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Using Theatre to Teach Social Skills to Students on the Autism Spectrum

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USING THEATRE TO TEACH SOCIAL SKILLS TO STUDENTS ON THE AUTISM SPECTRUM

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I dedicate this thesis to my parents, Rick and Tammy Ritchie. Thank you for believing in me and supporting every single life decision and aspiration. Everything I am is because of you.

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Theatre-based interventions are an emerging field to improve social skills in individuals with autism. This study analyzed 10 different articles using theatre-based interventions, combined with evidence-based practices, to increase social skills deficits in students, ages 8-17, diagnosed with autism. Results indicate improvement in social skills for individuals with autism after participating in theatre-based interventions.

Introduction

Autism is a neurodevelopmental disorder that affects an individual's emotional, social, functional, and communication skills (American Psychiatric Association [APA], 2013). The Centers for Disease Control and Prevention (CDC, 2020) estimated that one out of every 59 children has an autism diagnosis, or behaviors consistent with autism. One of the most common difficulties for individuals with autism is engaging in appropriate social skills (Carter et al., 2005). Social skills are the ability to develop, maintain, and understand relationships. Social skills allow individuals to form connections and make friendships. Children with autism desire social interaction and friendship (Bauminger & Kasari, 2000). However, deficits in social skills have been shown to hinder a student's ability to engage and form friendships (Carter et al., 2014; Howlin et al., 2004).

There are several evidence-based strategies that are effective in increasing appropriate social skills for students with autism (Schreiber, 2011). These include exercise and movement, modeling, music-mediated intervention, peer-based instruction and intervention, prompting, sensory integration, and social skills training (Hume et al., 2021). These strategies can be implemented independently or combined to assist students in identifying and engaging in appropriate social skills. One way these evidence-based interventions have been combined is through the use of theatre-based social skill interventions. These types of interventions target school-aged children and teenagers and aim to directly address age appropriate social skills for each group using theatre techniques. "Acting teaches social awareness, cognition, communication, perception, and

expression; thereby, theatre may serve as a valuable tool to strengthen core socioemotional functioning in ASD" (Corbett et al., 2014, p. 5).

Theatre-based social skill interventions are an emerging field with some promising outcomes; however, there are currently only a small number of studies. It is important to conduct a systematic review of the literature base. Therefore, the purpose of the current study is to examine the existing literature on theatre-based interventions for individuals with autism. In the systematic review, the following research questions will be answered:

1. What are the characteristics of the participants in the studies?
2. What types of social skills are commonly targeted by theatre-based interventions?
3. What are the specific procedures included in theatre-based interventions?
4. What are the results of the studies?

A systematic review of studies using theatre-based interventions to improve social skills for individuals with autism will be completed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Articles (PRISMA, Moher et al., 2009).

Literature Review

Autism spectrum disorder (ASD) is a complex neurodevelopmental condition that involves challenges in social interactions, speech and nonverbal communication, and restricted and repetitive behaviors. Individuals with autism can have a wide range of deficits in each of these categories. Despite the wide range of characteristics, there are several core characteristics among those diagnosed with autism that affect social interaction and communication. The American Psychiatric Association's (APA, 2013) Diagnostic and Statistical Manual of Mental Disorders-5th edition outlines these specific diagnostic criteria for ASD. It is important to remember that it is not a comprehensive list, but a general snapshot. The criteria are as follows:

Social Communication Deficits

Individuals with autism can have deficits in both social communication and social interactions across multiple settings. The first criterion is social-emotional reciprocity; engagement in typical back-and-forth conversation (Sanrattana et al., 2015). This can be demonstrated through abnormal social approach (e.g., greeting and sharing information appropriate to the context), failure to initiate or respond, or a lack of shared interests, emotions, or affect (Schreiber, 2011). The second criteria is deficits in nonverbal communication. This can look like abnormal eye contact and body language, difficulty making inferences, a lack of understanding and use of gestures, and/or a complete lack of facial expressions (Barnhill et al., 2002). Deficits in developing, maintaining, and understanding friendships is the third, and final criteria in social communication deficits. This can range from difficulties adjusting behavior to certain contexts and situations (e.g.,

speaking differently in a classroom versus the playground, engaging differently with a child versus an adult), lack of and/or sharing in imaginative play, difficulty in making friends, or a complete lack of interest in peers altogether.

