

UC Berkeley

UC Berkeley Electronic Theses and Dissertations

Title

Integrated Drama Groups: Promoting Symbolic Play, Empathy, and Social Engagement With Peers in Children with Autism

Permalink

<https://escholarship.org/uc/item/2sp1262w>

Author

Neufeld, David Joshua

Publication Date

2012

Peer reviewed|Thesis/dissertation

Integrated Drama Groups: Promoting Symbolic Play, Empathy, and Social Engagement With
Peers in Children with Autism

by

David Joshua Neufeld

A dissertation submitted in partial satisfaction of the

requirements for the degree of

Joint Doctor of Philosophy
With San Francisco State University

in

Special Education

in the

Graduate Division

of the

University of California, Berkeley

Committee in charge:

Professor Elliot Turiel, Co-chair
Professor Pamela J. Wolfberg, Co-chair
Associate Professor Brandi W. Catanese

Spring 2012

Abstract

Integrated Drama Groups: Promoting Symbolic Play, Empathy, and Social Engagement With Peers in Children with Autism

by

David Joshua Neufeld

Joint Doctor of Philosophy in Special Education
with San Francisco State University

University of California, Berkeley

Professors Elliot Turiel and Pamela Wolfberg, Co-chairs

Children with Autism Spectrum Disorders (ASDs) are currently viewed as presenting impairments in several important areas, including socialization, communication, and imagination (American Psychiatric Association, 2000; Wing & Gould, 1979). As a result, they may benefit from interventions that aim to increase competence in these areas. This study examines the efficacy of Integrated Drama Groups (IDG), a proposed new application of the Integrated Play Groups (IPG) model, an established research-based invention (Wolfberg, 2009). IDGs apply the guiding principles of the IPG model to a group focused on drama and improvisation. The goal of an IDG is to allow children with ASD to increase their social understanding and competence in a fun and supportive environment while making friends and building dramatic skills.

Each of three groups was comprised of one child with autism and three typically developing peers. Using a mixed-methods design which incorporated a multiple-baseline study across subjects, a qualitative examination of field notes taken during IDG, and interviews with caregivers of the primary participants, the present study examined whether or not exposure to IDG led to changes in the social play, symbolic play, initiations, responses to initiations, and joint engagement of the three children with ASD. As an additional measure, the child version of the Reading the Mind in the Eyes test (Baron-Cohen et al., 2001) was used to determine whether participants showed improvement in reading external emotional cues as a result of their involvement. Intervention fidelity, generalization, and social validity were addressed.

Results indicate that a drama-based intervention can be successful at improving some of the spontaneous play skills of children with ASD. All three primary participants showed improvement in their social and symbolic play skills, willingness to accept the ideas of others, and spontaneous joint engagement. All three caregivers considered the IDG to be a valuable investment of their children's time which led to significant change in their lives outside of the groups. Exposure to the IDG had no discernible effect on participants' scores on the Eyes Test. Implications for future research and practice are discussed.

This work is dedicated with great love to my girls, Suzannah and Noa.

Table of Contents

List of Tables.....v

List of Figures.....vi

Acknowledgments.....vii

1. Introduction.....1

2. Review of the Literature.....4

 Autism Spectrum Disorders.....4

 Theoretical Framework for the IDG Intervention.....7

 Social Development Through Play.....7

 Social Development Through Pretend Play.....9

 Cognitive Development Through Pretend Play.....11

 Defining Dramatic and Sociodramatic Play.....13

 Social and Emotional Development Through Dramatic and Sociodramatic
 Play.....14

 Cognitive Development Through Dramatic Play.....14

 The Potential Benefits of Drama Curricula for Children with ASD.....15

 The Present Study: Integrated Drama Groups.....18

3. Methods.....20

 Research Questions and Hypotheses.....20

 Participants.....21

 Setting.....22

 Design.....24

 Independent Variable.....24

 IDG Facilitator.....25

IDG Structure.....	25
Dependent Variables and Measures.....	26
Social Dimension of Play.....	26
Symbolic Dimension of Play.....	28
Initiations, No Response to Initiations, Refusal of Initiations, Joint Engagement.....	29
Reading the Mind in the Eyes Pre-test and Post-test.....	31
Generalization and Social Validity.....	32
Procedures.....	32
4. Results.....	39
Social Dimension of Play.....	39
Symbolic Dimension of Play.....	48
Initiations, No Response to Initiations, Refusal of Initiations.....	56
Joint Engagement.....	66
Reading the Mind in the Eyes Test.....	68
Generalization and Social Validity.....	68
5. Case Illustrations.....	73
Group 1: Brandon, Ryan, Naomi, and Rosie.....	73
Group 2: Matteo, Emma, Samara, and Andrew	74
Group 3: Zander, Amy, Idris, Savannah/Gemma	75
Field Notes.....	78
Brandon’s Group.....	78
Matteo’s Group.....	79

Zander's Group.....	81
6. Discussion.....	83
Social Play.....	83
Symbolic Play.....	85
Initiations, No Response to Initiations, Refusal of Initiations.....	88
Joint Engagement.....	91
Reading the Mind in the Eyes Test.....	92
Limitations.....	92
Implications.....	94
Future Research.....	94

List of Figures

Figure 1: Integrated Drama Groups Intervention Fidelity Checklist.....	36
Figure 2: Percentage of Time Spent in Isolate Play.....	41
Figure 3: Percentage of Time Spent in Orientation-Onlooker Play.....	42
Figure 4: Percentage of Time Spent in Parallel-Proximity Play.....	44
Figure 5: Percentage of Time Spent in Common Focus Play.....	45
Figure 6: Percentage of Time Spent in Common Goal Play.....	47
Figure 7: Percentage of Time Spent Not Engaged.....	49
Figure 8: Percentage of Time Spent in Object Manipulation-Sensory Play.....	51
Figure 9: Percentage of Time Spent in Functional Play.....	52
Figure 10: Percentage of Time Spent in Pretend Play.....	54
Figure 11: Percentage of Time Spent in Role Play.....	55
Figure 12: Rate per Minute of Initiation by Novice Player.....	58
Figure 13: Rate per Minute of Initiation by Typical Peers in Each Group.....	59
Figure 14: Rate per Minute of Novice Player No Response to a Typical Peer's Initiation.....	61
Figure 15: Rate per Minute of Typical Peer no Response to a Novice Player's Initiation.....	62
Figure 16: Rate per Minute of Novice Player Refusal of a Typical Peer's Initiation.....	64
Figure 17: Rate per Minute of Typical Peer Refusal of a Novice Player's Initiations.....	65
Figure 18: Percentage of Time Spent in Joint Engagement.....	67

List of Tables

Table 1: List of IDG Participants and Ages by Group.....	23
Table 2: Definition of Behavioral Codes for Social Dimension of Play.....	27
Table 3: Definition of Behavioral Codes for Symbolic Dimension of Play.....	28
Table 4: Definition of Behavioral Codes for Joint Engagement.....	30
Table 5: Summary of Duration of Unsupported Play Sessions in Minutes.....	34
Table 6: Summary of Average Baseline and Intervention Means for the Social Dimension of Play.....	39
Table 7: Summary of Average Baseline and Intervention Means for the Symbolic Dimension of Play.....	48
Table 8: Summary of Average Baseline and Intervention Means for Initiations, No Response to Initiations, and Refusal of Initiations.....	56
Table 9: Summary of Joint Engagement Data.....	66
Table 10: Percent Correct Responses on the Reading the Mind in the Eyes Test.....	68

Acknowledgments

First and foremost, I would like to thank the parents, caregivers, and most importantly children who participated in this study. Without you, this study would literally not have been possible, and I am eternally grateful to all of you. To the principal and staff of Griffin Elementary¹, thank you for sharing your space with our wild drama groups, and for supporting this project and those that came before it.

I am also grateful to the members of my research team. Chris Santer, Yoon Sung Moon, Amariah Hash, and Brenna Alexander were all invaluable in bringing this project to fruition. Most of all, a lifetime of thanks to Thanh Nguyen, my inimitable project coordinator, without whose assistance with recruitment, scheduling, coding, and just about every other aspect of this project, I would probably still be working on it today.

My advisers have been a great help to me throughout the project. Elliot Turiel helped me to see social and moral development in a whole new light, and taught me the value of getting work done in coffee shops. When I was feeling overwhelmed academically, he calmed me down, and his measured approach to teaching and advising has been extremely helpful. He has been a patient and kind instructor throughout my doctoral career, and I am very grateful. Pamela Wolfberg has been an exemplary mentor to me on many different levels. She has served as an inspiration (both literally and figuratively) to me throughout my doctoral career and before. Her work has helped frame my ideas, and her hands-on assistance has helped make them reality. Her close readings of my position papers and the drafts of this dissertation have made me a more critical thinker, a better scholar, and a more skilled clinician. We have taught together, presented at conferences together, and collaborated on innumerable projects. She has given generously of her time, energy, and influence to help me succeed, and I cannot thank her enough. Thanks are also due to Pam Hunt, whose knowledge of single-subject research design was essential to the design of this project, and to Deborah Curtis, whose statistical advice came at the eleventh hour when I was in desperate need.

And finally, I am grateful to my friends and family. My parents, Tess and Bruce Wilkoff, have been an amazing source of support to me throughout my life, and have always encouraged me to follow my passions. The willingness of my sister Dana Neufeld and my friend Jennifer Berger to babysit on weekends so that I could get some work done on the project was appreciated more than they know. My stepbrother Sean Wilkoff went through his own doctoral program at the same time as me, and our weekly racquetball sessions early on kept me sane.

Most of all, I am grateful to my incredible wife and best friend Suzannah and our daughter Noa. When I was frustrated and exhausted, a single smile from Noa or a touch on the back from Suzannah made everything better. Without Suzannah's unwavering support and encouragement (not to mention her talent for giving me deadlines) I never would have completed this program. Her enthusiasm and pride in the work I was doing kept me going, and her willingness to fly solo with our baby for extended stretches of time when she had her own ever-growing list of things to take care of made it possible for me to do it. I could not have asked for a better partner, and I love her with all of my heart.

¹ A pseudonym is used in place of the school's actual name.

Chapter 1 Introduction

Children with Autistic Spectrum Disorders (ASD) are currently viewed as presenting impairments in several important areas. According to the American Psychiatric Association (2000), the three main categories are impairments in reciprocal social interaction, impairments in verbal and/or non-verbal communication, and the presence of restricted, repetitive, and stereotyped patterns of behavior, interests, and activities.

Many different types of interventions have been developed to help children with ASD to improve in these important areas. These range from adult-directed approaches that include behavioral or Applied Behavioral Analysis models such as Discrete Trial Training (Lovaas, 1987) and Pivotal Response Training (e.g., Koegel & Koegel, 2006; Koegel, O'Dell, & Koegel, 1987) to more child-centered, play-based approaches that include developmental models such as the Denver Model (described in Rogers, Hall, Osaki, Reaven, & Herbison, 2000), Relationship Development Intervention (Gutstein & Sheely, 2002) and DIR/Floortime (Greenspan & Wieder, 2006; Greenspan, Wieder, & Simons, 1998).

Much of the reasoning behind adult-directed approaches such as discrete-trial training and pivotal response training comes from learning theory (Skinner, 1971) which states that learning takes place through reinforcement. A child learns through a combination of stimulus, response, and reward. Desirable behaviors are rewarded, undesirable behaviors are punished (or ignored), and the child learns to repeat behaviors which have been reinforced in the past. Bandura (1977) takes this idea one step further in his discussion of social learning, which takes the position that children learn not only when their own behavior is reinforced (*enactive learning*), but also by watching the behavior of others being reinforced (*vicarious learning*).

Child-directed interventions, on the other hand, take a developmental approach, such as that favored by theorists Jean Piaget (1962) and Lev Vygotsky (1978). For both of these men, children construct their cognitive and social understanding from their experience of the world. In Piaget's view, independent play and exploration form the basis for acquiring distinct ways of thinking and behaving. For Vygotsky, play is conceptualized as social activity in which children construct shared meanings and shared understandings of the roles, skills, values, and knowledge which are most important to their culture.

Play-based interventions not only differ from each other in terms of methodological orientation, but also in whether their emphasis is on promoting skills through interactions with adults or with peers. Further, play-based interventions that do emphasize child-child interactions vary in terms of whether they are situated in segregated settings or inclusive settings which incorporate typically developing peers.

One current play-based model of intervention for children with ASD is Integrated Play Groups (IPG). Developed by Wolfberg (2009), the IPG model puts together children with ASD (called "novice players") and typically-developing peers (called "expert players") in a playgroup with a trained adult facilitator. By offering varying degrees of support to the group of children, the facilitator encourages social interaction and facilitates play which incorporates the skills and interests of the children themselves. The IPG model differs from other models in that it does not position the expert players as tutors or mentors for the novice players. Instead, the IPG model is designed to provide "a haven for children with diverse abilities to create genuine play worlds together, where they may reach their social and imaginative potential, as well as have fun and make friends" (Wolfberg, 2003, p. 31). The emphasis is on mutual enjoyment, equality, and the

joint construction of shared meanings. This kind of fun-loving and casual atmosphere where anything goes (provided that it is safe) and the interests of all children are taken into account lends itself very well to creating opportunities for pretend and dramatic play, two areas which are particularly challenging for children with ASD.

There has been a great amount of literature in education devoted to the exploration of pretend play and its effects on both typically developing children and children with special needs. One aspect of pretend play that has received limited attention, however, is the use of dramatic play for children with special needs. While a large body of literature and research exists on the positive developmental effects of dramatic play on typically developing children (e.g., Smilansky, 1990; See also Bergen, 2002; Cooper, 2005; Furman, 2000; Lillard, 1993), there is surprisingly little on its use as an intervention for children with ASD.

This is somewhat understandable. As Peter (2003) points out, “At first sight, the notion of drama in relation to many children with severe and complex learning needs may seem inappropriate – beyond their representational capabilities and level of social understanding” (p. 21). Building on her work and on related research and literature in the field, this dissertation will argue that on the contrary, drama is not only appropriate for these children, but can provide them with powerful opportunities for education, growth and development. The social and cognitive capacities that dramatic play helps foster in typically developing children (for example, social reciprocity, symbolic representation, imagination, theory of mind, and perspective-taking) are precisely those capacities in which children with ASD are thought of as being the most challenged (American Psychiatric Association, 2000; Wolfberg, 2009; Peter, 2003; Baron-Cohen, Leslie, & Frith, 1985; Baron-Cohen, Tager-Flusberg, & Cohen, 1993).

The professional community has become increasingly aware of the benefits that drama can provide for children with ASD. Due in part to highly visible endeavors like Elaine Hall’s Miracle Project (Hall & Isaacs, 2011), professionals around the United States have recently begun to use drama as an intervention for children with autism (e.g., Davies, 2004; Nelson, 2010; Neufeld & Wolfberg, 2010; Schneider, 2007). However, to date their work consists largely of books of exercises and activities, practical guides which use theory and practice to teach practitioners how to use drama with this population. There is very little empirical research to lend support to the ideas expressed in the manuals.

Furthermore, the research that has been done on the topic is largely behavioral in nature, using strategies such as scripting (Goldstein & Cisar, 1992; Palmen, Didden, & Arts, 2008) and explicit peer modeling (Corbett et al., 2010) to improve performance in social behavior, asking questions, and dramatic performance, respectively. As is often the case in behavioral research, in these studies improvement was noted but results did not generalize and children displayed little novel (i.e., untaught) behavior. A few studies (Karnezi & Tierney, 2009; Murdock & Hobbs, 2011; Thorp, Stahmer, and Schreibman, 1995) have taken more child-centered, play-based approaches to using drama with children with ASD, with the result that the changes observed generalized to novel situations and play partners.

Based on the encouraging results from these last few studies, I carried out a study of a new drama-based intervention called Integrated Drama Groups (IDG).

The Study

The study reported on here is meant to fulfill the requirements for a dissertation in the Joint Doctoral Program in Special Education at UC Berkeley and San Francisco State University.

It examined the efficacy of Integrated Drama Groups (IDG), a proposed new application of the Integrated Play Groups (IPG) model, an established research-based invention (Wolfberg, 2009).

This study is a part of a larger international project² that will compare the IDG intervention with children and adolescents across U.S. and German research sites. IDGs apply the guiding principles of the IPG model to a group focused on drama and improvisation. The goal of an IDG is to allow children with ASD to increase their social understanding and competence in a fun and supportive environment while making friends and building dramatic skills.

Using a mixed-methods design which incorporated a multiple-baseline study across subjects, the present study examined whether or not exposure to IDGs led to changes in the social play, symbolic play, initiations, responses to initiations, and joint engagement of three children with ASD. During baseline condition (unfacilitated drama), the facilitator gave instruction to the entire group, but did not make special efforts to engage either novices or experts. He did not scaffold their interactions with each other or their participation in the group. During the intervention condition (facilitated drama), however, he encouraged and supported the participation of all players. Coaching was embedded into the intervention as a whole (as opposed to being directed at one set of players or another) so that all children were working to include and coordinate with each other.

In both conditions, the drama group (IDG) was followed by a period of unsupported play (UP) in a different room. During UP sessions we used a video-based observation system to measure a) behaviors on the social and symbolic dimensions of play (Wolfberg, 2003, 2009), b) initiations made and responded to by both novices and experts, and c) joint engagement (i.e., periods of time in which novices and experts were involved in reciprocal playful action with each other). Collected data were then analyzed to see if novices showed more complex social and symbolic play during intervention phase than they had during baseline, and whether novices and experts initiated more with each other, responded more often to others' initiations, or entered more often into joint engagement with each other. To arrive at a more nuanced understanding of the children and their experiences in the IDG, qualitative case illustrations of the groups themselves were also developed. As an additional measure, using Baron-Cohen, Wheelwright, Spong, Scahill, and Lawson's (2001) "Reading the Mind in the Eyes" test (Child Version), we examined whether compared to an age- and language-matched control group of children with ASD, participation in the IDG resulted in improvement in the novice players' ability to recognize the emotions of others. Finally, through interviews conducted with the novices' caregivers, we examined generalization and social validity of the intervention.

What follows is an in-depth discussion of this study. I begin with the appropriate literature on ASD, a review of the theoretical underpinnings of the IDG intervention, and the benefits that pretend and dramatic play can provide to typically developing children and children with ASD. I then describe the study in detail, discuss the implications of the results, and offer suggestions for future research in the area.

² This study is supported, in part, by a grant for Transcooperative Research from the Alexander von Humboldt Foundation with Matching Funds from the Flora Foundation and Mendelson Family Foundation, to Co-principal Investigators Henri Julius, Ph.D, University of Rostock, Germany and Pamela Wolfberg, Ph.D., San Francisco State University, U.S.A.

Chapter 2 Review of the Literature³

Autism Spectrum Disorders

Autism Spectrum Disorders (ASDs) is a group of developmental disabilities that generally appear in children before the age of 3. ASDs affect 1 in 88 children, and are five times more common in boys than in girls (Centers for Disease Control and Prevention [CDC], 2012). As currently described in *The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-R)* issued by the American Psychiatric Association (2000), there are three different types of ASDs: a) Autistic Disorder (also known as “classic autism”) which is characterized by significant language delays, social and communication challenges, unusual behaviors and interests, and often intellectual disability; b) Asperger Syndrome (sometimes referred to as high-functioning autism), a diagnosis used for children whose language and cognitive development are within the typical range, but who still qualify for a diagnosis of an ASD based on their social and communication profiles and patterns of unusual behavior and interests (Attwood, 2008); and c) Pervasive Developmental Disorder (PDD-NOS), a diagnosis used for children who have many features of autism but not enough to warrant the full diagnosis. Children with all three types of ASD often show difficulties with sensory regulation, and can become either over- or under-aroused in the presence of visual, tactile, or auditory stimulation (Attwood, 2008; Dunn, 2008). Significant changes to the ASD diagnosis are planned for the fifth edition of the DSM, scheduled to be released in May 2013. In the new edition, all three types will be subsumed under one diagnosis of Autism Spectrum Disorder, with level of severity noted depending on the child’s individual profile.

Currently, the DSM IV-R (2000) lists three specific categories of impairments associated with ASD. They are impairment in reciprocal social interaction (i.e., a lack of spontaneous seeking to share enjoyments and interests with others and a lack of social or emotional reciprocity), impairments in communication (i.e., delay of development of spoken language not compensated for by gesture and a lack of varied, spontaneous make-believe play or social imitative play), and restricted, repetitive and stereotyped patterns of behavior, interests, and activities (i.e., apparent inflexible adherence to specific, nonfunctional routines or rituals and stereotyped motor mannerisms such as hand-flapping). Lorna Wing was the first to refer to these challenges as “the triad of impairments” (Wing and Gould, 1979) which include reciprocal social interaction (referred to by some as socialization), communication, and imagination.

Socialization. The word *socialization* is often used to refer to the process by which a particular group (e.g., family, society, culture, institution, etc.) acts upon a child to teach them the rules and mores of that group. In autism research, however, it refers to characteristic difficulties that children with ASD show with social understanding and competence. This may involve challenges with engaging socially with others, reading social cues, making and sustaining friendships, and successfully functioning in the social world.

³ Portions of this chapter appeared in different form in Neufeld, D., & Wolfberg, P. J. (2010). From novice to expert: Guiding children on the autism spectrum in Integrated Play Groups. In C. Schaefer (Ed.), *Play therapy for preschool children*. Washington, D.C.: American Psychological Association.

In terms of social engagement, children with ASD display a wide range of abilities. This is especially visible in their play with peers. Wing and Gould (1979) noted three main social impairments in people with autism, adapted by Wolfberg (2009) to refer to three broad play styles that are commonly seen in children with ASD. The *aloof* child may wander among peers without seeming to take note of them, or may avoid peers altogether. The *passive* child appears indifferent to peers, but is easily led into interaction with them, although he seldom initiates the interaction. The *active-odd* child shows interest in being with peers, but may do so in strange or awkward ways. To further specify the social patterns observable in the play of children with autism, Wolfberg (2003, 2009) developed the concept of the *social dimension of play*. The social dimension of play refers to the child's relationship to peers during play, and ranges from *isolate* (no apparent relationship with peers) to *common goal* (engaging in cooperative play, explicitly planning and carrying out a common agenda, and negotiating around divergent interests). For a detailed description of the social dimension of play, see the Methods chapter of this dissertation.

As noted in previous works (Boucher & Wolfberg, 2003; Neufeld & Wolfberg, 2010; Wolfberg, 2009), there is evidence to suggest that children with ASD are not devoid of desire for peer interaction, but rather lack the social skills necessary to establish and maintain the connections necessary for play. For example, many children with ASD have difficulty making and responding to social initiations. They often cannot clearly communicate their interests in play, nor can they interpret and respond to the social advances of peers (Jordan, 2003). The ability to read the social cues of others is crucial to approaching and entering group play, and so we see that children with ASD often pursue repetitive and stereotyped activities in social isolation, rather than the complex, cooperative, pretend-oriented play in which typically developing children engage (Frith, 2003; Wing, Gould, Yeates, & Brierly, 1977). Children with ASD may repeat the same play activity for hours on end (e.g., methodically taking pieces out of a dollhouse and putting them back), and often show resistance when a preferred play routine is disrupted. These play patterns stand in stark contrast to the rich play experiences of their typically developing peers, and so we see that many children with ASD fail to benefit from the gains associated with play in typical children (Boucher & Wolfberg, 2003).

In addition to the lack of richness in play it may lead to, this difficulty with socialization has implications for the overall social development of children with autism. Theorists such as Piaget (1997), Asch (1952), and Vygotsky (1978) assert that social knowledge and understanding are constructed from social interaction. It is easy to imagine, then, that any deficit in the ability to engage in social interaction would have dire consequences for the overall social development of children with ASD.

For all of these reasons, interventions such as Integrated Play Groups (IPG) and Integrated Drama Groups (IDG) address the question of social competence and social interaction (including initiations, responses to initiations, and play behaviors, captured here by the social dimension of play) directly or indirectly.

Communication. Communication is a broad category which encompasses many different types of skills. It does not refer only to spoken language—gesture, joint attention, and nonverbal cues such as facial expressions, body posture, and so on are all included under the category of communication. Communication includes both the ability to say words and the ability to use those words for social purposes, what is often referred to as *pragmatic language* (Twachtman-Culen, 2008). Many children with autism experience delays in the development of

spoken language, or do not develop it at all. Others develop spoken language, but use it in odd or unusual ways. Their speech may include *echolalia*, the repetition of familiar words and phrases either in or out of context. They may speak continually about one or two favorite topics, ignoring the rules of conversation. Still others, usually those considered to have Asperger's Syndrome or high-functioning autism, develop language normally but display fundamental difficulties with pragmatics (Attwood, 2008).

In autism, communication development is affected from a very early age. For example, a typically developing infant will engage in back-and-forth games with his parents. These games may range from imitating each other's facial expressions to slightly more complicated games such as peek-a-boo or pat-a-cake. These games provide the foundation for *joint attention*, the ability to focus with another person on an object or activity, and for understanding that you share an interest in the object or activity together. They provide rich opportunities for interpersonal connection, shared affect, and communication (Gallagher, 2004). Babies with autism are less likely to engage in these kinds of activities with their parents, and therefore spend less time engaging in joint attention (Mundy, Sigman, & Kasari, 1994). This has many implications for both communication and socialization. Joint attention provides rich opportunities for relatedness and emotional sharing (Hobson, 2005), serves as the root of intersubjectivity (Rogoff, 1990; Tomasello, 2003), sets the stage for the reading of others' intentions, and is intimately related to the development of symbolic communication (Mundy, Sigman, & Kasari, 1994) and later social competence (Mundy & Sigman, 2006).

Since engaging in joint attention often presents significant challenges for the child with autism, when examining a proposed new intervention such as IDG, it is important to examine what effect, if any, the intervention has on this ability.

Imagination. The last of the "triad of impairments" is imagination. Children with ASD do not typically spontaneously engage in pretend play (Baron-Cohen, 1987; Jarrold, 2003; Jarrold, Boucher, & Smith, 1996). As noted above, compared to typically developing children, children with ASD tend to spend an inordinate amount of time engaged in repetitive activities in social isolation. When children with ASD do show capacity for pretend play, their play may lack diversity, flexibility, and creativity (Wolfberg, 2003). They tend to incorporate fewer novel acts in play than peers of a similar developmental level (Jarrold et al., 1996), and also have difficulty planning, organizing, and integrating play schemas. Thus, their play scenarios often appear as rituals which show little variation, rather than the joyful, spontaneous scenarios created by their peers (Harris, 1993; Wolfberg, 2003).

Wolfberg (2003, 2009) developed a measure of play on the *symbolic dimension*. The symbolic dimension concerns itself with a continuum of representational play patterns ranging from pre-symbolic to symbolic. It includes *manipulation-sensory* play, *functional* play (using objects as intended or associating two or more objects), and *symbolic-pretend* play (using one object to represent another, attributing false properties to objects, using imaginary objects, engaging in role play). Children with autism tend to show more manipulation-sensory and functional play and less symbolic-pretend play than do their typically developing peers. One area in which this is particularly apparent is *role-play* (i.e., play in which children take on a role in which they pretend to be someone else). In children with ASD, role-play is often stereotypical and repetitive, and tends not to involve attributing mental states to inanimate objects (Harris, 1993; Sherratt & Peter, 2002). For example, a child with ASD might repetitively enact feeding a baby with a bottle, but would likely not make a statement such as "my dolly is hungry" while

doing so. It stands to reason, then, that an intervention explicitly focused on pretend and dramatic play could provide important benefits to children with ASD for whom this is a particular challenge.

Theoretical Framework for the Integrated Drama Group Intervention

Social development through play. Piaget (1962) was one of the earliest theorists to propose that independent play and exploration on the part of a child is central to overall development. For Piaget, it is through independent play that a child forms the basis for acquiring distinct ways of thinking and behaving. This kind of play is self-initiated, and children are intrinsically motivated to engage in it because they derive satisfaction from the activity itself, as well as from acquiring mastery over objects and events. Adults have a limited capacity to affect learning based on play; they may be able to slightly speed up or slow down children's progress by the learning environment which they create, but ultimately, it is the child himself who must explore and figure things out. Experience leads to fundamental changes in cognitive reasoning, and through it children create schemas by which they gain understanding of the world. Reality is constructed by children through their playful interactions with the environment surrounding them.

Vygotsky goes one step further by situating play firmly in the social world. In his seminal work *Mind in Society* (1978), he described play as a method used by children to try on different social roles in imaginary situations. By experimenting with roles, a child constructs knowledge of how to operate within the social rules and realities that exist implicitly and explicitly in his universe (p. 94). For example, by playing the role of "daddy" in a play drama, a child brings to the forefront of his mind a whole set of actions and behaviors which correspond to being a daddy in his society. This allows him to make sense of a vast amount of information, both spoken and unspoken, that he is confronted with each day. Play is embedded in social context. Even solitary play is social, because the themes and roles the child acts out in play are culturally transmitted.

For Vygotsky, the transmission of cultural information through social interaction and embodied in play is central to the development of mind, and provides vast potential for growth of many different kinds. In other words, social routines are an extremely important part of belonging in culture, perhaps nowhere more so than in childhood. This extends to games and playful activities with peers. While engaging in playful social interaction, a child can perform at a higher level of sophistication than she can on her own. Vygotsky called this phenomenon the *zone of proximal development*, which he defines as:

. . . the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers. (p. 86)

By this, Vygotsky means that one of the keys for social growth and understanding in a child is play-based interaction, and that this growth is maximized when a child engages in play with other children (or adults) who have greater tools for comprehending the world. Furthermore, Vygotsky suggests that the social insight and experience gained through this type of play can in fact lead the way for all development:

In play a child always behaves beyond his average age, above his daily behavior; in play it as though he were a head taller than himself. As in the focus of a magnifying glass, play contains all developmental tendencies in a condensed form and is itself a major source of development. (1978, p. 102)

Consistent with the IPG model, the IDG intervention applies this phenomenon by permeating play with the notion of guided participation, which refers to the process through which children develop while actively participating in a culturally valued activity with the guidance, support and challenge of social partners who vary in skill and status (Rogoff, 1990). The specific focus on Drama, which explicitly involves the taking of roles in a structured environment with the support of a facilitator and peers, provides an additional way for children with autism to experience this zone of proximal development and learn more about the way the world and society operate at the same time.

Piaget (1997) also placed emphasis on the importance of peer interaction for development. He believed that mutual respect among peers was a prerequisite for moral and social development, and placed a premium on children's interactions with their peers, placing more importance on that than on their interactions with their parents for the successful development of moral autonomy. Wolfberg and colleagues (1999) make another strong argument for the importance of peer culture. They tell us that "there is a tension between the group culture created by and with adults and that created solely by children. Much content is borrowed from the adult world, but other aspects directly contradict the values and wishes of grown-ups" (p. 71). Peer culture allows children to form a collective identity in which they are able to see themselves as a group separate from adults. To do this successfully, children must have ample opportunity to interact with their peers in an environment of play and mutual respect.

To help this to occur, one of the most important goals of an IDG is fostering reciprocal relationships with typical peers. Like IPGs, IDGs have an overall goal of enhancing understanding, empathy, and acceptance of children with ASD. Both IPGs and IDGs allow this to take place in a natural environment in which mutual interests can be honored and expanded on and true, meaningful friendships can be created. Games, such as those that take place in a drama group, can provide the necessary context for these experiences.

Ochs (2002) speaks specifically to the social understanding that children need in order to succeed in games with their peers. She notes that peer games are very complicated activities in which many things are going on simultaneously. Children are expected to sort out the most salient details of a game at a given moment, to interpret goal-directed acts and then link those acts to what is expected of particular participants. They need to "*contextualize actions . . . and participants in terms of what just occurred and what is anticipated to occur next*" (p. 103, italics in original). This takes time and experience, even in typically developing children. As Ochs points out, when one has a disability such as autism, where it is difficult to sort out the important stimuli from the unimportant, and where seeing the whole instead of the individual parts which make up that whole can be challenging, the task becomes exponentially harder. This too has important ramifications for social development.

Growing out of these theories, the IDG intervention (like the IPG model before it) makes development of play on the social dimension an explicit goal for children. The social dimension of play measures players' ability to engage with peers in increasingly advanced ways (Wolfberg, 2003, 2009). For example, over the course of an IDG, children might progress from playing in isolation to playing in parallel with others or from play involving a common focus (i.e., engaging

in reciprocal exchanges around the same play activity such as taking turns building with blocks) to play involving common goals (i.e., coordinating to attain a common goal or make a product, such as carrying out a plan to create a theatrical set out of the blocks).

Social development through pretend play. Thus far, I have confined myself to a general discussion of play in the social context. I now focus in on one particular type of play—pretend (or imaginative) play—and the benefits to social and emotional development that it provides.

Pretend or imaginative play refers to play which has a symbolic, representative quality. Leslie (1987) defines pretend play with respect to three fundamental forms of pretense. They are a) object substitution (using one object to represent another, e.g., pretending that a banana is a telephone or a stick is a horse), b) attribution of false properties (e.g., a child pretending that she is asleep when she is actually lying awake on the floor, or pretending that a dry floor is wet), and c) imaginary objects as present (e.g., pretending that an empty cup is full of coffee, or using one's hands to show a pretend diamond to someone). Singer and Singer (1990) describe several studies which show a positive correlation between imaginative play and positive emotions, such as joy and eagerness. They also find that conversely, imaginativeness is negatively correlated with negative emotions (such as anxiety and sadness). One of these studies, carried out by Connolly, Doyle, and Reznick (1988), examined this relationship further by attempting to separate the imaginative component of such play from the social component.

Connolly and colleagues examined the play behaviors of 37 children (16 boys and 21 girls) with an average age of just under 5 years old during free play sessions. Each child participated in an average of seven 40-minute play sessions with three peers from his or her classroom. The experimenters controlled for partner effects by creating a different grouping of children for each session and controlled for familiarity and gender effects by ensuring that every grouping was made up of frequent and infrequent play partners of both genders. Materials were made available to the children which included items designed to inspire both pretend activity (e.g., dress-up materials, toy phones, puppets) and nonpretend activity (e.g., blocks, puzzles, coloring books). Two observers blind to the hypotheses of the study rated the play on enjoyment, group size, and interconnectedness. At the same time, they categorized play behaviors as being either pretend or non-pretend. Duration of play as well as the child's active interest (operationalized by his or her attempts to influence the play and his or her responses to others' influence attempts) were also measured. The researchers observed more positive and less negative affect during social pretend play than during nonpretend social activities. They also found that in social pretend play children attempted to influence the ongoing social interaction, and complied more with other children's directives than they did during nonpretend play.

These results suggest that more than just the social component of play, the imaginative component may have the greatest effect on social and emotional development. However, as Lorimier, Doyle, and Tessier (1995) point out, this study compared pretend play to all non-pretend activities, not just playful ones. That is to say, Connolly et al. (1988) looked at children's interactions when they were engaged in pretense versus when they were engaged in anything *not* considered pretense, whether these non-pretend activities were playful (e.g., building with blocks or pushing a toy car) or not (e.g., doing a puzzle or writing on a chalkboard). To make a more direct comparison of pretend and non-pretend play interaction, and to examine whether or not social pretend play provides a specific context for young children

to practice social-emotional skills, Lorimier et al. carried out a study with 24 4- and 6-year-old girls.

Each girl was videotaped with a familiar peer across two 30-minute play sessions (play partners remained constant across both sessions), and the tapes were viewed and coded by five observers, all but one of whom was blind to the hypotheses of the study. On a first pass, the observers watched for whether pretend or non-pretend play occurred, and whether or not the activities were shared by the play partners. On the second pass, they rated the play on various indices designed to rate the quality of interactions on complexity, social coordination demonstrated, and social conflict noted (See Lorimier et al., 1995, for a complete definition of social coordination and discussion of specific rating scales).

In analyzing their data, Lorimier et al. (1995) found that the proportion of high-level social coordination was indeed greater in pretend than in non-pretend play. They also found that a higher proportion of social play involving shared focus and a higher average level of emotional investment in play were present in pretend than in non-pretend play. Finally, they found a positive correlation between achievement of high social coordination with peers and expression of underlying emotional issues, such as joy or frustration. These findings led them to conclude that social pretense was in fact a vehicle for practice and consolidation of socially mature behavior, a conclusion which seems to substantiate the claims of both Vygotsky and Connolly mentioned above. Lorimier and colleagues noted:

The girls displayed a higher degree of concentration and enthusiasm, more highly coordinated influence attempts, and more sharing of play goals while engaged in episodes of pretend play than during episodes of nonpretend social play. In addition, high coordination of play occurred sooner in the context of social pretend than nonpretend play, suggesting that pretend play more readily evokes high levels of social responsiveness and skill. (p. 510)

Mode of play (pretend or non-pretend) did not affect the frequency of conflicts between play partners, but in their study, Lorimier et al. noted that on average, conflicts lasted a few seconds longer when the play involved pretense. They are quick to point out that even this finding is a positive one: “far from being considered symptoms of maladaptive interaction, social conflicts and attempts to manage them are thought to constitute important vehicles of social learning and perspective-taking processes among peers” (p. 510).

