

The Effects of a Theatrical Play Programme on Social Skills Development for Young Children with Autism Spectrum Disorders

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Abstract

The purpose of this study was to examine the effects of a theatrical play programme on social skills development for young children with Autism Spectrum Disorders (ASD). Six children with ASD were selected by purposive sampling (M=10.6 years), and their typically developing peers (N=132) (M=10.3 years), attending general primary schools in Greece participated in the study. All participants, both ASD and typical children, attended a theatrical play programme with the physical education regular school programme alongside. A physical education teacher and six integration classroom teachers of six different classes recorded the social skills of six children with ASD after every theatrical play session (16 educational sessions) for eight weeks. Social skills were evaluated using the “Social and Play Skills” checklist of the Collaborative Model for Promoting Competence and Success (COMPASS) by Ruble, Dalrymple, and McGrew (2012). This checklist is composed of three parts: social awareness, joint attention skills and play that facilitate teachers to observe different aspects of social interactions including social skills. Results showed improvement in cooperation, attention, obedience, and empathy in four of the six participants. All six children reduced anxiety risk and repeatability giving a potential promise in improving the social functioning in children with ASD through the cooperation with their peers.

Keywords: theatrical play, cooperation, social skills, physical education, autism

Introduction

Social skills play a pivotal role in the development of a child's ability to communicate with other people, to involve knowing how to act in a certain social situation, to improve and maintain meaningful social and emotional relationships in his/her lifespan (Merrell & Gimpel, 2014). For typically developing children the development of social skills follows a predictable developmental trajectory. On the other hand, children with Autism Spectrum Disorders (ASD) are characterized by marked difficulties in social interaction, communication and restricted and narrowed interest-influence areas of development and learning (American Psychiatric Association, 2013). Teaching social skills to children with ASD present complex instructional challenges for teachers, because they have to identify, interpret and reproduce the general palette of social behaviors and target critical developmental areas related to autism designing programs and plans to generalize skills beyond the initial educational circumstances (Bremner, 2017; Temple, 2014). For instance, both past and recent evidence imply that all strategies for successful educational interventions are based on a classroom environment where positive social interactions are the norm and punitive consequences are minimized (Buehl, 2017; Gilbody, Whitty, Grimshaw, & Thomas, 2003). The positive feedback in a routine, which can also include hugs, smiles, nods, and eye contact, does not always have to be verbal.

The increased number of scholars such as Gibbs (2018), proposes that the general purpose of learning frameworks should not be the change of children and their way of thoughts but the help to understand and respond to their particular preferences and abilities. An important strategy on this perspective is the cooperative learning, which can be developed in a structured social environment such as the physical education lesson. Physical education's scope favors social interactions by creating opportunities where all children can learn, live and play together (Anderson & Glover, 2017). In physical education, children cooperate with one another in a much wider range of contexts and in much more complex ways on different activities (Wuest & Fiset, 2014). In addition, physical education gives children with ASD the chance to ensure equal learning opportunities through psychomotor, movement and play with other peers (Li, Wang, Guo, & Li, 2015). Inclusive fitness theory by Hamilton in 1964 reveals that cooperation can be favored by natural selection owing to either direct fitness benefits or indirect fitness benefits (Marshall, 2015). On the other hand, children with ASD have social impairments and that might as well be a motivation in order to cooperate with others (Schul, 2011; Slavin, 2015). A high-quality physical education curriculum provides opportunities for all children to achieve, through physical activities, objectives such as communication, cooperation, interaction and empathy (Metzler, 2000). According to Johnson and Johnson (1999), there are five aspects of cooperative learning that drive its success.

Vygotsky's sociocultural theory (SCT) (1978), includes cooperative learning as an educational method which activates views children to participate in a social process become active through the Zone of Proximal Development (ZPD) and creates a causal relationship between social interaction and experience with peers (Lantolf & Poehner, 2014). Social interaction for autistic children is viewed as a fundamental feature of social life in which autistic children act with peers (Kiraly, 2000; Smagorinsky, 2016). Therefore, according to Vygotsky the knowledge is within

the learning communities, and requires social interaction (Tennant, Martin, Rooney, Hassan, & Kane, 2017). This finding led some teachers to rebuild the theory of learning in the early 1990s. Lave and Wenger in the early 1990s formulated the "Situated learning" in which learning functions as a tool of social interaction where children participate in structured frameworks and interact in small groups to achieve common goals. Nowadays, and according to Vygotsky's theory, the theatrical play is one of the recreational and pedagogical techniques which teachers use in primary schools to assist ASD children's social skills development in a range of different dimensions of daily life (Bodrova & Leong, 2015; Carlson, 2017; Rubtsova & Daniels, 2016).

Several theatrical play programmes are currently being used on children with ASD. The literature review has led to the identification of a number of theatrical play programmes which have become crucial in terms of developing social skills on ASD children (D'Amico, Lalonde, & Snow, 2015; Guivarch, Murdymootoo, Elissalde, Salle-Collemiche, Tardieu, Jouve, & Poinso, 2017; Müller, Nutting, & Keddell, 2017; Schriber, Robins, & Solomon, 2014; Seale, 2015; Yeh, Stone, Churchill, Brymer, & Davids, 2016). In a pilot study, Corbett, Gunther, Comins, Price, Ryan, Simon, Schupp, and Rios (2011) evaluated the effect of a theatrical program (SENSE) which was designed to improve socio-emotional functioning and reduce stress in children with Autism Spectrum Disorder (ASD). Eight children with ASD were paired with typically developing peers. Participants with ASD showed improvement in socio-emotional through the cooperation with their peers and expressed their own needs. According to Corbett, Swain, Coke, Simon, Newsom, Houchins-Juarez, Jenson, Wang, and Song (2014) and the results of subsequent research, it is necessary to understand that this program has an educational role and is not a "time for a break".