The American Psychiatric Association's (APA, 2013) Diagnostic and Statistical Manual of Mental Disorders-5th edition breaks down social communication into four major sections: (a) persistent difficulties in social verbal and nonverbal communication, (b) limits effective communication, social participation, and relationships, (c) impedes academic achievement or work performance, and (d) onset of symptoms typically in the early developmental period, and symptoms are not related to another medical or neurological condition, or better explained by ASD, intellectual disability, or another mental disorder.

Behavior Deficits

Individuals with ASD may exhibit various behavior deficits that can be restricted, repetitive, and sensory driven. The American Psychiatric Association's (APA, 2013) Diagnostic and Statistical Manual of Mental Disorders-5th edition requires that at least two criteria must be met to diagnose. The first criterion is stereotyped, repetitive body movements (e.g., rocking back-and-forth, hand-flapping), object use (e.g., lining up toys, flipping objects, eating non-food items), or speech (e.g., random verbalizations, repeat others' words or phrases, and inappropriate word usage). The second criterion is routines, rituals, and patterns of verbal or nonverbal behavior (e.g., greeting rituals, difficulties with transitions, taking same route/eating same foods). The third criterion involve restricted and abnormal, fixated interests (e.g., strong attachment or preoccupation with

unusual objects, perseverative interest). The fourth criterion is hyperreactivity sensory input (e.g., sensitive to pain/temperature) or hyporeactivity sensory input (e.g., indifferent to pain/temperature), or unusual interests in environmental sensory aspects (e.g., extreme positive or negative response to lights, sounds, or textures, excessive smelling/touching objects).

Social Behavior

Howlin (2015) studied social behavior in autism and concluded that there are many definitions of social competence, but all focus on reinforcement and reciprocity in the development of relationships. Generally, social behavior is the situation specific ability to develop, maintain, and understand relationships (Howlin, 2015). There are a variety of social skill deficits that individuals with autism may exhibit (Koegel, 2007). Some examples include participating in conversations, maintaining eye contact, difficulty understanding emotions and non-verbal cues, and dwelling on certain topics (Carter et al., 2014; White et al., 2007). Individuals with autism may not only struggle to read other's emotions, but also regulate their own emotions, such as, anxiety, depression, and/or an increase in aggression and self-injurious behaviors (Barnhill et al., 2002; Carter et al., 2014). Utilizing various interventions that target social skills are imperative to the well-being, success, and independence of individuals with autism.

Evidence-Based Strategies

For the purpose of this study, social skills will be the main focus. There are several evidence-based strategies to teach appropriate social skills to individuals with autism (Hume et al., 2021). Six of these strategies include exercise and movement,

modeling/video modeling, peer-mediated instruction and intervention, prompting, and scripting. While modeling and video modeling are considered two separate interventions, they are combined for the purpose of this review. These are defined below:

Exercise and Movement. Exercise is a term used to reference the physical activity that individuals engage in to strengthen their bodies, lose weight, and achieve a healthier lifestyle. Exercise holds many benefits for students with ASD. When used as an intervention, exercise can increase desired behaviors (e.g., time on task, correct responding, task completion), and decrease inappropriate behaviors (e.g., aggression, self-injury, time off task) (Cannella-Malone et al., 2011).

Modeling-Video Modeling. Modeling involves a student observing how to engage in an appropriate or target behavior. Modeling has been shown to provide extra support and increase a student's ability to perform the desired behavior (Rigsby-Eldredge & McLaughlin, 1992). Much like modeling, video modeling uses technology to model a desired behavior or skill. This evidence-based practice can be used independently or in conjunction with other evidence-based practices to increase the likelihood of skill acquisition (Nikopoulos & Keenan, 2007).