One final aspect of play which relates to social development is that of its connections to acceptance by peers. Singer and Singer (1990) report on a study by Ladd, Price, and Hart (1988; also see Ladd & Coleman, 1993; Ladd, Price, & Hart, 1990), which looked at how children’s behavior in school contributes to their status in the eyes of their peers. They found that “children who played cooperatively with peers at the outset of the school year tended to do so at later points in time, and this disposition was associated with long-term gains in peer acceptance” (p. 70). This notion, combined with Singer and Singer’s own findings that imaginative play is correlated with cooperation with peers, led them to conclude that “imaginative play . . . can lead to greater popularity and acceptance by other children” (p. 71).

All of this theory and research presents many compelling reasons to consider pretend play a fundamental part of a young child’s social development. Accordingly, the IDG intervention (like the IPG model that it is based upon) makes development of play on the symbolic dimension a primary goal for the children. An IDG is designed to help children learn

to create play scenarios in increasingly advanced ways. For example, over the course of an IDG, a child might progress from not being engaged at all to being engaged in manipulation-sensory play (i.e., exploring and manipulating objects or toys, but not in conventional ways, such as shaking items or twirling a scarf repetitively). After that, a child might progress to functional play (i.e., using objects and toys in the ways in which they are intended, such as pushing a car back and forth with a peer) and to symbolic-pretend play (e.g., pretending that a banana is a telephone or playing Spider-Man or Harry Potter in a dramatic scene).

In addition to social development, pretend play contributes a great deal to the cognitive development of young children, and it is to that aspect of pretend play that I turn now.

Cognitive development through pretend play. The relationship between pretend play and cognitive development is one of the most-well-researched areas in the play literature. I will not attempt to recapitulate all of the work that has been done in this area here, but will instead point out a few of the theories and studies which, though here applied to typical children, are most germane to thinking about pretend play in regards to children with ASD.

Since pretense, receptive and expressive language, and mental representation all begin to develop at approximately the same age (generally, between the ages of 1 and 2), researchers have long hypothesized a conceptual link between them (Bergen, 2002). In order to pretend, a child must be able to use language to transform objects and actions symbolically. Cognitive abilities and strategies such as joint attention, negotiation with peers and caregivers, role-taking, and goal seeking also play an important part. There is still some question in the field about whether the development of all of these concepts simultaneously points to a reciprocal or a causal relationship between pretense and cognitive development, but it is clear that pretend play (in which children with ASD do not typically engage) is an integral part of a child's overall cognitive and intellectual development.

Representational thought. One of the first areas of cognitive development that comes to mind when thinking about pretense is the concept of *representational thought*. When one observes a child pretending to drink out of an empty cup, one is seeing the child's use of representation. The child understands that the cup he is holding is in fact empty, but he is using an empty cup to represent a full one, based on a mental picture he holds in his head of what it means for a cup to be full. This process of detaching the physical reality of the object in front of him (i.e., empty) from his mental picture of what it *could be* (i.e., full) is what Leslie (1987) referred to as *decoupling*. Through the decoupling mechanism, children are able to route "as if" actions into a mental "pretend" category, and reality-based actions into a reality category, and can therefore "maintain both the symbolic and real state of affairs in mind at once" (Taylor & Carlson, 1997, p. 437). As the child grows, she is able to represent more and more complex ideas in pretense. She can pretend that a wood block is food, or that a stick is a horse to ride. She can begin to think about and share meanings without being limited by the physical realities of objects or of situations. These early abilities later develop into concepts of association, logical memories, and abstract thought (Vygotsky, 1978; Wolfberg, 2009). Taken one step further, this initial ability to represent objects and situations leads, over time, to the ability to represent other people's mental states, to what researchers in the field term *theory of mind*.

Theory of mind. Premack and Woodruff (1978) defined theory of mind as the ability to attribute internal mental states to oneself and others. According to them, this idea is at the root of a great deal of adaptive social behavior. It encompasses the ability to make inferences about

what people believe, what people intend, what people are feeling, and what people may decide to do at a given moment (Baron-Cohen et al., 1985; Frith & Happé, 1999; Wellman, 1993).⁴

One of the standard tests of theory of mind is the *false-belief* task. The classic example of this type of task is the Sally-and-Anne test (Wimmer & Perner, 1983). In this test, a child is shown two dolls, named Sally and Anne. As the child watches, Sally places a marble (or a piece of candy, or some other desirable object) into a box. Sally leaves, and Anne moves the item into a different box. When Sally returns, the child is asked where she will look for her marble. The correct response, given by children who have developed a theory of mind, is that Sally will look in the location where she originally put the marble. By responding in this way, the child shows that he understands that what Sally believes to be true is different than what he (and Anne) know to be true, namely, that the marble has been moved. Around 3-4 years of age, typical children begin to pass this task. However, children with ASD of the same age or at a similar developmental level typically do not. In the initial testing of false-belief with children with ASD (Baron-Cohen et al., 1985), 23 out of 27 typically developing children and 12 out of 14 children with Down syndrome passed the task. Only 4 out of 20 children with autism (whose IQ scores were comparable to the children with Down's) did. The difference between groups was highly significant. These results have been replicated by many different researchers with many different methods (See Baron-Cohen, Tager-Flusberg, & Cohen, 1993 for a review). Taken together, these results suggest that many children with ASD either completely fail to develop a theory of mind or experience severe delays in doing so. As a result, they may have difficulties taking the perspective of others, and may fail theory of mind tasks (Baron-Cohen et al., 1985; Baron-Cohen et al., 1993; Frith & Happé 1999; Leslie, 1987).

This finding is even more interesting considering the strong link between play and the development of theory of mind. Some of the earliest manifestations of the ability to represent other people's minds occur in play. Lillard (1993) points out that as part of pretense, typically developing children often take on other people's perspectives and viewpoints of the world (Children with ASD usually do not). She reports on a study by Wolf and his colleagues (1984) which demonstrated that in play, children show their ability to represent other people's mental states earlier than one would expect them to succeed on false-belief tasks. In the study, children as young as 2 years old attributed individual agency to dolls (e.g., the doll could push a stroller or drive a car). This was the first step in a three-step process. Six months later, the children began to attribute perceptual, sensory, and emotive experiences to them. Shortly thereafter, slightly before 3 ½ years of age, the children were able to attribute cognitive experiences to their dolls. The subjects who could do this in Wolf's study had an average age of 3 years, 4 months, which is 6 to 8 months earlier than children typically pass tests of false-belief and perspective-taking such as the one mentioned above. These results suggest that typically developing children use pretend play (and by extension, dramatic play) as a kind of laboratory where they can begin to explore the idea of other people's minds and behavior.

Leslie (1987) makes the relationship between pretend play and the development of a theory of mind even more explicit. He maintains that a child, upon watching someone pretend that a banana is a telephone, must necessarily realize that the other person is pretending, or else

⁴ It should be noted that there is a debate in the field today about whether or not theory of mind is a satisfying construct for explaining social competence (or lack thereof), especially where autism is concerned. Many researchers (e.g., Gallagher, 2004; Hobson, 1993) contend that it is not. A discussion of the debate is beyond the scope of this dissertation, however.

her own system of representation would be greatly disturbed, and she might believe that one could actually use a banana to communicate across long distances. When the child begins to pretend herself, this understanding of the way other people's minds function becomes even clearer to her:

Understanding pretense in others is simply part and parcel of being able to pretend oneself. . . . The emergence of pretense is not seen as a development in the understanding of objects and events as such, but rather as the beginnings of a capacity to understand cognition itself. It is an early symptom of the human mind's ability to characterize and manipulate its own attitudes to information. Pretending oneself is thus a special case of the ability to understand pretense in others (someone else's attitude to information). In short, pretense is an early manifestation of what has been called *theory of mind*. (p. 416)

Having examined pretend play and its contributions to social-emotional and cognitive development I turn now to a more specific type of pretend play, known as *dramatic* or *sociodramatic* play. Since pretense is such an important component of understanding the nature of human behavior, dramatic play (which explicitly concerns itself with the exploration of roles) seems an especially powerful tool for increasing social understanding and competence.

Defining dramatic and sociodramatic play. According to Smilansky (1990), dramatic play differs from pretend play, which, especially in very early childhood, often consists only of using one object to represent another (e.g., pretending a stick is a baseball bat) or of feigning behaviors (e.g., pretending to sleep when one is awake or pretending to swim when one is really lying on the carpet). Dramatic play goes beyond basic pretense and into the realm of role-playing. As Smilansky (1990) defines it,

Dramatic play consists of children taking on a role in which they pretend to be someone else. They imitate the person's actions and speech patterns, using real or imagined 'props' and drawing on their own firsthand or secondhand experience of the imitated individual in various familiar situations. (p. 19)

She then goes on to describe a specific type of dramatic play which she calls *sociodramatic play*. As opposed to a child acting out being the mommy with a baby doll (which would still be imaginative, or dramatic), play becomes sociodramatic "when such activity involves the *cooperation* of at least two children and the play proceeds on the basis of interaction between the players acting out their roles, both verbally and in terms of acts performed" (p. 19). To continue with the example from above, the mommy/baby play would become sociodramatic when the child conscripts a peer to play the part of the baby or another parent.

Elements of imagination and make-believe often enter into dramatic and sociodramatic play (Smilansky, 1990). One of the ways in which we see this is through imitation. For example, a child engaging in a sociodramatic car trip with a peer may move his hands to simulate moving a steering wheel and make noises to represent the sounds of the car (e.g., the engine or the squealing of brakes at a red light). He may also speak in character to inhabit the play more fully (e.g., "If you and your sister don't stop fighting, I will stop this car!")

Social and emotional development through dramatic and sociodramatic play.

Smilansky (1990) reports on a great many studies looking at the ways in which dramatic play contributes to social-emotional development in typically developing children. The collective results show a high correlation between sociodramatic play and measures of positive affect, concentration, interaction with others, cooperation with and acceptance by peers, language use, frequency of friendly interactions, and actions taken independently of teachers. All of these are areas in which children with ASD often face challenges (Sherratt & Peter, 2002; Wolfberg, 2009). Conversely, the results show negative correlations between sociodramatic activity and negative emotions such as anxiety, fear, sadness, and signs of fatigue. Other studies Smilansky lists (e.g., Burns & Brainerd, 1978; Saltz, Dixon, & Johnson, 1977) suggest that broader social skills such as empathy and perspective-taking could be worked on through the lens of dramatic play.

Wright (2006) carried out a study investigating a link between drama education and broader concepts of social-emotional development such as role-taking ability and self-concept in older children. His subjects were 140 children (72 boys and 68 girls) whose ages ranged from 10-13 years old. The sample was taken from five different schools in Australia, two from urban areas and three from rural areas. The experiment had three phases: Pre-testing, an in-school role-play based intervention, and post-testing.

In the pre-test phase, the children were given tests designed to measure self-concept and role-taking ability (See Wright, 2006 for a complete description of measures). In the intervention phase, the five different classes were exposed to varying amounts of an in-school, role-play-based drama program. The amounts ranged from no exposure to the intervention to 15 sessions of the intervention. A session consisted of warm-up activities (drama games and exercises designed to facilitate group activity), a whole-group improvisation developed from student-initiated ideas, and a cool-down period of reflection. In the final phase of the study, the subjects were given the measures again, and differences in pre- and post-test means for each class on each test were calculated.

The intervention had a significant effect on role-taking, and the effect on self-concept approached significance as well. A comparison of the pre-test/post-test means of the different classes showed improvement in role-taking ability for those classes which had exposure to the intervention. The largest, most significant difference was between Class 1 (No exposure) and Class 5 (15 exposures). Because of the design of the study, drawing between-groups conclusions based on post-test data was not appropriate. There were pre-test differences between the classes on the measures, and since each class was in a different experimental group, to do so would involve confounding variables. This is a weakness of the study, but Wright's results still suggest that drama education can lead to an increase in role-taking ability and self-concept. Role-taking is an important social construct, which several researchers (e.g., Bengtsson & Johnson, 1992, cited in Wright; Roberts & Strayer, 1996) have shown to be related to perspective-taking and empathy in children (Two skills often thought to be lacking in children with ASD).

Cognitive development through dramatic play.

Theory of mind. In 1997, Taylor and Carlson carried out a study with 152 3- and 4-year-old children which examined the connection between dramatic play and performance on theory of mind tasks. To determine the extent of subjects' engagement in pretense and fantasy, the children and their parents were interviewed extensively about the children's play behavior and fantasy, and observations of the level of fantasy play the children engaged in were made (See

Taylor & Carlson, 1997, for a complete description of measures and methods). Most germane to this dissertation are those subjects who had imaginary companions, either impersonated or simply imagined. For purposes of the study, *impersonation* referred to a child pretending to be a person or animal on a regular basis (moving this play into the realm of role-play), rather than simply describing them as an imaginary entity that served the function of a friend.

The children who had imaginary companions or engaged in impersonation behavior were grouped together into a High Fantasy Group, and those who did not were grouped together into a Low Fantasy group. The experimenters then compared the performances of the two groups on the theory of mind tasks. Though there was no significant difference between High and Low Fantasy 3-year-olds (which the experimenters attributed to a floor effect on theory of mind at 3 years old), they found that the 4-year-olds in the High Fantasy group scored significantly higher on the tasks than the 4-year-olds in the Low Fantasy group. Their data suggest that dramatic play, in the form of the creation and impersonation of imaginary characters, has a significant effect on developing a theory of mind, which as already shown, children with ASD often fail to do. Three years later, Taylor and Carlson retested 100 of these children to assess how role play at 3 and 4 years of age was related to later emotional perspective-taking (Taylor, Carlson, Maring, Gerow, & Charley, 2004). When they ran their analysis on the subset of children who had been 4 years old at Time 1 (and thus, not susceptible to the floor effect previously mentioned) they found a significant relation between performance on theory of mind tasks and later emotional perspective-taking. This relation remained significant after controlling for Time 1 verbal ability. Though they did not find a direct relationship between early fantasy and later emotional understanding, their findings suggest that role play at a young age is indirectly associated with later emotional perspective-taking, through the competence in theory of mind that it seems to foster, which in turn fosters later emotional understanding. Based on this result, it seems that an intervention focused on role play could be an excellent approach for children with autism with challenges in this area.

The Potential Benefits of Drama Curricula for Children with ASD

As noted, there is a great deal of evidence for the effects dramatic play can have on typically developing children. There is much less research on the use of drama as an intervention for children with ASD. This is somewhat surprising. Since the skills that dramatic play imparts to typical children map directly onto those areas in which children with ASD are most challenged, drama intervention seems like a logical fit for them, as well.

With its reliance on narrative, action, and character, drama can provide a structured way for children with ASD to take on and try out new social roles, or to explore the world from another person's point of view, something which they typically have difficulty doing. As Peter (2003) attests,

Drama can be instrumental in developing their understanding of representations and how to use them with others to create shared meanings. . . . Additionally, it provides a “learning how to do it while doing it” approach to participating more meaningfully in a social world and leading towards greater social awareness and understanding. (p. 21)

Furthermore, a dramatic scene or improvisation can be a means for exploring and solving challenging social situations. According to Boal (1979), when we watch theatre, we feel a

kinship with the characters on stage, living vicariously through them. This leads to feelings of empathy with the characters: “Without acting, we feel that we are acting. We love and hate when the character loves and hates. . . . Empathy makes us feel as if we ourselves are experiencing what is actually happening to others” (pp. 34-35). This tendency for spectators to empathize with characters, for Boal, can be used as a means of control by the people in power. If this is true, theatre should also be a powerful tool for perpetuating the rules and mores of our society—for helping children with autism to understand on a deeper level the “right” way to behave in a given social situation (Schick, 2008).

Several authors have written practical handbooks for using dramatic improvisation in education (Johnstone, 1979; Spolin, 1999). Others have gone one step further, and specifically addressed its use for improving social understanding and competence in children with autism (Davies, 2004; Hall & Isaacs, 2011; Nelson, 2010; Neufeld & Wolfberg, 2010; Schneider, 2007). On a broader level, Boal (1979) describes several exercises for using theatre to explore social behavior. In *simultaneous dramaturgy*, actors improvise a scene which will ultimately lead to a conflict. At the point of the conflict, the actors stop and ask the audience to offer solutions for the conflict. The actors immediately improvise the suggested solution, and the audience has the right to intervene and correct actions or words of the actors. The actors are obliged to follow the directions given them by the audience. Thus, the audience and actors are co-constructing possible solutions to the problem. Any number of solutions may be tried, and discussion is held about which solutions worked the best, for whom, and why. Although Boal’s topics are decidedly political (e.g., a factory owner oppresses his workers horribly and they need to figure out how best to resist), his strategies are very easily adapted for situations that regularly occur in a child’s life (e.g., asking a friend to play, being bullied, feeling left out of a group). As the exercises continue, spectators become more involved with the action on stage, ultimately being given the power to replace actors after a failed solution in order to try a new one. Trying out and discussing solutions to problems in a safe, make-believe situation may help children to solve the same problems when they come up in reality. This may lead, over time, to greater social competence and understanding.

Sherratt and Peter (2002) identify four specific goals that drama can help children with ASD achieve. These goals relate directly to the skills we have been exploring, and should be incorporated into any drama-based intervention for children with autism. They are (a) Developing social skills: Awareness and/or tolerance of others (e.g., being part of a group), empathy and awareness of feelings and perspectives of others (e.g., playing doctor for a friend who is pretending to be sick), and sharing (e.g., common play materials); (b) Gaining, maintaining, and directing the attention of others: Initiating social interactions (e.g., playing a store employee and asking what you can help a customer with, saying “hello” to a friend at school, or asking to join in a scene); (c) Adopting and accepting different roles for different settings (e.g., appropriate social behavior in a restaurant scene or a classroom scene); and (d) Recognizing a common purpose (e.g., working together to create a dramatic scene). The potential for drama as an intervention to increase social competency in children with autism is vast, but there are very few studies in the literature which explicitly investigate its use. Furthermore, they are largely behavioral in nature. For example, Goldstein and Cisar (1992) carried out a study in which they trained children with autism on three sociodramatic scripts. They performed a multiple-baseline study where they trained nine children (In three groups of 3 children each, 1 child with ASD and 2 typical children in each triad) on each of three different sociodramatic scripts: Pet Shop, Carnival, and Magic Show. Each script contained 3 roles, and

each role contained 10 target behaviors (e.g., getting a customer's attention, asking for money, etc.). During free play sessions following the training of each script, frequency of targeted behaviors, as well as overall social behavior, increased for all the target children.

Two of the three children with ASD displayed theme-related social behavior equal to or greater than that of their typically developing peers immediately following the training. This suggests that dramatic intervention for children with ASD can be successful. However, one potential risk of using this kind of behavioral approach, where the experimenters methodically and mechanically taught the scripts to the children to essentially be memorized by rote, is that the scripts could become repetitive or stereotypic play routines. Another drawback is that the children might not generalize their new skills to novel situations. Indeed, in this study, once the scripts were learned, little novel behavior was observed. The investigators acknowledged the importance of avoiding stereotypic routines and boredom in children with this kind of approach. Given the extent to which children with ASD embrace routine and repetitiveness, this seems doubly important.

Other researchers (Corbett et al., 2010; Palmen, Didden, & Arts, 2008) have also taken behavioral approaches to drama intervention. Using techniques such as scripting and explicit peer modeling, these studies have aimed to improve the performance of children with autism on tasks such as asking questions and creating a believable dramatic performance. Like Goldstein and Cisar (1992), however, their results did not generalize to other settings, and little novel behavior was observed within the intervention.

Thorp, Stahmer, and Schreibman (1995) carried out a study addressing the effect of sociodramatic play on the social behavior of children with ASD. By incorporating Pivotal Response Training (PRT; a child-focused approach which relies less on scripted behavior), into their dramatic play training, they achieved encouraging results. PRT "focuses on increasing motivation to learn . . . by allowing . . . choices, reinforcing attempts at correct responding, using adequate modeling and providing natural consequences (Koegel, O'Dell, & Koegel, 1987)" (p. 268). Using a single-subject multiple-baseline design for each of 3 children, they found that after the training, all 3 children increased their role-playing substantially, and generalized it across settings and play partners. Positive changes were also noted in social skills, play skills, and language. These improvements generalized across toys and settings, but not to other play partners. The researchers noted that each child demonstrated novel behavior within the themes, which stands in sharp contrast to the results obtained by Goldstein and Cisar (1992).

More recently, Murdock and Hobbs (2011) used a combination of scripting and improvisational role play with children with autism to work on their ability to voice characters in a play drama. They divided children into an intervention group and a comparison group (who did not receive the intervention). By the end of the intervention, which involved scripted practice enacting a story as well as structured improvisation around the story theme, both groups increased their role-play-related utterances substantially, which suggests that the ability may develop to some extent over time. However, the intervention group's increase was significantly higher than that of the comparison group. Furthermore, these gains generalized to a novel story, demonstrating that with guided practice including improvisation, children with autism can show improvement in role-playing ability.

One final study (which was child-centered, imagination-based, and *not* behavioral) used dramatic role-play as a means of helping a child with Asperger's Syndrome to cope with his fear of hand dryers (Karnezi & Tierney, 2009), a fear which kept him from being able to go out in public with family and friends. The child took on the role of a brave "hero" who was given a

quest. In order to save some children who had been stolen by a giant dragon (a hand dryer), he had to follow a series of clues and perform a series of tasks which included a conversation with “the dragon’s son” (a hand-held hair dryer). Once he had successfully dealt with the dragon’s son, he was given an opportunity to approach the “king dragon,” touch the dragon’s cheek (the button to activate the dryer), and ask for the release of the children. Throughout the course of the quest, the king dragon was revealed to be a generally friendly creature who had stolen the children because he was lonely and wanted friends. The child was successful in the quest, and moreover, the child’s improvements generalized to new physical settings and types of hand dryers.

The Present Study: Integrated Drama Groups

The results of these last few studies (though limited in scope), suggest that child-centered, non-behavioral, drama-based interventions may be a powerful way to improve the social experiences of children with ASDs. Based on these encouraging results, I carried out a study of a new drama-based intervention called Integrated Drama Groups (IDG). This intervention is anchored in the Integrated Play Groups (IPG) model, a research-based intervention developed by Wolfberg (2003, 2009).

The IPG model puts together children with ASD (called “novice players”) and typically-developing peers (called “expert players”) in a playgroup with a trained adult facilitator. This facilitator gives varying degrees of support to the group of children in order to encourage social interaction and facilitate play which incorporates the skills and interests of the children themselves. Rather than teaching discrete play skills where children learn to play in a scripted way (e.g., children play “Doctor” by following a set order of steps and speaking a set sequence of dialogue), IPGs seek to engage children with autism in natural play with peers. The IPG model also differs from other models in that it actively encourages both the novice and expert players in the group to engage one another socially in mutually enjoyed activities. The facilitator takes a smaller role over time, so that ideally, the groups almost run themselves; the facilitator is there mostly to provide overall organization and to provide supervision and step in to help when needed.

The body of research on IPGs (see Neufeld & Wolfberg, 2010 for a summary) has yielded positive results. Taken together, the studies found that over the course of their IPG programs, novice players demonstrated decreases in stereotyped, isolated play and increases in eye contact, watching, and imitating of peers. They displayed greater levels of social initiation and responsiveness, increases in symbolic play levels and communication, and greater diversity of spontaneous play interests. Their ability to engage in socially coordinated play (i.e., parallel and common goal play) increased as well. Furthermore, these skills were maintained when adult support was withdrawn, and preliminary evidence (based on observational and social validation data) was obtained that demonstrates that the new skills generalized beyond the IPG itself to school, home, and community settings.

I have developed an adaptation of the IPG model which I call Integrated Drama Groups (IDGs; see Neufeld & Wolfberg, 2010). IDGs take the principles of the IPG model and apply them to a group which focuses on drama games and improvisation. Consistent with the IPG model, an IDG utilizes groups which include both novice players and expert players with the idea that the children teach and learn from each other. As Ochs (2002) puts it, social activities

provide a “medium for less and more competent persons to perceive, collaborate with, and potentially be transformed by one another” (p. 109).

Furthermore, although an IDG is guided by an adult facilitator, the ideas for improvisations and the games that are played as part of the group come from the children themselves. They come from the unique interests and abilities of both the novice and expert players. For example, in an improvisation scene, the germ of the idea (a story, a movie, a real-life challenge) comes from the children. The facilitator may then give the children a basic idea of the flow of the scene, but will allow the children themselves to determine what they say and how they go about seeing the story through.

Chapter 3 Methods

A mixed-methods design incorporating both quantitative and qualitative data collection, as well as measures of intervention fidelity, generalization, and social validity was used to determine whether the Integrated Drama Groups (IDG) intervention was effective in enhancing the social and symbolic play skills of three children with autism. In addition to the primary data which was collected through a multiple-baseline study across subjects and a qualitative examination of field notes taken during IDG, the child version of the Reading the Mind in the Eyes test (Baron-Cohen et al., 2001) was administered before and after the intervention to determine whether participants showed improvement in reading external emotional cues as a result of their involvement in the IDG. Finally, caregiver interviews were carried out to determine generalization and social validity of the intervention.

Research Questions and Hypotheses

For the present investigation, the following research questions were asked:

1. Does participation in an IDG lead to an increase in the amount and complexity of spontaneous socially-oriented play in children with ASD?
2. Does participation in an IDG lead to an increase in the amount and complexity of spontaneous symbolic play in children with ASD?
3. Does participation in an IDG lead to changes in the rate of initiations made both by children with ASD towards their typically developing peers and by those peers towards the children with ASD?
4. Does participation in an IDG lead to changes in the way that children with ASD and their typically developing peers respond to each other's initiations?
5. Does participation in an IDG lead to an increase in the amount of joint engagement between children with ASD and typically developing peers?
6. Does participation in an IDG lead to an increase in the ability to understand the emotions displayed by others, as measured by pre- and post-test scores on Baron-Cohen et al.'s (2001) "Reading the Mind in the Eyes" test (Child Version)?

I hypothesized that once they began participating in facilitated drama in the manner described here, children with ASD would engage in more socially-oriented play with peers (i.e., less isolate play, less orientation-onlooker play, and more parallel, common focus, and common goal play) and more spontaneous symbolic play (i.e., less time spent not engaged, less object manipulation-sensory play, less functional play, and more pretend and role play) during unsupported play (UP). Furthermore, I hypothesized that during UP children with ASD and their typical peers would initiate more joint engagement with each other, display a higher rate of response to each other's bids for engagement and a lower rate of refusal of each other's

initiations, and would ultimately demonstrate more joint engagement with each other. Finally, I hypothesized that the novice players who participated in the IDGs would have gained skill in reading the emotional cues of others, and would therefore show greater improvement on the “Reading the Mind in the Eyes” test from pre- to post-test than their age- and language-matched peers who were designated as controls.

Participants

Children with autism. The primary participants for the study were three boys between the ages of 7 and 9 who had diagnoses of Autistic Spectrum Disorder and demonstrated language levels at or close to age level. This population was chosen because the activities of an IDG require a certain level of language ability. As Thorp et al. attest (1995), “Because sociodramatic play does not appear in typical children before 3 or 4 years of age, we cannot expect children with autism to learn this skill until they have similar language abilities” (p. 268). Language and play develop together, and IDGs presuppose the ability to use words symbolically to transform objects and places. The intervention being studied involved a considerable amount of language, and the subjects needed to be able to understand and act upon directions from the facilitator and the typically-developing peers in the group. Each of the target children (“novice players”) participated in a different IDG.

Typically developing peers. In addition to the novice players, each drama group also included three typically-developing children (“expert players”), who participated in the program, served as models for the novices, and (under the guidance of the facilitator) encouraged the novices to participate more fully. These children were similar to the novices in terms of chronological age and language ability. When the study began, each group contained one male and two female expert players, for a total of two boys and two girls in each.

Finally, three additional male novice players were recruited to serve as a control group for the pre- and posttest portion of the study. Children designated as controls did not participate in an IDG, but took part in the Reading the Mind in the Eyes pre- and post-tests. They were matched to the novice players who participated in an IDG based on chronological age and language ability

Inclusion criteria. Gender was used as a selection criterion for this study. Autism spectrum disorders affect five times as many boys as girls (CDC, 2012), so all novice players in the study were male. In order to be included as novice players, at the time of the study male participants had to be between the ages of 6 and 10 years, and have a diagnosis of Autism Spectrum Disorder from a licensed professional (i.e., a developmental psychologist, developmental/behavioral pediatrician, or school psychologist) and as established through the Autism Diagnostic Observation Schedule (ADOS; Lord et al., 1989). Language level must have been measured as age-level or close to age-level (i.e., within one standard deviation). To be included as an expert player, children needed to be typically developing and between the ages of 6 and 10 years. Race and ethnicity were not used as criteria. However, participants came from a variety of backgrounds (e.g., Caucasian, African-American, Asian-American) which were somewhat representative of the community at large.

Due to safety concerns, potential participants with a documented history of violence or aggression were excluded from the study. Potential participants who were enrolled in another

social-skills group concurrently with the Integrated Drama Group were also excluded from the study, as participation in a concurrent therapeutic group which had similar goals to IDGs would have represented a confounding variable, and therefore a challenge to meaningful data analysis. Informed consent was obtained for all participants (novices, experts, and control group) through UC Berkeley's Institutional Review Board (IRB), the Committee for Protection of Human Subjects. In all cases, parents gave their permission and children gave their assent.

Recruitment. All novice players were recruited from a pool of children who had participated in an initial 12-week Integrated Play Group and had demonstrated interest in and affinity for continuing with a drama-based program. Those novice players serving as part of the control group for this study were offered the opportunity to participate in an IDG at a later date. Expert players were recruited from a pool of children who attended the after-school program at Griffin Elementary School⁵. Like the novices, they had participated in at least one Integrated Play Group and had demonstrated interest in or affinity for a drama-focused group. Following the IRB approved protocol, potential participants' parents were approached via personal e-mail, phone call, or face-to-face request from the researcher or project coordinator. At no time were e-mail addresses or telephone numbers shared with other participants. In all cases, participants were told that their participation was voluntary, and that refusal to participate would not affect their status as students of the school district or participants in the after-school program. As the notes of interest from parents started to arrive, the research team assembled the groups. Although this was primarily a convenience sample, efforts were made to include children in groups together who were of similar age, temperament, and level of interest in pretend and role play. Intakes were done by the research coordinator, and both the student investigator and his faculty advisor had input on which kids were placed into groups together. See Table 1 for a list of all participants involved in the IDGs.⁶

Setting

The IDGs took place in the after-school program at Griffin Elementary School, a public school in a major city on the West Coast of the United States. The school justifiably prides itself on its inclusion program, and had previously served as a research site for Integrated Play Groups. For this study, novice players were recruited from outside of Griffin, but expert players were all participants in the after-school program.

There were two rooms that were used during this study: A main room for the drama portion, and a smaller playroom nearby for the unsupported play portion. Originally, the drama portion was held in a large, empty room removed from other classrooms. The facilitator used blue tape to outline a stage area, an audience area, and Xs for participants to sit upon during Opening and Closing Circle. Costumes and props were lined up along two sides of the room, and a video camera on a tripod sat in a location which could capture both the audience and stage areas. In many ways, this room was ideal. It was by itself at the end of a hallway, so the group was relatively isolated. Outside noise and distractions were minimal. The walls were blank and the room was devoid of furniture apart from a few tables and chairs which were kept along the

⁵ A pseudonym is used throughout in place of school's actual name.

⁶ In all cases, pseudonyms are used in place of participants' actual names.

Table 1
List of IDG Participants and Ages by Group

Group	Child	Gender	Age (years, months)	Race/Ethnicity
1	Brandon (Novice)	M	7, 5	Filipino and Caucasian
	Ryan (Expert)	M	7	Caucasian
	Naomi (Expert)	F	6, 6	Caucasian (Israeli parents)
	Rosie (Expert)	F	6, 11	Caucasian
2	Matteo (Novice)	M	7, 7	Caucasian (Italian ancestry)
	Emma (Expert)	F	9	Caucasian
	Samara (Expert)	F	8	African-American
	Andrew/Andy (Expert)	M	7	Caucasian
3	Zander (Novice)	M	8,1	Caucasian
	Amy (Expert)	F	8	Caucasian
	Idris (Expert)*	M	9	African-American
	Savannah (Expert)*	F	8	African-American
	Gemma (Expert)**	F	9,7	Caucasian

* Left group before term ended

** Arrived in group late in term

sides. This created a low-stimulation environment which may have helped the children with autism focus and remain sensorially organized. The only challenge in that room was filming—it was such a large room that the camera operator had to move the camera a great deal to capture everything which went on in the drama portion of the group. There was ample space for costumes and props. The costumes were kept in two places--a zipped container for full costumes such as wizard outfits, knight's armor, and dresses, and a small box for pieces of costumes such as wings and capes. Props were divided into boxes based on their function—hand props (things to be held in the hands such as tools and balls), hats, face props (things to be placed on the face such as glasses and masks), pretend food, blankets and scarves, and so on. A few large props which could not fit in boxes (e.g., a walking cane and a witch's broom) were placed on tables next to the boxes. The setup was clean and efficient.

Due to a school conflict, after three weeks of holding IDGs in the large room the groups were moved. Unfortunately, the only room available was the school library. The library was quite a different setting from the original room—there were tables and chairs and brightly-colored posters on the walls. There were books everywhere, displayed on shelves and on tables. The groups were limited to one corner of the room which contained a rug and a large table in front of shelves. The actors were constantly climbing up on the table. Despite repeated attempts by the facilitator to have the school move the table, it stayed there for the duration of the groups. In addition to the visual stimuli in evidence, students and parents who were not involved in the IDGs had a tendency to come in and out of the library during sessions, to take or return a book. Signs were placed on the doors stating “Integrated Drama Groups in progress—Please Do Not Enter,” but nevertheless people entered. This created a number of distractions, and may have contributed to behavior challenges exhibited by children during IDG sessions.

There was less space to display props and costumes, so the facilitator condensed the props and costumes into fewer boxes and displayed them on tables adjacent to the drama space. This was necessary, but made it more difficult for actors to know which props were supposed to

go where. This led to greater chaos when the actors were engaged in cleaning up before transitioning to Closing Circle and unsupported play. There was not enough room to outline a stage and an audience area, so the facilitator decided to use the large rug in the space as the stage. This was adequate, but not as clear as the delineated areas in the first space had been. Overall, this setting was far less ideal than the original setting. The one benefit was that it was much easier to film in that space—since the actors were limited to one relatively small area of the library, the camera could be turned on and left on the tripod for the duration of a session, and did not have to be moved to cover all the ground the actors were using.

Both before and after the move, an existing playroom which was centrally located within the main school building (and directly next door to the library) was used for the unsupported play portion of each session. The room was approximately 12 X 18 feet and conformed to the IPG model specifications (Wolfberg, 2003, 2009). The play space included a basic set of furniture (table, chairs, shelves, wooden play kitchen set) and a range of play materials that varied in degree of structure and complexity to accommodate diverse interests, developmental levels and ages of both the children with autism and typical peers. Play materials included sensory, constructive and socio-dramatic play props, art materials, musical instruments, and games.

Design

This study comprised a mixed-methods research design. A multiple-baseline design across subjects (Kennedy, 2005) was used to assess the effects of participation in an Integrated Drama Group (IDG) on the social play, symbolic play, initiations, responses to initiations, and joint engagement of three children with ASD. In carrying out the study, we also evaluated the intervention fidelity of the three IDGs being implemented. Quantitative methods were used to compare participants' skill in reading emotional cues before and after the IDG intervention. In addition, qualitative methods were used to assess generalization and social validity of the effects of the IDG intervention on target participants.

Independent Variable

The independent variable was the novices' exposure to facilitated Integrated Drama Groups (IDGs). As noted earlier, IDGs are grounded in the principles of Integrated Play Groups (Wolfberg, 2003, 2009), in which adult facilitators give varying degrees of support to their novice players (i.e., the children with autism) and expert players (i.e., the typically developing children) in order to encourage social interaction and facilitate play which incorporates the skills and interests of the children themselves. IDGs take these principles and apply them to a group focused on dramatic play, semi-structured improvisation, and simple scripted dramatic scenes. It was hoped that by encouraging novice players to take on and try out new social roles, or to explore the world from another person's point of view in a safe and structured environment, IDGs would be successful in increasing their ability to engage in socially-oriented play and spontaneous symbolic play (including role play) with peers, as well as to make and respond to bids for joint engagement with peers.

The structure, activities, and strategies used in the IDGs described below were field tested by the researcher in two pilot studies over the course of several years (see Neufeld, 2009; Neufeld & Wolfberg, 2010). Following Wright (2006), each IDG session consisted of an opening circle, a warm-up period, a period of semi-structured group dramatic play/improvisation

with the materials at hand, and a cool-down, reflective period to talk as a group about what occurred during the session.