Recent evidence indicated that ASD children develop social skills and interactions towards the cooperation of typically developing peers in theatrical play activities. More specifically, Lerner, Mikami, and Levine (2011) in their study, examined the use of theatre to develop social and communication behaviours for ASD children through the SDARI programme. Six children with Asperger syndrome participated in SDARI programme for 6 weeks. The programme was based on improvisation with an emphasis on non-verbal communication. Results showed improvement among participants in several measures of child social functioning. One year later, Guli, Semrud-Clikeman, Lerner, and Britton (2013) examined the effects of participation in the Social Competence Intervention Programme (SCIP), on a group of children who were diagnosed with Autism Spectrum Disorder (ASD), nonverbal learning disability (NLD) or attention deficit hyperactivity disorder (ADHD). Eighteen participants in the SCIP programme were compared with a clinical control group of 16 on the changes in measures of social perception, social competence, and naturalistic observed social behaviour. The findings showed improvement in the social behaviour in the clinical control group. In a research carried out by Stichter, Herzog, Visovsky, Randolph, Schultz, and Gage (2010) twenty-seven children with ASD participated in the SCIP programme for ten weeks. The study was designed to evaluate their social interactions, communication, and the recognition of their feelings. The results showed that the programme developed the interactions between the children and improved social and emotional skills.

In a pilot study carried out by Bella (2012), the effect of a theatrical play programme on social-emotional skills in a girl with ASD was evaluated. In this study, this girl participated in a theatrical play intervention programme with her teacher. The girl showed interest in the programme and cooperation with her teacher. She improved her socio-emotional profile and that helped her to develop friendships with her peers. According to Ingersoll (2010), most of all these programmes offer a variety of stimuli to autistic children, which are very important for their social lives. The development of social skills through theatrical play programmes and activities is succeeded when the goals are clear. According to Conn (2016), the theatrical play is an educational technique for social skills development for children with ASD because it offers a variety of different ways of communication, necessary to social life. The theatrical activities, according to Adley (2016), give ASD children the opportunity to experience positive social interactions. According to Fortier (2016), an important aspect of theatrical play is the experience, which is extremely important for these children to address their deficient social behaviors.

Many studies describe the benefits of the theatrical play on ASD children's emotional and social relationship development at school. Interventions are needed to build their peer interaction skills. Social skills training are provided directly to the child with ASD in group's context. On the other hand, there has not yet been a study comparing the efficacy of theatrical play through physical education at school on social skills development of ASD children. It is highly likely that for ASD children, peer interaction through theatrical play during the physical education course will do better than in any other school course. Thus, the purpose of the present study was to examine the efficacy of an eight-week theatrical play programme as a part of psychomotor learning through physical education in order for ASD children to develop social skills and positive social interaction with their typically developing peers in terms of social awareness, joint-attention skills and play. Based on prior research in physical education and psychomotor settings, it has been hypothesized that the theatrical play intervention programme can result in social skills development for children with ASD.

Method

Participants

This case study research refers to an in-depth study of a small group of children with ASD. The sample of the study consisted of 6 ASD children (Mage=10.60 years old, SD=.77), from general primary schools in Northern Greece.

The main characteristics of this study are that it is narrowly focused, provides a high level of detail, to document, describe, and analyze the social skills changes that occur in a theatrical play programme which is used with the participation of six children with Autism Spectrum Disorders (ASD). Such an approach was appropriate for this study because it allows the researcher to regard the individual child as a unit of analysis. Cases were drawn in an eight-week theatrical play programme with the physical education regular school programme alongside. Inclusion criteria were a diagnosis of High Functioning Autism (HFA) according to DSM-IV; IQ or developmental quotient ≥ 80 with the theatrical play. The intelligence was tested through the WISC-III (Wechsler Intelligent Scale for Children, 1991, Wechsler 1991), which is most suitable for children between 6 to 16.1 years. In addition, the CARS (Childhood Autism Rating Scale

CARS; Schopler, Reichler, Rothen & Renner, 1980; 1988) was used to observe and subjectively rate fifteen behaviors about autism. Participants were selected through Purposive Sampling (e.g., ASD children with no mental retardation), while they have been no previous experience with the theatrical play. All children were selected from the last three classes of the elementary schools. Written informed consent was obtained for all children by their parents specifying exactly how their data would be used. The names of all participants were changed in order to make them unrecognizable. (See Table 1 for the characteristics of ASD participants).

Table 1. Characteristics of ASD participants

Participants	SEX	AGE(Years)	Grade	WISC-IV IQ-Verbal Scale	WISC-IV IQ-Full Scale	CARS Diagnosis	
1	F	10.3	4	82	101	36.5.	F- Female
2	M	9.1	3	78	87	34.0.	M- Male
3	F	11.4	5	81	98	33.5.	
4	M	11.1	5	74	91	36.5.	CARS- Childh
5	M	11.2	5	70	89	34.0.	ood
6	M	10.5	4	67	80	32.0.	Autism

Rating Scale

WISC- Wechsler Intelligence Scale for Children

Information about children's profile was collected by the teachers (physical education teachers-teachers of integration classrooms), while additional information was provided by parents. Specifically, searched: (a) the formal diagnosis of the disorder, (b) the psycho-pedagogical programmes which they are attending and (c) the strengths and weaknesses of their personalities. In addition, they checked children participation in other extracurricular activities and therapies and they interpreted their responsiveness (See Table 2 for behavioral characteristics for each child with ASD).

