each component with screen shot cards.

Teacher discusses each components with student.
Teacher and student transition to another classroom.
Teacher asks the student to role play greeting by followed starting a conversation
Student and teacher role play greetings and starting a conversation skill

Teacher gives feedback on correct and incorrect components
Student and teacher role play model again if fewer than ten components were performed

Prompt session

Paraprofessional is ready to meet students outside of classroom door.
Paraprofessional shows visual cue cards in order, then asks if student remembers those components
Student goes through the card set, reading each component in order.

Paraprofessional checks if student is prepared to provide possible conversation topic
Paraprofessional suggests some conversation topics if needed

Morning Routine

Teacher sits at desk.
Teacher responds to students greetings
Teacher responds to student question/ comment

Total

APPENDIX I
SOCIAL VALIDITY QUESTIONNAIRE OF TEACHER

Questionnaire Statements	Strongly Disagree	Disagree	Slightly disagree	Slightly Agree	Agree	Strongly Agree
1. This is an acceptable intervention package for the child's development age.	1	2	3	4	5	6
2. Most teachers would find this intervention package appropriate for social skills as well as the two identified.	1	2	3	4	5	6
3. This intervention package should prove effective in changing the child's social skills.	1	2	3	4	5	6
4. I would suggest the use of this intervention package to other teachers.	1	2	3	4	5	6
5. The child's developmental age is severe enough to warrant the use of this intervention package.	1	2	3	4	5	6
6. Most teachers would find this intervention package suitable for the beginning social skills identified.	1	2	3	4	5	6
7. I would be willing to use this intervention package in the classroom setting.	1	2	3	4	5	6
8. This intervention package would not result in negative side-effects for the child.	1	2	3	4	5	6
9. This intervention package would be appropriate for a variety of children.	1	2	3	4	5	6
10. This intervention package is consistent with those I have used in classroom settings.	1	2	3	4	5	6
11. The intervention package is a fair way to handle the child's social skills difficulties.	1	2	3	4	5	6
12. This intervention package is reasonable for the beginning social skills identified.	1	2	3	4	5	6

Questionnaire Statements	Strongly Disagree	Disagree	Slightly disagree	Slightly Agree	Agree	Strongly Agree
13. I like the procedures used in this intervention package.	1	2	3	4	5	6
14. This intervention package is a good way to meet the specified purpose.	1	2	3	4	5	6
15. Overall, this intervention package would be beneficial for the middle school aged child.	1	2	3	4	5	6

Note. (Adopted from Lane et al., 2009).

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