IDG facilitator. The IDGs that this study reports on were facilitated by the researcher. I brought over 10 years of experience in play-based therapy (I am trained in the DIR/Floortime model of intervention) for children with autism to the groups. In addition to maintaining a private practice working with children with ASD in a variety of social and educational settings, I served for several years as the play and social development coach for JumpStart: Learning to Learn, an organization that provides parent education for parents of newly diagnosed children. I currently work as the Director of Special Needs Programs and Services for the Bureau of Jewish Education in San Francisco, and have also worked as a professional actor, teaching and performing at theatres throughout the San Francisco Bay Area. Prior to the present study, I had facilitated several other IDGs with children ranging in age from four to nine.

IDG structure. During Opening Circle, everyone sat in a circle. The facilitator (myself) passed around a toy microphone (or, for a few sessions when the microphone was missing, a toy claw), and one could only speak while holding the microphone. Opening Circle was essentially an opportunity for the actors to check in with one another. Usually I asked everyone to share something interesting that had happened to them that week or something they were looking forward to. Actors used this opportunity to talk about how they were feeling and what they were excited about. Passing was always an option.

Once everyone had had a chance to speak, the group moved into warm-ups. The warm-up period consisted of drama exercises and games designed to facilitate group activity and awareness. Some examples of the games that were used during this period were: a) Lightning Circle (The group formed a circle, and the first person in the circle made a large gesture and sound. The person next to them quickly repeated it exactly as performed, and so on all the way around the circle. After the first student did their gesture one more time, the second student did one, and the cycle repeated.), b) Sound Ball (The first person in the circle called out the name of someone else in the circle and threw an imaginary “ball” to them. When a child threw the ball, he or she made a sound. When the novice caught the ball, he or she called out someone else’s name, and threw the ball to that person with a new sound), and c) Pass the Clap (The first person in the circle turned to the person to their right. The two children made eye contact, counted to three, and clapped at the same time. This second child then turned to the child on *their* right, making eye contact, counting, and clapping with them. In this way, the clap traveled all the way around the circle.) Other games with the same aims (i.e., facilitating group awareness and activity) were also played.

Once the warm-up period was complete, the groups moved into the semi-structured improvisation period. Using the materials at hand, one child per session chose a story they wanted to play out. This privilege was rotated each session, so that over the course of the term, every actor received multiple opportunities to be in charge.

Some stories were based on popular movies (e.g., Dolphin Tale), video games, and books (e.g., Harry Potter). However, the majority of stories were made up on the spot by the actor in charge. The child chose the title of the story and the characters, and the group designed (with my help) three or four short scenes that would make up the story. Everyone generated ideas about how the characters should behave. The characters and scenes were written on a white board for everyone to see. This made it easier for the students to remember what the story was. The actor

in charge then cast the story by assigning roles to each other actor. There was often negotiation involved in this process, and I helped the process along to ensure that the actors ended up with roles they were interested in (or at least amenable to) playing. The students then chose costumes and props to use in the scene. Then the students acted the scene out. I served as director to re-focus everyone if the action was getting off-track, to narrate if necessary or to add a new element if the scene was getting repetitive. On a few occasions when two of the three expert players in a group were missing, I participated in the stories as an actor as well.

Once the improvisation period was complete, the groups moved into the cool-down/debriefing period, which was called Closing Circle. During this time, the group met in a circle to discuss the session. As before, the toy microphone was passed around the circle, and passing was always an option. Each student had the opportunity to share one thing that they liked about the session and one thing that they didn't like. If someone wanted to respond to something another student had said, they raised their hand and had the microphone passed to them. When large and difficult issues came up during a session (e.g., a novice calling an expert "fat" or actors refusing to participate), the action of the group was paused and the same format was used to discuss the situation as a group and problem-solve together.

Immediately following the Closing Circle, there was always a session of free play, which we called unsupported play (UP). The duration of UP varied because some days it took the actors a long time to finish the drama group (IDG) portion of the day and move to the playroom, and some days they were able to do so relatively quickly. As the name suggests, UP was unsupported by me—I simply reviewed the rules of the group (be nice to each other, be nice to the props, include everyone, and listen to the director) and directed the children to "show me how you play together and use your imagination." They could then do whatever they liked and play with whatever materials they liked. I did not make suggestions or corrections unless the actors were not keeping each other (emotionally or physically) or the equipment safe.

Dependent Variables and Measures

Social dimension of play. Because children with autism often have profound challenges with social interaction (American Psychiatric Association, 2000), the first set of dependent measures that were taken during each free play session were those that fell under the category of the *social dimension of play* (Wolfberg, 2003, 2009). As noted in the literature review, this dimension of play measures novice players' ability to engage with peers in increasingly complex ways. There are five levels which range from *isolate* (no apparent relationship with peers) to *common goal* (engaging in cooperative play, explicitly planning and carrying out a common agenda, and negotiating around divergent interests). See Table 2 for the coding scheme used. Percentage of time spent engaged in each type of play during a given free play period was measured.

Isolate. Isolate play is play which involves no apparent relationship to peers, where the target child appears to be unaware of others. To be scored as engaging in isolate play, a target child had to be alone, not orienting towards, watching, or engaging with others. For example, isolate play was scored if a child was lying on the floor, spinning something by himself in the corner, or playing with his back to others.

Table 2
Definition of Behavioral Codes for Social Dimension of Play

Domains of Play	Definitions	Examples
Isolate	Child appears to be oblivious or unaware of peers. May wander without looking at peers, occupy self by watching anything of momentary interest, play with own body or play alone	Lies on floor; spins objects in a corner alone; sits quietly gazing into space; plays with back to peers
Onlooker-Orientation	Child shows an awareness of the other children by looking at them or in the direction of their play materials and activities. Child does not enter into play with peers	Quietly watches peers; turns body to face peers; peripherally gazes at peers; imitates peers while watching from distance
Parallel-Proximity	Child plays independently beside rather than with other children. There is simultaneous use of the same play space or similar materials as peers. Child may occasionally imitate, make requests, or show objects	Child builds a lego structure next to a peer who is also building with legos, but with little interaction and no coordination; child pushes a truck beside a peer who builds a roadway; child lines up animal figures next to peer who lines up animal figures;
Common Focus	Child plays by interacting with one or more peers. There is shared attention on the play as child and peer engage in joint action, mutual imitation or reciprocal social exchanges. The play may include: taking turns, giving and receiving assistance and directives, active sharing of materials, sharing of emotional expression	Child and peer work on a common lego structure but without active planning and coordination; pretend to talk to each other on telephone; engage in peek-a-boo; talk and laugh with one another

Orientation-onlooker. Orientation-onlooker play was scored when the target child showed awareness of others by looking at or orienting his body towards them and/or their play materials. He did not enter the play, but watched or imitated from a distance.

Parallel-proximity. Parallel-proximity play was scored if the target child was playing independently beside rather than with peers. There were common materials and common play space, but very little interaction. There may have been occasional imitation, requests made, or showing of objects. For example, if two children were seated next to each other in an area with legos but building separate structures with little interaction and no coordination, the play was scored as parallel-proximity.

Common focus. Common focus was scored during play in which the target child interacted with one or more peers. Joint engagement was apparent as the children engaged in joint action, mutual imitation, or reciprocal social interaction. Play may have included turn-taking, giving and receiving assistance, active sharing of materials and emotional expression. For example, if the two children playing legos began to work on one structure, imitating, referencing, and interacting together (but without active planning and coordination), their play would be scored as common focus.

Common goal. Common goal play is play in which the target child engaged with peers for the purpose of creating something together or attaining a common goal. There was explicit planning, coordination, and discussion of roles and rules. For example, if the children with legos began to make a plan to build two towers and connect them with a bridge, with each child being assigned a specific job to do, the play was scored as common goal. Likewise, children engaging

together for the purpose of creating a dramatic scene with negotiation around characters and costumes would also be scored as common goal. There was very little evidence of this kind of play during the unsupported play periods.

Symbolic dimension of play. As noted in the literature review, children with autism display characteristic challenges in the realm of imagination and symbolic or pretend play, including role play (Jarrold, 2003; Jarrold, et al., 1996). Furthermore, in typically developing children there is a correlation between pretend and role play and many aspects of social and cognitive development (Connolly et al., 1988; Lillard, 1993; Lorimier et al., 1995; Singer & Singer, 1990; Smilansky, 1990). Therefore, the second set of dependent variables that was measured during the free play period was made up of play characteristics which fall under the category of the *symbolic dimension* of play (Wolfberg, 2003, 2009). See Table 3 for the coding scheme used. This dimension concerns itself with the cognitive complexity of children’s play. In addition to being *not engaged in play*, there are four types of play behaviors which fall under the category: *object manipulation*, *functional play*, *pretend play*, and *role play*. Percentage of time spent engaged in each type of play during a given free play period was measured.

Table 3
Definition of Behavioral Codes for Symbolic Dimension of Play

Domains of Play	Definitions	Examples
Not Engaged	Child does not touch objects or toys or act out roles in play. Child may enact self-stimulatory behavior that does not involve play materials	Gazes at own hand; rocks body; waves or flaps arms and hands; glances at toys
Object manipulation	Child explores and manipulates objects or toys, but does not use them in conventional ways. There is an apparent motivation to obtain sensory input and exert control over the physical world, provided that none of these are occurring as part of a larger play scheme.	Play schemes include: Simple actions with single objects (e.g., mouth, gaze, shake, bang, drop) Simple action sequences combining objects (e.g., line up, fill and dump, twist and turn) Performs difficult feats with objects (e.g., balances a coin, spins a plate)
Functional	Child demonstrates conventional use of an object or association of two or more objects. Child responds to logically related physical properties of objects. There is a quality of delayed imitation that may reflect simple pretense.	Play schemes include: Uses object/toy as intended (e.g., roll car on floor, make figures from play-doh) Combines two or more related objects (e.g., stack blocks, put train track together) Follows simple scripts/familiar routines with realistic props directed to self, dolls or peers (e.g., hold telephone to ear, put baby in bed, pretending to feed a peer, provided that these activities do not involve a change in the child’s voice, body posture, or manner of speaking.)

Pretend	Child symbolically transforms objects with an intent that is representational.	Play schemes include: 1. Object substitutions, using one object to represent another (e.g., hold banana to ear as if it were a telephone) 2. Attribution of absent or false properties (e.g., mops dry floor as if it were wet) 3. Imaginary objects as present (e.g., moves hand to mouth as if drinking from a cup)
Role play	Child acts as if someone else with their voice, body, or both. May involve imitations of another person's actions and speech patterns.	Enacts role (real or invented) with self, props, peers and/or imaginary characters (e.g., acts as if mommy by rocking a baby to sleep, singing to it, and putting it to bed with a kiss on its head; Acts as if elderly by walking with a stooped posture).

Not engaged. When a child is not engaged in play, they are neither touching objects or toys nor acting out roles in play. They may enact self-stimulatory behaviors which are unrelated to the play materials at hand, and are not actively involved in play.

Object manipulation. Object manipulation play (also referred to as exploratory or sensorimotor play) is play which primarily involves sensory experiences. It ranges from simple acts such as mouthing, banging, or spinning the wheels of a toy car to more complex behavior such as lining objects up in order of size, color, or any other attribute. Other examples are spinning a scarf over and over again, holding objects up near the eyes and gazing at them, or picking up handfuls of beans from a bean bin and letting them slip through the fingers, *provided that none of these are occurring as part of a larger play scheme.*

Functional play. Functional play refers to play in which a child is using a toy in the way in which it is intended to be used. Common examples of functional play are rolling a car, stacking blocks, making figures out of play-doh, and so on. It can also include simple reenactment of activities from a child's life (e.g., putting a baby in a bed, holding a telephone up to one's ear and saying "hello", feeding dolls or animals), *provided that these activities do not involve a change in the child's voice, body posture, or manner of speaking.*

Pretend play. Pretend play refers to play which has a symbolic, representative quality. We took our definition of pretend play from Leslie (1987), who described three fundamental forms of pretense. They are a) object substitution (using one object to represent another; e.g., pretending that a banana is a telephone or a stick is a horse), b) attribution of false properties (e.g., a child pretending that she is asleep when she is actually lying awake on the floor, or pretending that a dry floor is wet), and c) imaginary objects as present (e.g., pretending that an empty cup is full of coffee, or using one's hands to show a pretend diamond to someone).

Role play. Role play is defined as play which consists of a child or children pretending to be someone else (Smilansky, 1990) with their voice, body, or both. It involves imitations of another person's actions and speech patterns (e.g., a child acting out being the mommy by rocking a baby to sleep, singing to it, and putting it to bed with a kiss on its head). Role play was scored if in a given play sequence, the target child was clearly changing his voice, body, or speech pattern in order to serve the play. Role play was only scored if the child was enacting the character himself, and not using an action figure or toy to speak, act, or play a role of some kind.

Initiations, no response to initiations, refusal of initiations, and joint engagement.

As previously noted, the literature supports the notion that children with autism often have desire to interact with others, but lack the skills necessary to gain and maintain reciprocal social exchanges (e.g., Boucher & Wolfberg, 2003; Jordan, 2003; Wolfberg, 2009). Consequently,

children with autism engage in less joint attention than typically developing children. As a result, they may miss the rich opportunities for relatedness, emotional sharing, and the development of social competence that their peers enjoy (Hobson, 2005; Mundy & Sigman, 2006; Mundy, Sigman, & Kasari, 1994).

Accordingly, the final set of dependent variables measured during the unsupported play sessions were those which related to *joint engagement*. For purposes of this study, joint engagement was defined as attending to social partners and sharing attentional focus between objects, events, or people (Shumway & Wetherby, 2009; Kasari, Freeman & Paparella, 2006). Behaviors which fell under this category were defined by a child’s initiation of or response to bids for shared attention through various acts indicated below. They were measured in order to obtain a more nuanced description of the joint engagement being displayed by the novices than the broader measurement of the social and symbolic dimensions of play could provide. See Table 4 for the coding scheme.

Initiation of joint engagement. This referred to the act of seeking attention from a partner through behaviors including eye gaze, pointing, showing, giving, touching, and/or verbal comments. There were two types, Child Initiation and Peer Initiation. Child initiation was coded when a novice player was the one who initiated the contact. For example, during one unsupported play session where the expert players began to enact a supermarket drama, Zander said to Gemma “Hey, it’s me, your boyfriend! I work here!” Because Zander was seeking attention from Gemma with this comment, this was coded as a child initiation. Peer initiation, on the other hand, was coded when an expert player was the one who initiated the contact. For example, when later in the same session (after the supermarket drama had been interrupted) Gemma said “Zander, let’s go camping,” this was coded as peer initiation. Initiations between expert players were not measured.

Once an initiation for joint engagement took place, three outcomes were possible: *No response to initiation*, *refusal of initiation*, or *joint engagement*.

No response to initiation. When the object of the initiation (either a novice or an expert player) did not respond to the initiation of joint engagement (i.e., did not share or reciprocate attention to the object, event, or other person of reference), the behavior was coded as *no response to initiation*. As above, if the target child was non-responsive, this was coded as *child*

Table 4
Definition of Behavioral Codes for Joint Engagement

Behavior	Code	Definition
Initiation of Joint Engagement	IJE	Child seeks engagement from another through different behaviors including eye gaze, pointing, showing, giving, touching, and/or verbal comments.
End Joint Engagement	EJE	Child does not respond to initiated joint engagement; does not share or reciprocate engagement to object, event, or other person of reference.
Joint Engagement Starts	Start	Engagement in shared focus between 2 or more persons with respect to shared objects/events.
Joint Engagement End	End	Refers to the discontinuation of engagement in reciprocal social interaction between 2 or more persons with respect to shared objects/events

Actor	Code	Definition
Child	C	Child identified with autism
Typical Peer(s)	TP	Child(ren) identified as typically developing
Mutual	M	Both child and typical peer(s); this only applies when both C and TP(s) initiate or do not respond to joint engagement bid simultaneously

no response to initiation. If an expert player was non-responsive, this was coded as *peer no response to initiation.*

Refusal of initiation. If a child actively rejected another’s initiation of joint engagement by verbally refusing and/or shaking his or her head to indicate “no”, the behavior was coded as *child refusal of initiation* or *peer refusal of initiation*, depending as above on which child was the object of the initiation. This code was created to differentiate between a situation where no interaction at all took place (no response) and a situation where interaction took place but did not result in the start of joint engagement. These two scenarios are quite different, and I did not want to conflate them.

Joint engagement. A joint engagement event began when a child responded to another’s initiation by accepting and embarking upon a shared play experience. Responses were defined by actions including eye gaze, pointing, showing, giving, touching, and/or verbal comments. To continue with the example from above, after Zander told Gemma he was her boyfriend, she said “Ohhh, hi,” walked over to him, and began to interact with him in the role of the girlfriend. Because this action on Gemma’s part began a shared drama, that moment was coded as the beginning of a joint engagement event. The event ended only when one of the players abandoned the play. Duration of joint engagement events was measured, and the percentage of time that a novice engaged in joint engagement over the course of each unsupported play session was calculated.

It is important to note that while behaviors within a single dependent variable category (e.g., social dimension of play) were mutually exclusive, behaviors across categories were not. During the same period of time, a child could be given credit for behaviors in all three categories. For example, a novice engaging in a spontaneous and coordinated role-play with a peer (as in the example of Zander and Gemma) was scored as concurrently displaying common goal play (social dimension), role play (symbolic dimension), and joint engagement. A novice attempting to engage others in interaction (e.g., by waving) while watching them play from a distance was scored as demonstrating both orientation-onlooker play and initiation of joint engagement.

Reading the Mind in the Eyes pre- and post-test. Recall that some research suggests that children with autism fail to develop a theory of mind (the ability to understand the mental states of others) or experience delays in doing so (Baron-Cohen, Leslie, & Frith, 1985; Baron-Cohen, Tager-Flusberg, & Cohen, 1993; Frith & Happé 1999; Leslie, 1987). To examine whether or not IDGs could help novice players to improve on one aspect of theory of mind—namely, the ability to understand someone’s emotional state by observing their outward demeanor--before and following the IDG sessions, each of the three novice players along with three age- and language-matched peers designated as controls were administered Baron-Cohen et al.’s (2001) “Reading the Mind in the Eyes” test (Child Version). This measure consists of 28 photographs of people’s eyes. The child is asked to choose which of four words best describes

what the person in the photograph is thinking or feeling. For each picture, only one of the words is judged to be the “correct” response. This test was normed on a sample of 53 typically developing children ranging in age from 6-10 years old. Baron-Cohen et al. (2001) found that children with Asperger’s Syndrome performed significantly worse on the Eyes Test than their age-matched typical peers.

Generalization and social validity. To assess the social validity of the IDG intervention and generalization of any gains shown by the novice players, brief interviews were conducted after the conclusion of the groups with caregivers of the novice players. Interviews were designed to elicit responses about the practicality and significance of the intervention to the caregivers as well as about whether novices had shown improvement in social and/or pretend play outside of the group. See Procedures for a complete description.

Procedures

Description of baseline condition.

Unfacilitated drama. In the unfacilitated drama (baseline) phase of the study, the novices were part of the IDG, and able to participate in any way they choose, but they were not encouraged or directed to participate by me. Similarly, no overt assistance with choosing costumes or props, negotiating with others about roles, or conversing during Opening and Closing Circles was given. Rather, I delivered instructions to the entire group as one would do while teaching a class, and did not provide individual support of any kind. If a novice player approached and wanted to participate in the group, I included him. However, I did not provide prompting or assistance of any kind unless directly asked for by a novice. This meant avoiding both direct (i.e., to the player himself) and indirect (e.g., coaching an expert player to approach a novice player and bring him back) verbal or visual (i.e., gestural) prompting. The IDG session took place as described above, but the target children only participated if they chose to.

One other distinction involved the rules of the IDG which were discussed during Opening Circle. In baseline condition, there were only three rules: be nice to the other actors, be nice to the props, and listen to the director. In intervention condition (see below) one additional rule was added.

Unsupported Play. During the unsupported play period (UP) which occurred at the end of an unfacilitated drama session, the children were told that the formal part of the class was over. The group moved from the main drama room to the playroom. Just before entering the playroom, I reminded the group of the three IDG rules and asked them to play with the toys and each other however they like, with the direction to “show me how you play together, and use your imagination.” The door was then opened and the children were allowed to engage in unsupported play until time was up. I did not give any play support to the children, but stayed on the side and simply watched, stepping in only when necessary to ensure the safety of the group and the play materials. Upon the conclusion of the unsupported play period, novice players (all of whom came from offsite) were released to their caregivers, and expert players (all of whom were enrolled in the Griffin Elementary after-school program) were returned to their classrooms.

Description of intervention condition.

Facilitated Drama. During the intervention phase, the IDG ran as before. However, in this phase, I encouraged and supported the participation of all players. In addition, I encouraged

players (novice and expert alike) to support each other. For example, if a player walked away or had difficulty choosing a costume item, I coached a different player to “bring him back” or “ask him if he wants this hat for his costume.” Similarly, assistance was given to help players negotiate with each other about story, roles, costumes, and props, as well as to find points of commonality and opportunities for reciprocal conversation during Opening and Closing Circles.

For example, during one Opening Circle, Brandon commented that jets which had been performing a stunt-flying exhibition overhead the day before had hurt his ears. Ryan spoke next, and made a similar comment. Neither Brandon nor Ryan acknowledged that they had had the same experience, so I pointed this out, and the boys spoke for another minute or two about the jets. All coaching was seamlessly embedded into the intervention as a whole (as opposed to being directed at one set of players or another) so that all children (novices and experts) were working to include and coordinate with each other.

One other difference in the intervention condition concerned the IDG rules. The three original rules from baseline (be nice to the other actors, be nice to the props, and listen to the director) were kept, but one additional rule was added: include everyone. This was done to explicitly inform the players that one of their primary responsibilities in the group from that point forward was to engage others in the activities of the group. In this way, all players were conscripted to help others participate.

Unsupported Play. The UP period which occurred at the end of a facilitated drama session was identical to the UP period which occurred during baseline. The children were told that the formal part of the class was over. The group moved from the main drama room to the playroom. Just before entering the playroom, I reminded the group of the four IDG rules and asked them to play with the toys and each other however they like, with the direction to “show me how you play together, and use your imagination.” The door was then opened and the children were allowed to engage in unsupported play until time was up. I did not give any play support to the children, but stayed on the side and simply watched, stepping in only when necessary to ensure the safety of the group and the play materials. Upon the conclusion of the unsupported play period, novice players (all of whom came from offsite) were released to their caregivers, and expert players (all of whom were enrolled in the Griffin Elementary after-school program) were returned to their classrooms.

Data collection and analysis.

Unsupported play. The primary means of data collection was the videotapes of unsupported free-play sessions which occurred at the end of each condition, baseline, and intervention. A handheld camera operated by myself or an assistant was used to capture the activities and play behaviors. The UP videos were loaded onto an assisted software observation system (Observer XT version 10.1 by NOLDUS). Using a continuous video sampling method, observers identified different behaviors demonstrated by the participant(s) as they occurred throughout the video. Each observation began when the children were brought into the play room and given the cue to start free-play, and ended when I declared that it was time to clean up.

Behaviors were programmed into the software system and grouped into three different categories: *social dimension of play*, *symbolic dimension of play*, and *joint engagement*. Behaviors from the social and symbolic dimension of play were based on the actions of the novice player, and coded as mutually exclusive state events. This meant that behaviors within a given category (e.g., isolate play and common focus play, both of which fall on the social dimension) could not co-occur. Duration of a given behavior was defined as the amount of time

between when that behavior began and a new one started. For example, if a novice began to engage in functional play (which falls on the symbolic dimension), the behavior was marked and the measure of duration begun. Duration continued to record until the child switched to a different symbolic behavior (i.e., not engaged, object-manipulation, pretend, or role play), at which point the duration of the new behavior began recording.

Unlike behaviors from the social and symbolic categories of play, behaviors from the joint engagement category (with the exception of duration of joint engagement) were set as point events. Behaviors were identified and recorded as frequency counts. These counts were based on behaviors demonstrated by any of the participants: novice, expert, or both. For example, an initiation of joint engagement (IJE) could be demonstrated by the novice player, expert player, or the novice and expert together (mutual). Duration of joint engagement was a state event defined as the time between a positive response to initiation (which began a joint engagement event) and the moment when the child and/or peer(s) discontinued the interaction.

The time of each unsupported play period varied depending on how quickly the students moved into the playroom after Closing Circle, as well as on whether or not the drama period itself had ended on time (see Discussion chapter for further details). This resulted in unsupported play periods that widely differed in length from child to child, and from day to day. Across all groups, the shortest UP session lasted only 3.93 minutes, and the longest lasted 13.2 minutes, a range of over 9 minutes. See Table 5 for a summary of the duration of UP sessions in all three groups.

To compensate for these different lengths of unsupported play, rather than calculating simple frequency and duration of each behavior, for variables which could be measured by duration (e.g., how long a child spent in isolate play), we calculated percentage of time spent in each behavior. For those behaviors which could only be measured by frequency (e.g., number of initiations made by the target child), we calculated the rate per minute of those behaviors.

Table 5
Summary of Duration of UP Sessions in Minutes

Group (Novice)	Minimum	Maximum	Mean	Range
1 (Brandon)	7.07	12.87	10.21	5.8
2 (Matteo)	3.93	13.2	8.21	9.27
3 (Zander)	6.86	12.18	9.4	5.32
All Groups Combined	3.93	13.2	9.27	3.95

The logic for this was simple. With amount of time devoted to unsupported play varying so widely, simple duration or frequency loses meaning. For example, during the UP period of Session 22, Zander spent a total of 2 minutes and 29 seconds engaging in common focus play. In Session 23, he spent 2 minutes and 33 seconds in common focus play. These two durations differ by only 4 seconds, a seemingly insignificant period of time. However, when we take into account the overall length of each UP period, we see a much more significant difference. For Session 22, the UP period lasted 9 minutes and 44 seconds, while for session 23 the UP period lasted only 7 minutes and 34 seconds. Therefore, the percentage of unsupported play time that Zander spent engaging in common focus play in Session 22 was approximately 25.5% (149 seconds of common focus play / 584 seconds of unsupported play = .2555), while in Session 23, the percentage of common focus play was almost 34% (153 seconds of common focus play / 454

seconds of unsupported play = .337). Thus, a seemingly insignificant increase of only 4 seconds in actual duration of common play translated into an increase of almost 10 percentage points.

Interobserver agreement. To determine reliability, two coders (one of whom was blind to the hypotheses of the study) were trained on the coding schemes used in this study. To begin with, the primary coder and I independently coded video clips which were not included in the final data analysis. When we had disagreements, we discussed, clarified, and arrived at a firmer understanding of the codes. Once she and I were reliable, she trained a secondary coder in the same manner and achieved reliability with him. The two raters then independently coded 30 percent of all UP sessions (a total of 18 videos) following the coding schemes outlined above. Within each category, behaviors were mutually exclusive and exhaustive of behaviors that could be seen during the session. Reliability was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. If raters showed agreement below 80%, they received additional training on the coding procedures. Proportion of agreement for the two raters across all 18 videos was 81%.

Intervention fidelity. As noted above, the study design necessitated that I be very careful to honor both the baseline and the intervention conditions. To assist with this, a checklist was developed listing the important features of the intervention during both conditions (See Figure 1). Using this checklist, observers measured the degree to which I provided each specific component of the intervention.

The intervention fidelity form was divided into sections, with each section containing one of the four activities included in the IDG intervention: Opening Circle, Warmups, Improvisation, and Closing Circle. Each of these activities had facilitator strategies associated with it. For example, the Opening Circle section contained three facilitator strategies—*group instruction* (delivering instructions to the entire group as one would do when teaching a class), *prompt participation* (encouragement or direction on the part of myself designed to get a player to participate in the activities of the group or to return to the group if he walks away), and *facilitate interaction* (building bridges between children by coaching them to watch, speak to, or listen to each other, and pointing out social openings in conversation). The Warmups section also contained three facilitator strategies—*group instruction*, *prompt participation*, and *individual coaching/support* (direct assistance by myself designed to help players successfully participate).

The form contained one column for baseline and one column for intervention. An identical list of strategies was put in each. Recall that depending on which phase of the experiment a child was in during a given video (i.e., baseline condition or intervention condition), my goal as facilitator was to either use or not use these strategies. To continue with the previous examples, in both baseline and intervention conditions I was required to give group instruction. Therefore, *group instruction* was written in black in both columns. This served two purposes. First, it was a check on whether or not I carried out all four activities. If the group instruction item was not checked off for one of the activities on a given day, it meant that I had skipped that component of the IDG. The second purpose was to make it explicit that I was required to use group instruction in both baseline and intervention conditions.

However, during baseline condition I had a specific mandate *not* to prompt participation, facilitate interaction, or give individual coaching and support. In contrast, during intervention condition, I was required *to* do all of these. To make this explicit on the form, in the baseline column the strategies were printed in red ink (meaning that I was not supposed to use them), and

Figure 1
Integrated Drama Groups Intervention Fidelity Checklist

Target Child: _____
 Date of session: _____
 Observer: _____

ACTIVITY	BASELINE CONDITION	INTERVENTION CONDITION
Opening Circle	<ul style="list-style-type: none"> ○ Group Instruction ○ Prompt participation ○ Facilitate conversation 	<ul style="list-style-type: none"> ○ Group Instruction ○ Prompt participation ○ Facilitate conversation
Warmups	<ul style="list-style-type: none"> ○ Group Instruction ○ Prompt participation ○ Individual coaching/support 	<ul style="list-style-type: none"> ○ Group Instruction ○ Prompt participation ○ Individual coaching/support
Improvisation	<ul style="list-style-type: none"> ○ Group Instruction ○ Prompt participation ○ Support for choosing costumes or props ○ Facilitate negotiation between children 	<ul style="list-style-type: none"> ○ Group Instruction ○ Prompt participation ○ Support for choosing costumes or props ○ Facilitate negotiation between children
Closing Circle	<ul style="list-style-type: none"> ○ Group Instruction ○ Prompt participation ○ Facilitate conversation 	<ul style="list-style-type: none"> ○ Group Instruction ○ Prompt participation ○ Facilitate conversation

Key:

Group instruction: Delivering instructions to the entire group as one would do when teaching a class.

Prompt participation: Encouragement or direction on the part of the facilitator designed to get a player to participate in the activities of the group or to return to the group if he walks away. This includes both direct (i.e., to the player himself) or indirect (e.g., coaching an expert player to approach a novice player and bring him back) verbal or visual (i.e., gestural) prompting.

Facilitate conversation: Building bridges between children by coaching them to watch, speak to, or listen to each other, either verbally or visually (i.e., through gestures). Pointing out social openings in conversation.

Individual coaching/support: Direct assistance by the facilitator designed to help players successfully participate in warmups (e.g., pointing out that a player did not correctly imitate another player during Lightning Circle, directing him/her to watch more carefully, asking the other player to repeat the gesture, etc.) This does not include asking the group to try something again, pointing out that a warmup has broken down and needs to be re-attempted, or general instruction designed to teach the group how to do a new activity.

Support for choosing costumes or props: Direct assistance by the facilitator designed to help players choose costumes or props (e.g., pointing items out, making suggestions).

Facilitate negotiation between children: Direct support by the facilitator to children while they are negotiating who will play which role, who will get which costume item, or who will get which prop. Mediating between children who are vying for the same items or the same roles, making suggestions for compromise, or coaching children on how to make compromises.

in the intervention column those same strategies were printed in green ink (meaning that I was supposed to use them).

An independent observer watched 30 percent of the baseline sessions and 30 percent of the intervention sessions for each of the three groups (a total of 7 baseline and 11 intervention videos), and was told which phase corresponded to which video. If the observer marked something written in red, it meant that I had made a mistake, and done something I was not supposed to do. Since not every listed strategy was necessary in every session—for example, it was possible that on a given day the players would not need to be prompted to participate—only one of the multiple items in each cell needed to be marked to indicate fidelity (in the case of the green side) or lack thereof (in the case of the red side). For each video I could earn a possible score of 4 fidelity points, one for each of the four activities which are a part of an IDG. In addition to earning or losing points based on strategies, I could lose a point in either baseline or intervention condition for skipping an activity.

Intervention fidelity score was calculated by dividing the number of fidelity points earned by the number of fidelity points possible and multiplying by 100, with the goal of reaching a score of 80% or more. For the baseline phase, the fidelity score was 82%, and for the intervention phase, it was 95%, indicating that my level of drift from intervention protocol was acceptable.

Reading the Mind in the Eyes pre- and post- test (Baron-Cohen et al., 2001).

Administration of the pre- and post-tests was conducted in the playroom at Griffin Elementary. Prior to the onset of IDGs, each of the six subjects (the three novice players and their matched controls) was brought to the school by a parent or caregiver. The caregiver was asked to wait outside, and the test was administered by either the researcher or the project coordinator. The administrator and subject sat at a small table together. Following the scripted instructions provided by the authors of the test (See Appendix), the child was shown a series of 28 pictures of people's eyes surrounded by four words which could describe what the person in the picture is feeling (e.g., "jealous," "scared," "relaxed," or "hate"). The test included one practice item which was administered before scoring was begun. For each picture, the administrator asked "how is this person feeling?" and then read aloud the four word choices, pointing at each option as he or she read it. The child's responses were noted on a score sheet which was kept out of view, and a score was calculated by dividing the number of correct responses by the number of correct responses plus incorrect responses. Scores were recorded as raw numbers.

Approximately two weeks after completion of their IDG, the three novice players and their age- and language-matched peers were given the Eyes test a second time. Difference scores for each subject were then calculated by subtracting the pre-test raw score from the post-test raw score.

Pre-test scheduling. In two of the three pairings, the control child took the pre-test during the same week as his counterpart. In the third case, a novice player had erroneously been matched with a control child whose language abilities and comprehension were far below his level. When this became clear, the research team needed time to find a replacement. As a result, the third control child took the pre-test almost one month after his counterpart.

Post-test scheduling. In two of the three pairs, the control subjects took the test within one week of their counterpart. Scheduling difficulties with the third control child resulted in his taking the test almost three weeks after his counterpart.

Analysis. Because there were only three matched pairs of children involved in this test, statistical analysis was not possible. The test which is ordinarily appropriate for analyzing

matched-pair data with a small sample (the Wilcoxon signed-ranks test) cannot determine significance with only three pairs (Marascuilo & Serlin, 1988). However, data were examined to determine whether or not the novice players involved in the IDGs systematically showed greater improvement from pre-test to post-test than their matched controls. It was our hope that as a result of the IDG, the novice players would be more skilled at reading the emotional cues in the eyes of the people in the photographs and correctly identifying the feelings expressed.

Social validity and generalization. Social validity and generalization were examined through the use of interviews with the caregivers of each novice player. Interviews with Zander's mother and Matteo's grandmother were conducted at Griffin Elementary, and the interview with Brandon's father was conducted at his home. Novices were not present for any of the interviews.

Interviews were conducted by me, and lasted 45-50 minutes. Following an Interview Guide (See Appendix), caregivers were asked questions about whether or not the implementation of the intervention was practical (e.g., how they felt about the length of each session, the overall time commitment, and ease of access to the site), whether or not they had noticed changes in their child's play behavior since he began the intervention, and if so, whether or not they perceived those changes to be significant in their child's life. In random order, caregivers were also shown 5 minutes of one randomly-selected video of a baseline session and 5 minutes of one randomly-selected intervention session. They were asked about the overall character of their child's behavior in each session, and about what differences in behavior they saw or did not see between the sessions. Specifically, I asked them whether or not they had observed their child having fun, interacting with others, and/or pretending. After they had watched and commented on both clips, I revealed that one video had been taken from a baseline session, and one had been taken from an intervention session. To examine whether caregivers noticed change from baseline to intervention, they were asked to guess which video had been which, and to explain why. Consistent with the IRB-approved protocol, interviews were video-recorded and transcribed. To analyze the data, I went through all three interviews and looked for patterns, paying special attention to the parts of the interviews which related to the *a priori* categories described here and grouping responses appropriately.

Chapter 4 Results

Social Dimension of Play

Average baseline and intervention means for behaviors on the social dimension of play are summarized in Table 6 and described in the following.

Table 6
Summary of Average Baseline and Intervention Means for the Social Dimension of Play

Type of Play Child	Baseline Mean (% of time engaged in behavior)	Intervention Mean (% of time engaged in behavior across all sessions)	Intervention Mean (% of time engaged in behavior across sessions when peers initiated)	Trend from baseline to intervention
Isolate				
Brandon	51.5	67.1	51.5	Increase for all sessions, no change for sessions when peers initiated
Matteo	72.3	36.7	32.5	Decrease
Zander	24.1	16.8	13.6	Decrease
Orientation-Onlooker				
Brandon	13.9	3.3	4.2	Decrease
Matteo	4.7	1.7	1.2	Decrease
Zander	24.1	10.2	5.9	Decrease
Parallel-Proximity				
Brandon	21.7	20	30	Decrease for all sessions, increase for sessions when peers initiated
Matteo	15.1	36	38.8	Increase
Zander	23.8	30.2	32.4	Increase
Common Focus				
Brandon	5	9.5	14.7	Increase
Matteo	6.5	25.5	27.5	Increase
Zander	41.4	36.9	40.9	Decrease for all sessions, almost no change for sessions when peers initiated
Common Goal				
Brandon	1.1	0	0	Decrease, but close to 0 to begin with
Matteo	1.5	0	0	Decrease, but close to 0 to begin with
Zander	0	5.9	7.1	Increase

Isolate. Graphed results for isolate play are shown in Figure 2. During unsupported play sessions, two of the three participants showed a decrease in their average amount of time spent engaged in isolate play during unsupported play (UP) periods from baseline to intervention. Brandon was the one exception. Immediately after facilitated drama began, he showed a large increase in isolate play. Over the remaining sessions of his group, the results were quite variable, but were on a downward trajectory by the end. Although the visual trend of his data for isolate play goes down from baseline to intervention, if we look at his averages across all sessions, the opposite is true. During baseline, he spent an average of 51.5% of his UP time in isolate play. Once facilitated drama began, this percentage increased to 67.1%. This is an unexpected result, as it was hypothesized that facilitated drama would lead to a decrease in isolation during unsupported play.