Table 2. Behavioral profile for each participant student with ASD

Jane	John	Kathrin	Smith	Alex	George
A 10-year old girl who presents disturbing thoughts and impulses.	A 9-year-old boy, who presents good verbal ability, loves writing but he has many interaction difficulties.	An 11-years-old girl polite and smiley. She has many verbal communication difficulties.	An 11-year-old boy who participates in social events but he often prefer loneliness.	An 11-year-old boy with many problems on social interaction.	A 10-year-old boy with many difficulties with social interaction with others peers.
She is able to communicate verbally but has often difficulties with the nonverbal communication.	He prefers to engage only in small groups.	She presents translation difficulties misinterpretations due to clouded judgment and needs to repeat two to three times	He almost getting tired quickly because voices and sounds cause significant stress.	He has fewer friends and a worse perception of friendship, companionship, closeness, security, and	He has difficulties knowing how to play a game with their peer.
She needs such adaptations to					

participate in school activities, as well as to make use of instructional materials but she is unable to focus her attention on something.	He's very sensitive to loud voices and strange sounds and sometimes he closes his ears and cry.	a word she cannot pronounce. She seeks to establish friendship and has many social- interaction limitations and a tendency to engage in repetitive behaviors.	He has two younger brothers with and he has a good relationship with them.	help. He is usually leads to his isolation, even during inclusive educational settings.	He is angry most of the time, and he seems to have no friends at all.
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The six participants can be described as heterogeneous because even though all were diagnosed with ASD, they were showed basic differences in the following factors: a) their age (9 to 11 years), b) the gender (boys-girls), that was a positive element for this research because the sample was represented by both sexes, c) the autism level (borderline or moderate autism), d) their social and adaptive skills, e) their verbal and cognitive abilities. On the other, the children of the class (typical children) were as many as possible to achieve secured results. Over 140 children participated in this research but at least 132 children (N=132) responded (94.28%), while 8 children (6%) left in the research process on their own. The highest percentage of children came from the penultimate class (5th grade) of the elementary school (50%), 33.3% from fourth grade and 16.6% from third grade.

As regards the teachers, a percentage of 33% work with these six children for up to 5 hours a week, while a lower percentage of 16.7% more than 10 hours. The reduction of physical education hours in primary education, is provided an important percentage of teaching hours to the teachers of the integration classrooms. In any case, 91.7% both of two specializations have daily co-operation with parents, which reinforces the quality level of education. By the twelve teachers who participated in this research four of the six integration teachers have a Master in special education. More specifically, a teacher has a Master in speech therapy, two in the field of developmental disorders and one on the integration of children with special educational needs, and has also a diploma on intervention programmes for ASD children. As regards physical education teachers, two of six were attended 400 hours seminars on special education, three have no relation with the field of special education, while one of them has also a diploma in the field of social work. In addition, two physical education teachers have a diploma in dramatherapy for people with mental retardation. Therefore, only 4 of 12 teachers, fewer than half, have experience in programmes for ASD children.

Measures

The philosophy of the theatrical play programme was designed to target the social challenges of ASD by utilizing well-established behavioral intervention paradigms implemented in combination with theatrical techniques. The six ASD participants (4 boys, 2 girls) were participated with typically developing children (N=132) and age from 9 to 11 years (Typ = 10.37, SD = 0.75; Au = 10.60, SD = 0.77) on verbal and nonverbal communication, social,

perception and expression activities in the physical education class in primary school. Under the supervision of the physical education teachers (twelve PE teachers), the children become organized into groups. The schedule was based on a general social community approach which includes an opening circle and small group activities. Activities related: (1) cooperation; (2) coordination; (3) non-verbal activities; (4) improvisation; and (5) body language; the programme takes place two days per week and 45 min per session. The actual trial lasted 2 months. To enhance social interaction with others, teachers helped the participants through modeling appropriate social behavior, shaping techniques, external reinforcement (e.g., stickers), intrinsic reinforcers (e.g., praise). The instruction was provided through one-to-one behavioral support, verbal and physical prompting, social reinforcement, redirection techniques, and verbal cues. The observation protocol (COMPASS; Ruble, Dalrymple, & McGrew, 2012) which was used in this study was assessed with a 10-item close-ended (yes/no) checklist (Social and Play Skills checklist observation) completed by the researcher (physical education teacher) and integration classroom teachers for each child with ASD (the typically developing children did not require an evaluation). The checklist is divided into three different dimensions, a) social awareness, b) joint and attention skills and c) play.

Two weeks prior to the study, physical education teachers were trained on theatrical play programme. It should be noted that four of six physical education teachers had implemented in the past few hours on theatrical play activities in their classes according to the primary school curriculum. The integration classroom teachers which participated as assessors were trained to complete the checklist and they were assessed for the homogeneity of their responses (pilot study). The Intraclass correlation (ICC) was ranged from .899 to .957.

The observation began at the first session and was finished in the last session. In this study "social and play skills" form was selected which examined social interactions between children with ASD and children with typical developing. For each factor in this form (social awareness, joint attention skills, and play) three to four variables correspond. Each factor was observed for ten minutes in every session and the elements were reported in a paper-list. In this study, teachers had the opportunity through this educational strategy to identify the limitations that these children present and the improvement role of co-operative activities in social skills development. Six integration classroom teachers, a physical education teacher and six ASD children which selected by purposive sampling selected from each class, participated in this study. The children participated in a variety range of activities and were observed through a checklist for social-play skills. The results showed that the children with ASD responded satisfactorily to other children and developed social relations (See Table 3 a one-day session plan schedule of theatrical play programme).

Table 3. Theatrical play programme: One day session plan schedule

Main Objective	Introduction	Duration	Main Activity	Duration	Points of Closing
Encouraging and facilitating cooperation between students with ASD and their typical peers (e.g., decision-making processes, problem-solving, take responsibility)	A preliminary discussion of social action with cooperative features (e.g., information sharing, coordination, cooperation, and collaboration)	5'	Pantomime The school class divided into four groups and each group of students selected a phrase of the four seasons	25'	Rewards All students participated in a choreography which that gave them the opportunity to express their feelings about the activity of the theatrical play
	A brief description of the importance of verbal and non-verbal communication (NVC) (e.g., the means of transferring information through verbal messages or with facial expressions, gestures, and postures)	5'	The students tried to express the phrase with gestures and postures without verbal communication (e.g., «i wear jackets, caps, and play snowball», «I hold an umbrella and plunge into the rain», «I pick flowers, make a Bouquet, ousps! Run to avoid a bee»)		Discussion (e.g., the students shared some impressions, some ideas, and of course their difficulties with the theatrical play activity)
	A video which showed an example of cooperative learning in a classroom and which it helped students to understand the meaning of interaction.	5'			