Peer-Mediated Instruction and Intervention. Unlike most interventions that focus on individuals with ASD, peer-mediated instruction and intervention (PMII) or peer-based instruction and intervention (PBII), combines behaviorism and social learning theory to train same-aged peers to initiate and interact appropriately with students on the spectrum. Carter et al. (2014) notes that, "…interactions with students with ASD may be more likely to be initiated, reinforced, and maintained" if the emphasis is placed on

strengthening peers' communication. Involving peers within the process allows for positive and meaningful social interactions for students on the spectrum (Owen-DeSchryver et al., 2008).

Prompting. Prompting aids in learning a new skill or behavior. Whether delivered immediately after, or after a specified time frame, prompting reduces incorrect responding when students are practicing a new skill. A hierarchy of least to most prompts provides a framework for delivering prompts appropriately. Prompts may be delivered verbally, through gestures or pointing, or physically by hand-over-hand procedures. It is often used with other evidence-based strategies, including certain practice protocols **(**Shabani et al., 2002).

Scripting. Scripting provides a detailed outline or script for social interaction. Examples of this can include visual prompts, task analysis, and social narratives. Responding to structure and visual cues is a strength in many individuals with autism. The use of scripts targets these strengths by providing specific and appropriate models for language and/or social behavior in a structured way that encourages communication and interactions with peers (Krantz & McClannahan, 1993).

Theatre-Based Interventions

Theatre-based interventions are social skill interventions that combine many of the aforementioned practices. While this is a growing field of research, theatre-based interventions can be defined as any type of evidence-based social skill intervention that is taught through acting, dramatization, and performance. Examples of how these evidence-based interventions can be used in a theatre setting are as follows:

Exercise and Movement. When preparing for an audition, rehearsal, or show, many actors use various forms of exercise and movement to warm up, increase focus, and step into character. When working with children and youth, many directors lead theatre games that involve stretching and movement, peer interaction, and imaginative play. Theatre productions often involve choreographed routines and numbers that require various forms of movement and exercise.

Modeling-Video Modeling. A stage actor's job is to bring a character to life, while a director's job is to instruct actors on stage; how to speak, move about, and react. When an actor delivers a line or moves in a certain way, the director might stop the scene, model how it should be done, and then have the actor repeat the scene. This can be done as often as the director sees fit and/or until the actor masters the line or scene. Many directors and actors also record auditions, rehearsals, and shows to improve future performances. This allows both the actor and director to re-watch, reflect, and make improvements as needed.

Peer-Mediated Instruction and Intervention. Theatre provides a sense of belonging and community to the actors on stage and the audience watching. Stories are brought to life through actors' portrayal of characters; and through these character interactions, stories are told.

Prompting. Actors are often prompted by directors in auditions, rehearsals, and performances. Directors may remind actors to project their voice, move their body a certain way, face the audience, and smile. It is through these repeated prompts that actors learn their character and role on stage.

Scripting. A script is a form of writing that is acted out on stage, detailing the setting, characters, and events. Scripts include monologues (e.g., words spoken by one person), dialogue (e.g., words spoken between characters), character interactions, stage directions, and instructions to the actors and director.

Purpose of Study

The purpose of this study is to provide a systematic review of theatre-based interventions and to identify whether theatre can be used as an alternative and beneficial form of therapy for students on the autism spectrum. This study investigated four different research questions (a) what participant characteristics, such as age, gender, and diagnoses, have theatre interventions targeted? (b) what types of social skills are targeted with theatre interventions? (c) what are the specific procedures included in theatre-based interventions? and (d) do theatre interventions show an improvement in social skills?

Method

Article Selection Pool

To examine the evidence base for theatre-based interventions, a search was completed using the Psychology and Behavioral Science Collection (EBSCOhost) database through the library portal at Western Kentucky University (WKU). Google Scholar was accessed for any studies not available through WKU's EBSCOhost database or interlibrary loan. The following search terms within EBSCOhost and Google Scholar were used simultaneously: autism, autism spectrum disorder, ASD, Shakespeare, theatre, therapy, theatre therapy, social skills, social skills training. Articles from peer-reviewed journals published within the last 20 years were included.