However, if we look at the subset of unsupported play sessions where Brandon's peers initiated with him, the picture is a bit different. His baseline percentage remains at 51.5% (peers initiated in every baseline session), but his intervention percentage goes down to 51% as well. This suggests that his high overall percentage of isolate play during intervention may have been at least partly a function of his peers not initiating with him, and not necessarily an effect of the drama. However, it also suggests that facilitated drama did not have any effect on his social isolation during UP.

Matteo and Zander's results are more straightforward, and more in line with the hypotheses of this study. Matteo's average baseline percentage of isolate play during UP sessions was 72.3%, which is quite high. Once facilitated drama began, however, this average dropped to 36.7%, nearly half of what it was during baseline. If we look at the subset of sessions in which peers initiated with him, the average drops even further to 32.5%. Finally, Zander's average percentage of time spent in isolated play during UP sessions fell from 24.1% during baseline to 16.8% during intervention (13.6% if we look only at sessions in which peers initiated with him).

Onlooker-orientation. Graphed results for onlooker-orientation play are shown in Figure 3. For two of the three novice players, Brandon and Matteo, levels of onlooker-orientation play during UP decreased from baseline to intervention. Brandon's average level of onlooker-orientation play during baseline was 13.9% and only 3.3% during intervention. Matteo's levels of onlooker-orientation play were much lower overall. During baseline, Matteo spent an average of 4.7% of his time in onlooker-orientation. This number decreased slightly to 1.7% during intervention. Zander's level of onlooker-orientation was somewhat variable from session to session, but relatively constant across both phases in terms of average. His average baseline percentage of orientation-onlooker play was 10.7% and his average intervention percentage was 10.2%, demonstrating no real change. However, if we look at the subset of sessions where peers initiated with him, his baseline percentage remains at 10.7% but his intervention percentage drops to 5.9%. This suggests that when initiated with during intervention, he was less likely to limit himself to an onlooker role than he had been during baseline.

Figure 2
Percentage of Time Spent in Isolate Play

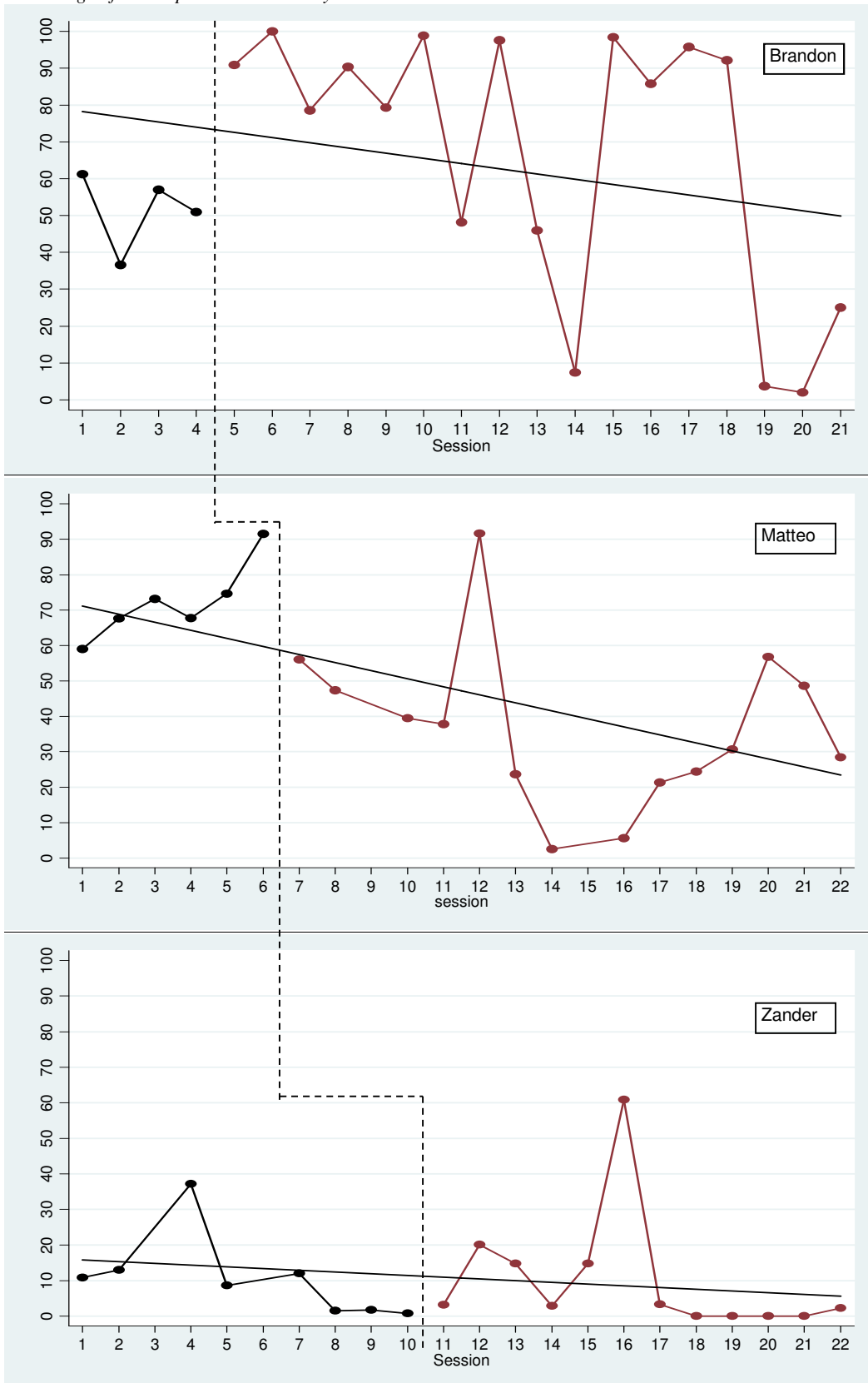
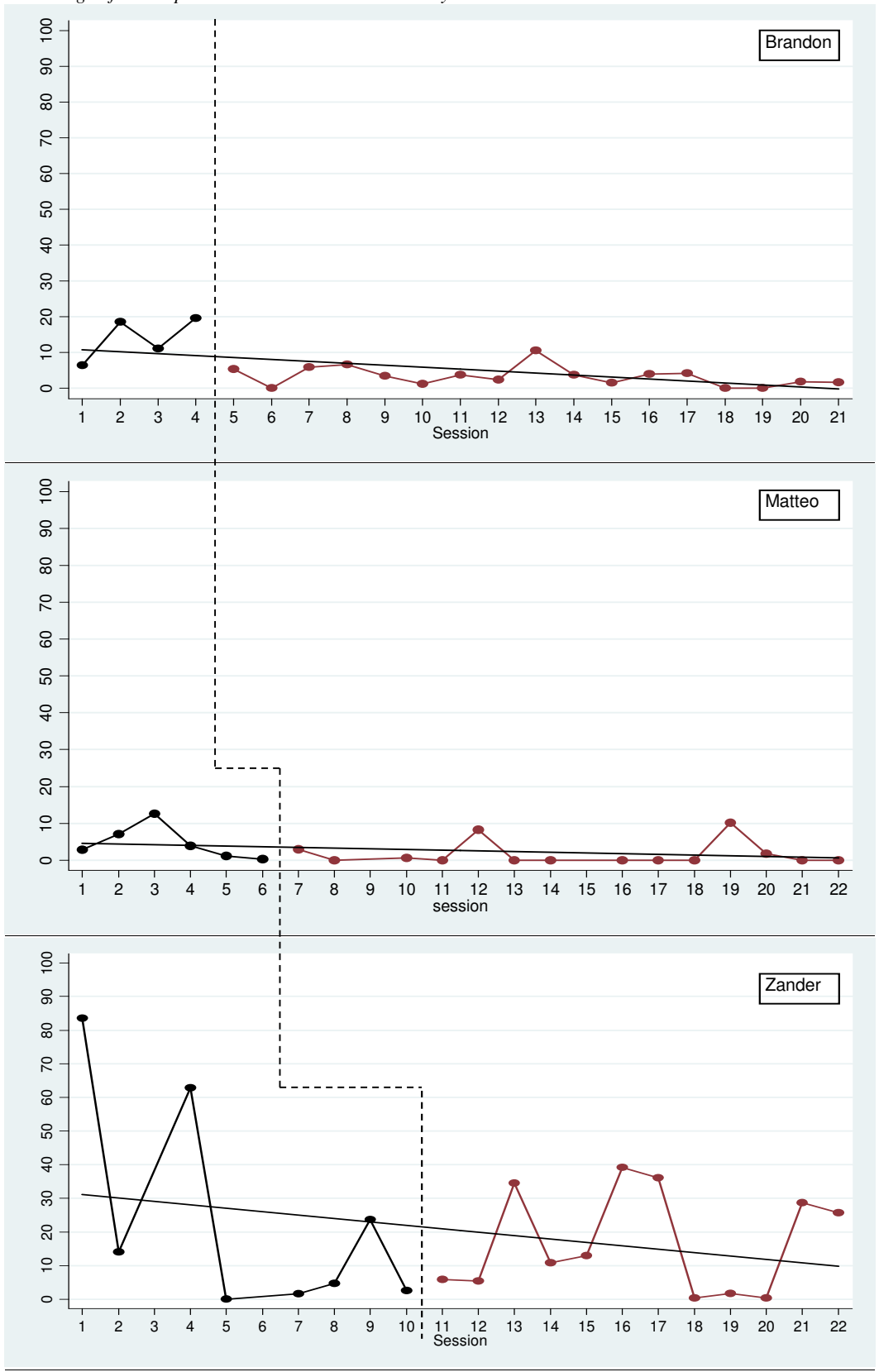


Figure 3
Percentage of Time Spent in Orientation-Onlooker Play



Parallel-proximity. Graphed results for parallel-proximity play are shown in Figure 4. For all three novice players, levels of parallel-proximity play during UP increased from baseline to intervention. Again, Brandon is a special case. Although the visual trend of his data for parallel-proximity play goes up from baseline to intervention (likely due to one session in which he engaged in parallel-proximity play for almost 90% of UP), if we look at his averages across all sessions, the opposite is true. When we look at all sessions, we see that during baseline, Brandon spent an average of 28.5% of his time in UP engaging in parallel-proximity play, compared to only 20.1% during intervention. As before, however, if we look only at the subset of sessions where peers initiated with him, the picture is very different. His baseline percentage remains the same, but his intervention percentage increases to 30.4%, more than 10% higher. This means that after facilitated drama began, Brandon was slightly more likely to respond to initiations by engaging in parallel-proximity play than he had been before. The overall decrease in parallel-proximity play he demonstrated during intervention was at least partly due to his peers' failing to initiate with him. It is also interesting to note that despite the decrease in average from intervention to baseline, over the final few sessions (Sessions 19-21) there was an increasing trend in parallel-proximity play which directly corresponded to decreases in isolate play, suggesting the possibility that new change was occurring just as his IDG ended.

For Matteo and Zander, results were more straightforward. Matteo increased his average percentage of parallel-proximity play during UP from 15.1% in baseline to 36% in intervention. During baseline, Zander spent an average of 10.7% of UP time engaged in parallel-proximity play. This increased to 30% during intervention. Both Matteo and Zander show further (though very slight) increases in parallel-proximity play during the intervention phase if we look only at sessions in which peers initiated with them. Matteo's intervention percentage increases from 36% to 38.8%, and Zander's increases from 30.2% to 32.4%. Baseline percentages for both remain the same.

Taken together, these results show that, especially when peers initiated with them, participation in facilitated drama increased the average amount of time spent in parallel-proximity play. This change is in line with my hypothesis that facilitated drama would help the novice players to engage in more socially-oriented play.

Common focus. Graphed results for common focus play are shown in Figure 5. For two of the three novices, exposure to facilitated drama clearly resulted in increases in levels of common focus play during UP. Brandon's average percentage of common focus in both phases was small, and showed only small improvement from 5% in baseline to 9.5% in intervention. Although this is a change of less than 5%, it should be noted that the intervention number is almost double the baseline number. Even more telling, if we look only at the subset of sessions in which peers initiated with him, his baseline percentage remains the same and his average percentage during intervention jumps to almost 15%, nearly three times the baseline level. This indicates that once facilitated drama began, he was three times as likely to enter into common focus play with peers when they attempted to engage him.

Matteo showed even greater improvement. During baseline, he spent an average of only 6.5% of UP time engaged in common focus play with peers. During intervention, he spent an average of 25.5% of UP time engaging in this way, almost quadruple the baseline amount. If we look at the subset of sessions in which peers initiated with him, the percentage increases to 27.5%, more than quadruple the baseline level.

Figure 4
Percentage of Time Spent in Parallel-Proximity Play

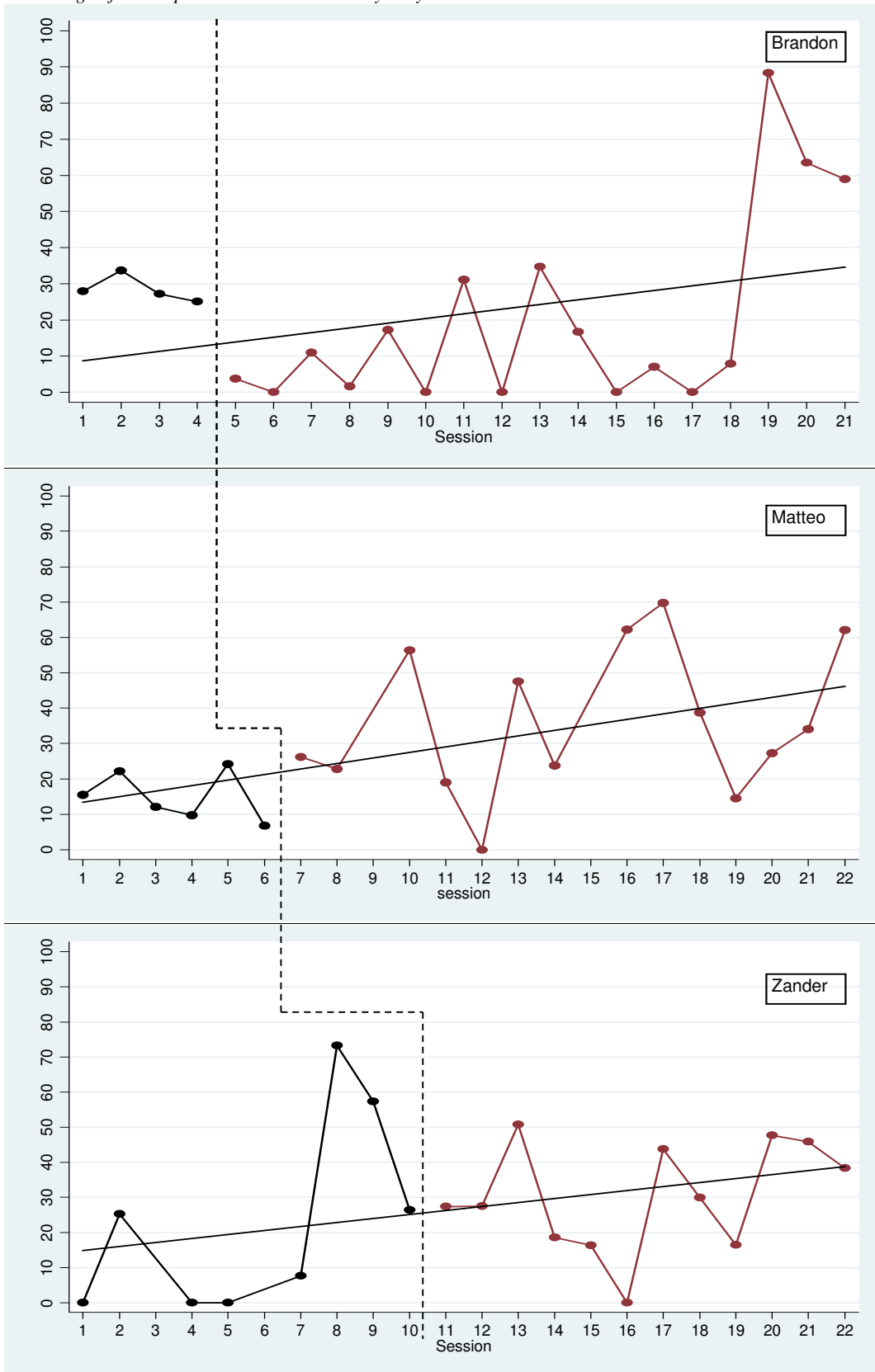
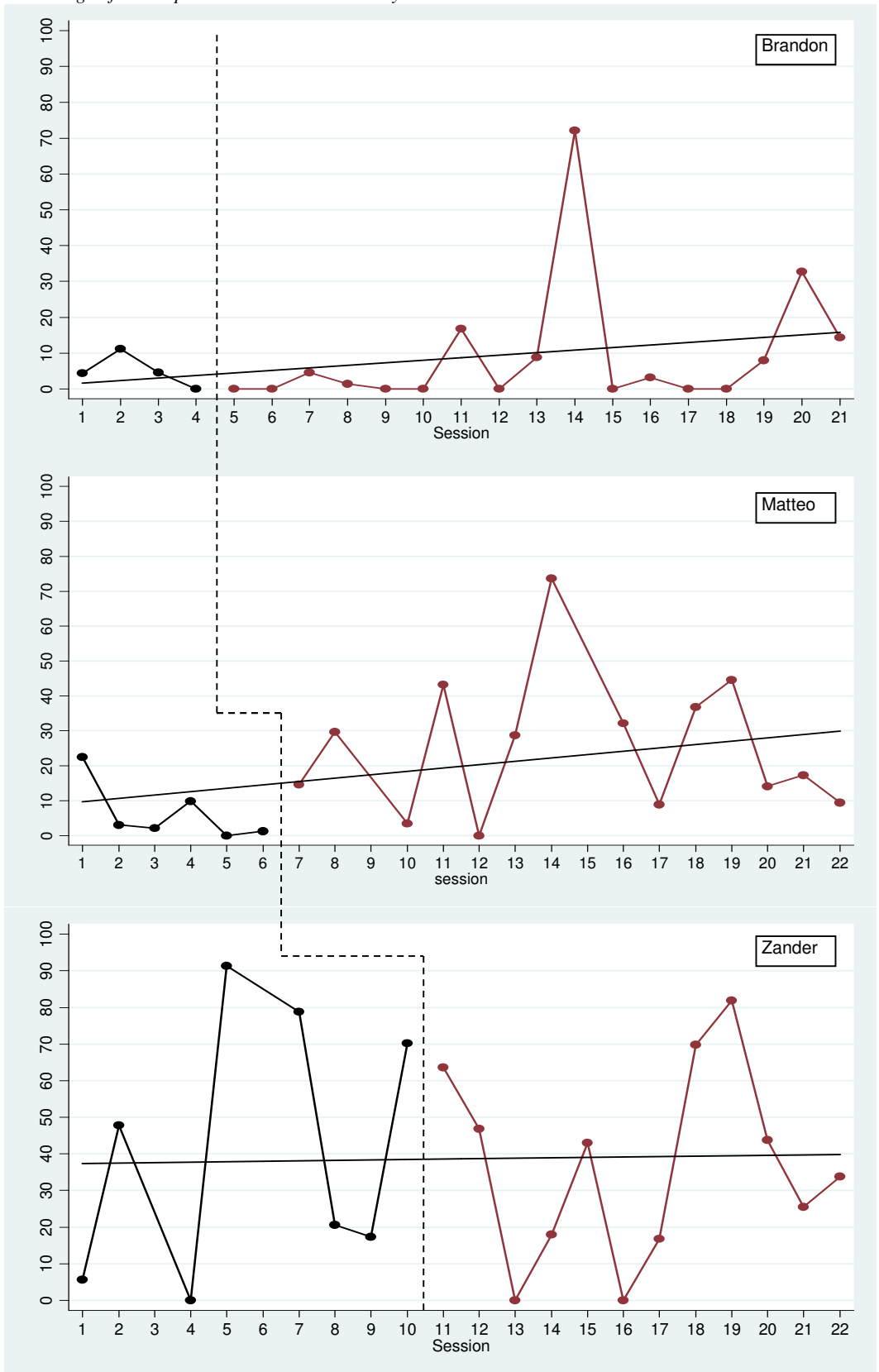


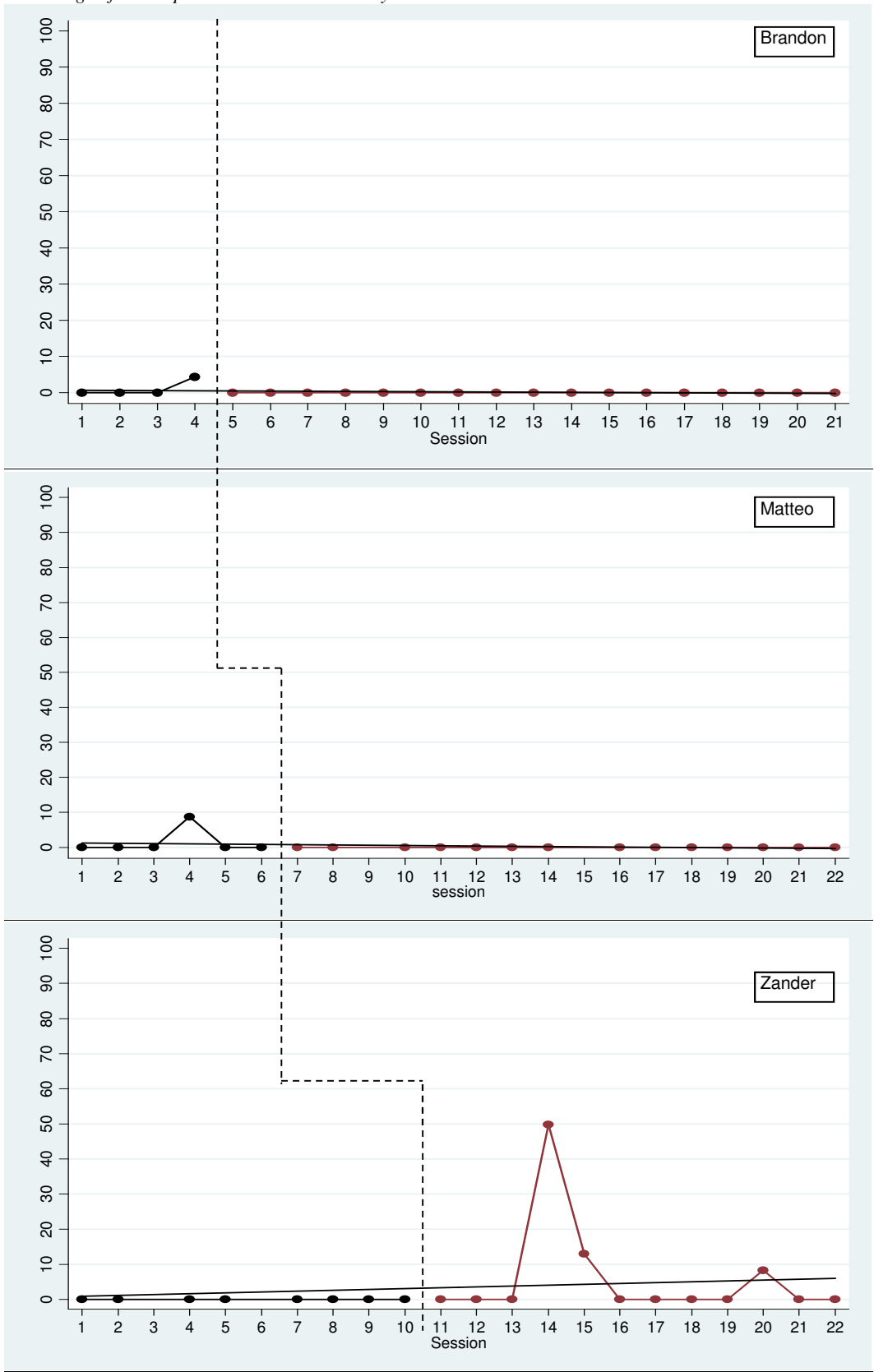
Figure 5
Percentage of Time Spent in Common Focus Play



Consistent with the variability noted in other social domains, Zander's level of common focus play was extremely variable from session to session. If we look across all sessions, the trend appears to be mostly flat with a very slight upward trend. However, his average percentages indicate that he engaged in less common focus play during intervention (36.9%) than during baseline (41.4%). This is unexpected, as I hypothesized that participation in facilitated drama would increase levels of common focus play. When we look only at sessions in which peers initiated with him, the decrease is less marked. His baseline level remains at 41.4%, and his intervention level rises to 40.9%, almost identical to his baseline rate. This is more in line with the visual trend, though still not what I hypothesized would occur.

Common goal. Graphed results for common goal play are shown in Figure 6. The levels of common goal play were at or close to zero for two of the three novices in both the baseline and intervention phases. In fact, both Brandon and Matteo demonstrated common goal play in only one session. Of the three, only Zander showed any improvement or inclination to engage in this type of play during UP. His average amount of common goal play increased from 0% during baseline to 5.9% during intervention. If we look only at the sessions when peers initiated with him, this number increases to 7.1%. However, most of that increase is due to one session (Session 15) where he spent almost half the UP period engaged in common goal play with Gemma, one of the experts in his group. Without that session, his intervention average drops back to 5.9%. Still, results show that in the one participant who demonstrated more than a single occurrence of common goal play, exposure to facilitated drama may have improved his interest or ability in the area.

Figure 6
Percentage of Time Spent in Common Goal Play



Symbolic Dimension of Play

NOTE: Average baseline and intervention means for behaviors on the symbolic dimension of play are summarized in Table 7 and described below.

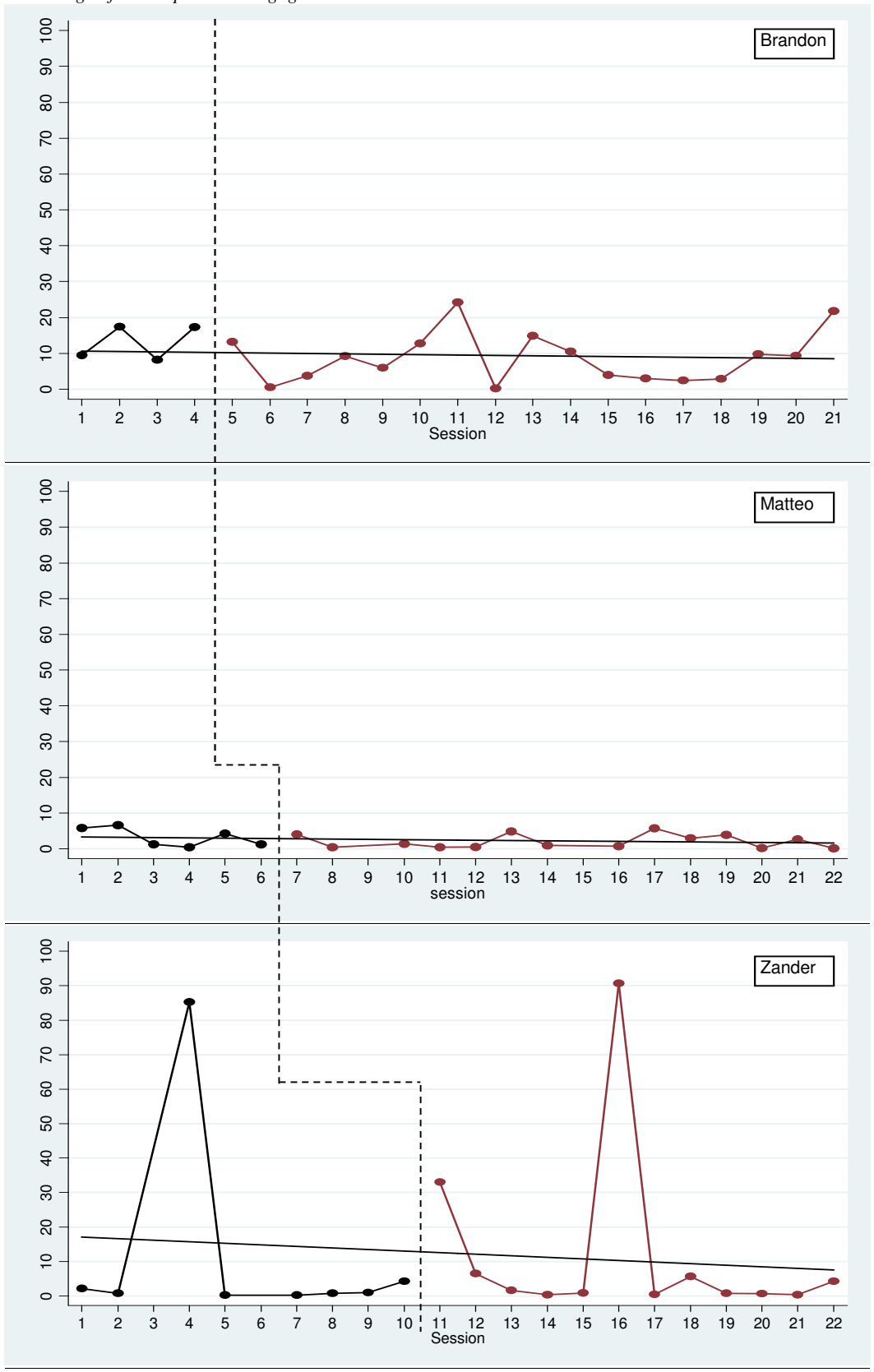
Table 7

Summary of Average Baseline and Intervention Means for the Symbolic Dimension of Play

Type of Play Child	Baseline Mean (% of time engaged in behavior)	Intervention Mean (% of time engaged in behavior)	Trend from baseline to intervention
Not Engaged			
Brandon	13.1	8.7	Decrease
Matteo	3.3	2.1	Decrease
Zander	11.8	12.1	Almost no change
Zander if 3 high not engaged sessions are removed	1.3	2.1	Almost no change
Object Manipulation- Sensory Play			
Brandon	26.9	6.5	Decrease
Matteo	33.2	23	Decrease
Zander	8.4	2.9	Decrease
Zander if 3 high not- engaged sessions are removed	8.4	1.7	Decrease
Functional			
Brandon	57	81.2	Increase
Matteo	52.6	61.5	Increase
Zander	73.2	62.4	Decrease
Zander if 3 high not- engaged sessions are removed	82.7	72	Decrease
Pretend			
Brandon	2.9	3.1	Almost no change
Matteo	10.3	13.2	Increase
Zander	6.4	5.7	Almost no change
Zander if 3 high not- engaged sessions are removed	7.3	4.9	Decrease
Role Play			
Brandon	0	.45	Close to 0 in both phases
Matteo	.59	.26	Close to 0 in both phases
Zander	.2	17	Increase
Zander if 3 high not- engaged sessions are removed	.23	19.3	Increase

Not engaged. Graphed results for time spent not engaged are shown in Figure 7. During the unsupported play sessions across both baseline and intervention phases, none of the

Figure 7
Percentage of Time Spent Not Engaged



novices spent a great deal of time not engaged in play. For example, across both phases, Matteo spent an average of only 2.4% of his time not engaged in play. There was a slight decrease from a mean of 3.2% during baseline to 2% during intervention, but his numbers were overall very low.

While Zander's percentages are somewhat higher and show no decrease between phases (he was not engaged an average of approximately 12% of the time in both baseline and intervention), most of this is accounted for by three sessions during which he exhibited behavior consistent with self-regulation issues (see Discussion). During Session 4, a baseline session, he entered the IDG scowling, would not speak to me, and refused to participate for the duration of the group. He spent almost the entire unsupported play session lying by himself on the bottom shelf of a wall unit. Session 11 took place on a day when he reported that he was particularly hungry. Session 16 was the first day that a new expert player, Gemma, was present in the group. Her presence constituted a change in the group and resulted in his refusal to participate. If we remove those three sessions from the analysis, his mean percentage of time spent not engaged in play decreases to 1.3% of time during baseline and 2.1% during intervention.

Of the three participants, Brandon spent the highest amount of unsupported play time not engaged. During baseline, he spent an average of 13.1% of his time not engaged. Once the intervention began, this average decreased to 8.7%. Thus, in the one participant who showed any proclivity for not engaging in play during baseline, the intervention seems to have decreased the tendency.

Object manipulation-sensory play. Graphed results for object manipulation-sensory play are shown in Figure 8. All three participants showed a decrease in object manipulation-sensory play following the onset of intervention. Brandon was engaged in object-manipulation play an average of 26.9% of the time during baseline. This decreased to 6.5% in intervention. Matteo had a baseline average of 33.2% of his time engaged in object manipulation-sensory play, which decreased to 23% in intervention. Zander engaged in object manipulation-sensory play an average of 8.4% of the time during baseline, and only 2.9% of the time during intervention.

Functional play. Graphed results for functional play are shown in Figure 9. Two of the three participants showed an increase in functional play from baseline to intervention. During baseline, Brandon spent an average of 57% of the time engaged in functional play. This increased to 81% of the time during intervention. Interestingly, this increase of 24 percentage points is almost identical to the decrease of 24.8 percentage points which Brandon demonstrated in time spent not engaged or in object manipulation-sensory play. This suggests that the main effect of the intervention on Brandon's social play may have been to replace disengagement and sensory play with functional play.

Matteo also showed an increase in functional play. He spent an average of 52.6% of the time during baseline playing in this way. In intervention, this increased to 61.5%. The mechanism for the increase shown by these two participants is unclear. It is possible that using props and costumes in a functional way during the intervention helped them to engage with the toys in the playroom in a similar fashion, or that the imaginative content of the intervention pushed their play further along the symbolic dimension of play.

Zander, on the other hand, displayed a decrease in functional play across the two phases. During the baseline period, he spent an average of 73.2% of time engaged in functional play. During intervention, this average fell to 62.4%.