Procedure

Informed written consent was obtained from parents and school leaders along with verbal assent from all research participants prior to inclusion in this study. The Institute of Educational Policy (IEP) an executive scientific body which supports the Ministry of Education and Religious Affairs, Culture and Sports approved the study. The teacher's personnel were informed in two educational meetings about the aim of the study and their role in the programme, and then the teachers were trained by the researcher to complete the Social Skills & Play Checklist (COMPASS, 2012), while the physical education teachers were trained in the implementation of the theatrical play programme concerning a small sample of the participants. The entire procedure was observed by the researcher and a teacher in every educational session. In the next eight weeks, the activities of the programme were implemented by all children. The typically developing children were not observed, only the six participants with ASD. Oral instructions were provided to children. All participants were reassured about their right to withdraw if they wished to.

Statistics and data analysis

Inter-observer agreement among two different educators (teachers of integration classrooms-physical education teachers) was evaluated by Cohen's kappa coefficient (K) (Cohen, 1960) which is psychometrically most appropriate because of the predictive capacity (Pereira, Mesquita & Graça, 2009), which has been widely used in the control of the reliability of observations in systematic observation surveys in the field of sport and psychology. A Controlled observation (structured observation) was used by the researcher than an unstructured observation. She decided to use planned observation of a phenomenon and followed certain patterns, rules, and designs for the purpose of what, how and when to observed a behavior. An unstructured observation it would not have a checklist so it would be easy to miss behavior without recording equipment. In this observation the most important factor was that the observers (two teachers) would need to have a tendency to record most eye-catching or noticeable behavior that might not be important or relevant. In controlled observation rather than writing a detailed description of all social skills observed, it was easier to code social skills in a social skills paper-protocol.

Coding involved numbers of a scale to measure social skills intensity, so that the data collected could be statistically analyzed. The descriptive statistics analysis (univariate) was used for the observed phenomena analysis. The three observation categories in this research were the dependent variable and the theatrical play programme was the independent variable. It was needed the discretion of each observer, while they were recorded in a daily diary the intensity of the observed phenomena. More specifically, the observers recorded the intensity of phenomena for each dimension (social awareness, joint-attention skills, play) for 10 minutes on a scale of 1 to 4, where 1 = the smallest intensity, and 4 = the higher intensity).

Results of the recordings were attributed to relative frequencies. It was necessary to sum the frequency of each phenomenon and to convert the raw data into percentages. In order to confirm that the random error was low, followed successive observations per week on the same phenomena. IBM's SPSS (v.23.0) and Microsoft Excel were used for the statistical analysis

Results

Participants reported positive social interactions with peers in theatrical play programme. In this study six cases studies were tested with 12 different observers, in experience to social skills recording procedures. In paired analysis the agreement index (*K*) achieved was between .571 and .862 which are presented in Table 4, and shows the agreement between observers in three different dimensions of the checklist “social, and play skills. As shown in the first case, the agreement between the two observers ranged between .571 and .784, for the second case between .600 to .771, for the third case between .600 and .805, for the fourth between .600 and .862, for the fifth ranged between .636 and .810, and for the sixth from .667 to .818.

Table 4. Agreement between the two observers across ASD participants

Social and play skills checklist	Jane	John	Kathrin	Smith	Alex	George
A social Awareness						
Cooperation	.614	.771	.714 □	.778	.652	.667 □
Obedience	□	□	.805 [†]	□	□	.750 □
Indifferent	.714	.600	.600 □	.826 [†]	.642	.750 □
Anxiety	□	□	.750 □	.600	□	.714 □
	.617	.600		□	.636	
B. Joint Attention Skills						
Empathy	□	□		.610	□	
Acceptance (instructions)	.619	.619	.619 □	□	.810 [†]	.818 [†]
Attention	□	□	.758 □			.747 □
			.636 □			.736 □
				.768	.733	
C. Play						
Risk	.784 □	.714		□	□	
Panic	.636	□	.628 □	.862 [†]	.667	.742 □
Repeatability	□	.669	.714 □	.758	□	.750 □
	.571	□	.667 □	□	.805 [†]	.750 □
		.610				
		□				
	.750			.628	.812 [†]	
	□			□	.862 [†]	
	.673	.610		.714	.742*	
	□	□		□		
	.600	.742		.818 [†]		
	□	□				
		.714				
		□				

* Substantial agreement 0.6-0.8

[†] Perfect agreement 0.8-1

No values were reported to indicate moderate agreement 0.4-0.6

Fair agreement 0.2-0.4

Time sampling

Time sampling in the present study was important because it involves the implementation of direct and systematic observation of both time and place. All behaviors, could not be recorded, therefore it was necessary to select specific time intervals for what to observe. The choice of the

moment was very important because only then observed the frequency of the observable phenomena. The observational duration was 30 second, and was divided into three ten-second intervals.

During of the sixteen theatrical play sessions, the children engaged in activities including role-playings and various improvisation games. The activities took place in a very positive and fun environment, where a total of 960 acts were performed. Percentages show the behaviors which were improved after the end of the theatrical play programme for each child with ASD (Table 5).