Participants

Selected studies included in this review targeted school-aged children, ages 8-17, diagnosed with Asperger's, autism, and any other co-occurring diagnoses (e.g., attention deficit hyperactivity disorder, anxiety, emotional behavioral disorders).

Dependent Variables of Selected Studies

Selected studies were identified if the dependent measures included an assessment of social behaviors. "Social behaviors" included any behavior that falls under the definition of reinforcement and reciprocity in the development of relationships (Howling, 2015). Examples of types of behaviors included initiating and maintaining conversation, group play, and effective emotional regulation. Studies that involved only social validity measures of participants, such as peer, parent, and/or community perceptions, were not included.

Independent Variables of Selected Studies

Selected studies were included if they had an independent variable identified as a "theatre-based intervention." A theatre-based intervention is any intervention used alongside drama activities, theatre techniques, and/or within the context of a theatre setting (e.g., performing on a stage). The intervention duration varied from 10 days to six-months. Additional forms of drama therapy that were not considered were art therapy, clowning, and visual arts.

Characteristics of Selected Studies

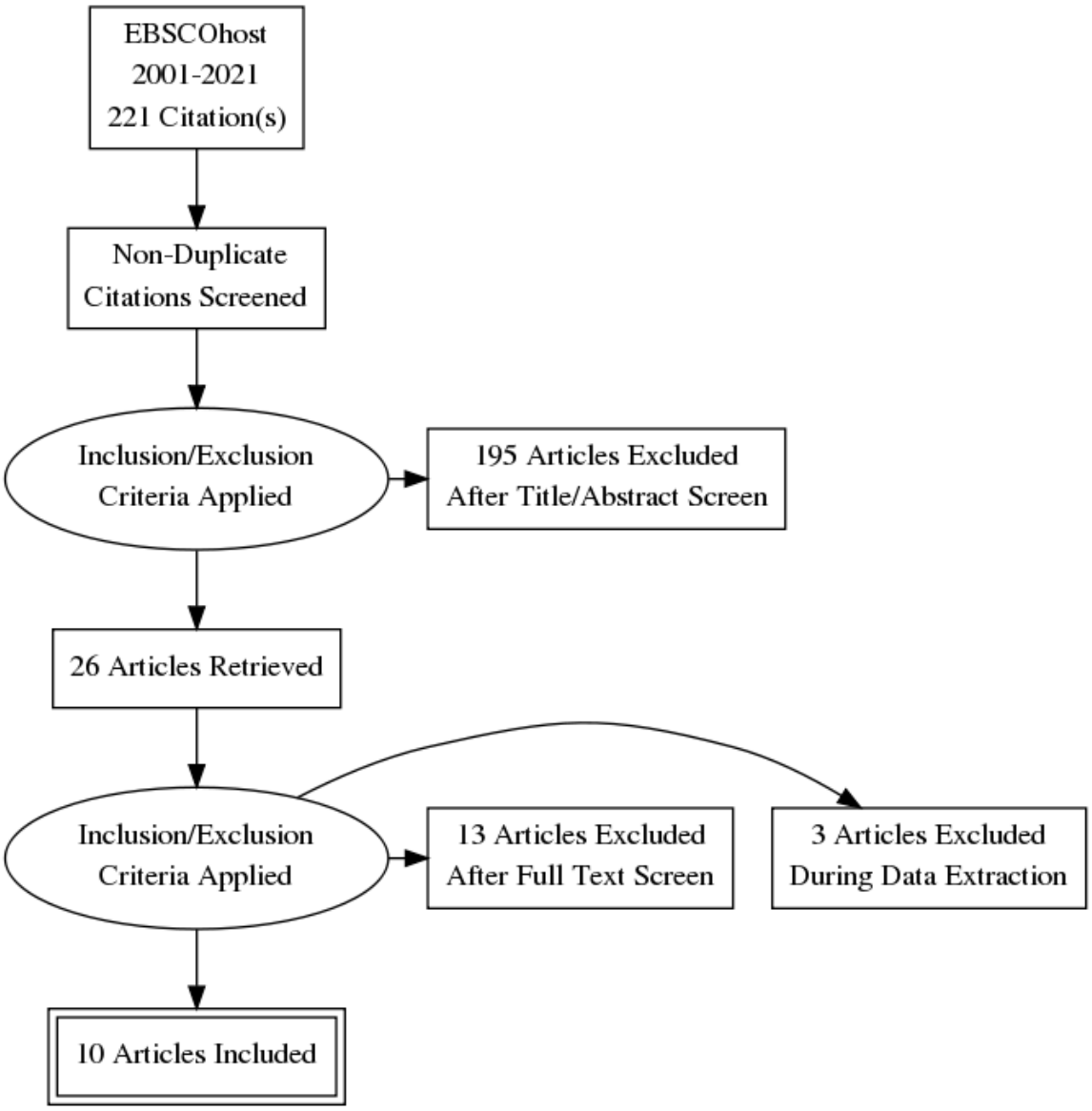
Studies were included if they used an experimental design, such as randomized control trial, quasi experimental design, or single case experimental design. Studies using only qualitative data (e.g., anecdotal) were not included in this review.