Figure 8
Percentage of Time Spent in Object Manipulation-Sensory Play

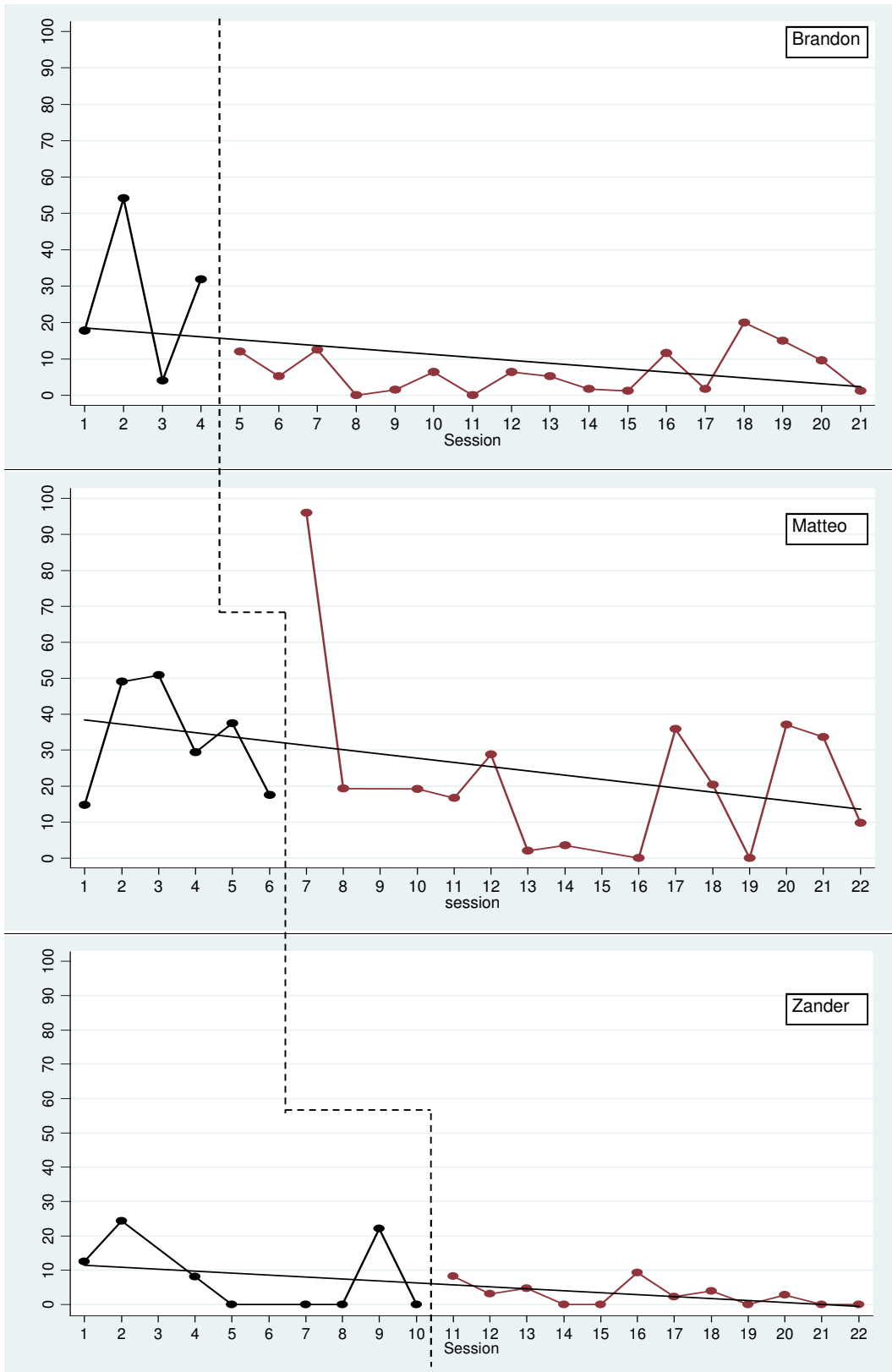
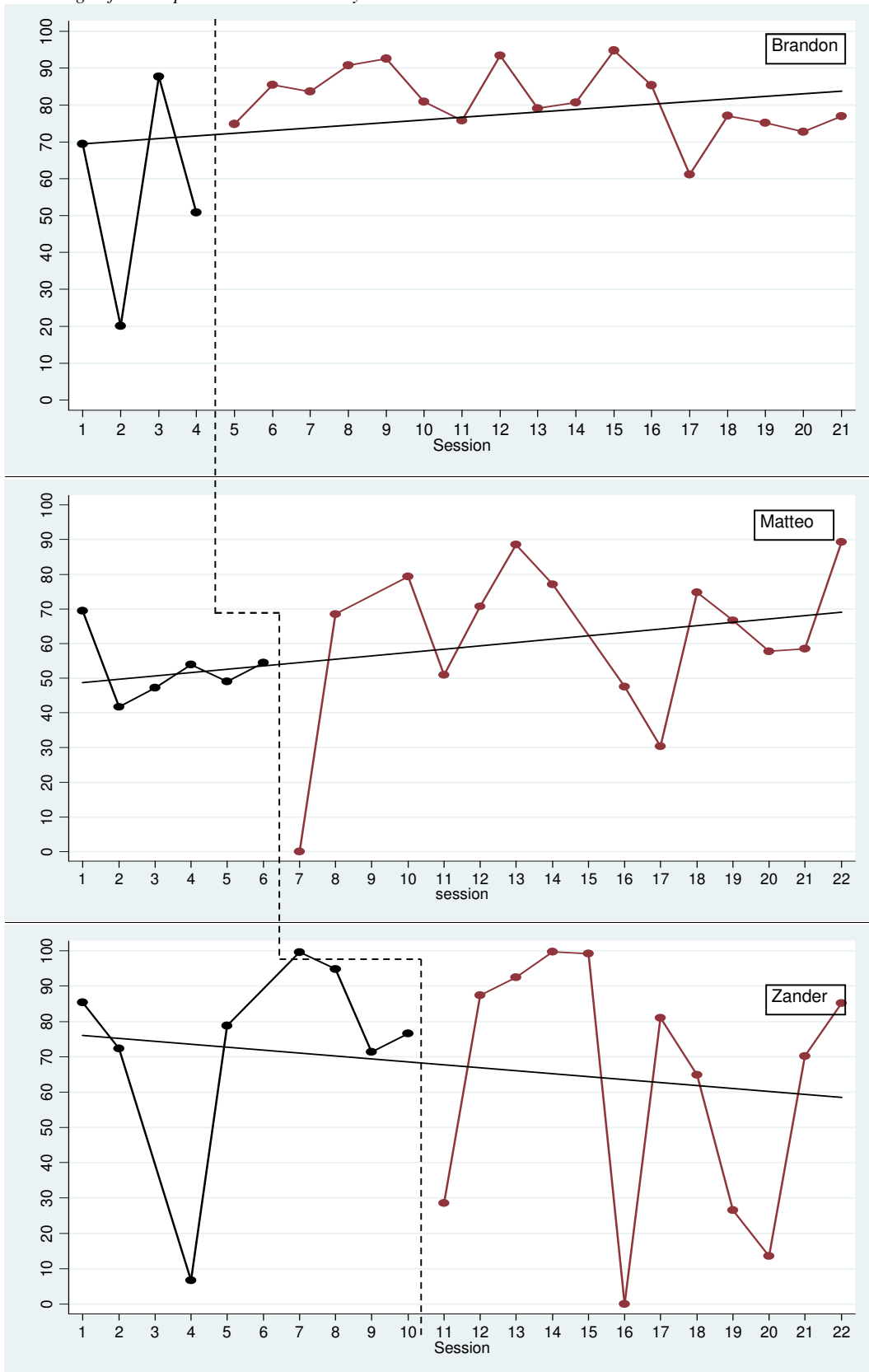


Figure 9
Percentage of Time Spent in Functional Play



Pretend play. Graphed results for pretend play are shown in Figure 10. Pretend play levels remained relatively stable for all three participants. The graphs for all three of them have slightly upward trends, but the averages remained fairly constant. Brandon and Zander both displayed average increases of less than 1% in their pretend play from baseline to intervention, while Matteo displayed a very modest increase from an average of 10.3% of time spent engaged in pretend play during baseline to an average of 13.2% in intervention. This result is unexpected, as my hypothesis was that involvement in the IDG would increase pretend play during unsupported play periods. Instead, it seems to have had little to no effect.

Role play. Similarly, for two of the three participants, the intervention had little to no effect on role play during unsupported play periods. Brandon and Matteo's levels of role play were very close to zero in both the baseline and intervention phases. Zander, on the other hand, displayed a very significant increase in role play. During baseline, he spent an average of only .2% of the time engaged in role play. During intervention, however, his average went up to 17%. It is important to note, however, that the bulk of his improvement occurred over the course of the last few sessions of his group. The increase seems to have started around session 18, which was immediately after Gemma joined the group. Her presence may have had an effect on his role play. Graphed results for role play are shown in Figure 11.

Figure 10
Percentage of Time Spent in Pretend Play

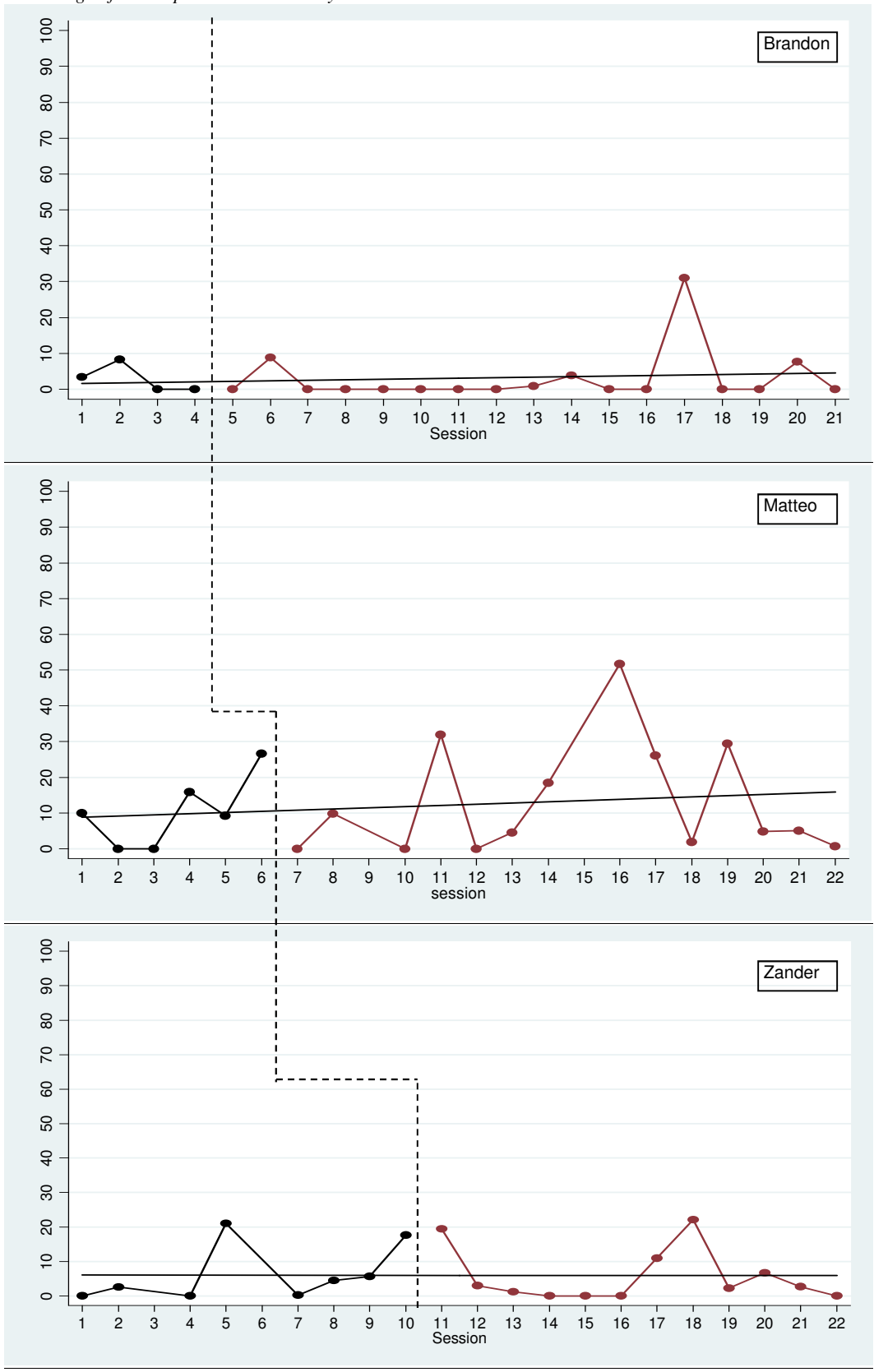
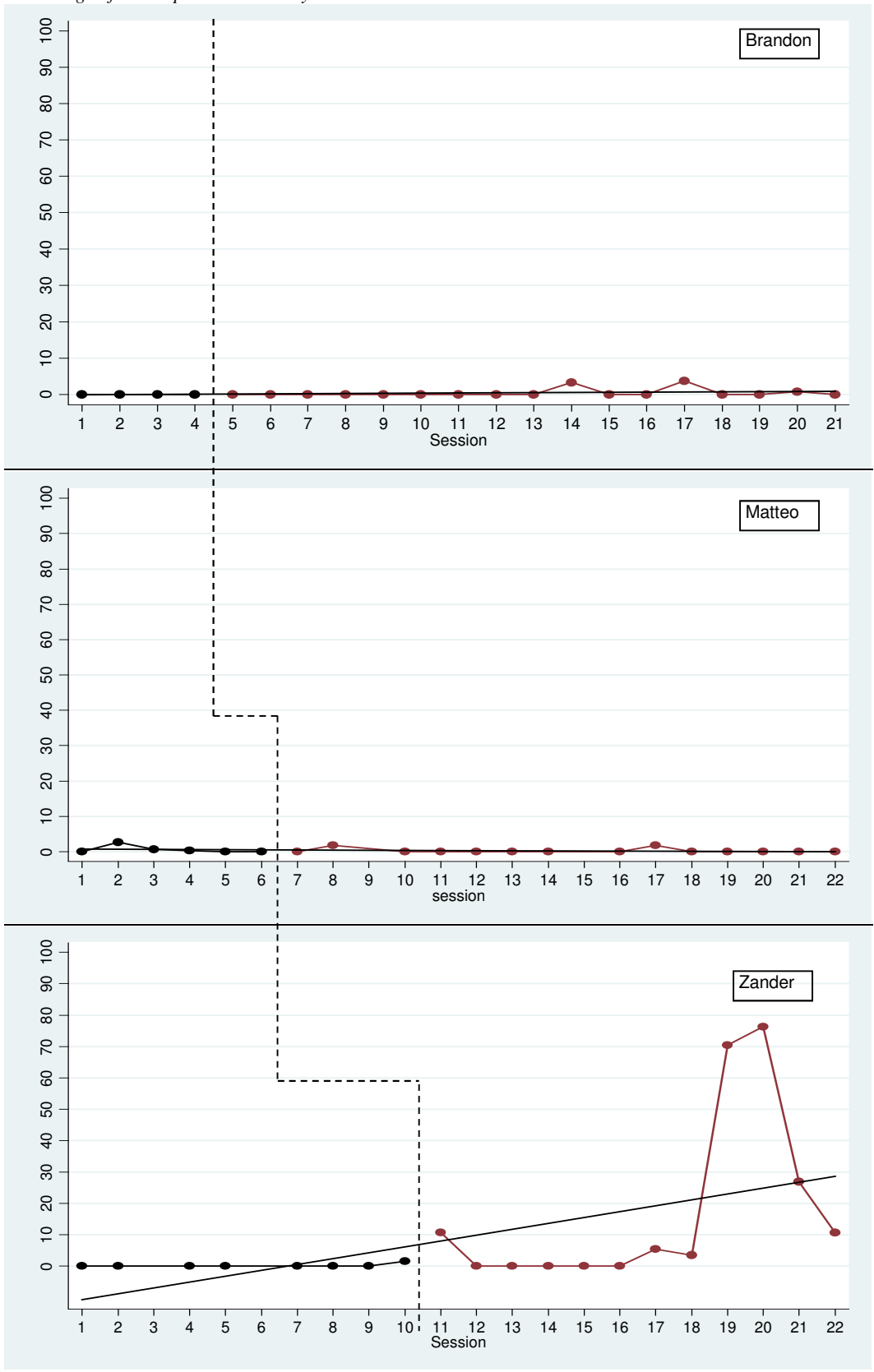


Figure 11
Percentage of Time Spent in Role Play



Initiations, No Response to Initiations, Refusal of Initiations

The results presented here (and summarized in Table 8) for *initiation*, *no response to initiation*, and *refusal of initiation* are reported in rate per minute of each behavior. For example, if a child made 10 initiations during a 10-minute period of unsupported play, it would be reported that he initiated at a rate of 1 initiation per minute (10 initiations / 10 minutes = 1.0). Similarly, if he only made 5 initiations in a 10-minute unsupported play period, it would be reported that he initiated at a rate of .5 initiations per minute (5 initiations / 10 minutes = .5). As discussed in the Methods chapter, the calculation was done in this way to compensate for the widely differing lengths of the unsupported play period across individual sessions for each group. For calculations of child no response to initiations and child refusal of initiations, sessions in which no initiations were made by peers were dropped by the statistical software. For calculations of peer no response to initiations and peer refusal of initiations, sessions in which no initiations were made by novice players were dropped.

Table 8

Summary of Average Baseline and Intervention Means for Initiations, No Response to Initiations, and Refusal of Initiations

Type of Play	Baseline Mean (Rate/min. of behavior)	Intervention Mean (Rate/min. of behavior)	Trend from baseline to intervention
Child			
Initiation			
Brandon	.36	.11	Decrease
Matteo	.68	.93	Increase
Zander	.59	.52	Almost no change
Peer			
Initiation			
Brandon	.4	.18	Decrease
Matteo	.38	.31	Almost no change
Zander	.4	.27	Decrease
Child No Response*			
Brandon	.15	.13	Almost no change
Matteo	.15	.1	Decrease
Zander	.09	.1	Almost no change
Child Refusal*			
Brandon	.09	0	Decrease
Matteo	.02	0	Very low in both phases
Zander	.03	.02	Decrease, but very low in both phases
Peer No Response*			
Brandon	.08	.12	Increase
Matteo	.22	.3	Increase
Zander	.31	.28	Almost no change
Peer Refusal*			
Brandon	.04	.02	Decrease, but very low in

			both phases
Matteo	.12	.16	Increase
Zander	.19	.04	Decrease

* For categories other than child and peer initiation, results were calculated based only on sessions where initiations took place (i.e., child no response and child refusal was only calculated for sessions where peers initiated, and peer no response and refusal was only calculated for sessions in which novice players initiated.)

In Brandon's case, at least one child and one peer initiation was observed in every baseline session. However, there were 6 intervention sessions out of 17 (35%) in which peers did not initiate with him, and 8 intervention sessions out of 17 (47%) in which he did not initiate with peers. These numbers are quite high, a result which is noteworthy in and of itself, and which will be discussed in a later section. In Matteo's group, at least one child and one peer initiation was observed in every baseline session, but there was 1 intervention session out of 14 in which peers did not initiate with him. For Zander, there were 2 intervention sessions out of 12 in which peers did not initiate with him, along with 1 baseline session out of 8 and 1 intervention session out of 12 in which he did not initiate with them.

Initiations.

Novice players. We will first examine the change in average rate of child initiation (i.e., the average number of times per minute that a novice player initiated joint engagement with a typical peer; see Figure 12). Results varied quite a bit, and not always in the direction I predicted. Brandon, for example, showed a decrease from an average rate of .36 initiations per minute (or 1 initiation every 3 minutes) during baseline to a rate of .11 initiations per minute (or 1 initiation every 10 minutes) during intervention. Put another way, Brandon initiated only one-third as often once intervention began. In fact, for the first six intervention sessions, he did not initiate at all. This finding runs counter to my hypothesis, which was that the intervention would increase the number of initiations made by novice players. Matteo showed a more modest difference in the opposite direction, increasing his average number of initiations per minute from .68 during baseline (or approximately 1 initiation every 1.5 minutes) to .93 during intervention (almost 1 initiation every minute). Zander's initiations were extremely variable from day to day, but his average rate of initiation remained essentially flat from .59 per minute in baseline to .52 per minute in intervention.

Peers. The number of peer initiations (i.e., initiations made by an expert player to a novice player) followed a similar pattern (See Figure 13). In Brandon's group, peers initiated with him an average of .4 times per minute (or 1 initiation every 2.5 minutes) during baseline and .18 times per minute during intervention (or approximately 1 initiation every 5 minutes). This means that peers initiated with Brandon half as much during intervention as they did during baseline. Zander's group showed a similar pattern. Peers initiated with him .4 times per minute in baseline (1 initiation every 2.5 minutes) and .27 times per minute in intervention (approximately 1 initiation every 4 minutes). Peers initiated with Zander a little more than half as much during intervention as they had during baseline. Results for both of these participants run counter to my hypothesis, which was that experts would initiate with novices more once the intervention began. In Matteo's group, on the other hand, peer initiation remained relatively constant across the two conditions. Peers initiated .38 times per minute during baseline and .31 times per minute during intervention. Both of these figures translate to approximately 1 initiation every 3 minutes.

Figure 12
Rate per Minute of Initiation by Novice Player

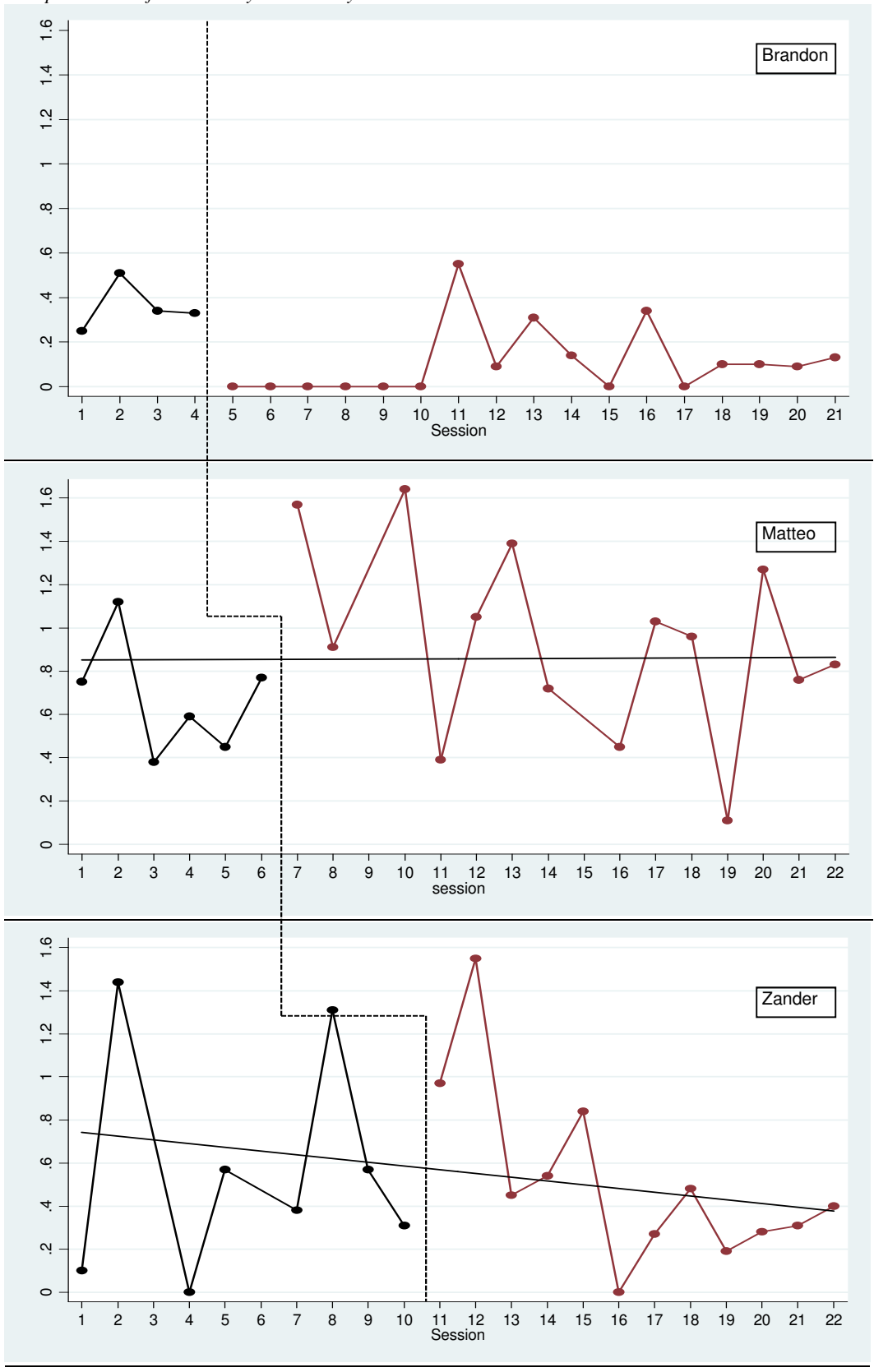
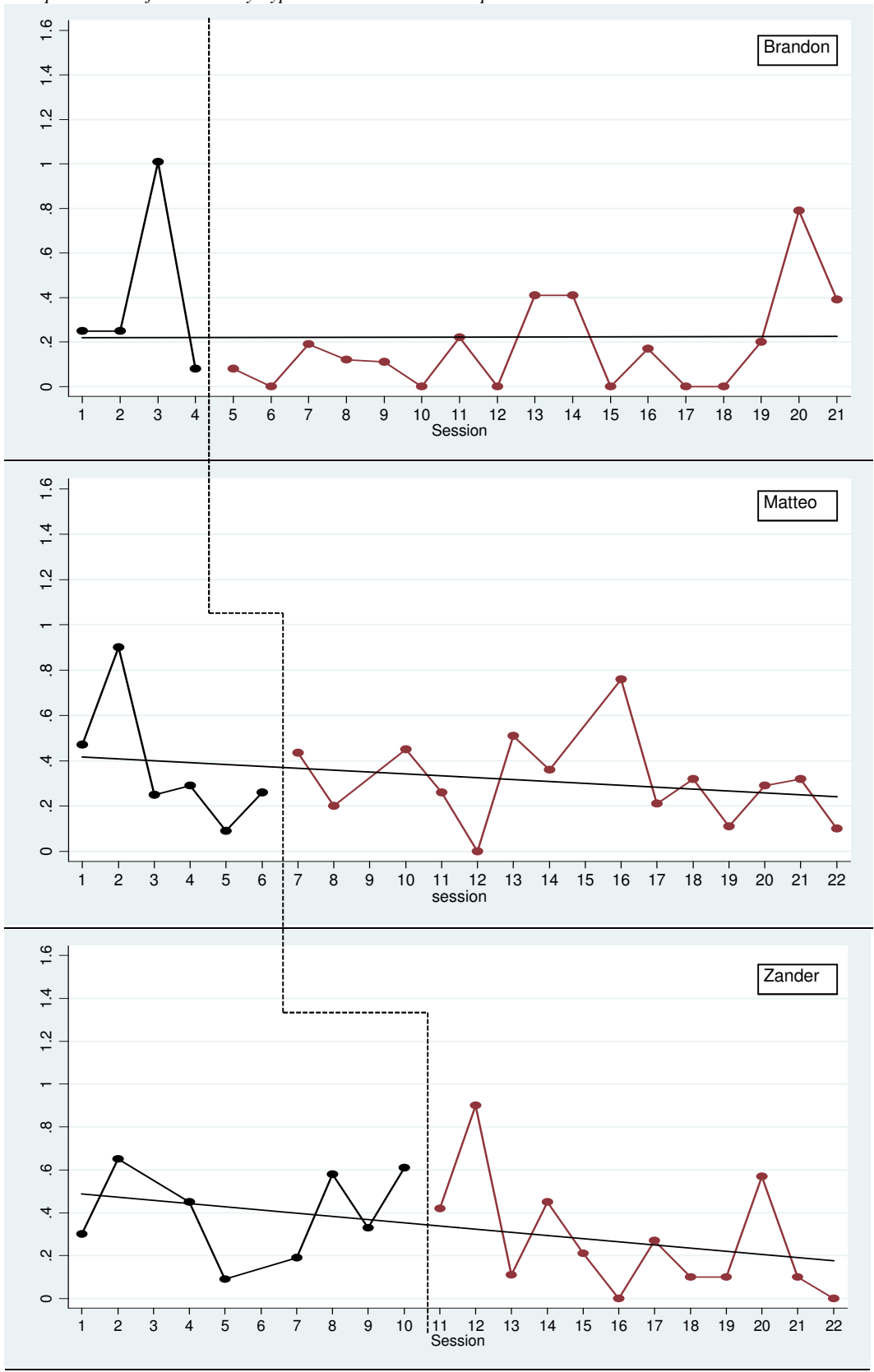


Figure 13
Rate per Minute of Initiation by Typical Peers in Each Group



It is interesting that in Brandon and Zander's groups, change in initiations by either the child himself or his peers (or both, in Brandon's case) decreased significantly, while in Matteo's group change was much less extreme. Why this might have occurred will be explored in the discussion.

No Response to Initiations. We analyzed the rate at which children did not respond to others' initiations, either because they did not hear or ignored them. Since the children's observable demeanor was the same in both cases (i.e., they did not acknowledge the initiation in any way), we could not discriminate between the two possible reasons for non-response and lumped them together into *no response to initiation*.

Novice players. Graphed results for novice players are shown in Figure 14. For two of the three novice players, the rate at which they did not respond to the initiations of their typical peers remained relatively constant from baseline to intervention. Brandon's overall trend of non-response went slightly upward from baseline to intervention. This result runs counter to my hypothesis that novices would be less likely to ignore or not hear an initiation attempt once the intervention started. However, if we look at his average rate of non-response across the two phases, we see that when peers initiated with him, Brandon's average rate of not responding remained relatively constant across the two phases. His average rate of non-response was .15 during baseline (approximately 1 non response every 6.5 minutes) and .13 during intervention (approximately 1 non-response every 7.5 minutes).

Zander's data show a similar discrepancy between visual trend and measurement of average non-response per minute. The visual trend goes slightly down from baseline to intervention. Looking at his average rate across the two phases, however, we see that when peers initiated with him his average rate of non-response was .09 times per minute during baseline and .1 times per minute during intervention, showing virtually no change.

Matteo was the only participant who showed a change across phases. When peers initiated with him during baseline, his average rate of non-response was .15 times per minute, a result identical to Brandon's baseline measurement. During intervention, this rate decreased to .1 times per minute (or 1 non-response per 10 minutes of unsupported play), a full third less than it had been during baseline.

Peers. Graphed results for expert players are shown in Figure 15. In Brandon's group, although rates of non-response were relatively low, expert players were more likely to show non-response to his initiations during intervention than they were during baseline. This is the opposite of what I hypothesized would occur. When Brandon initiated with them during baseline, peers had an average rate of .08 non-responses per minute, or 1 non-response every 12 minutes. During intervention, the average rate increased to .12 (approximately 1 non-response per 8.5 minutes), an increase of 33%.

Matteo's group displayed the same pattern, albeit to a lesser degree. When he initiated with them during the baseline phase, their average rate of non-response was .22, or approximately 1 non-response every 5 minutes. During intervention, this rate increased to .3 (approximately 1 non-response every 3.5 minutes), an increase of 25%.

Figure 14
Rate per Minute of Novice Player No Response to a Typical Peer's Initiation

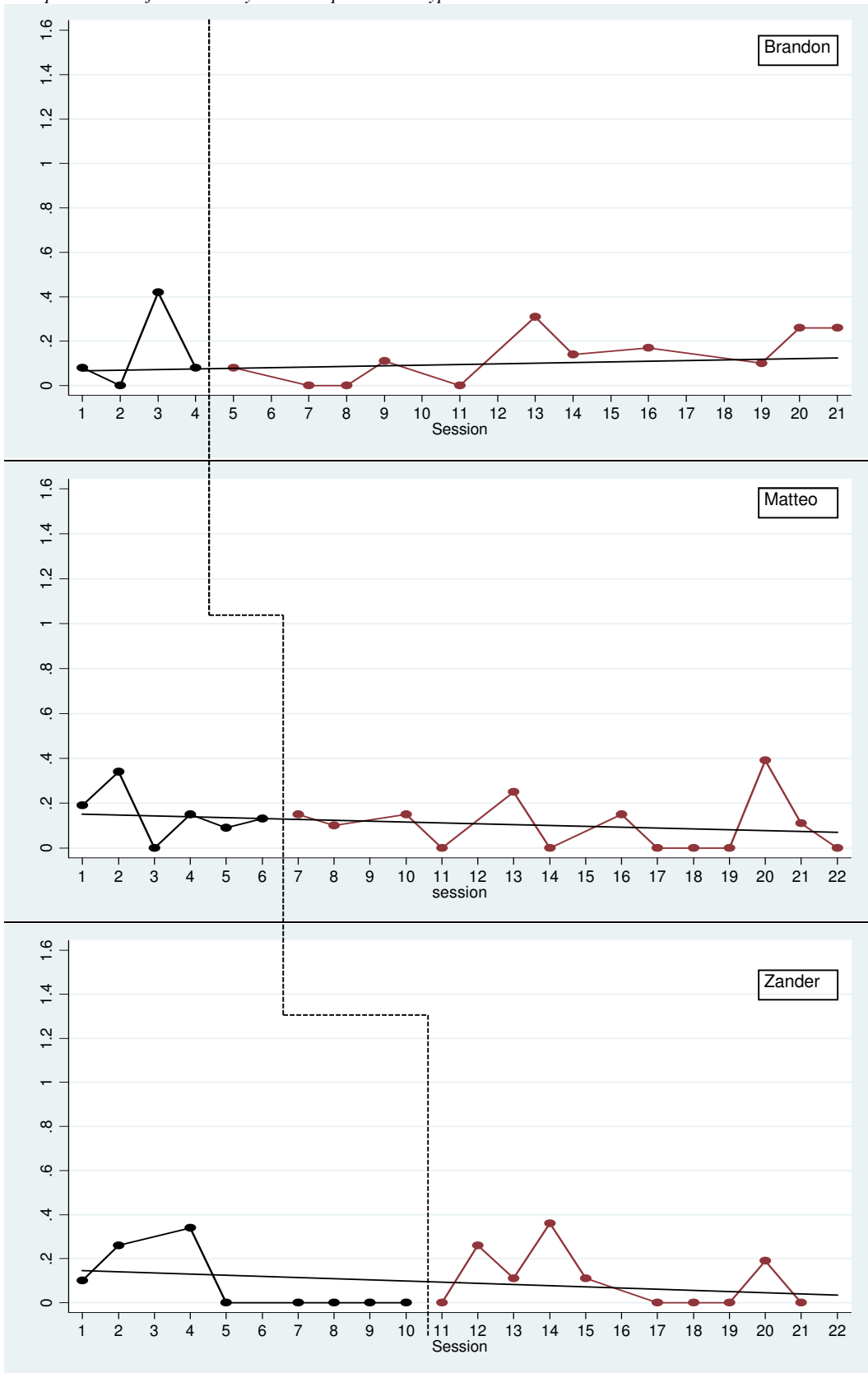
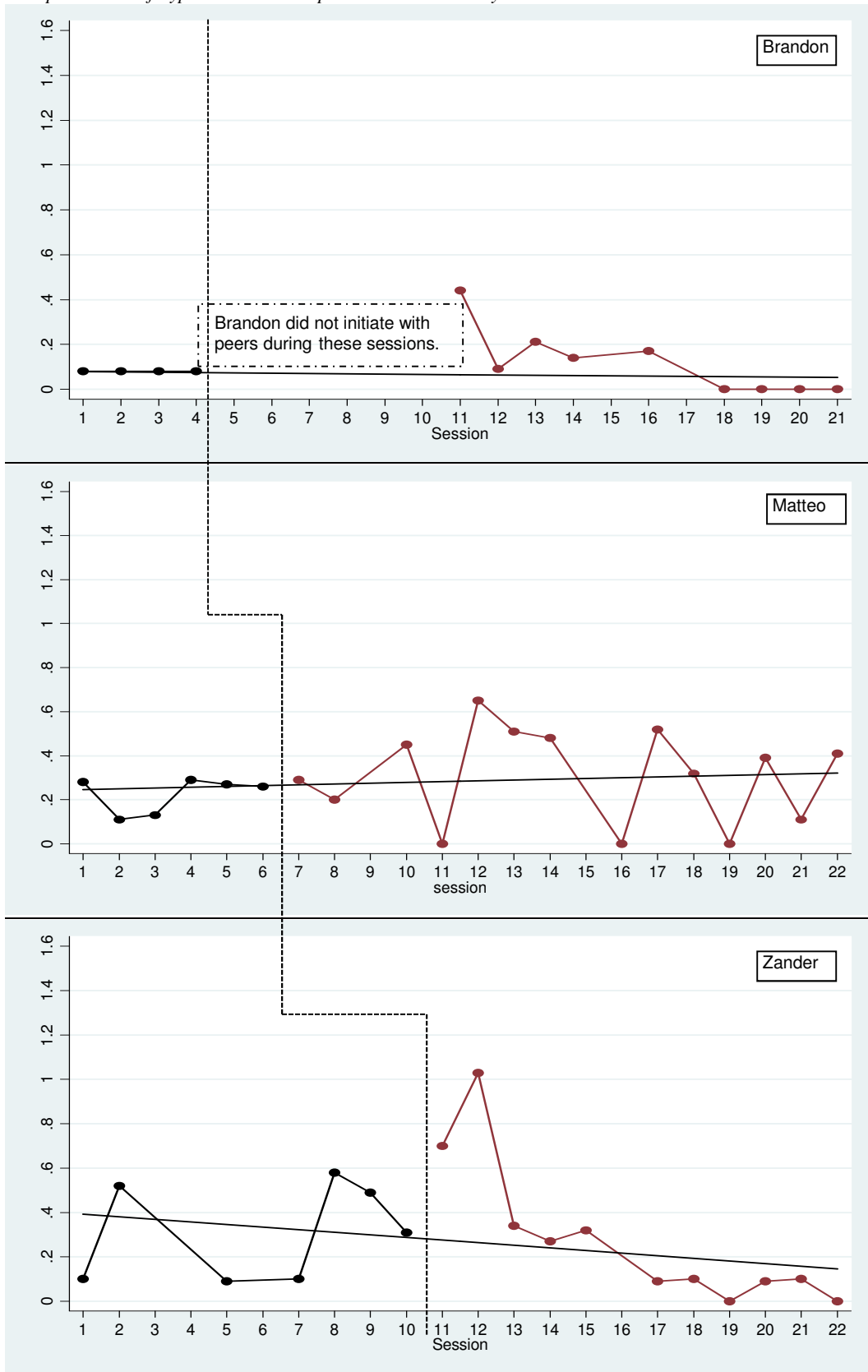


Figure 15
Rate per Minute of Typical Peer no Response to a Novice Player's Initiation



Of the three groups, Zander's was the only one which was less likely to have a non-response to his initiations during intervention, but the difference was modest. Their baseline rate of non-response was .31 (a little less than 1 non-response every 3 minutes). This was a higher rate than the other groups demonstrated in baseline. Since we could not discriminate between peers not hearing and actively choosing to ignore initiations, it is possible that the rate was higher because the peers simply could not hear the initiations. In intervention, the peers' rate of non-response slightly decreased to .28 (approximately 1 non-response every 3.5 minutes). This decrease is so small as to be negligible.