Table 5. Presence frequency of variable of Social Skills & Play Checklist

Social and play skills checklist	Jane M (%)	John M (%)	Kathrin M (%)	Smith M (%)	Alex M (%)	George M (%)
A social						
Awareness						
Cooperation	2.93 23.5	1.68 13.5	3.25 26	3.43 27.5	2.68 21.5	2.37 19
Obedience	3.68 27.5	2.25 18	3.06 24.5	2.56 20	2.87 23	2.56 20.5
Indifferent	3.18 17.5	2.87 23	2.06 16.5	2.25 18	3.12 25	1.56 12.5
Anxiety	1.75 14	1.68 13.5	1.5 12	2.81 22.5	3.06 24.5	1.31 10.5
B. Joint						
Attention						
Empathy	3.25 25.5	2.81 22.5	3.18 25	3 24	3.18 24.5	1.15 9.5
Acceptance	3 24	3 19	3.25 26	3.31 26.5	2.25 18	2.25 18
Attention	3.75 29.5	2.31 17	2.87 23	3.56 28.5	3.56 28.5	2.87 23
C. Play						
Risk	1.56 12.5	1.93 15.5	2.31 18.5	2.68 21.5	2.06 24	2.75 22
Panic	1.18 9.5	2 16	1.31 10	1.31 10.5	1.18 9.5	1.37 11
Repeatability	1.37 19	1.31 10.5	2.62 21	1.13 9.5	2 16	1.43 11.5

Of those, 50 (5.3%) acts were unclear and 910 (94.7%) were performed by the autistic participants. Two boys and two girls with ASD had the highest number of cooperation acts (44.8%), followed by the attention (35.4%), empathy acts (26%), and obedience (32.6%). On the other hand, only one child showed low acts of empathy (9.5%) and one in cooperation (13.5%). Four of the six participants improved their anxiety and the others kept it in low level. The observational phenomena in first dimension (Social awareness) are presented high percentages for all children in cooperation, obedience and indifferent. In the second dimension and joint attention skills, the percentages are also high for all children with ASD. In the rest three phenomena in the last dimension of play all observed participants showed low acts on a panic phenomenon (10.5%), but at risk and repeatability, all participants showed a negative stability. Specifically, two of the six participants had the highest number of repeatability (the girl in the first study 19% and the girl in the third study, 21%). In addition, five of six participants had the

highest number at risk which ranged between 15.5 and 22% (see in Figures, 1, 2, and 3 the differences of observed phenomena).

Figure 1. Six ASD children frequency (%) on Social Awareness

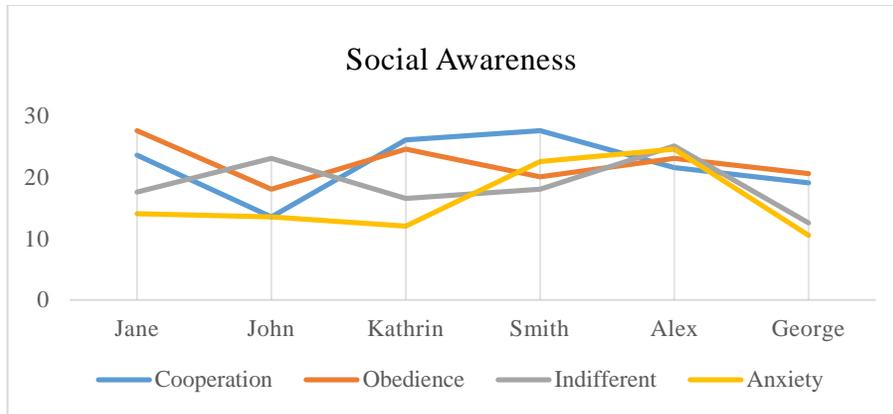


Figure 2. Six ASD children frequency (%) on Joint-Attention

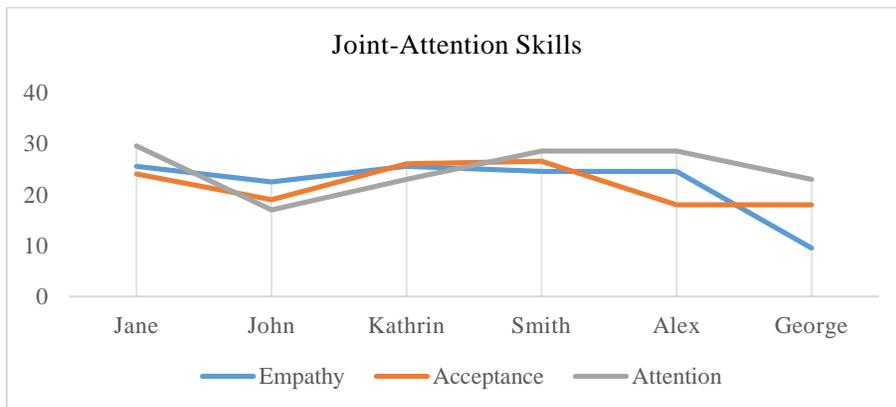
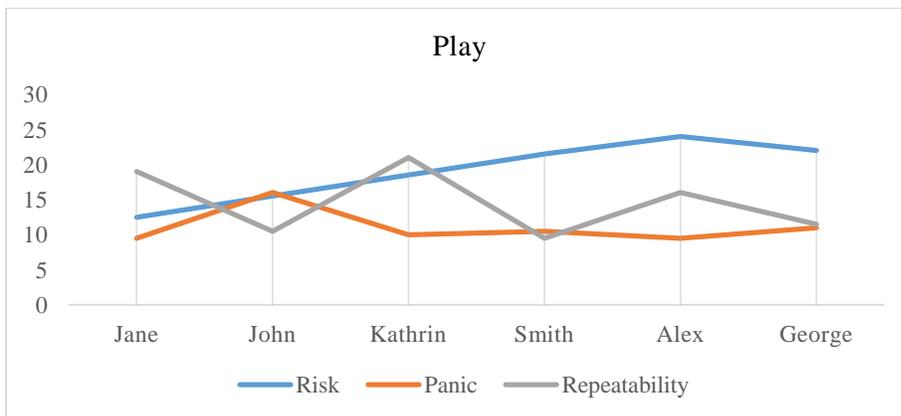


Figure 3. Six ASD children frequency (%) on Play



Based on observations, it was shown that all of the children enjoyed the activities throughout the programme. Specifically, the first, and the third girl along with the fourth and fifth boy made a good deal of progress throughout the study and they showed positive improvement in cooperation and in friendship development. For example, the profile of the first girl was more likely to reach out and attempt interaction with others than the other participants in this research, because she was more cooperative with her peers since the beginning of the program. On the other hand, the third girl, while at the beginning of the period was considered to have many difficulties to cope with complex situations, at the end of this programme she was more prone to use peers opinion, cooperated with them and calmed herself down. All children expressed that they did enjoy the programme and displayed their increased awareness of how their bodies moved and were able to express themselves in a more mature and controlled manner, through obedience in rules while keeping their anxiety at a low level. The programme helped them to learn to express themselves and increased their ability to interact with their peers.