Procedures

A systematic review was conducted on theatre-based interventions to improve social skills for individuals with autism. First, all studies were gathered using the identified search terms. Duplicate articles were removed, and articles' inclusion and exclusion criteria were assessed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Articles (PRISMA, Moher et al., 2009) as shown in Figure 1. Articles were then coded according to participant characteristics (e.g., age, gender, and diagnoses), dependent variables (e.g., social skills), independent variables (e.g., intervention procedures), and results of each study (e.g., improvement, partial improvement, no improvement, adverse reaction).

Figure 1

The PRISMA flow diagram (Moher et al., 2009).



Inter-Rater Reliability

A separate coder was trained on identifying study inclusion and exclusion criteria by the primary investigator (PI). The PI identified three example articles, coded them, and then trained the coder on how to identify inclusion criteria. The coding trainee was guided through the first example article and shown what each code means, how to look for it, and how to record it properly. The trainee then completed the three example articles that were already pre-coded for reliability. Once the coder completed the example articles with 80% agreement, they were considered a reliable coder. Interrater reliability was computed for 30% of the identified articles. A rate of 80% agreement overall and across each code indicated adequate coding reliability.

Results

Ten different articles were identified and included using the PRISMA (Moher et al., 2009) as shown in Table 1. Each article published between 2011 and 2019 used theatre therapy interventions to target social skills for students with Autism. All articles were coded based on participant characteristics, social skills, intervention procedures, and study outcomes.

Table 1

Articles included in Review

Article Title	Authors	Date Published
The Hunter Heartbeat Method: Evaluating the impact of a theatre-based intervention on children on the autism spectrum	Baran et al.	2018
Imagining Autism: Feasibility of a drama-based intervention on the social, communicative and imaginative behavior of children with autism	Beadle-Brown et al.	2018
Brief report: Theatre as therapy for children with ASD	Corbett et al.	2011
Improvement in social deficits in autism spectrum disorders using a theatre-based, peer mediated intervention	Corbett et al.	2014
Improvement in social competence using a randomized trial of a theatre intervention for children with autism spectrum disorder	Corbett et al.	2016
Changes in anxiety following a randomized control trial of a theatre-based intervention of youth with autism spectrum disorder	Corbett et al.	2017
Treatment effects in social cognition and behavior following a theatre-based intervention for youth with autism	Corbett et al.	2019
Social Competence Intervention Program (SCIP): A pilot study of a creative drama program for youth with social difficulties	Guli et al.	2012
Shakespeare and Autism: An exploratory evaluation of the Hunter Heartbeat Method	Mehling et al.	2017
The effects of a theatrical play programme on social skills development for young children with ASD	Mpella et al.	2019