To summarize, exposure to facilitated drama had little to no effect on two of the three novice players' rate of non-response to the initiations of the experts during unsupported play, and a negative effect on two of the three groups' rate of non-response to the initiations of the novices. The one exception to the former was Matteo, who showed a fairly significant decrease (33%) in rate of non-response to peers' initiations. The one exception to the latter was Zander's group, which showed a very slight (and likely insignificant) decrease in rate of non-response to his initiations. These findings largely contradict my hypothesis, which was that exposure to facilitated IDGs would result in fewer non-responses to initiations across all groups during unsupported play.

Refusal of Initiations. We also analyzed the rate at which novices and experts refused each other's initiations. A refusal was scored each time a child, novice or expert, actively passed on another's initiation of joint engagement by verbally refusing and/or shaking his or her head to indicate "no."

Novice players. For all three novices, the average rate of refusal of initiations went down from baseline to intervention (See Figure 16). Of the three novice players, Brandon's results were most significant. When peers initiated with him during baseline, Brandon refused at an average rate of .09 times per minute, or 1 time each 11 minutes. Once facilitated drama began, that rate dropped to zero—he never refused an initiation during unsupported play. This means that although his peers' initiations towards him in unsupported play decreased once facilitated drama began, when they did initiate he was much less likely to decline.

Matteo and Zander also showed decreases in average rates of refusal from baseline to intervention, but even in baseline, their rates were very low. Matteo's average baseline rate of refusal of a peer's initiation was .02 (1 refusal for every 50 minutes of unsupported play—so low as to be negligible) and decreased to zero once intervention began. Zander's rate of refusal during baseline was .03 times per minute (1 refusal every 30 minutes) during baseline and .02 times per minute once intervention began. This represents a decrease in rate of refusal of 33% from baseline to intervention. However, that the rate is so low in both phases indicates that interpretation of this result should be limited.

Peers. For two of the three groups, expert players were less likely to refuse the initiation of a novice player once intervention started than they had been in baseline (See Figure 17 for a graphic representation of the trend). In Brandon's group, the experts' average rate of refusal decreased from .04 in baseline (or approximately 1 refusal for every 25 minutes of unsupported play) to .02 in intervention (or 1 refusal every 50 minutes), a decrease of 50%. The decrease itself is substantial, but both rates are quite low. In Zander's group, the effect of the intervention was much more powerful. In that group, the experts' baseline average rate of refusal was .19, or almost 1 refusal every 5 minutes. During the intervention phase, this rate plummeted to .04, only a little more than one-fifth of what it had been in baseline. Thus, exposure to the facilitated

Figure 16
Rate per Minute of Novice Player Refusal of a Typical Peer's Initiation

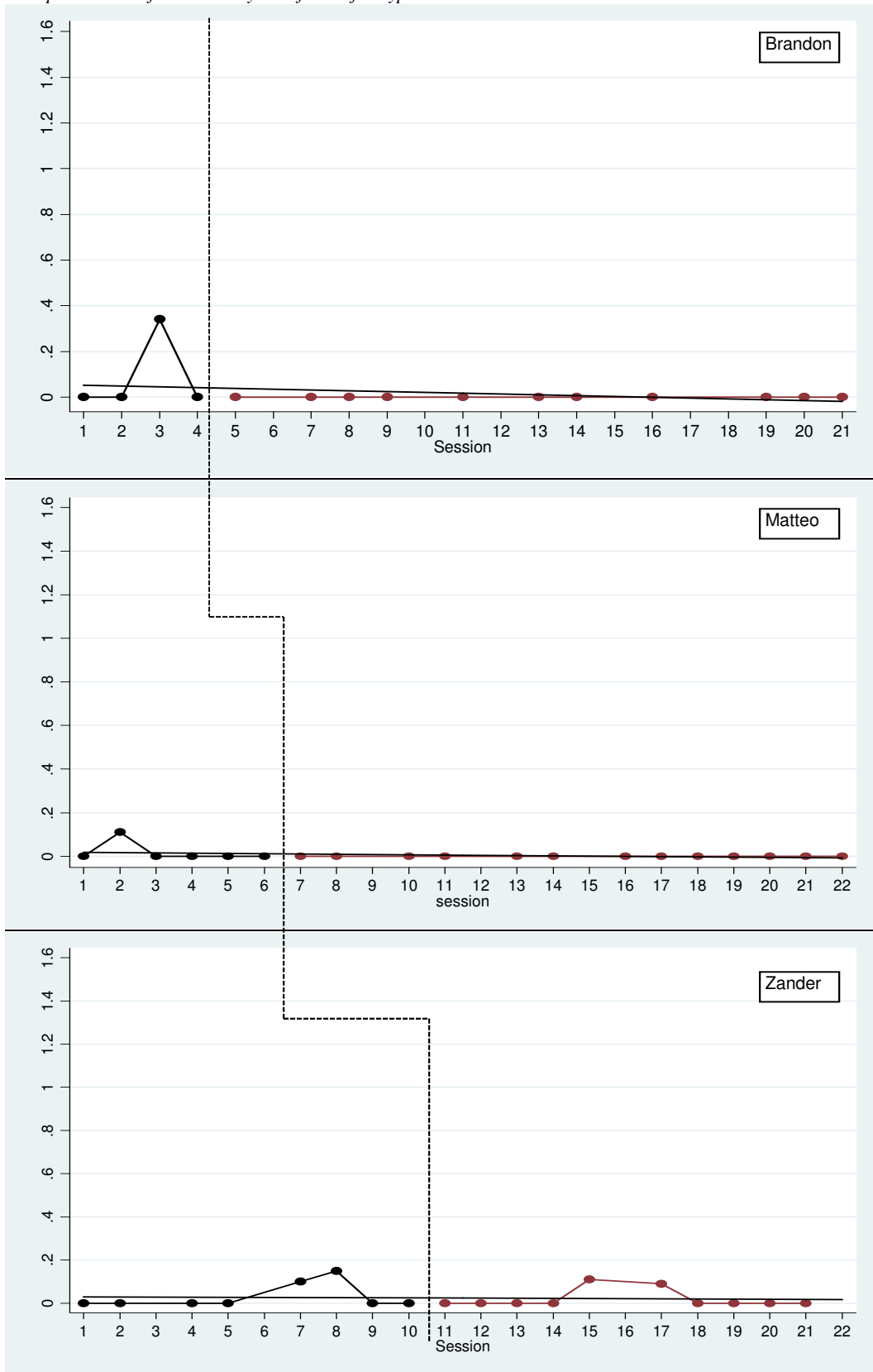
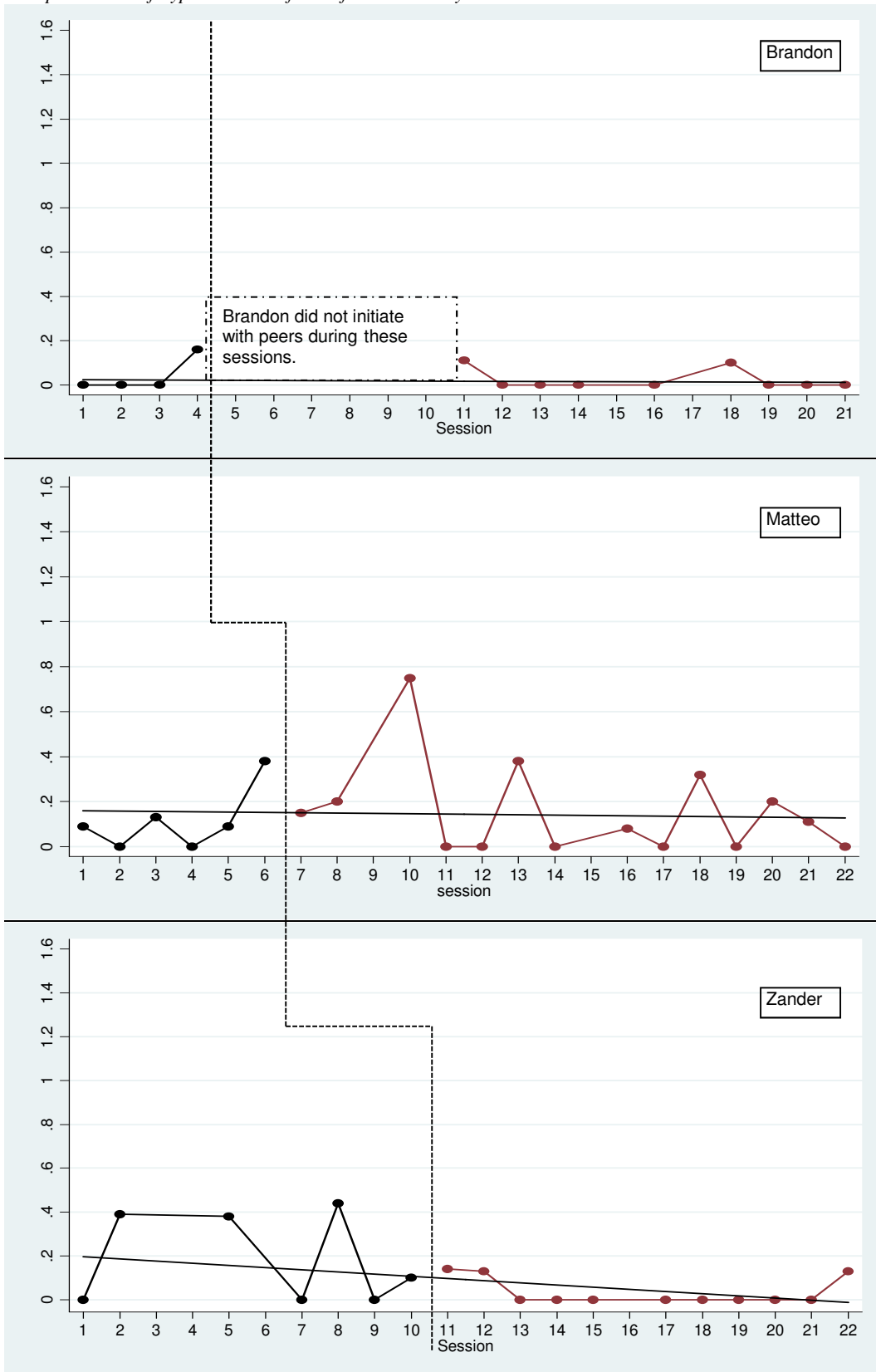


Figure 17
Rate per Minute of Typical Peer Refusal of a Novice Player's Initiations



drama group made the expert players much more likely to accept Zander’s initiations during unsupported play periods.

In Matteo’s group, on the other hand, the expert players were more likely to refuse his initiations in unsupported play once facilitated drama began. Their average rate of refusal during the baseline period was .12, or one refusal every 8.5 minutes. During the intervention period, the rate increased to .16, an increase of 33%. This is the opposite of what was predicted.

To summarize, exposure to facilitated drama decreased all three novices’ average rate of refusal of peers’ initiations during unsupported play. For Brandon the result was especially striking, but for Matteo and Zander, whose rates of refusal were very low to begin with, the decrease was less pronounced. Among the expert peers, results varied. The expert players in Zander’s group demonstrated a large decrease in their rate of refusal of his initiations once facilitated drama began, accepting his overtures almost five times as much as they had during baseline. Expert players in Brandon’s group rejected his initiations half as often after facilitated drama began, but since their rate of rejection was low in baseline as well, results may be less meaningful. The expert players in Matteo’s group demonstrated the opposite effect. They rejected his initiations during unsupported play 33% more often during the intervention phase than they had during the baseline phase.

Joint Engagement

Finally, we calculated the average percentage of time during unsupported play that each novice player spent in joint engagement with one or more expert peers (See Table 9 for a summary and Figure 18 for the graphed results). Since joint engagement could occur only as a result of an initiation (either by a novice, an expert, or jointly), sessions in which no initiations were made by either novice players or experts were dropped. Four sessions were dropped from Brandon’s data, and one from Zander’s. None were dropped from Matteo’s.

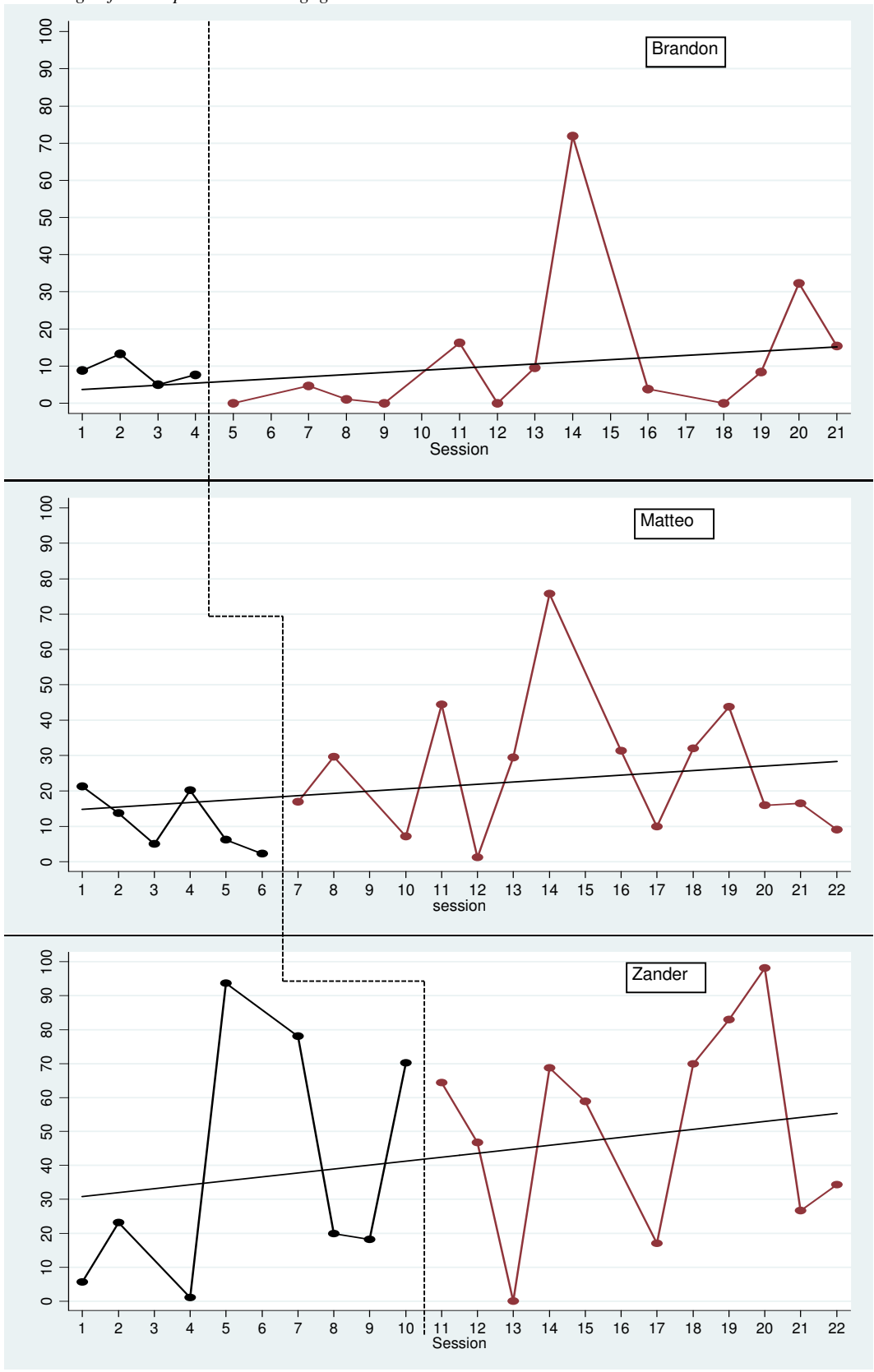
Table 9
Summary of Joint Engagement Data

Type of Play	Baseline Mean (% of time engaged in behavior)	Intervention Mean (% of time engaged in behavior)	Trend from baseline to intervention
Joint Engagement*			
Brandon	8.7	12.6	Increase
Matteo	11.4	25.9	Increase
Zander	38.7	51.6	Increase

* For joint engagement, results were calculated based only on sessions where initiations (either by a novice or an expert) took place.

Exposure to facilitated drama led to increases in joint engagement during unsupported play for all three novices. Brandon’s average level of joint engagement improved from 8.7% during baseline to 12.6% during intervention. This was the smallest increase of the three. During the baseline phase, Matteo spent 11.4% of his unsupported play time in joint engagement. Once facilitated drama began, this number increased to 26%. This was an increase of 14.6%, the largest of the three. Zander’s average level of joint engagement increased from 38.7% during baseline to 51.6% during intervention, an increase of almost 13%.

Figure 18
Percentage of Time Spent in Joint Engagement



Reading the Mind in the Eyes Test

As an additional measure, before the IDG sessions began, each of the three novice players along with three age- and language-matched peers designated as controls were administered Baron-Cohen et al.'s (2001) "Reading the Mind in the Eyes" test (Child Version) which examines a child's ability to recognize emotions in the eyes of people in photographs. Approximately two weeks after completion of their IDG, the three novice players and their controls were given the Eyes test a second time (See Table 10 for results).

Table 10
Percent Correct Responses on the Reading the Mind in the Eyes Test

	Pretest	Post-test	Diff.
Brandon	46	43	-3
Control 1	54	64	10
Matteo	46	61	15
Control 2	68	71	3
Zander	29	32	3
Control 3	57	71	14

With only three matched pairs, it is impossible to find a statistically significant difference between the two groups (Marascuilo & Serlin, 1988). However, even a cursory look at the raw data in the table above shows differences which were in no way systematic. Brandon scored lower on the post-test than he had on the pre-test (the only participant of the six to do so), and his matched control improved by 10 percentage points. Matteo showed more improvement than his matched control, and Zander showed less. Thus, two novice players showed less improvement on the Eyes Test than their matched controls, and one showed more. In addition, even though controls were matched by age and language ability to our novices, they all performed better on the pre-test than did the novices. This suggests that there may have been pre-existing between-groups differences in ability on the test to begin with.

Generalization and Social Validity

Convenience and enjoyment. All three caregivers expressed that the length of each individual session (one hour) was appropriate for their novice player. For example, Zander's mother Alice said "I think in general an hour is a good amount of time for kids to get together and play. . . . it was just the right amount of time for Zander." This sentiment was echoed both by Brandon's father Kevin and Matteo's grandmother Sheri, but they also believed that their children would still have been happy even if the sessions had lasted longer. Likewise, the overall length of time commitment from pre-test to interview (approximately one semester) was judged to be appropriate by all three respondents. Although Kevin, Brandon's father, was happy with the overall length, he noted that "the way I judge it is whenever I know a program is good for Brandon. If this could have gone longer, then I would have been all for doing it," indicating the extent to which he thought the IDG was benefitting Brandon.

When respondents were asked about the convenience of getting to the site (which was located in a neighborhood that was not in the center of the city), responses were mixed. Kevin said that it was relatively easy, and that it had helped that Brandon was familiar with the site based on his prior involvement in an IPG that took place there. For Alice, it was easy as well, but only because she had a babysitter who could pick Zander up from school and bring him to the site. Otherwise, she said, “I probably couldn’t have done it.” For Matteo’s family, whose situation was complicated by a recent divorce and family members living in three different places, getting him to the site presented a challenge. However, the benefit of Marco’s involvement outweighed the inconvenience: “All we really had to do was get him here, so. . . we were happy to do it.”

All three caregivers expressed that their children enjoyed being involved in IDG. Brandon “thought of it as the next extension of [the IPG] he was doing before, which he also enjoyed.” Alice noted that Zander “would always ask when the next one was. . . . He was always looking forward to the next one.” Sheri reported that after the group ended, Matteo “asked when he got to come back, and he was sorry it was over.”

Changes in social play. All three caregivers reported that the progress in social play noted during the IDG generalized to novices’ lives outside of the group.

Brandon. Brandon’s father Kevin spoke with amazement about watching Brandon become excited when seeing the members of his group arrive at the IDG, something that Kevin had never before seen:

That’s not something he was getting at school but he got [in IDG]. I thought it was *really* cool that he looked forward to these children, he looked forward to the socialization of being around these children. . . . It was nice to see because I think the biggest worry as a parent right now is his ability to make friends. . . . I just reflect on when I was his age and I had a lot of friends. Not a lot of friends, but people I could say were my friends. And just because of his condition, or shyness, or whatever it is, he has a hard time making friends. So any situation where he can make friends is a beautiful, beautiful thing (*Laughs*).

Matteo. Matteo’s grandmother Sally revealed that since being involved in the IDG, Matteo “talks about friends a lot and he understands the concept of friends. He appreciates friends. . . . He’s able to play with kids better now than he could a year ago for sure.” When asked about how much of the change she could attribute to his prior involvement in an IPG and how much she could attribute to the IDG, she said “both [the IPG and IDG] helped [with many things in his life] and this particular group really stepped up his talking about friends.”

Zander. Zander’s mother Alice spoke at length about the social changes she had seen in Zander since his involvement in both his prior IPG and the IDG, even going so far as to suggest that the groups were responsible for his needing less support at school:

I have seen an improvement in the last year just in his ability to listen to what other kids are saying while he’s playing. . . . His personal interaction with the other kids and his ability to hear what they had to say and maybe play what they wanted to play for a short period of time is better than it was previously. . . . It’s a significant change, and they noticed it at his school too. It’s like another step forward socially for him. We were able

to pull back a little bit on some of the support services that he was getting at school. He's really functioning much more like a typical third grader now. . . . He's just able to go along with the flow more, stay part of a group more, and not always have an adult there to help him work things out.

When asked about how much of the change she could attribute to the IDG versus his previous IPG, she said "it started. . . while he was in the IPG but I think it's just continued. I think he's doing even better now than he had been then."

Changes in symbolic play. All three caregivers expressed that their children were engaging in more spontaneous pretend play outside of the IDG.

Brandon. Kevin noted that after starting the IDG, Brandon began to initiate spontaneous role play scenarios at home. "I now find him and my wife imagining stuff around the house. . . . He's a graffiti artist and she's a cop, and she catches him and chases him for doing graffiti." He also described a scenario that Brandon likes to initiate with him:

On the bed we will do life raft. We're the guys on the life raft and he tries to always fall out and there's sharks in the water and stuff, and he's always wanting to jump out into the water and I'm always pulling him back. . . . It combines [role play] with father and son grab-assing kind of thing. (*Laughs.*)

For Kevin, this behavior represented a significant change in Brandon. "Before you kinda had to ramp up or tell him what you're gonna do and now he just goes with it right away. Anytime anything will bring out a good expression or get him to be emotional is a great thing."

Matteo. Matteo's grandmother Sheri also reported significant change in Matteo's ability to pretend since beginning the IDG:

INTERVIEWER: Have you noticed any differences in the way he pretends during play?

SHERI: (*No hesitation*) Yes.

I: Like what?

S: I think he can pretend better.

I: Can you give me an example? What's something you've seen?

S: Well he uses the fruits that he makes- like he'll take an orange and draw a face on it and put something on it that looks like hair and clothes. I mean he'll make these little creatures and then they can talk. They talk to each other. He uses them like figures. He didn't do that before. Representative characters- he now constructs them. That's new.

I: Constructs them physically?

S: Yeah out of fruit.

I: And materials?

S: Yeah, materials. But he likes fruit. And he's more able to create pictures of imaginary people and things like that- story pictures. He's never has liked stories very much. He just doesn't like books very much. I think he's made a different kind of improvement with the drama group. I do.

In addition to creating and playing with characters, she noted that since starting the IDG,

Matteo also showed an increased tendency to enact roles. “He will be [YouTube character] Annoying Orange himself and spit seeds. . . . He’s not Mr. Dramatic Play but [his role play] did step up.”

Zander. Finally, Zander’s mother shared that “he’s initiating pretend stuff more than he used to. . . . At home, occasionally he’ll act like a dog or pretend to be a cat. . . . And sometimes he’ll do things that we don’t really understand, but you can tell he’s trying to pretend.” She had difficulty generating other specific examples, but was very happy with the change. “I’ve noticed him doing stuff like that that I probably should have seen five years ago in his development.”

Video clips. As part of the interview, each caregiver was shown two video clips of their child’s IDG and asked to share what they observed. Unbeknownst to them, they were shown, in random order, one randomly-selected baseline clip and one randomly-selected intervention clip. After they had watched and commented on both clips, they were told that one had been taken during baseline and one during intervention, and asked to guess which clip had been which and why. Results are summarized here.

Baseline video. For two of the three novices, caregivers expressed that during the baseline clip, their children appeared to be neither skillfully engaging with others, nor pretending. For example, Matteo’s grandmother, upon watching the clip that was ultimately revealed as having been from baseline, said

This [video] doesn’t make me happy. . . . He can’t engage other kids. He might want to, but all he knows how to do is go up and bonk ‘em or take their toys and mess with them. He doesn’t look happy and he’s isolated. . . . [He’s] just mindlessly wandering around not knowing what to do. And spinning on the floor. So that one didn’t look good to me.

Similarly, Zander’s mother noted that in his baseline video, Zander was “not really playing to a theme, more just kind of being silly and interrupting what other kids are trying to play.” She also described his play in that video as being quite passive.

For Brandon, who was more isolated during intervention than during baseline, results followed the opposite pattern. His father noted that in the video that was ultimately identified as baseline, Brandon was interacting and pretending with other kids. His father noted that he had largely been reacting to the suggestions of others, but that he was involved in the play. This is consistent with the quantitative results above.

Intervention video. Matteo’s grandmother and Zander’s mother both expressed that during the intervention clip, their children appeared to be successfully interacting with others. For example, Matteo’s grandmother noted that although Matteo was not pretending during the clip (the play object was bubbles),

He was enjoying being in the room and he was having fun with the bubbles. He was able to wait his turn and he wanted [expert player] Emma’s involvement. . . . He had to kind of win her back because she kind of lost interest-she said it wasn’t her thing. But he was able to get her back. . . . I was happy with what I saw. . . . He was laughing and smiling and wanting to engage with other kids. He was having a good time, he was happy. . . . I love seeing this because I never get to see him playing with other children.

For her part, Zander’s mother noted that during the intervention clip,

I was surprised at how animated and on task [his play] was because we don't see that at home, hardly at all. He was actually equally participating in it. . . and even moving it forward. . . . He was definitely responding to what [the expert players] were doing and moving it forward.

The clip was one where Zander was playing a cashier in a grocery store who was also the boyfriend of one of the other players. Alice could tell he was playing a role, but the audio was such that it was hard for her to identify the specific character (he marked it only by whispering "I'm your boyfriend" to the expert). When told that he had been playing someone's boyfriend, she joyfully responded "He isn't as innocent as I thought he was!"

Consistent with quantitative results, Kevin said that Brandon appeared "more interested in doing his own thing" during the intervention clip. He noted that Brandon was not interacting with others, and attributed it to Brandon not being interested in what the others were doing. "I think if he found something they were doing [interesting], then he would have interacted. But since they weren't doing something he wanted to do at the time, he chose not to."

Identification of baseline versus intervention video clips. When asked, Sheri and Alice were both able to correctly identify which clip was from baseline and which was from intervention. Sheri, who had seen Matteo's baseline clip first, noted that "something happened for the better between the first one and the second one. [In the first video,] he was at a loss [for what to do]." Alice, who had seen Zander's intervention video first, said that in that video, Zander "was more actively involved in the playing. . . [and] had learned something. Something had been modeled for him, or encouraged in him, or something like that."

Consistent with the patterns of play noted for Brandon, Kevin mistakenly guessed that the first video he saw (which had been from baseline) was from intervention. When asked why, he said that the first video had "more imaginative play [and] interaction" than the second. His description was accurate, and lends support to the quantitative results reported for Brandon.

Chapter 5 Case Illustrations

The following are case illustrations for the novice players. They are not intended to serve as in-depth qualitative analysis of patterns that emerged in the groups, but rather to provide a window for the reader to gain an understanding of the children and their experiences while participating in the drama group portion of each IDG. Drawing on my field notes as facilitator and videotapes of IDG sessions as sources of qualitative data, the illustrations reveal potential change that may not have been entirely captured by the quantitative data taken during unsupported play. Descriptions of the children (novice and expert players) in each group, a typical baseline and typical intervention session for each novice player are shared.

Group 1: Brandon (novice), Ryan, Naomi, and Rosie (experts).

Brandon. Brandon was seven years and five months old at the time the study began. He was of mixed Filipino and Caucasian ancestry. He had brown hair and eyes, and was especially enamored of his father's iPhone. Each time he arrived with his father, the two of them would wait in the room where groups were being held, and Brandon would play games on the iPhone until the other members of his group arrived. When his father Kevin announced that he was leaving, Brandon would say goodbye, watch until Kevin walked out the door, and immediately run after him to say goodbye again and give him one last kiss. It was very sweet.

Brandon was a quiet child who preferred to play by himself, and if left to his own devices, was likely to lie alone on the floor or wander to the side of the room. He did not display much tendency for perseveration, and often could not think of an idea for a story on his own. However, when encouraged by myself as facilitator to participate in the activities of the IDG he was amenable, and participated very happily. He needed some reminders to take part, but always enjoyed himself once he was engaged.

Brandon's speech was complex and fluent, but idiosyncratic. For example, when asked "how are you?" he would always respond "just fine." Each time he did this, he used an identical tone of voice. During Opening and Closing Circles, he would start by speaking normally, then increase his speed and lower his volume so that his speech became unintelligible. By the end of his turn, he would be speaking nonsense words with a silly smile on his face. The other kids in his group thought this was hilarious, and he was most likely doing it in order to provoke their smiles and laughter.

Ryan. Ryan was one of the expert players in this group, and was 7 years old at the time the study began. He was of Caucasian descent, and had short blond hair and a great deal of passion. He was an energetic boy, and depending on the day, was either very excited to come to drama or annoyed that he had to come because it took him away from the play activities at his after-school program. He and Brandon sometimes got along very well (e.g., wrestling, playing bubbles together, etc.) and sometimes Ryan would completely ignore Brandon. Ryan always wanted to be first for everything, and would attempt to trick others into letting him have his way. He would sometimes pay close attention and participate in the IDG, and sometimes wanted only to do things on his own. He could be either a wonderful participant or a major challenge for me.

Naomi. Naomi was 6 ½ years old when the study began. Her parents were Israeli, and she was fluent in both Hebrew and English. Even though she was the youngest participant, she was one of the most mature children in the group. She had an unfailingly positive attitude, and consistently took part in all the activities. She loved dancing, and as a result, suggested more

than one story about dancers when it was her turn to choose the topic for guided improvisation. In stories created by others, she most often liked to play animals, especially dogs. She was kind and accepting of Brandon during the drama group, but did not show much interest in playing with him in the unsupported play portion of each session. She was more likely to play by herself or with Rosie (the other female expert player) than to seek out Brandon for joint engagement.

Rosie. Rosie was 6 years and 11 months old when the study began, a Caucasian girl with curly brown hair. She was quite dramatic. This manifested itself in two primary ways. The first was through characters she played. During Opening and Closing Circles, she would often affect a British accent and speak in a silly, over-enunciated manner. During structured improvisation, she was more interested than anyone else in the group in creating a costume and playing a character, and committed to her part with gusto each time. For a 7-year-old, she was quite a gifted actress. The other way in which her dramatic flair manifested itself was in dramatic over-reactions to minor injuries. A light bump from a careless actor could result in tears, dramatic sighs, and total withdrawal from the activities of the group for several minutes. In other words, she was a perfect fit for a drama group.

Group 2: Matteo (novice), Emma, Samara, and Andrew (experts).

Matteo. Matteo was 7 years and 7 months old when the study began. He was thin and pale with a messy head of blond hair, and missed his first session because he had broken his arm. He could inspire both great love and great frustration on my part as facilitator and on the part of the other members of his group, depending on his mood. He was given to hyperactivity, and until a mild behavior program was put in place would spend much of each session running around the room and getting into trouble. He would say or do things that he thought would be upsetting (e.g., cursing, screaming) so that he could then ask whomever the target of that behavior was whether or not they were mad at him. It appeared that by enacting these behaviors he was attempting to provoke social reactions from others. This showed a great deal of social curiosity on his part, but also became frustrating very quickly. There were many days where the group could not function because I had to spend a great deal of time attempting to calm Matteo down, stop a behavior that was upsetting others, or bring him back to the group. His hyperactivity and difficulty with impulse control came to a head when he pulled up the shirt of Emma, one of the female expert players in his group (whom he had called “fat” several sessions prior), who promptly ran to the corner of the room and began crying.

As challenging as Matteo could be at times, he could also be incredibly sweet and charming. After the incident with Emma took place, Matteo immediately began crying because he knew he had hurt Emma’s feelings. I worked with Matteo to formulate a plan for him to apologize. As soon as his apology was finished, Matteo asked Emma to play. He began to tell her that she was nice, cute, and very sweet. He showed a great deal of genuine kindness towards her, and was gentle, smiling, and cooperative with her. That session ended with Emma asking him to talk to her in private for a moment. When they were alone in a corner of the room, she gave him a kiss on the cheek. Their relationship continued in this vein, and by the end of the group, they had become close friends.

Matteo’s speech was also fluent and complex, but like Brandon’s included a great deal of repetitive speech. For example, he would often say “What’s wrong with you?” when engaged in an argument with another child. He would also say “Hey, David! David! Hey!” when trying to get my attention. A number of his repetitive phrases, including these, came from a YouTube video series that he was fond of called “The Annoying Orange.” Matteo also perseverated on a

number of topics, the most common being the game Angry Birds and crying. After saying or doing something that he knew was upsetting to another actor, he would ask “Are you crying?” He was very interested in both pretending to cry and having others do so. Drama was a good fit for him.

Emma. Emma was 9 years old at the time the study began, a Caucasian girl who was slightly overweight and had brown hair and freckles. As the oldest member of the group, she could be quite bossy, something which the other actors in the group both appreciated and were frustrated by. She was very interested in drama, and when in a good mood, was a very eager and happy participant in the group. She was also quite sensitive. Showing impressive self-awareness, on more than one occasion she told the group that she was having a hard day and needed to be treated especially kindly. She and Matteo had a complicated relationship. When he would curse or say something rude, she would have a very strong reaction. She was the target of some of his meanest moments and his most loving ones. He called her “fat” one day, and several weeks later, pulled up her shirt. This understandably bothered her a great deal. However, he also repeatedly told her how much he liked her, how cute and nice he thought she was, and the two of them became close friends by the end, snuggling and spending time together in both the drama portion and the unsupported play portion of the sessions.

Samara. Samara was 8 years old at the time the study began. She was tall and thin, of African-American descent. She had a speech impediment which made it difficult for her to pronounce the letter *r*. She was quick with a smile and equally quick with a sassy comment or pose when the situation called for it. She was incredibly helpful with Matteo, speaking to him sweetly and often taking it upon herself to encourage him to participate, offer him rewards (e.g., a piece of gum which she had brought) for good behavior, and when he became distracted, asking him if he’d like a piggyback ride. This often brought his focus back to the group. She was a great help to me. Her attitude was generally positive, with the exception of a few times that she quarreled with one of the other actors or felt that she did not get what she was promised by me (e.g., the opportunity to be the first to perform a particular activity).

Andrew. Andrew was 7 years old when the study began. He was short with long wavy brown hair and big eyes, lending him a somewhat feminine appearance. He was sensitive and sweet, and had tears in his eyes as the group said goodbye on the last day of the IDG. He loved musical theater, and would often sing a verse or two from “Jesus Christ Superstar” in the middle of a group session, a propos of nothing. He was cooperative and engaging, but could get carried away and lose control of his body physically, careening into others or leaping up onto a table in the drama space. He initiated a great deal of interaction with Matteo throughout the course of the study, both in the drama group and unsupported play portions. His initiations of physical play with others (e.g., riding on someone or being ridden on while playing a jockey or a horse) would sometimes backfire, as his small stature made him susceptible to injury during roughhousing. On the occasions when he got hurt, he recovered quickly and did not let it affect his participation or experience in a negative way.

Group 3: Zander (novice), Amy, Idris, Savannah/Gemma (experts). Of all the groups, Group 3 was the most challenging, from both the perspective of child attendance and child behavior. As originally formulated, Group 3 conformed to the others—there were two boys (one expert, one novice) and two girls (both experts) who participated. However, just before the 11th session of that group, I was informed that Idris, the male expert player, was choosing to leave the study. The reason given was that he found it too challenging to be a part of

the group and still be able to finish homework, play soccer, and so on. Once Idris left, the group had only three actors, only one of whom was male (Zander, the novice player). A search was conducted to try and find a male alternate, but given that it was late in the semester (the beginning of November,) nobody was able to take on that role.