Discussion

Their lack of social interactions prevents children with ASD from developing and improving social skills with the human environment (e.g., with their peers) and from achieving a more successful communication into the school community. On the other hand, finding and promoting educational programmes for the development of social skills has been a primary objective in the researcher communities for these children and the ultimate goal is always to improve the quality of ASD children's social life settings (Block, Radley, & Jenson, 2015; Wong et al., 2015; Yoo et al., 2014). The purpose of this study was to investigate the effect of a theatrical play programme in social skills development for ASD children. More specifically, the study was to develop social interaction between elementary school children with ASD and their peers.

The results of the analysis supported the hypothesis that social skills training combined with a creative programme such as the theatrical play which was especially effective in developing and improving the duration and frequency of ASD children's social interactions with their typical peers and therefore their social skills. These findings provide a replication of previous studies that included ASD children in theatrical play programmes which have confirmed that may increase social skills with their typical peers. (Corbett, Newsom, Key, Qualls, & Edmiston, 2014; Reading, Reading, Padgett, Reading, & Pryor, 2016).

Notable features of this study that expand the literature include (a) participation of elementary school-age ASD children who have limited social skills and play skills, (b) use of groups including the target child and their peers, and (c) use of a checklist to note the occurrence or nonoccurrence of social interactions across conditions. In prior studies, target ASD children have often been preschoolers or adolescents or those with low functioning levels (Feng, Whalon, & Yun, 2017; Gal, Lamash, Bauminger-Zviely, Zancanaro, & Weiss, 2016). In this study the importance of cooperative strategies through the theatrical play for teaching social skills to children with High Functioning Autism (HFA) was demonstrated in elementary schools settings. This study was a great challenge to teachers and peers to encourage reciprocal positive social interactions. For example, the overall occurrence of appropriate social skills increased when the

intervention was in place and the ASD children appeared to enjoy the theatrical play activities more after training, according to the observations of their play with their peers.

These outcomes suggest that for children with more limitations of social skills, such as the sixth case in this study, teachers may need to implement strategies as well as build more specific activities as a part of the theatrical play programme for social skills training. Thus, they might need to use a reinforcement system for social interactions in play sessions as well as for developing social skills. Other positive effects of the theatrical play training in public school settings is that it has become an aid for typical children to initiate effective interactions with ASD peers. Theatrical play activities might also provide opportunities for ASD children to observe similar-age typical children play with each other in school environments focusing exclusively on group teaching such as the physical education lesson. The specific percentages of social skills variables in the use of the effect of the theatrical play programme through the physical education lesson increased during the intervention phases (Nguyen, & Larson, 2015).

Several points can be mentioned to clarify this issue. The ASD children participants showed indifference at the beginning of the first session, which declined over time. It is likely that these findings reflect simple habituation following some early situational anxiety and panic for something they didn't know. Additionally, higher levels of attention, empathy, and acceptance in instructions were shown during the most of the sixteen sessions of theatrical playing programme. It is likely that the activities and the environment play an important role to promote ASD children's participation. Importantly, this study did not specifically utilize theatrical scripts as part of the programme.

Thus, increased familiarity with the social milieu may be an important benefit for these children. Another social variable which was observed, was the empathy, an important element of the communication between typically developing peer and children with ASD.

To summarize the results, the theatrical play programme is a creative program which can be used as an appropriate educational strategy to teach social skills and self-confidence in a structured environment such as school. Cooperation between ASD children and their peers shows a significant improvement in social skills, behavior, confidence and greater awareness and sensitivity toward others (Kempe, & Tissot, 2012). Each session consists of three main components that assist children in addressing the above aspects: conversation skills; non-verbal cues and role plays.

Through these programmes, children incorporated a number of promising strategies for social skills training and successfully managed a number of everyday situations (Erbay, & Dogru, 2010), such as conflict, friendships, sharing and taking turns appropriate social skills, identifying and expressing emotions. On this basis, music may have also added a positive role. It is likely that several environmental factors were combined to create the encouraging outcome.

Perspectives

Playing is a method of physical education which is useful to face up difficulties of children with emotional and developmental disorders, only when the content of play is adapted according to the special needs of children. The activities of play are based on an interdisciplinary plan which

is necessary for children with ASD (Rosenthal-Malek, & Mitchell, 1997). Although, the educational policy provides more time for one-to-one teaching, it seems that the benefits of group activities are multiple. The children through group activities have opportunities for communication and interaction, and develop initiatives. Social skills developed help them to improve the interpersonal communication, their feelings, and to express themselves (Borremans, Rintala, & McCubbin, 2010). This study provided encouraging evidence that theatrical play programme helped ASD children support with their peer's development in creative, social and communicative skills. In particular, ASD children in this research participated in groups, made imaginative contributions to verbal and physical representations and engaged with abstract ideas (Zhang Peluso, Gross et al. 2014). Programme outcomes are given a concrete structure and an invitation to collaborate, since theatrical techniques such as theatrical playing can be a powerful educational tool for ASD children. Despite the promising results, the study did not use a randomized experimental design, was limited by a small sample of cases studies, and did not include a control group. A future study will may address these concerns to a much larger sample in an enhanced experimental design (e.g., the control group, random assignment, etc.) which include (a) multiple theatrical play activities to promote maintenance and generalization of the social skills, (b) promotion of social skills training through physical education for high functioning ASD children and their peers, (c) development of strategies such as cooperation that produce interactions.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