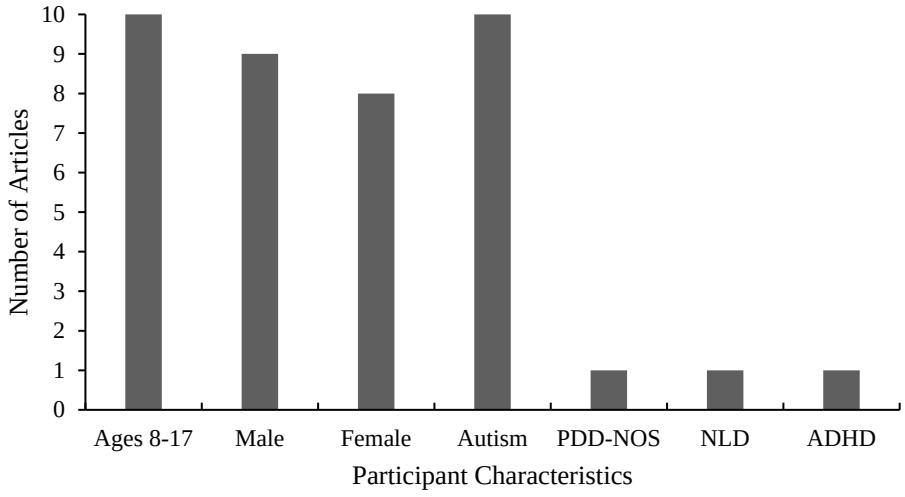
Participant Characteristics

The first research question sought to identify what types of participants (e.g., age, gender, diagnoses) have theatre interventions targeted. As shown in Figure 2, the main

characteristics that were found in all studies were male and female participants, ages 8-17, diagnosed with Autism. Other diagnoses included were pervasive developmental disorder – not otherwise specified (PDD-NOS), nonverbal learning disability (NLD), and attention deficit hyperactivity disorder (ADHD). There were significantly more male participants than female participants, as seen in Table 2. One article only included male participants (Beadle-Brown et al., 2018), and one article did not specify gender of participants (Baran et al., 2018).

Figure 2

Participant Characteristics



Note. pervasive developmental disorder – not otherwise specified (PDD-NOS)
nonverbal learning disability (NLD)
attention deficit hyperactivity disorder (ADHD)

Table 2

Number of Male and Female Participants by Study

Study Article	Male	Female
Baran et al. (2018)	*	*
Beadle-Brown et al. (2018)	22	0
Corbett et al. (2011)	7	1
Corbett et al. (2014)	9	3
Corbett et al. (2016)	24	6
Corbett et al. (2017)	24	6
Corbett et al. (2019)	59	18
Guli et al. (2012)	31	8
Mehling et al. (2017)	9	5
Mpella et al. (2019)	4	2

*study did not specify gender of participants

Identified Social Skills

The second research question sought to identify what types of social skills, as seen in Table 3, are targeted with theatre interventions. Social skills that were identified and coded included adaptive behavior/functioning, anxiety, communication/communication skills, cooperative/group play, cortisol levels, emotion expression/regulation, facial expression recognition, facial memory immediate/delayed, joint attention, language use, social interaction (observed naturalistic), oxytocin levels, social awareness/perception, social cognition/competence, social skills, social/social functioning, stress, and verbal interaction.

Baran et al. (2018) measured facial expressions. Pictures of participants faces were taken at three different time points, before, during, and after the intervention. A facial expression engine (Emotient FACET, iMotions 2016), analyzed the participants' facial expressions against thousands of others, and compared changes over time.

Beadle-Brown et al. (2018) measured social interaction, communication, and emotion regulation. The autism diagnostic observation schedule (ADOS, Lord et al., 2000), was used to measure the social-communicative, interactive, and imaginative skills. The vineland adaptive behavior rating scale, second edition (Vineland II, Sparrow et al., 2005), was used to measure adaptive behavior and cognitive functioning. The emotional expression recognition was measured using the Ekman (1993) modified faces task.

Corbett et al. (2011) measured social perception skills and adaptive functioning. Cortisol and oxytocin levels were also measured, at pre- and post-assessments, via collection by parents and medical professionals. Social perception skills were measured by the developmental and neuropsychological assessment (NEPSY, Korkman et al., 2007), and broken down into three different categories, (a) memory for faces (MF), (b) affect recognition (AR), and (c) theory of mind (TOM). MF required the identification of faces immediately and delayed. AR required the identification of different emotional, facial expressions. TOM required participants to use cognitive concepts to predict behaviors.