The troubles continued. Three sessions after Idris left, the day of the 14th session, one of the remaining female expert players (Savannah) was absent. She missed the next two sessions as well. At that point, Savannah's mother informed me that Savannah needed to drop out of the study as well. Their family situation had changed, and it was too much of a hardship to transport Savannah to her after-school program. Savannah was going to attend a different program. Fortunately, at that point an alternate female expert player named Gemma was able to begin participating in the group, and she remained a part of the study until the end, even filling in for an actor from Group 2 one day. Thus, a group that started out composed of four actors (Zander, Amy, Idris, and Savannah) ended as a group of three, composed of Zander, Amy, and Gemma. The final group arrangement turned out to be the best, as all three of the actors got along, and some challenging behaviors that had been present in other iterations of the group disappeared.

Zander. Zander was 8 years and 1 month old when the study began. He had short blondish hair and a permanent smile on his face. He would often arrive at his IDG with a snack in hand—most often potato chips or a cookie. He delighted in tormenting the other participants in the group by talking about his snack loudly and in a way that made it clear that he was not going to share. It wasn't malicious—he was simply happy and liked having something that the other kids wanted.

In a challenging group, Zander was almost always the one member who was most excited to be present. There were some days when he was hungry or upset and could not participate, and he had a number of difficulties with one of the expert players in the group, but in general he was very happy to be there and eager to play. Of all the novice players, Zander's perseverations and idiosyncratic behaviors were the mildest, although he had a tendency to go from being under-aroused (e.g., lying down, not speaking, not participating) to over-aroused (e.g., hyper, over-excited speech and physical actions) very quickly. He was very interested in video games and fantasy, and would often suggest video-game or fantasy-based stories to tell during structured improvisation.

Despite his general good humor, Zander had a tendency to withdraw when he did not like someone else's idea, and when he was in a bad mood, he could spend entire group sessions lying somewhere by himself, not speaking to anyone despite repeated attempts to engage him. These moods were more frequent on days that he was hungry, and on those days he displayed relatively little social and symbolic play. When Zander was in a good mood, however, he was an active and excited actor, up for almost anything. On his best days, it might have been difficult for an untrained eye to recognize any symptoms of autism in him at all.

Amy. Amy was 8 years old when the study began. She had pale skin, red hair, and freckles. She was tall and thin, and given to wearing brightly patterned clothing. She was a creative and intelligent girl who contributed imaginative ideas such as warring gods, princesses being caught by their hair in traps, and animals and humans of remarkable stupidity to the structured improvisation stories. Her interests tended towards the fantastic and the dark. She loved to make people laugh, and would repeat jokes which had proven to be successful over and over again. In this way, she contributed very positively to her group.

She could also be extraordinarily challenging. When she decided to do something (for example, not participate in group activities), she was unmovable, often spending whole drama

group sessions in the corner of the room reading books. Nothing that I or the other actors did or said could convince her to come back. She reacted strongly to perceived slights, yelling out “Come on, man!!” or “Jesus Christ!!” at moments when she was especially irritated. Once Gemma entered the group, most of Amy’s challenging behaviors went away. Gemma was a friend, and Amy was so happy to have her in the group that she decided to participate fully from that moment on. She and Zander had a love-hate relationship—one moment, they would be annoyed at each other, screaming, pouting, and saying or doing things that they knew would upset the other, and in the very next moment they would be laughing together during a structured improvisation story about what the Fire God was going to do to the last survivor on Earth.

Idris. Idris was 9 years old when the study began. He was a lanky African-American boy who, like Matteo in Group 2, could be both incredibly sweet and incredibly frustrating. From the beginning, he did not appear to be having as much fun as the other students in his group. This may have been a function of the fact that he was older than the others and so felt that he did not belong there, or it may have been simply that drama was not for him. He acted out almost every day. When he was upset with me, which was often, he would say “I’m just going to leave then.” He would intentionally take props and pound them on tables, lightly punch or kick me on the back, or pick up his belongings and walk first out of one door and then out of the other, forcing me to stop him. He would lie in the corner and complain about his allergies, saying that they were so bad that he couldn’t participate, but as soon as someone introduced an activity that he liked, the allergies mysteriously disappeared and he stood up and joined in happily. At times he made it very difficult for me to run the group.

However, when Idris’ mood was good, he was funny and engaging. He was kind to the other actors. He took part in activities and appeared to be enjoying himself. On more than one occasion before he left the group permanently, I gave him a choice about whether or not he would like to stay. Each time, he replied yes. Unfortunately, his actions in the group did not always back this sentiment up. The reason given for his departure was that it was too challenging to be in drama as well as take part in his extra-curricular activities and do his homework, but it is possible that he simply did not like the group.

Savannah. Savannah was 8 years old at the time the study began. She was African-American and generally very happy to be in the drama group. Like Zander, she and Amy had a complicated relationship. They would sometimes enter the group space as great friends, laughing and joking together, and they would sometimes enter having come directly from an argument on the playground, refusing to speak to each other. On those days, they would glare at each other from across the room, and make snide comments about each other. Savannah was generally fond of Zander, and treated him with acceptance and understanding. Her sense of humor was sometimes inappropriate for the school setting—for example, on one occasion a passing teacher overheard her suggesting to the group that they all play “pregnant prostitutes” during an improvisation scene.

Despite her sometimes challenging behaviors, Savannah was in general a very good expert player. She made sure to include Zander in the unsupported play portion of the sessions, and often took it upon herself to help him participate fully in the group. She tolerated his eccentricities, and seemed to be genuinely enjoying herself with him.

Gemma. Gemma, who was 9 years and 7 months old, started in this group approximately one month before the study ended. She was interested in being a part of the study from the beginning, but her soccer schedule precluded her participation. By the time an alternate was needed for Savannah, she was available. Gemma was a fantastic expert player, and an

extraordinarily positive influence on the group. She was kind, funny, accepting, and had the kind of personality that made it very hard for any other actors to dislike her. When she came into the group, it completely transformed the dynamic. The mood changed from largely negative and testy to one of excitement and delight. Gemma laughed easily, treated everyone with respect and genuine caring, and seemed truly invested in helping the group succeed. She made very deliberate attempts to include Zander in both the drama and unsupported play portions of the sessions, and went along with almost any idea that he presented. Because of Gemma's presence, Amy became a joy to have in the group. Gemma loved everything about drama—she had fun with the games and exercises, adored the improvisation, and approached the unsupported play with openness and a willingness to be silly. She was a joy.

Field Notes

Brandon's group.

Baseline. The group has decided to perform a Santa Claus scene. Naomi is playing Santa, Rosie is playing a reindeer, Ryan is playing a stray cat (as he usually does), and Brandon is playing a kid. As the scene begins, Santa and the reindeer are walking around doing work at the North Pole while Brandon lies under a blanket, not participating. It is possible that the reason he lies under the blanket is because as "a kid", he is asleep waiting for Santa, but he makes no attempt to engage with or even watch the scene around him, choosing to lie stationary for the entirety of the scene. The stray cat meows, and the reindeer decides to give him some food. The cat informs us that "[his] teeth fell out" while eating the meal. Again, Brandon does not react. The three experts remain near each other and orient towards each other throughout, but Brandon remains separate and uninvolved. When I call for the actors to bow, only the girls do so. Brandon claps for them and shouts "woohoo," indicating that he has been paying attention. Therefore, his withdrawal from the scene is not likely due to lack of interest, but perhaps due to lack of knowledge about how to participate.

Intervention. During the intervention stage, a very different Brandon emerges. He is engaged and interested, and makes his presence known constantly. During one intervention session, the kids have decided to perform a scene that takes place on a boat. Their plan is for the boat to hit rocks and capsize, at which point the passengers will swim to shore and discover a deserted city, which they will ultimately decide to remain in.

The scene begins with all four kids (including Brandon) sitting on a boat which we have made out of chairs. Ryan is playing a pirate cat who is also the ship's captain, and the others are playing passengers. Ryan looks through a spyglass and says "Ahoy, there's a merchant ship coming!" Brandon, in sharp contrast to the non-engagement he displayed during baseline, immediately imitates and expands on Ryan's action, saying "Ahoy!" himself and making a gesture with his arm, presumably towards the merchant ship. Rosie says "oh no," which Brandon, picking up on the cue, repeats. Following this is a sequence of different passengers (including Brandon) reaching for and sometimes getting the spyglass. Brandon is unsuccessful in taking the spyglass from Naomi, who looks through it and, seeing rocks up ahead, says "so terrible!" Failing to get it of his own volition, Brandon tells Naomi that he wants to "hold it!" Naomi doesn't respond immediately, so Brandon says "hold it" again. Seeing what is happening, Ryan takes the spyglass from Naomi and gives it to Brandon. Brandon looks through the spyglass for a few moments, and says "Oh no, that's very bad," picking up and elaborating on the girls' dialogue from before.

In order to move the scene on, I call out “And they hit the rocks!” The girls immediately fall forward off the boat, and Brandon knocks his own chair and one other over, simulating the breaking up of the ship. He then screeches softly in a high-pitched voice as if scared, and falls off of the ship onto the girls. I call out “Swim for it!” and all four kids swim to shore. At this point Brandon checks out for a moment and starts lying on his stomach thrusting his groin into the ground.

However, as soon as I continue narrating, telling the passengers that they have found a town, Brandon re-engages. He observes as the girls explore the town they have discovered. Ryan looks through the spyglass and announces that he sees a café nearby. I say “So they all went to the café...” The girls pretend to eat and Brandon and Ryan join in. The scene ends, but Ryan continues in it, acting out defending the café from bad guys. Brandon watches for a moment and then checks out again. I begin calling each character for a bow, and when I call Brandon, he immediately stands up and makes a little bow.

Summary. The Brandon we see during the intervention phase is quite different from the Brandon we saw in baseline. He is connected, engaged, interested, and actively taking part in the scene. He is picking up cues and embracing the story in a way that he was unable to before. Whereas during baseline he was on his own, paying attention but not participating, during intervention he is elaborating on the ideas of others, and is present both emotionally (e.g., saying “Oh no, that’s very bad” and physically (e.g., knocking over chairs to simulate the shipwreck and swimming to shore). There are still glimmers of his tendency to remain isolated when he lies on the ground after swimming to shore, but overall, he is much more engaged in common goal and role play with his peers.

Matteo’s group.

Baseline. The group has decided to act out a scene involving a robber stealing someone’s bag. Emma is playing the robber, Andy is playing the victim, and Samara is playing a witness. Matteo, not really engaged in the plan for the story, decides to be a dragon. As the scene begins, Matteo is offstage in a dragon costume, and the victim and witness are talking to each other. Matteo is looking for a crown to be the King Dragon, and can’t find it. I ask if he can do the scene without a crown. Matteo finds a fireman helmet, and decides to be a Fireman Dragon instead. This shows admirable flexibility, but is still not related to the story at hand. Once he puts on the helmet, he calls out “The fireman dragon!” to no one in particular.

Since the actors playing the eventual victim and witness have set the scene, I say that the robber and dragon can enter the scene when they are ready. Emma immediately runs onto the stage to steal Andy’s bag. As soon as she takes the bag, Matteo growls one time. At first this seems like it could be part of the scene (after all, a dragon might be expected to growl at a thief), but Matteo then starts running around in circles with the robber and the victim, yelling out things which are unrelated to the story at hand. For example, a propos of nothing he suddenly yells out, “These cost money! I can kill you!” (NOTE: Before the scene began, Matteo was telling me about a dream he had where someone yelled these exact words. Therefore, it is likely that his outburst is not actually related to the scene).

While running, Matteo loses his helmet. Andy picks it up for him and Matteo, not taking the context into account, screams “HEY!” as if Andy had been stealing it instead. Growing increasingly disorganized, Matteo then yells out “These cost money and I can kill you. I can kill you! There’s a pirate!” It is unclear why he says this. He runs offstage and sees Samara, then says “What are *you* doing here?” He runs across the room and playfully crashes into the wall,

then playfully collapses onto the floor. He is quite disorganized. I end the scene and call for bows. Only a couple actors bow. When I applaud for them, Matteo screams “AAAAHHHHH!” directly in Andy’s face. He again yells “I can kill you,” runs, and crashes into the wall. He is completely disorganized and paying no real attention to what is going on around him.

Intervention. Today the kids have decided to act out a story about snakes by wrapping themselves up in blankets. Andy’s is green, Emma’s is red, and Matteo’s is orange (he is wearing a dragon costume underneath just for fun). Samara is playing a giant instead. The scene takes place in Snake Village. The three snakes crawl around on their bellies. Matteo does not speak, but crawls with them and stays near them the entire time. They cluster together near a table.

Matteo is quite engaged until Andy bumps into him by mistake. When this happens, Matteo slithers away, still in character. This is quite a change from the baseline period, when Andy picked up Matteo’s helmet for him and Matteo became completely disorganized. Here, he stays in character. However, as he is moving, he gets distracted by seeing Samara. He stands up, losing his blanket and asking “How come she’s standing there?” It seems that he has forgotten the plan for the story. I clarify by telling Matteo that Samara is a giant and is waiting for her cue. I suggest that Matteo go back with his friends the snakes, which Matteo does.

I cue the giant, who comes in saying “Mmm, dinner!” Matteo says something unintelligible which ends with “you’re so rude.” It is unclear if he is speaking as a snake to the giant (i.e., in character) or if he is speaking as Matteo to Samara in a way that is not connected to the scene. He has not quite re-engaged with the scene, and takes a moment to re-wrap himself in the blanket, preparing to re-enter. Emma, seeing the giant enter, screams “Aaah! A monster!” Matteo picks up on this and immediately rejoins the scene, crawling under the table to be with the other snakes who have taken cover there. Snake-Emma and Snake-Andy start screaming in terror of the giant, and Matteo joins them, screaming too. He lashes out with his foot, perhaps attempting to protect his friends from the giant. Emma says “help me” and Matteo places a comforting hand on her. She breaks character and points this out to everyone, saying “look, I’m being protected.” Matteo picks up on this and says “me too!” He then taps the table with his foot, pointing out that they are protected from the giant by it.

Not wanting the scene to degenerate into screaming and fighting, I remind Samara that her character is a friendly giant, and only wants to play (the kids had decided this while making up the story before the improvisation began). Samara then asks the snakes to play. Only Andy responds, as Matteo and Emma are snuggling. It is impossible to hear what is happening between them, but a moment later Emma breaks character again to say delightedly, “Oh my G-d! Matteo just said that I’m precious! Awww!” She is clearly very happy.

Getting back into the scene, Emma calls out “Help! Fee-fi-fo-fum!” Samara repeats that she only wants to play. I tell Giant Samara to convince the snakes of that fact. Giant Samara tries again. This time she is successful. Emma the Snake comes out from under the table to play, and Matteo the Snake, noticing, follows her. They follow each other and the giant around in circles and then offstage to the giant’s mom’s house to play. The scene ends.

Summary. Once again, the Matteo of the intervention period is quite different from the Matteo of the baseline period. During baseline, he was distractible and disorganized, prone to yelling out non-sequiturs and not engaging meaningfully in a scene. During intervention, he is still somewhat distractible, but it doesn’t lead to the same level of disorganization. He endeavors to stay in character, and participates fully in the scene.

Zander's group.

Baseline. The kids have decided to perform a scene about a wizard, a bodyguard, Superman, and a dragon. Savannah is playing the wizard, Amy is playing the bodyguard, and Idris is playing Superman. As the scene begins, they are talking about evil dragons. Zander is offstage. The three experts enact a scene where Superman enters, is magically frozen by the wizard, and is then taken prisoner by the wizard's bodyguard. The experts are not really together in terms of narrative, but they are physically close to each other and interacting. Zander, on the other hand, is offstage and uninvolved. After almost two minutes of the scene, Zander (wearing a dragon costume) starts sliding closer to the stage on his belly, watching but not joining. He moves closer and closer, perhaps wanting the experts to notice him. He does not make any initiations until he happens to reach Superman-Idris, whereupon he grabs Idris around the legs. Bodyguard Amy tackles him. I pause the scene because it has become unsafe, and Zander stands up. Shortly after that, Savannah refers to Zander as "my dragon," attempting to involve him in the scene. Once she makes that initiation, he takes on the role of defending her, but in a very general and unfocused way. For example, at one point Savannah tells Zander "get him," referring to Idris. Zander, missing the essential point, attacks Savannah instead. She gestures to Idris and says "get *him!*" With the extra emphasis and gesture, Zander picks up on the cue, hitting Idris with his tail. Not wanting the hitting to continue, I stop the scene, and Zander and Idris start "air fighting" instead, waving their arms at each other but being careful not to make contact. Zander air tackles Idris, misses, and ends up on the side of the stage. He re-enters a few seconds later, attacking with his tail as he was doing before. His actions, though nominally a part of the scene, are not coordinated, focused, organized, or planned out. It looks more like a random sequence of movement and fighting for its own sake. The scene ends, and I call for bows. Zander spins around in a circle, looking at his tail.

Intervention. The group has decided to act out a scene involving Humpty Dumpty's family. As the scene begins, Zander (Humpty Dumpty), Amy (Grandma Dumpty), and Gemma (Lady Dumpty) are discussing their plans for the day. Gemma suggests a picnic on Foggy Bridge. Zander, using a Humpty Dumpty character voice, says "Okay, let's go." Grandma Dumpty agrees, telling the group that the idea sounds very peaceful. They go. Once they are sitting on the bridge (an onstage table), Lady Dumpty talks about how wonderful the view is, and asks Grandma to join them. When she does, adding her weight to the bridge, Zander-as-Humpty-Dumpty says "crack, crack" and wiggles his hands to show that the bridge is breaking. All the kids (including Zander) shriek and wave their arms, acting out losing their balance. They all fall forward. Zander is the last to fall, saying "Oh my... OWWWWWWW!" When he crashes, he lies flat on his back with a hat over his face.

While planning the story, the kids had decided they would call their cousin after they fell off the wall. Since one expert player is absent, I step in, answering a phone as their cousin Humpty Alexander Dumpty (HAD.) I ask "Did somebody call me?" Zander picks up on this, waving his legs and calling out to HAD. He has either forgotten that HAD is supposed to be on the phone or using his body to indicate the physical distress he is in. HAD asks "With whom am I speaking?" Nobody responds at first, but when I repeat the question, Zander replies "Humpty Dumpty!" HAD asks what's going on, and Zander (in Humpty's voice) tells him "We fell off a bridge!" HAD asks which bridge they are at. Humpty replies "Under The Foggy!" HAD asks "Do you need help?" Humpty responds with a very ragged and pained "Yeeeeaaahhhhh." HAD says he's coming with all the (invisible) king's horses and king's men.

When he arrives, he goes straight to Humpty and fixes him up, tickling him on the head, arms and legs to put the shell back together. Humpty giggles. HAD then does the same for Lady Dumpty and Grandma Dumpty. When HAD goes to Grandma, he notices her wig has fallen off, and says “You lost your hair!” Humpty notices and immediately points and laughs at Grandma, saying “You’re bald!” It’s a little more insulting and teasing than it ought to be, and it is also unclear whether Zander is making the comment in-role as Humpty to Grandma or out of role as Zander to Amy. Wanting to keep the scene from spiraling downward into argument, I (as HAD) reframe the moment as a magical one, saying “Wow! Grandma Humpty Dumpty is young again! This must have been a magical bridge.” Grandma Dumpty smiles.

HAD asks how everyone is feeling. Humpty says “I feel old,” hinting at a new direction he wants the drama to go in. I pick up on this and respond, putting the wig on Humpty’s head and saying that the magical bridge must have changed him as well, turning him into Grandpa Humpty Dumpty. Lady Dumpty responds to this by gasping. I playfully shriek. This disorganizes Zander, who takes the wig off and throws it at me. I break character to tell Zander “don’t throw things at me,” and toss the wig back. Zander immediately re-enters the drama, saying “Now *you’re* the oldie!” He puts the wig on me. The scene ends.

Summary. As with Brandon and Matteo, the Zander of the intervention phase is quite different from the Zander of the baseline phase. During intervention, he was more likely to observe than to participate, and when he participated, it was in a very general, unfocused way. By contrast, during the intervention phase he was fully engaged in the scene, picking up on cues, interacting with others in character (complete with a character voice), and taking on the main role. His distractibility notwithstanding, he is a much more active participant in the improvisation, engaging in common goal and role play almost the entire time.

Chapter 6 Discussion

The purpose of this study was to examine whether exposure to Integrated Drama Groups (IDG) would lead to changes in the spontaneous play and socialization of children with autism. By examining play behaviors during unsupported play sessions (UP) which followed drama group sessions, we hoped to answer the following research questions:

1. Does participation in an IDG lead to an increase in the amount and complexity of spontaneous socially-oriented play in children with ASD?
2. Does participation in an IDG lead to an increase in the amount and complexity of spontaneous symbolic play in children with ASD?
3. Does participation in an IDG lead to changes in the rate of initiations made both by children with ASD towards their typically developing peers and by those peers towards the children with ASD?
4. Does participation in an IDG lead to changes in the way that children with ASD and their typically developing peers respond to each other's initiations?
5. Does participation in an IDG lead to an increase in the amount of joint engagement between children with ASD and typically developing peers?
6. Does participation in an IDG lead to an increase in the ability to understand the emotions displayed by others, as measured by pre- and post-test scores on Baron-Cohen et al.'s (2001) "Reading the Mind in the Eyes" test (Child Version)?

Social Play

Reciprocal social interaction is one of the primary areas in which children with autism are challenged (American Psychiatric Association, 2000; Wing & Gould, 1979). In the present study, changes in social interaction which resulted from participation in IDGs were captured by measurement on the social dimension of play (Wolfberg, 2003, 2009). My findings indicated that for two of the three novice players, Matteo and Zander, exposure to facilitated drama clearly resulted in improvement on the social dimension of play. Recall that the social dimension of play comprises five types of play behaviors arranged in order of least to most social involvement: *isolate*, *orientation-onlooker*, *parallel-proximity*, *common focus*, and *common goal*. Both Matteo and Zander showed decreases in isolate play and orientation-onlooker play, and accompanying increases in parallel-proximity play, after entering the intervention phase of the study. Matteo showed an increase in common focus play as well, but Zander did not. It is possible that this is due to a ceiling effect on the level of common focus play that one could expect from someone fitting Zander's profile. Zander spent far more time in common focus play even during baseline than the other novices (41%, as compared to 5% for Brandon and 6.5% for Matteo). Forty-one percent is quite high, and it may be that when the study began, he was already performing at levels close to typical. If that is indeed the case, the result would be

consistent with Wolfberg's (2009) assertion that in typical play children commonly vacillate along the social and symbolic dimensions once they have achieved the capacity to engage at all levels. For future analysis, it would be interesting to compare the time Zander spent in common focus play to that of the experts in his group. It may also be significant that Zander was the only novice of the three who showed improvement in common goal play. Since he was already playing at a much higher level socially than the other two novices when the study began (although like them, he did not engage in much common goal play), it is possible that he had some skills for common goal play which were just under the surface, and which were drawn out of him in part due to the IDG.

For the third novice player, Brandon, results on the social dimension were less straightforward. When we look at all UP sessions, his percentage of time spent in isolate play actually increased from baseline to intervention. This is the opposite of what I hypothesized would occur. Similarly, he showed a decrease in the average amount of time spent in parallel-proximity play. However, when we look at the subset of sessions where peers initiated with him, his rate of isolate play remained constant from phase to phase and his average percentage of parallel-proximity play increased. After facilitated drama began, Brandon was more likely to respond to initiations by engaging in parallel-proximity play than he had been before. This suggests that his high overall percentage of isolate play and his overall decrease in parallel-proximity play may have been at least partly a function of his peers not initiating with him. Furthermore, despite the overall decrease in parallel-proximity play that Brandon displayed, it is of interest that over the course of the last few sessions, there was a marked increase in his percentage of parallel-proximity play which corresponded to a decrease in isolate play. This raises the possibility that the trend away from isolate and towards parallel play might have continued had the sessions been allowed to continue.

Leaving that possibility aside for the moment, one additional explanation for Brandon's high levels of isolated play during UP may lie in his involvement in the integrated drama group portion (IDG) of the sessions. Brandon's father described Brandon as "a child who likes to play on his own." In fact, on multiple occasions he told me that it was fortunate that Brandon was an only child because "he appreciates being alone so much." It is indeed true that Brandon often played by himself during UP, but during facilitated drama, Brandon was highly engaged with a group of people for an extended amount of time. Therefore, it may not be the case that he prefers to play alone, but rather that once IDG ended and Brandon went into the playroom for UP, he simply needed some time to decompress and regulate himself by engaging in a routine of isolated or stereotypic play. This is consistent with sensory integration literature (e.g., Dunn, 2008; Kranowitz, 2005) which suggests that some children with autism can benefit from quiet time away when they are feeling overwhelmed or over-aroused. To examine this further would necessitate a comparison of his level of engagement during IDG with his level of isolation during UP to see if there is an inverse relationship. An in-depth examination of that kind is beyond the scope of this study, but would be interesting to look at in the future.

It is also interesting that Brandon's father attributed Brandon's lack of engagement during the intervention video clip he viewed to a lack of interest in the chosen activities of the expert players. Whether or not this was actually the case is a matter of opinion, but it nevertheless reinforces the possibility that Brandon's isolation during intervention was in part due to factors outside of himself (e.g., the interests of peers not lining up with his own or peers not initiating with him).

For the other variables on the social dimension of play (orientation-onlooker play and common focus play), change was in the direction predicted (i.e., orientation-onlooker play decreased and common focus increased), especially for those sessions in which peers initiated with him.

As is often the case in studies like this, numbers do not tell the entire story. As noted in the Case Illustrations chapter, qualitative data collected within the context of the IDG intervention provided evidence of growth in social play among all three novices during IDG from baseline to intervention. All of them were relatively uninvolved in the drama group during baseline. They were likely to be on the side of the room by themselves, or participating nominally by lying on the stage or watching the action, but did not engage in the organization and teamwork that is such an important part of creating a dramatic scene with others. With facilitation, however, all three of them made important improvements, picking up on the cues of their scene partners, moving the action forward, and participating actively in the improvisations.

Important changes in social interaction were also noted by the caregivers of all three novices. They each expressed that their novice was more engaged and more likely to play cooperatively with others after the IDG. Zander's mother said that for Zander, before the IDG "it was pretty much 'either play what I want to play or I'll go off and play by myself or go find somebody else to play with me'. . . . But now I see a little bit more of him wanting to do what other kids want to do too." Matteo's grandmother noted that "[the IDG] really stepped up his talking about friends." Finally, Brandon's father spoke affectingly about a change in Brandon when he shared that at school,

There's nobody [Brandon]'s really close to. . . . I will say hi to all his classmates, but he doesn't. But on the other hand, during drama we would sit there [while waiting for the facilitator to bring the other kids into the room] and he would play with my phone, but as soon as he saw them coming. . . just saw them coming to the door, he would hand me the phone and I would see him light up like a child lights up when he sees friends.

All of these findings are consistent with the body of research on Integrated Play Groups (summarized in Neufeld & Wolfberg, 2010) which demonstrated that participation in facilitated groups with peers led, in novices, to decreases in stereotypic, isolated play and increases in observation of and interaction with peers. Novices also showed improvement on their ability to engage in socially coordinated play with peers, a result that is paralleled here. Findings are also consistent with Smilansky's (1990) review of literature which found correlations between participation in dramatic and sociodramatic play and concentration, interaction with others, and cooperation with peers.

Symbolic Play

Children with autism also display characteristic challenges in the realm of symbolic and imaginative play (American Psychiatric Association, 2000; Baron-Cohen, 1987; Harris, 1993; Jarrold, 2003; Jarrold, Boucher, & Smith, 1996; Wolfberg, 2003). The present study tracked change in this area through measurement on the symbolic dimension of play (a continuum made up of five types of play behavior; in order of least to most complex, they are *not engaged*, *object manipulation-sensory play*, *functional*, *pretend*, and *role play*; Wolfberg, 2003, 2009). Results were mixed. Of the three novices, Brandon was the only one who spent a significant amount of

time not engaged during baseline. This decreased once intervention began. Zander's average amount of time spent not engaged seems high as well if we look across all sessions, but as explained in the Results chapter, most of this is accounted for by three sessions in which he was atypically unengaged. If we remove those from the analysis, his average in both baseline and intervention shrink dramatically. Even in baseline, Matteo was not likely to spend much time not engaged in play. Therefore, for the one novice who had a tendency to be disengaged from play, the intervention seems to have decreased it. This is in line with my hypotheses. Also as predicted is the finding that object manipulation-sensory play decreased for all three novices from baseline to intervention

The findings on functional play are a bit more nuanced. For Zander, functional play decreased from baseline to intervention as predicted. However, for the other two novices (Brandon and Matteo) functional play increased by 24.2% and 8.9% respectively. On the surface this appears to contradict my hypotheses, since functional play was predicted to decrease with the addition of a drama intervention. However, a closer look at the data reveals a slightly more complex phenomenon. The symbolic dimension of play can be thought of as a continuum of symbolic complexity (Wolfberg, 2009), from a complete lack of engagement in play at one end to role play (the most complex) at the other. During baseline, both Brandon and Matteo spent a relatively high percentage of their time in object manipulation-sensory play. During intervention, both of these percentages decreased significantly. Brandon's average time spent in object manipulation went down by 20.4%, and Matteo's went down by 10.2%. These decreases came within a few percentage points of matching their increases in functional play.

Looking at the data even more closely, we see that Brandon also displayed a decrease of 4.4% in time spent not engaged from baseline to intervention. This decrease, combined with his 20.4% decrease in sensory play, matched his increase in functional play (24.2%) almost exactly. One could argue, then, that even though Brandon's functional play increased as a result of the drama intervention, to a certain extent it replaced disengagement and sensory play. This indicates that the drama intervention succeeded in moving him further along the symbolic dimension, thus supporting my hypotheses. Returning to Matteo, we see that his combined decreases in time spent not engaged (1.2%) and in sensory-object manipulation play (10.2%) were matched almost exactly by his combined increases in functional play (8.9%) and pretend play (2.9%). It appears that facilitated drama succeeded in moving him further along the symbolic dimension as well. These results are consistent with the body of research on IPGs (summarized in Neufeld & Wolfberg, 2010), which also demonstrated increases in symbolic play levels after participation in groups.

For pretend and role play, quantitative results were less encouraging. Matteo was the only novice of the three who showed an increase in pretend play, and the increase was quite modest. Similarly, Zander was the only novice of the three who showed an increase in role play. That increase is tempered by the fact that the progress occurred mostly towards the end of the group. As noted earlier, Zander did not get along especially well with his group members. The one exception was Gemma (who, as it happens, was his primary role play partner during unsupported play). Since the increase in his role play began just after her arrival, it is likely that his comfort level with her (and the welcoming atmosphere that she created in the playroom) allowed him to dive more fully into role play. Therefore, although Matteo and Zander showed some improvement, the results as a whole did not support my hypothesis that exposure to IDGs would increase spontaneous pretend and role play in the novices. This is disappointing, but there are several possible explanations for it, some related to the research design itself.

It may be that after 45 minutes of pretend and role play in drama groups, the novices needed a break from those types of play, and so were less likely to engage in them when left to their own devices in UP. It may also be that the play materials in the playroom where UP sessions took place were not especially conducive to pretend and role play. The drama costumes and props were left in the drama room, and some items in the playroom may have lent themselves to more functional uses (e.g., bubbles, legos). For items that could be used for either functional or pretend play, the functional draws may have been irresistible to the novices.

For example, included in the playroom were a dollhouse and a toy garage with cars. One could use these toys either functionally (e.g., organize items in the dollhouse, drive cars around the garage) or for pretend purposes (e.g., make the dolls talk to each other, use the cars to enact scenes from Disney's *Cars*). Brandon was likely to use them functionally, spending almost all of his time taking items in and out of the dollhouse or repeatedly driving cars around the garage and making them go up and down the car elevator. It may be that to help Brandon overcome his need to engage in functional play with objects, it would have been helpful to only include materials in the playroom that were explicitly designed for pretend and role play. Had we removed the dollhouse and garage (his usual objects of perseveration) from the playroom, it is possible that Brandon would have shown more symbolic (and for that matter, more social) engagement. For future investigations, it would be interesting to hold the UP sessions in the same room as the drama group, using the same props, costumes, and other materials that were available during IDG.

However, once again the numbers don't tell the entire story. Towards the end of their groups, all three novices began to engage in more spontaneous pretend play (and in Zander's case, spontaneous role play) during UP than they had previously. Even Brandon, so prone to repetitive functional play during UP, had by the end of his group begun to spontaneously voice dolls and cars as he played with them, a change that is reflected in the higher percentage of pretend play that he displayed between Sessions 14 and 21. In addition, the qualitative findings support the notion that the novices were more engaged and active in the drama group during the intervention phase than they had been during baseline. For all three of them, disengagement, disorganization, and lack of focus during improvisation was replaced with engagement, interest, and smoother, active participation. It would be interesting to explore these emergent themes further in future qualitative analysis.

Perhaps more importantly, caregivers for all three novices expressed that they had seen positive changes in their children's ability to pretend and take on roles at home by the end of the IDG. Brandon's father Kevin noted that as a result of the IDG, Brandon had "come up from [a child who doesn't engage in imaginative play] to what I consider [a] 'normal child' who makes believe and plays." Specifically, Kevin related that Brandon had begun spontaneously initiating make-believe scenarios such as being arrested for doing graffiti and falling off a life-raft in shark-infested water with his parents. This indicates that under the right set of circumstances (e.g., being at home, being with his parents) Brandon clearly enjoys playing with others, and may even have embraced this part of himself more fully as a result of his participation in IDG. Matteo's grandmother reported that Matteo began making characters out of pieces of fruit and acting out stories with them and taking on the role of a favorite character (Annoying Orange) after the IDG began. Zander's mother reported that after the start of the IDG, Zander started pretending to be a cat, dog, or other character at home, something that he had not done before.

Initiations, No Response to Initiations, and Refusal of Initiations

Initiations. Children with ASD often struggle when initiating with or responding to initiations by their peers (Jordan, 2003). We hoped that exposure to the IDG would result in improvement in these areas. The IDG's effect on initiations by both novices and experts in UP was not as predicted. I predicted that as a result of being engaged in facilitated drama, the rate of initiations by both novices and experts would increase. Among novices, only Matteo showed an increase in his rate of initiation with peers from baseline to intervention. The increase was modest, and looking at the results visually we can see that the trend is barely upward. Brandon initiated only a third as much during the intervention phase as he had during the baseline phase (mostly because he did not initiate at all for the first six intervention sessions), and Zander showed almost no change. Among peers in each group, initiations towards novices either decreased (Brandon and Zander's groups) or remained essentially flat (Matteo's group). In Brandon's case, peers initiated only half as much with him after intervention started than they had during baseline, and in Zander's, they initiated only slightly more than half as much.

These results run counter to those described by the IPG literature, which describes improvement in initiations after exposure to groups. However, there are several possible reasons that the IDG appears to have had the opposite effect, related once again to the study design. During the baseline phase, the adult facilitator (myself) did not encourage or scaffold interaction between the novices and experts. Once the intervention period started, however, this changed. From that point on, I served as a bridge between children, supporting interaction between children and encouraging initiations on the part of both the novices and the experts. Because of this, it may be that there was decreased need for spontaneous initiation during IDG once the intervention started, which may have translated into decreased initiation during UP as well.

It may also be that after a few weeks of novices not engaging with experts (i.e., during the baseline period), children lost interest or fell into a routine of not initiating with each another. This is an especially likely possibility given that one of the hallmarks of autism is that patterns of behavior become firmly established as routines and rituals which are resistant to change (American Psychiatric Association, 2000). The design of this study, which involved long baselines for children with autism, may have increased the risk of this occurring. If this is the case, it would be consistent with results from IPG research (see Neufeld & Wolfberg, 2010) which suggests that children with autism do exhibit spontaneous initiations with peers, but their rates of initiations decrease and become firmly established patterns of social behavior when they fail to receive consistent responses from peers (as may have been the case here). These factors will be important to consider for future studies.

It is interesting that of the three groups, Matteo's group showed the least extreme change in rates of initiation from baseline to intervention. Part of this may be due to Matteo's behavior challenges and difficulties with sensory regulation. Matteo's grandmother spoke of sensory overstimulation as a primary challenge of Matteo's, especially once we were moved to the busy atmosphere of the library: "[Matteo] needs a bland environment. . . . The library [which had colorful posters and books] was just way stimulating. And he's easily overstimulated." When he became overwhelmed sensorially, which happened quite often, he was given to hyperactivity and difficulties with impulse control. The excitement and high energy of the drama groups combined with the busy atmosphere in the library made him especially susceptible to becoming

disorganized. When that occurred, he would run away from the group, knock props off the tables, flee from the room, or become a threat (emotionally or physically) to the other members of his group.