References

- Adley, M. (2016). *Peer-Mediated sand play and symbolic play in children with autism spectrum disorder*. Antioch University, California. Retrieved from: <https://open.library.ubc.ca/cIRcle/collections/2>
- Anderson, L., & Glover, D. (2017). *Building character, community, and a growth mindset in physical education with web resource: Activities that promote learning and emotional and social development*. Champaign, IL: Human Kinetics.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.
- Bella, M. (2012). *The instructional effects of cognitive behavioral drama in improving characteristics of Alexithymia for children with severe emotional disorders on the autism spectrum. Study of an individual case*. Democritus University, Thrace. Retrieved from: <http://ir.lib.uth.gr/11615/2072/P0002072>.
- Block, H. M., Radley, K. C., Jenson, W. R., Clark, E., & O'Neill, R. E. (2015). Effects of a multimedia social skills program in increasing social responses and initiations of children with autism spectrum disorder. *International Journal of School & Educational Psychology*, 3(1), 16-24. DOI: /10.1080/21683603.2014.923355.
- Bremner, J.G. (2017). *An introduction to developmental psychology*. New Jersey, U.S: John Wiley & Sons.

- Bodrova, E., & Leong, D. (2015). Vygotskian and Post-Vygotskian. Views on children's play. *American Journal of Play*, 7(3), 371-388. Retrieved from <http://files.eric.ed.gov/fulltext/EJ1070266.pdf>.
- Borremans, E., Rintala, P., & McCubbin, J. A. (2010). Physical fitness and physical activity in adolescents with Asperger syndrome: a comparative study. *Adapted Physical Activity Quarterly*, 27(4), 308–320.
- Buehl, D. (2017). *Classroom strategies for interactive learning*. Portland, U.S: Stenhouse Publishers.
- Carlson, M. (2017). *Performance: A critical introduction*. London, UK: Routledge.
- Conn, C. (2016). *Play and friendship in inclusive autism education: Supporting learning and development*. Abingdon Oxon and New York: Routledge.
- Corbett, B. A., Newsom, C., Key, P. A., Qualls, R. L., & Edmiston, K. E. (2014). Examining the relationship between face processing and social interaction behavior in children with and without autism spectrum disorder. *Journal of Neurodevelopmental Disorders*, 6(1), 35. DOI: /10.1186/1866-1955-6-35.
- Corbett, B.A., Swain, D.M., Coke, C., Simon, D., Newsom, C., Houchins-Juarez, N.,... Song, Y. (2014). Improvement in social deficits in autism spectrum disorders using a theatre-based, peer-mediated intervention. *Autism Res*, 7(1), 4-16. DOI: 10.1002/aur.1341
- Corbett, B. A., Gunther, J., & Comins, D. (2011). Theatre as therapy for children with autism. *Journal of Autism and Developmental Disorders*, 41, 505–511. DOI: 10.1007/s10803-010-1064-1
- D'amico, M., Lalonde, C. & Snow, S. (2015). Evaluating the efficacy of drama therapy in teaching social skills to children with autism spectrum disorders. *Drama Therapy Review*, 1(1), 21-39. DOI: 10.1386/ dtr.1.1.21_1
- Erbay, F., & Dogru, S. Y. (2010). The effectiveness of creative drama education on the teaching of social communication skills in mainstreamed students. *Procedia Social and Behavioral Sciences*, 2(2), 4475–4479. <https://doi.org/10.1016/j.sbspro.2010.03.714>.
- Feng, K., Whalon, K., & Yun, J. (2017). Social skill interventions for youth and adults with autism spectrum disorder: A systematic review. *Review of Educational Research*, 88(1), 3-42. <https://doi.org/10.3102/0034654317740334>
- Fortier, M. (2016). *Theory/Theatre: An introduction*. New York: Routledge.
- Gal, E., Lamash, L., Bauminger-Zviely, N., Zancanaro, M., & Weiss, L. P. (2016). Using multi touch collaboration technology to enhance social interaction of children with high-functioning autism. *Physical & Occupational Therapy in Pediatrics*, 36(1), 46-58. DOI:/10.3109/01942638.2015
- Gibbs, K. (2018). Managing challenging behaviour in the classroom: a framework for teachers and SENCOs. *Educational Psychology in Practice*, 34(2), 223. DOI:/10.1080/02667363.2018.1429538
- Gilbody, S., Whitty, P., Grimshaw Guivarch, J., Murdymootoo, V., Elissalde, S. N., Salle-Collemiche, X., Tardieu, S., Jouve, E., & Poinso, F. (2017). Impact of an implicit social skills training group in children with autism spectrum disorder without intellectual disability: A before and after study. *PLoS One*, 12(7), 1-18.
- Gilbody, S., Whitty, P., Grimshaw, J., & Thomas, R. J. (2003). Educational and organizational interventions to improve the management of depression in primary care: A systematic review. *Journal of American Medical Association*, 289(23), 3145-3151. DOI: 10.1001/jama.289.23.3145.