Because of these challenges, of the three novices, Matteo was the most challenging to interact with when facilitation was not taking place. Once facilitated drama began, his behaviors began to even out, helped by the addition of a reinforcement strategy a little less than halfway through the intervention phase (Session 13). His nearly-constant dysregulation and challenging behavior had resulted in a situation where I was considering removing him from the study. To avoid this, a strategy for helping him to stay calm and treat others well was devised by myself and Matteo's grandmother, who also had a background in autism intervention. Taking our cues from sensory integration literature (e.g., Dunn, 2008; Kranowitz, 2005), a dog bed which Matteo liked was brought into the IDG room and made available to him for breaks. When he began to feel overstimulated, he could go to the bed, cover himself with blankets, and calm himself down until he felt that he could re-enter the group. In addition, a light reward system was put into place. If he earned three checks for being kind over the course of the IDG and UP sessions on a given day, his family gave him a small reward (e.g., a cupcake charm, an Angry Birds keychain, etc.). This worked well, and succeeded in keeping him relatively calm, focused, and gentle with others throughout the later days of the intervention period. His need for breaks and his occasional dysregulation even after the sensory and behavioral program began meant that he participated less than the novices in the other two groups, but when he participated, he participated well.

Given this, there are several possible explanations for why Matteo's group did not experience the same decrease in rate of initiations made either by a novice or his expert players (and in Brandon's case, both) as the other two groups. It may be that since Matteo was so challenging to deal with during the baseline period, that once the intervention period began and his behavior improved, the expert players in the group were more responsive and excited to play with him, and so continued to initiate. It also may be that because of the sensory and behavior plan that was put into place, they knew he was someone who needed assistance to engage with others, and so were less likely to stop initiating with him over time than were the expert players in the other groups. Finally, as noted earlier, Matteo was gregarious and could be quite charming and loveable, especially when he was calm and regulated. It may be that the expert players in his group responded positively to the kinder, gentler Matteo, and so were especially interested in continuing the relationship with him through initiation. Emma provided an excellent example of the reactions a kind Matteo could provoke in others when in the middle of their Snake Village scene, she delightedly exclaimed "Oh my G-d! Matteo just said that I'm precious! Awww!"

When we compare this to Brandon's shyness and the generally tense and combative nature of Zander's group, there is evidence to suggest that the other two groups of expert players may have been less interested in pursuing relationships with their novices through social initiation. To arrive at a greater understanding of which (if any) of these possible explanations is the most accurate, future analyses could focus on the perspectives of the expert players. An examination of this kind is currently in progress for the IPG setting (Wolfberg, Turiel, & DeWitt, 2008).

No response to initiations. The pattern of results for *no response to initiation* was largely the opposite of what I predicted would occur (namely, that rates of no response would decrease for both novices and experts from baseline to intervention). With the single exception

of Matteo himself, there was either no change or change in the upward direction for both novices and peers in the groups.

Why did Matteo fare better than the others in his rate of non-response? It may be that in his effort to be kind and earn his reward, he paid closer attention to the initiations of his peers as the group continued (although they appear to have paid less attention to his). As for the others, neither Zander nor the peers in his group displayed much change in their rates of non-response, and it may be that in Zander's group, it was sometimes too loud and chaotic for the children to hear each other's initiations. In Brandon's group, his own rate of non-response did not change much from baseline to intervention (not surprising since he was likely to remain in the back of the room involved in his own activities without paying attention to what was going on behind him), and his peers' rate of non-response increased by a third. It may be that as the sessions went on, and Brandon's experts became accustomed to his remaining in the back of the room, that they stopped paying close attention to his initiations and were less likely to hear them. Because we could not discriminate between non-responses resulting from an initiation not being heard and non-response resulting from an initiation being deliberately ignored, one should not read excessively into these results.

Refusal of initiations. Results were more encouraging in the area of child refusal. For all three novices, average rates of refusal in UP decreased from baseline to intervention. Results for Matteo and Zander, though positive, are not especially illuminating as their rates of refusal were quite low even in baseline. However, for Brandon, the change was quite marked. During baseline his refusal rate was higher than the other two novices', but once intervention began he never actively refused a peer's initiation. This is especially encouraging given that his peers' rates of initiation with him decreased so significantly. Although peers' initiations decreased, when they did initiate he stopped refusing. This is suggestive on its own, but also implies that the increase in non-response to initiation which Brandon displayed may have been a result of his failure to hear those initiations, and not of his choosing to ignore them. These results parallel the literature showing that pretend and dramatic play in typical children is correlated positively with social coordination and compliance with the directives of others (Connolly et al., 1988; Lorimier et al., 1995).

One possible reason for the decrease in child refusal which was observed across all three groups is the heavy emphasis that is put on saying yes to others' ideas in drama games and improvisation. The first rule of all improvisation is to say "yes" to everything that a fellow actor says or does (Johnstone, 1979), and in fact, one of the most common games played in our IDG sessions was "The Yes Game." The premise is simple: Someone yells out a direction to the group (e.g., "everyone jump on one foot!" or "everyone run to the other side of the room!"), the group as a whole responds "yes," and then everybody does the suggested action. This game (as well as the others we played) created an atmosphere of cooperation and acceptance, and this atmosphere may be responsible for the decrease in rate of refusal evidenced by all three novices.

Expert players in two of the three groups also showed a decrease in their average rate of refusal from baseline to intervention. In Brandon's group, peers refused his initiations half as much during intervention as they had during baseline. This is an impressive result, but is tempered by the fact that their rate of refusal in both baseline and intervention phase were quite low. In Zander's group, change was much more powerful. Peers' rate of refusal was by far the highest of any group during baseline (almost one refusal every 5 minutes), but decreased to almost nothing once the intervention phase began. For Zander's peers, facilitated drama had the

desired effect of helping the experts to be more accepting of his initiations. These results are consistent with the literature demonstrating a positive link in typical children between engagement in pretend and dramatic play and rates of acceptance by peers (Ladd & Coleman, 1993; Ladd et al., 1988, 1990; Singer & Singer, 1990) as well as findings from IPG research (see Neufeld & Wolfberg, 2010).

Peers in Matteo's group, on the other hand, rejected his initiations a third more often after intervention began. Some of this may be due to the nature of the games Matteo liked to initiate. Like many children with ASD (Wing & Gould, 1987; Wolfberg, McCracken, & Tuchel, 2008), Matteo initiated with peers in unconventional ways which were not always met with enthusiasm. During UP sessions he tended to rely on repetitive, scripted action from TV shows or videos he had watched, especially action from *The Annoying Orange* (a YouTube video series where an orange with human features talks to and annoys other fruit--for example, an apple). Videos often culminate with the orange yelling "Hey Apple! Knife!" As soon as Annoying Orange yells this out, a knife appears (presumably wielded by a human) and slices up the apple, who screams. This basic sequence is repeated with different types of fruit in almost every video.

Matteo's initiations during UP would often take the form of him reenacting this action by calling out a player's name (e.g., "Hey, Emma!") just before yelling out "knife!" and attacking them with a plastic knife. As noted by Matteo's grandmother in her caregiver interview, another thing he liked to reenact from Annoying Orange was spitting. Annoying Orange often spits seeds at his companion in the videos, and so Matteo would often put a piece of pretend food in his mouth and then spit it at a playmate as a way of initiating with them. Not surprisingly, both of these types of initiations were often met with a passionate "Matteo! Stop!" from the chosen playmate. It was hoped that participation in the facilitated drama would decrease this tendency, but as previously discussed, his behavior and participation in the drama groups were more variable than that of the other two novices. Had Matteo been able to participate more fully in the drama and improvisation activities, he might have developed a larger repertoire of ways to initiate with others and peer refusal might have decreased in his group as well.

For the other two groups, though, exposure to facilitated drama and the always-say-yes mentality of drama games and improvisation seems to have resulted in expert players being less likely to refuse the initiation of a novice.

Joint Engagement

Results for joint engagement are also quite encouraging. All three novices showed an increase in joint engagement during UP from baseline to intervention. Brandon's improvement was the smallest (approximately 4%), which is not surprising given how isolated he was during UP throughout the term. It is especially gratifying that even though he spent by far the most time in isolate play of all the novices, he still showed improvement in this area. Matteo and Zander both displayed double-digit improvement in percentage of time spent in joint engagement. Consistent with other research and theory (Connolly et al., 1988; Lorimier et al., 1995; Neufeld & Wolfberg, 2010; Sherratt & Peter, 2002; Singer & Singer, 1990; Smilansky, 1990; Wolfberg, 2009), active participation in the IDG led in all three novices to an increased ability to successfully engage with peers in a play-based setting.

The reason for this systematic change is likely a combination of the collaborative nature of the IDG, the adult facilitation which encouraged equal participation from both novices and experts, and the focus on teamwork and group interaction during both drama games and

improvisation. Once facilitated drama began, everything the facilitator did was meant to bring all the players into the joint experience of having fun, creating dramatic action together, and participating joyfully in group activities. This emphasis on teamwork and mutual enjoyment seems to have successfully translated into UP (at least to some extent) for all three novices.

Reading the Mind in the Eyes Test

The Reading the Mind in the Eyes test (Baron-Cohen et al., 2001) was used as a secondary measure to examine whether IDGs would improve children's ability to read emotional cues. No systematic differences were found between the novice players and their matched controls. Two novice players showed less improvement from pre-test to post-test than their controls (with Brandon showing a decrease in score), and one novice showed more. In addition, the fact that each control scored higher on the pre-test than did the novice player he was matched with suggests that despite our best efforts to match novices to controls, there may have been already-existing between-groups differences. This makes it difficult to interpret the results, but the IDG seems to have had no systematic effect on the novices' ability to read emotional cues, at least not as measured by this test. There are two possible explanations for this.

The first is that the IDG was not successful in increasing the novice players' ability to read the emotions of others. However, case illustrations (see Chapter 5) show that the novice players did show improvement in picking up on others' emotional and dramatic cues, at least in the context of improvisation. Of course, picking up on cues in an improvisation exercise is not the same thing as properly reading and responding to social messages in a real-world context, so this explanation is not entirely satisfying.

The other explanation is that the Reading the Eyes in the Mind test is not an effective measure of ability to read the emotions of others. The images in the test are static, while real-life social cues are complex and dynamic. The images are free of context, while real world social and emotional cues are firmly grounded in context. The images are of eyes only, while in real life emotional cues involve the entire body. These are important differences. As Klin, Jones, Schultz, and Volkmar (2003) have pointed out, most clinical assessment situations are closed domain, meaning that by necessity they constrain the social world to a measurable and pre-determined set of factors. Real-life social situations, on the other hand, are open domain, consisting of a wide variety of ever-changing factors that must be attended to and considered as socially important by the people involved in them. All things considered, the Reading the Mind in the Eyes test is probably not a very dependable measure of real-world emotional intelligence.

Therefore, rather than relying on abstract tests such as Reading the Mind in the Eyes to determine whether or not IDGs are effective in improving the ability of children with ASD to read the social cues of others, real-world investigation (e.g., observing whether or not novice players show improvement in reading the actual social cues of their playmates once intervention begins) would need to be done.

Limitations

In a study such as this one, there are limitations that must be discussed. The first and most obvious is that it was carried out with only three subjects. Although the multiple-baseline design across subjects is robust, the fact remains that results are based only upon the experiences and behaviors of three children over the course of a single semester of IDG. These children each came with their own profile of strengths, challenges, and abilities, and are not necessarily

representative of the population of children with ASD as a whole. In addition, each group had its own idiosyncrasies, dynamics, and patterns of interaction based upon the children who were a part of it. Accordingly, results should not be over-generalized.

Secondly, there are limitations concerning the children who were chosen to participate in the study. As discussed earlier, participants were drawn from a convenience sample of players who had previously been enrolled in an Integrated Play Group and who showed interest in or affinity for a drama-based program. For the novices, this meant that they may have been particularly suited to learn through drama, and for the experts, it meant that they were to some degree accustomed to serving as friends and supporters for children with autism. Previous experience may have affected the results that were observed.

Third, the fact that this study was carried out in a public school meant that we had somewhat limited control over the environment. As discussed earlier, when the study began we were assigned a room that was far away from the afterschool programs which were happening concurrently with IDGs. It was a large room which was calm, quiet, and relatively un-stimulating. After three weeks in the space, we were asked to move into the school library which was centrally located, contained many distractions, and was over-stimulating in many ways. For example, before the move, when a child became agitated, there was nowhere to flee to. After the move, it was easy to run into a different area of the library and attempt to play on a computer or open a book. This happened with Matteo a number of times, perhaps because he was overwhelmed by the colors and intense visual stimuli of the library. This may have led to his becoming disorganized and losing control of his impulses. Additionally, there were two doors into and out of the library (as opposed to the one which was present in the original room) which made it easy for Matteo, Idris, and/or Amy to attempt to escape when they were unhappy. It was much harder for me to control the group in the library than it had been in the original room, creating a very different atmosphere. By the time we changed rooms, Brandon had already moved into intervention condition and Matteo was about to (he switched to intervention on the second day we were in the library). Zander was a little over halfway through his baseline phase. It may be that the room change influenced the results.

Additionally, due to the nature of the after-school program at Griffin Elementary, expert players were not always in their assigned classroom at the time I went to collect them, necessitating trips across campus and occasionally to a nearby park in order to assemble the group. As a result, IDG sessions often started late. Because the research design necessitated that we conduct all parts of the intervention, this meant that UP time was often encroached upon. Those days were particularly fast-paced and stressful for both the participants and myself, something which affected the smooth operation of the group. Had this study been conducted under more stable conditions, we might have seen different results.

Finally, there were limitations based on conditions in particular groups. As has been noted, Zander's group configuration changed quite dramatically from the beginning to the end of the study. It is possible that some of the changes that we saw towards the end of his group were related not only to the IDG intervention itself, but also to the children who were enrolled in the group at that time. As has also been noted, a behavior program was put into place for Matteo, making his group structurally a little bit different from the two others. Finally, occasional absences on the part of Matteo and Zander interrupted the day-to-day flow of their groups and made it difficult to properly stagger the phase changes.

Implications

Consistent with past research (Corbett et al., 2010; Goldstein & Cisar, 1995; Murdock & Hobbs, 2011; Palmen et al., 2008; Thorp et al., 1995), this study has shown that a drama-based intervention can be successful at improving some of the spontaneous play skills of children with ASD. Specifically, as a result of the IDG intervention, on the social dimension of play two of the three participants involved in the study showed decreases in isolate play and increases in common focus play. All three showed decreases in orientation-onlooker play and increases in parallel-proximity play, especially when initiated with by peers. The intervention moved all three subjects to some extent further along the social dimension of play. On the symbolic dimension of play, all three novices moved forward as well. Brandon and Matteo largely replaced disengagement and sensory play with functional and a certain amount of pretend play. By the end of his group, Zander showed much more role play than he had in the beginning.

Perhaps more importantly, for all three novices the IDG led to improvement in accepting the ideas of others and spontaneous joint engagement, two things which are clearly related. Although results did not show more spontaneous pretend and role play inside the playroom, outside of it parents and caregivers all noted that their children were more engaged with others and more likely to engage in pretend or role play as a result of the IDG. Moreover, the group of parents and caregivers as a whole noted that their children were more conscious of having friends, better able to pay attention to what other children were interested in during play, and better able to participate skillfully in playful interactions as a result of the intervention. Finally, all three caregivers considered the IDG to be a valuable investment of their children's time which led to significant change in their lives outside of the groups. These findings imply that Integrated Drama Groups should be strongly considered as a viable, generalizable, and socially validated intervention for children on the autism spectrum to improve their social competence and imaginative play.

Furthermore, the focus on an inclusive model of intervention which places novices and experts on equal footing (as opposed to experts serving explicitly as mentors or role models for novices, or interventions which employ segregated groups made up of novices only) is a departure from the way many social skills groups have traditionally been run (e.g., Corbett et al., 2010; Goldstein & Cisar, 1992; Hall & Isaacs, 2011; Palmen et al., 2008; Thorp, et al., 1995). That after intervention novice players were less likely to refuse the initiations of their peers and more likely to enter into joint engagement with them suggests that, consistent with the IPG intervention, the IDG intervention's emphasis on inclusion and mutual support could be an important strategy for improving social relationships and fostering genuine friendships between children with ASD and their typically developing classmates.

Future Research

Findings suggest several avenues for future research, some of which have already been noted over the course of this discussion. I will recapitulate and expand on them here.

First, it would be instructive to repeat this study with one significant change: conduct the unsupported play sessions in the same room as the drama group sessions, using the same costumes and props. Allowing the children access to materials that are specifically designed for role play both before and after they begin the intervention phase might give a more accurate

picture of whether or not drama activities lead to improvement in spontaneous pretend and role play.

Secondly, a better measurement for improvement on ability to read social cues should be embedded into future research in this area. The Reading the Mind in the Eyes test is at best an artificial measure of this phenomenon that is not well suited to studies of this kind. Future investigations of drama as a method for assisting in this area should include a naturalistic measure of whether the children are more tuned into each other's cues during spontaneous play. This could be done either by explicitly examining response to the cues of others during an unsupported free play session onsite, or in a completely different environment such as a child's school.

It would also be useful for future studies to include generalization probes outside of the drama groups. It would have been fascinating to observe the novice players at school or on a playground with unfamiliar peers to see if any of the gains they showed during the unsupported play sessions translated into gains across other natural social environments.

Finally, this study was done with only three children. Results were encouraging, but the study needs to be replicated before IDGs can gain traction as a legitimate intervention for children with autism. Larger-scale randomized controlled trials of the IDG intervention would demonstrate that the benefits it provides for novice players extend beyond the three children who were the focus here.

This study offers several contributions to current theory and practice in regards to increasing social understanding and competence in children with ASD through group activity. It has begun the process of determining the efficacy of a proposed new model of intervention, and has shed light on the role that drama-based activity can play in helping children with ASD improve on what have traditionally been thought of as challenging areas for them. The focus on an inclusive model of intervention has important implications for the ways in which social groups of this nature can be run, and expands our knowledge base about strategies which can be implemented in them. Finally, this study has begun the process of demonstrating empirically the vast potential for success that child-focused, play-based drama intervention should have for children on the autism spectrum, an area that before now has largely been limited to how-to guides and theoretical arguments in favor of the practice. However, it is only the beginning. More research with larger samples, different children, and in different settings will need to be carried out before the Integrated Drama Group intervention (and indeed, drama-based intervention in general) can be proven efficacious and gain a firm foothold within the academic and professional community. It is our hope that this study represents the first step on a journey to fully embracing drama- and imagination-based inclusive learning for children with ASD.

References

- Asch, S. E. (1952). *Social psychology*. Englewood Cliffs, N.J.: Prentice-Hall, Inc.
- Association, A. P. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, D.C.
- Attwood, T. (2008). An overview of autism spectrum disorders. In K. Dunn Buron & P. Wolfberg (Eds.), *Learners on the autism spectrum: Preparing highly qualified educators*. Shawnee Mission, KS: Autism Asperger Publishing Company.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, N.J.: Prentice-Hall.
- Baron-Cohen, S. (1987). Autism and symbolic play. *British Journal of Developmental Psychology*, 5(2), 139-148.
- Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"? *Cognition*, 21, 37-46.
- Baron-Cohen, S., Tager-Flusberg, H., & Cohen, C., D.J. (Eds.). (1993). *Understanding other Minds: Perspectives from autism*: Oxford University Press.
- Baron-Cohen, S., Wheelwright, S., Spong, A., Scahill, V., & Lawson, J. (2001). Are intuitive physics and intuitive psychology independent? A test with children with Asperger Syndrome. *Journal of Developmental and Learning Disorders*, 5, 47-78.
- Bergen, D. (2002). The role of pretend play in children's cognitive development. *Early Childhood Research and Practice*, 4(1). Retrieved from <http://ecrp.uiuc.edu/v4n1/bergen.htm>
- Boal, A. (1979). *Theatre of the Oppressed*. London: Pluto Press.
- Boucher, J., & Wolfberg, P. J. (2003). Editorial. *Autism: The International Journal of Research and Practice*, 7(4), 339-346.
- Burns, S. M., & Brainerd, C. J. (1978). Effects of constructive and dramatic play on perspective taking in very young children. *Developmental Psychology*, 15, 512-521.
- Connolly, J., Doyle, A.-B., & Reznick, E. (1988). Social pretend play and social competence in preschoolers. *Journal of Applied Developmental Psychology*, 9, 301-314.
- Cooper, P. M. (2005). Literacy learning and pedagogical purpose in Vivian Paley's 'storytelling curriculum'. *Journal of Early Childhood Literacy*, 5(3), 229-251.
- Corbett, B. A., Gunther, J. R., Comins, D., Price, J., Ryan, N., Simon, D., . . . Rios, T. (2010). Brief report: Theatre as therapy for children with Autism Spectrum Disorder. *Journal of Autism and Developmental Disorders*. Retrieved from springerlink.com website: doi:10.1007/s10803-010-1064-1
- Davies, A. (2004). *Teaching Asperger's students social skills through acting: All their world's a stage!* Arlington, TX: Future Horizons, Inc.
- Dunn, W. (2008). Sensory processing: Identifying patterns and support strategies. In K. Dunn Buron & P. Wolfberg (Eds.), *Learners on the autism spectrum: Preparing highly qualified educators*. Shawnee Mission, KS: Autism Asperger Publishing Company.
- Frith, U. (2003). *Autism: Explaining the enigma* (2nd ed.). Malden, MA: Blackwell Publishing.
- Frith, U., & Happé, F. (1999). Theory of mind and self-consciousness: What is it like to be autistic? *Mind & Language*, 14(1), 1-22.
- Furman, L. (2000). In support of drama in Early Childhood Education, again. *Early Childhood Education Journal*, 27(3), 173-178.
- Gallagher, S. (2004). Understanding interpersonal problems in autism: Interaction Theory as an alternative to Theory of Mind. *Philosophy, Psychiatry, and Psychology*, 11(3), 199-217.

- Goldstein, H., & Cisar, C. L. (1992). Promoting interaction during sociodramatic play: Teaching scripts to typical preschoolers and classmates with disabilities. *Journal of Applied Behavioral Analysis, 25*(2), 265-280.
- Greenspan, S. I., & Wieder, S. (2005). Can children with autism master the core deficits and become empathetic, creative and reflective? A ten to fifteen year follow-up of a subgroup of children with Autism Spectrum Disorders (ASD) who received a comprehensive Developmental, Individual-Difference, Relationship-Based (DIR) approach. *The Journal of Developmental and Learning Disorders, 9*.
- Greenspan, S. I., & Wieder, S. (2006). *Engaging autism: Using the Floortime approach to help children relate, communicate, and think*. Cambridge, MA: Da Capo Press.
- Gutstein, S. E., Burgess, A. F., & Montfort, K. (2007). Evaluation of the Relationship Development Intervention program. *Autism, 11*(5), 397-411.
- Hall, E., & Isaacs, D. (2011). *Seven keys to unlock autism: Making miracles in the classroom*. Indianapolis: Jossey-Bass.
- Harris, P. (1993). Pretending and planning. In S. Baron-Cohen, H. Tager-Flusberg & D. J. Cohen (Eds.), *Understanding other minds: Perspectives from autism*. Oxford: Oxford University Press.
- Hobson, R. P. (1993). The emotional origins of social understanding. *Philosophical psychology, 6*, 227-249.
- Hobson, R. P. (2005). What puts the jointness into joint attention? In N. Eilan, C. Hoerl, T. McCormack & J. Roessler (Eds.), *Joint attention: Communication and other minds: Issues in philosophy and psychology* (pp. 185-204). New York: Oxford University Press.
- Jarrold, C. (2003). A review of research into pretend play in autism. *Autism: The International Journal of Research and Practice, 7*(4), 379-390.
- Jarrold, C., Boucher, J., & Smith, P. (1996). Generativity deficits in pretend play in autism. *British Journal of Developmental Psychology, 14*, 275-300.
- Johnstone, K. (1979). *Impro: Improvisation and the theatre*. New York: Routledge/Theatre Arts Books.
- Jordan, R. (2003). Social play and autistic spectrum disorders. *Autism: The International Journal of Research and Practice, 7*(4), 347-360.
- Karnezi, H., & Tierney, K. (2009). A novel intervention to address fears in children with Asperger Syndrome: A pilot study of the Cognitive Behaviour Drama (CBD) model. *Behaviour Change, 26*(4), 271-282.
- Kasari, C., Freeman, S., & Paparella, T. (2006). Joint attention and symbolic play in young children with autism: a randomized controlled intervention study. *Journal of Child Psychology and Psychiatry, 47*(6), 611-620.
- Kennedy, C. H. (2005). *Single-case designs for educational research*. Upper Saddle River, NJ: Pearson Education, Inc.
- Klin, A., Jones, W., Schultz, R., & Volkmar, F. (2003). The enactive mind, or from actions to cognition: Lessons from autism. *Philosophical transcripts of the Royal Society of London, 358*, 345-360.
- Koegel, R. L., & Koegel, L. K. (2006). *Pivotal Response Treatments for Autism: Communication, social, and academic development*. Baltimore, MD: Brookes Publishing Company.

- Koegel, R. L., O'Dell, M. C., & Koegel, L. K. (1987). A natural language teaching paradigm for nonverbal autistic children. *Journal of Autism and Developmental Disorders*, *17*, 187-200.
- Kranowitz, C. S. (2005). *The out-of-sync child: Recognizing and coping with Sensory Processing Disorder* (2nd ed.). New York: Penguin Group.
- Ladd, G. W., & Coleman, C. C. (1993). Young children's peer relationships: Forms, features, and functions. In B. Spodek (Ed.), *Handbook of research on the education of young children*. New York: Macmillan Publishing Company.
- Ladd, G. W., Price, J. M., & Hart, C. H. (1988). Predicting preschoolers' peer status from their playground behaviors. *Child Development*, *59*(4), 986-992.
- Ladd, G. W., Price, J. M., & Hart, C. H. (1990). Preschoolers' behavioral orientations and patterns of peer control: Predictive of peer status? In S. R. Asher & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 90-115). New York: Cambridge University Press.
- Leslie, A. M. (1987). Pretense and representation: The origins of "theory of mind". *Psychological Review*, *94*, 412-426.
- Lillard, A. S. (1993). Pretend play skills and the child's theory of mind. *Child Development*, *64*(2), 348-371.
- Lord, C., Rutter, M., Goode, S., Heemsbergen, J., Jordan, H., Mawhood, L., & Schopler, E. (1989). Autism diagnostic observation schedule: A standardized observation of communicative and social behavior. *Journal of Autism and Developmental Disorders*, *19*, 185-212.
- Lorimier, S. d., Doyle, A.-B., & Tessier, O. (1995). Social coordination during pretend play: Comparisons with nonpretend play and effects on expressive content. *Merrill-Palmer Quarterly*, *41*(4), 497-516.
- Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology*, *55*, 3-9.
- Marascuilo, L. A., & Serlin, R. C. (1988). The matched-pair Wilcoxon test *Statistical methods for the social and behavioral sciences* (pp. 213-227). New York: Henry Holt & Co.
- Mundy, P., & Sigman, M. (2006). Joint attention, social competence, and developmental psychopathology. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology, 2nd ed., Vol. 1: Theory and methods* (pp. 203-332). Hoboken, NJ: Wiley.
- Mundy, P., Sigman, M., & Kasari, C. (1994). Joint attention, developmental level, and symptom presentation in young children with autism. *Development and Psychopathology*, *6*, 389-401.
- Murdock, L. C., & Hobbs, J. Q. (2011). Picture me playing: increasing pretend play dialogue of children with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders*, *41*, 870-878.
- Nelson, A. (2010). *Foundation role plays for autism: Role plays for working with individuals with Autism Spectrum Disorders, parents, peers, teachers, and other professionals*. London: Jessica Kingsley Publishers.
- Neufeld, D., & Wolfberg, P. J. (2010). From novice to expert: Guiding children on the autism spectrum in Integrated Play Groups. In C. Schaefer (Ed.), *Play therapy for preschool children*. Washington, D.C.: American Psychological Association.
- Ochs, E. (2002). Becoming a speaker of culture. In C. Kramsch (Ed.), *Language acquisition and language socialization: Ecological perspectives*. London: Continuum.

- Palmen, A., Didden, R., & Arts, M. (2008). Improving question asking in high-functioning adolescents with Autism Spectrum Disorders: Effectiveness of small-group training. *Autism, 12*(1), 83-98.
- Peter, M. (2003). Drama, narrative, and early learning. *British Journal of Special Education, 30*(1), 21-27.
- Piaget, J. (1962). *Play, dreams, and imitation in childhood*. New York: Norton.
- Piaget, J. (1997). *The moral judgment of the child* (M. Gabain, Trans.). New York: Free Press Paperbacks.
- Premack, D., & Woodruff, G. (1978). Does the chimpanzee have a "theory of mind"? *Behavioral and Brain Sciences, 4*, 515-526.
- Prevention, C. f. D. C. a. (2012). Prevalence of Autism Spectrum Disorders: Autism and Developmental Disabilities Monitoring Network, United States, 2008. *Morbidity and Mortality Weekly Report, 61*(3). Retrieved from www.cdc.gov website:
- Roberts, W., & Strayer, J. (1996). Empathy, emotional expressiveness, and prosocial behavior. *Child Development, 67*, 449-470.
- Rogers, S. J., & Dawson, G. (Eds.). (2007). *The Early Start Denver Model*. New York: Guilford.
- Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social context*. New York: Oxford University Press.
- Saltz, E., Dixon, D., & Johnson, J. (1977). Training disadvantaged preschoolers on various fantasy activities: Effects on cognitive functioning and impulse control. *Child Development, 48*, 367-380.
- Schick, L. (2008). Breaking frame in a role-play situation: A language socialization perspective. *Simulation & Gaming, 39*(2), 184-197.
- Schneider, C. B. (2007). *Acting antics: A theatrical approach to teaching social understanding to kids and teens with Asperger Syndrome*. London: Jessica Kingsley Publishers.
- Sherratt, D., & Peter, M. (2002). *Developing play and drama in children with Autistic Spectrum Disorders*. London: David Fulton Publishers Ltd.
- Shumway, S., & Wetherby, A. M. (2009). Communicative acts of children with autism spectrum disorders in the second year of life. *Journal of Speech, Language, and Hearing Research, 52*(5), 1139-1156.
- Singer, D., & Singer, J. (1990). *The house of make-believe: Children's play and the developing imagination*. Cambridge, MA: Harvard University Press.
- Skinner, B. F. (1971). *Beyond freedom and dignity*. New York: Alfred Knopf.
- Smilansky, S. (1990). Sociodramatic play: Its relevance to behavior and achievement in school. In E. Klugman & S. Smilansky (Eds.), *Children's play and learning: Perspectives and policy implications*. New York: Teachers College Press.
- Spolin, V. (1999). *Improvisation for the theater: A handbook of teaching and directing techniques*. Evanston, IL: Northwestern University Press.
- Taylor, M., & Carlson, S. M. (1997). The relation between individual differences in fantasy and theory of mind. *Child Development, 68*(3), 436-455.
- Taylor, M., Carlson, S. M., Maring, B. L., Gerow, L., & Charley, C. M. (2004). The characteristics and correlates of fantasy in school-age children: Imaginary companions, impersonation, and social understanding. *Developmental Psychology, 40*(6), 1173-1187.
- Thorp, D. M., Stahmer, A. C., & Schreibman, L. (1995). Effects of sociodramatic play training on children with autism. *Journal of Autism and Developmental Disorders, 25*(3), 265-282.

- Tomasello, M. (2003). *Constructing a language: A usage-based theory of language acquisition*. Cambridge, MA: Harvard University Press.
- Twachtman-Culen, D. (2008). Symbolic communication: Common pathways and points of departure. In K. Dunn Buron & P. J. Wolfberg (Eds.), *Learners on the Autism Spectrum: Preparing highly qualified educators* (pp. 89-114). Shawnee Mission, KS: Autism Asperger Publishing Company.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wellman, H. M. (1993). Early understanding of mind: The normal case. In S. Baron-Cohen, H. Tager-Flusberg & D. J. Cohen (Eds.), *Understanding other minds: Perspectives from autism*. Oxford: Oxford University Press.
- Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition*, 13, 103-128.
- Wing, L., & Gould, J. (1979). Severe impairments of social interaction and associated abnormalities in children: Epidemiology and classification. *Journal of Autism and Developmental Disorders*, 9, 11-29.
- Wing, L., Gould, J., Yeates, S. R., & Brierly, L. M. (1977). Symbolic play in severely mentally retarded and autistic children. *Journal of Child Psychology and Psychiatry*, 18, 167-178.
- Wolf, D. P., Rygh, J., & Altshuler, J. (1984). Agency and experience: Actions and states in play narratives. In I. Bretherton (Ed.), *Symbolic play*. London: Academic Press.
- Wolfberg, P. J. (2003). *Peer play and the autism spectrum: The art of guiding children's socialization and imagination*. Shawnee Mission, KS: Autism Asperger Publishing Company.
- Wolfberg, P. J. (2009). *Play and imagination in children with autism* (2nd ed.). New York, NY: Teachers College Press.
- Wolfberg, P. J., McCracken, H., & Tuchel, T. (2008). Fostering peer play and friendships: Creating a culture of inclusion. In K. Dunn Buron & P. Wolfberg (Eds.), *Learners on the Autism Spectrum: Preparing highly qualified educators*. Shawnee Mission, KS: Autism Asperger Publishing Company.
- Wolfberg, P. J., Turiel, E., & DeWitt, M. (2008). Integrated play groups: Promoting symbolic play, social engagement and communication with peers across settings in children with autism: Autism Speaks.
- Wolfberg, P. J., Zercher, C., Lieber, J., Capell, K., Matias, S., Hanson, M., & Odom, S. L. (1999). "Can I play with you?" Peer culture in inclusive preschool programs. *Journal of the Association for Persons with Severe Handicaps*, 24(2), 69-84.
- Wright, P. R. (2006). Drama education and development of self: Myth or reality? *Social Psychology of Education*, 9, 43-65.

Appendix

Children's Eyes Instructions

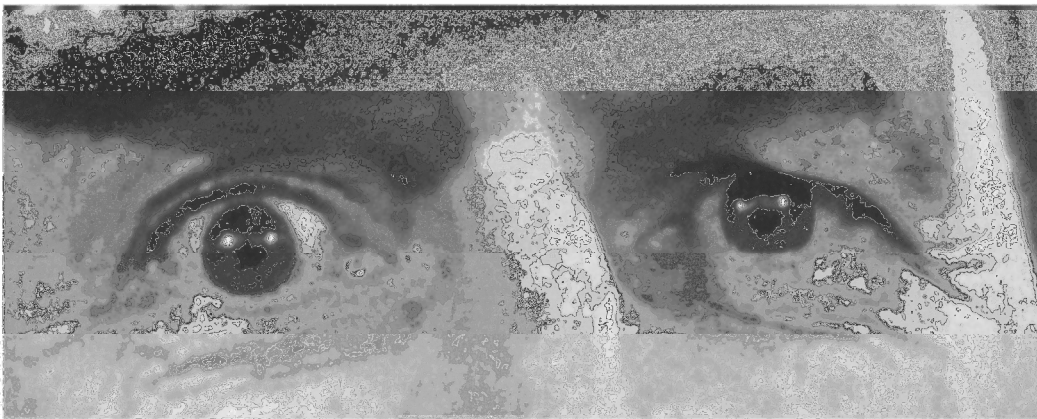
In this folder I've got lots of pictures of people's eyes. Each picture has four words round it. I want you to look carefully at the picture and then choose the word that best describes what the person in the picture is thinking or feeling. Let's have a go with this one (*practice item*). Look at this person. Do you think he is feeling jealous, scared, relaxed or hate (*point to words as they are read*)? *Make sure child picks one of the options and give encouraging feedback without revealing whether they are right or wrong.*

OK, let's have a go at the rest of them. You might find some of them quite easy and some of them quite hard, so don't worry if it's not always easy to choose the best word. I'll read all the words for you so you don't need to worry about that. If you really can't choose the best word, you can have a guess. *Proceed with the test items in exactly the same way as the practice item.*

practice

jealous

scared



relaxed

hate

Interview Guide

1. Introduction
 - Thank respondent for allowing their child to be a part of the research study.
2. Tell me about your experience with the Integrated Drama Group project.
 - How did you feel about the length of each session?
 - How did you feel about the overall time commitment of the study?
 - How easy was it to get your child to the research site?
3. Tell me about any changes you have noticed in your child's play since he began the group.
 - Have you noticed any differences in the way he interacts with others during play?
 - If so, what are they?
 - Have you noticed any differences in the way he pretends during play?
 - If so, what are they?
 - Do you think these differences are significant in your child's life?
4. Is there anything else about our study or the IDG itself that we haven't talked about which you think is important to understand?
5. Thank you. Now I am going to show you two clips from your son's IDG, each taken during free play. I would like you to watch and pay close attention to your child's play behaviors. After each video, I am going to ask you a couple questions. Does that make sense? [**When parent is ready, play clips.**]
 - After the first video: Tell me what you noticed about your child's play behaviors during this clip.
 - Was he having fun? How could you tell?
 - Was he interacting with others? How could you tell?
 - Was he pretending? How could you tell?
 - After the second video: Tell me what you noticed about your child's play behaviors during this clip.
 - Was he having fun? How could you tell?
 - Was he interacting with others? How could you tell?
 - Was he pretending? How could you tell?
 - If I told you that one of these clips was taken before the drama intervention started and one was taken after, which clip would you guess was which? Why?
6. Do you have any questions for me?