- Guli, A. L., Semrud-Clikeman, M., Lerner, M.D., & Britton, N. M. (2013). Social Competence Intervention Program (SCIP): A pilot study of a creative drama program for youth with social difficulties. *The Arts in Psychotherapy, 40*(1), 37–44. DOI: 10.1016/j.jaip.2012.09.002.
- Ingersoll, B. (2010). Brief report: Pilot randomized controlled trial of reciprocal imitation training for teaching elicited and spontaneous imitation to children with autism. *Journal of Autism and Developmental Disorders, 40*(9), 1154-1160. DOI: 10.1007/s10803-010-0966-2
- Johnson, D. W., & Johnson, T. R. (1999). Cooperative learning and achievement. In Kluge, D., McGuire, S., Johnson, D. & Johnson, R. (Eds.) *Cooperative learning: JALT applied materials* (pp.23-37). New York: Greenwood Press, Inc.
- Kempe, A., & Tissot, C. (2012). The use of drama to teach social skills in a special school setting for students with autism. *Support for Learning, 27*(3), 97–102. DOI:10.1111/j.1467-9604.2012.01526.x.
- Kiraly, D. (2000). *A social constructivist approach to translator education. Empowerment from theory to practice*. Manchester, UK: St Jerome publication.
- Lantolf, J., & Poehner, M. (2014). *Sociocultural theory and the pedagogical imperative in L2 education*. New York, US: Routledge.
- Lerner, M. D., Mikami, A. Y., & Levine, K. (2011). Socio-dramatic affective-relational intervention for adolescents with Asperger syndrome & high functioning autism: pilot study. *Autism, 15*(1), 21-42. DOI: 10.1177/1362361309353613.
- Li, J., Wang, D., Guo, Z., & Li, K. (2015). Using psychodrama to relieve social barriers in an autistic child: A case study and literature review. *International Journal of Nursing Sciences, 2*(1), 402-407. DOI:10.1016/j.ijnss.2015.08.008
- Marshall, J., Ware, R., Ziviani, J., Hill, R.J., & Dodrill, P. (2015). Efficacy of interventions to improve feeding difficulties in children with autism spectrum disorders: a systematic review and meta-analysis. *Child Care Health and Development, 41*(2), 278-302. DOI: 10.1111/cch.12157.
- Merrell, K. W., & Gimpel, G. A. (1998). *Social skills of children and adolescents: Conceptualization, assessment and treatment*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Metzler, M. W. (2000). *Instructional models for physical education*. Needham Heights, MA: Allyn & Bacon.
- Müller, E., Nutting, D., & Keddell, K. (2017). Understanding ArtAbility: Using qualitative methods to assess the impact of a multi-genre arts education program on middle-school students with autism and their neurotypical teen mentors. *Youth Theatre Journal, 31*(1), 48-74. DOI: 10.1080/08929092.2016.1225612.
- Nguyen, J. D., & Larson, B. J. (2015). Don't forget about the body: Exploring the curricular possibilities of embodied pedagogy. *Innovative Higher Education, 40*(4), 331–344. DOI:10.1007/s10755-015-9319-6.
- Reading, S., Reading, J., Padgett, J. R., Reading, S., & Pryor, P. (2016). The use of theatre to develop social and communication behaviors for students with autism. *Journal of Speech Pathology & Therapy, 1*(1), 102. DOI: 10.4172/jspt.1000102.
- Rosenthal-Malek, A., & Mitchell, S. (1997). Brief report: The effects of exercise on the on the self-stimulatory behaviors and positive responding of adolescents with autism. *Journal of Autism and Developmental Disorders, 27*, 193-202.
- Ruble, L. A., Dalrymple, N. J., & McGrew, H. J. (2012). *Collaborative model for promoting competence and success for students with autism*. Verlag, NY: Springer.

- Rubtsova, O., & Daniels, H. (2016). The concept of drama in Vygotsky's Theory: Application in research. *Cultural-historical psychology*, 12(3), 189-207. DOI: 10.17759/chp.2016120310
- Schriber, R. A., Robins, R. W., & Solomon, M. (2014). Personality and self-insight in individuals with autism spectrum disorder. *Journal of Personality and Social Psychology*, 106(1), 112-130. . DOI:/10.1037/a0034950
- Schull, J. E. (2011). Revisiting an old friend: The practice and promise of cooperative learning for the twenty-first century. *Social Studies*, 102(2), 88-93. DOI:/10.1080/00377996.2010.509370
- Seale, L. (2015). The Routledge companion to theatre and performance. *Reference Reviews*, 29(7), 45-46. DOI:/10.1108/RR-05-2015-0116
- Slavin, R. (2015). *Educational psychology: Theory and practice, enhanced Pearson eText with loose-leaf version - Access card package*. Baltimore, US: John Hopkins University.
- Smagorinsky, P. (2016). *Creativity and community among autism-spectrum youth: Creating positive social updrafts through play and performance*. Basingstoke, UK: Palgrave Macmillan
- Stichter, J. P., Herzog, M. J., Visovsky, K., Schmidt, C., Randolph, J., Schultz, T., & Gage, N. (2010). Social competence intervention for youth with Asperger syndrome and high-functioning autism: An initial investigation. *Journal of Autism and Developmental Disorders*, 40(9), 1067–1079.
- Temple, C. (2014). *Developmental cognitive neuropsychology*. London, UK: Psychology Press. DOI: 10.1007/s10803-010-0959-1.
- Tennant, R. G., Martin, K. K., Rooney, R., Hassan, S., & Kane, R. T. (2017). Preventing internalizing problems in young children: A randomized controlled trial of the feelings and friends (Year 3) program with a motor skills component. *Frontiers in Psychology*, 8, 291. DOI:/10.3389/fpsyg.2017.00291
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, Mass.: Harvard University Press.
- Wong, C., Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., ... Schultz, T. R. (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. *Journal of Autism and Developmental Disorders*, 45(7), 1951-1966. DOI:/10.1007/s10803-014-2351-z
- Wuest, D. A., & Fiset, G. L. (2014). *Foundations of physical education, exercise science, and sport*. New York, NY: McGraw-Hill Education.
- Yeh, H. P., Stone, J. A., Churchill, S. B., Brymer, E. & Davids, K. (2016). Designing physical activity environments to enhance physical and psychological effects. *Procedia Engineering*, 147, 793-798. DOI:/10.1016/j.proeng.2016.06.313
- Yoo, H. J., Bahn, G., Cho, I. H., Kim, E. K., Kim, J. H., Min, J. W., et al. (2014). A randomized controlled trial of the Korean version of the PEERS® parent-assisted social skills training program for teens with ASD. *Autism Research*, 7(1), 145–161. DOI:/10.1002/aur.1354
- Zhang, Z., Peluso, M.J., Gross, C.P., Viscoli, C.M., & Kernan, W. N. (2014). Adherence reporting in randomized controlled trials. *Clin Trials*, 11(2), 195–204. DOI:/10.1177/1740774513512565.