Adaptive functioning was measured and broken down into four different parent questionnaire/rating scales (a) the social responsiveness scale (SRS, Constantino & Gruber, 2005), (b) the stress survey schedule for persons with autism and other developmental delays (SSS, Gordon et al., 2001), (c) the short sensory profile (SSP, Dunn, 1999), and (d) adaptive behavior assessment system (ABAS, Harrison & Oakland, 2000). The SRS assesses different domains of autism characteristics, while the SSP

assesses sensory sensitivity. The SSS assesses different types of stress, while the ABAS assess ten different areas of adaptive behavioral functioning.

Corbett et al. (2014) chose to advance the previous article's findings and measured social perceptions, interactions, and functioning, as well as cortisol levels. Social perceptions, measured through the NEPSY, incorporated memory for faces immediate (MF), memory for faces delayed (MFD), comparisons between the two, and affect recognition. Social functioning incorporated the SRS in awareness, communication, and cognition, while adaptive functioning measured communication, home living, self-care, self-direction, and social through the ABAS at pre- and post-intervention. Social interaction was assessed through eye contact and amount of time engaged with peers via the companionship scale (Bauminger, 2007).

Corbett et al. (2016) continued to build upon findings using a randomized trial with SENSE theater intervention. Social, communication, group play, and memory of faces immediate/delayed were measured. Social functioning was assessed using SRS and ABAS at the pre- and post-test, and again at two months. Social interaction was assessed using the Per Interaction Paradigm (PIP, Corbett et al., 2010), a 20-minute semi-structured interaction where an individual with ASD interacts with two typically, trained peers in a playground setting. NEPSY was used to measure memory of faces.

Corbett et al. (2017) used the previous article's findings to examine the impact of SENSE theatre intervention on anxiety through a randomized control trial. Stress, anxiety, group play, and cortisol levels were assessed over a 10-week period. Levels of state and trait anxiety were measured using the State Trait Anxiety Inventory for Children

(STAI-C, Spielberger et al., 1983), differentiating between those with and without anxiety disorders. Group play was assessed using the PIP, and cortisol levels were measured over four cycles, two pre- and post-intervention, via collection samples by parents and medical professionals.

The final article, Corbett et al. (2019) explored the effects of SENSE theatre and measured facial memory, cooperative play, and verbal interaction. NEPSY was used to assess changes in social perception, incidental face memory was used to assess changes in adaptive social functioning, and the PIP was used to measure changes in social behavior.

Guli et al. (2013) measured social competence, observed naturalistic social interaction, and social functioning. The social skills rating system (SSRS, Gresham & Elliott, 1990), was used as baseline to measure social skills deficits. The behavior assessment system for children (BASC, Reynolds & Kamphaus, 1992), was used to measure withdrawal and social skills pre- and post-test. The diagnostic analysis of nonverbal accuracy 2 (DANVA, Nowicki, 2004), was used as a pre- and post-test measure of receptive nonverbal cue reading and facial expression. Social interaction was observed at pre- and post-treatment, using a partial interval recording system.

Mehling et al. (2017) measured social skills, communication skills, facial expression recognition, and language use. The Vineland was used to measure skill level. The Penn facial recognition (PFR, Gur et al., 2001; Gur et al., 2002), and the test of pragmatic language, second edition (Phelps-Terasaki & Phelps-Gunn, 2007), measured changes to core features of autism at pre- and post-intervention.

Mpella et al. (2019) measured social awareness, joint attention, play, and anxiety. The observation protocol included a 10-item close-ended checklist that measured social and plays skills. Time sampling was used to implement the direct and systematic observation, at a duration of 30 seconds, divided into three 10-second intervals.

Table 3

Identified Social Skills Targeted

Social Skills	Number of Articles
Adaptive Behavior/Functioning	1
Anxiety	2
Communication/Communication Skills	3
Cooperative/Group Play	4
Cortisol Levels	3
Emotion Expression/Regulation	2
Facial Expression Recognition	2
Facial Memory Immediate/Delayed	3
Joint Attention	1
Language Use	1
Social Interaction (Observed Naturalistic)	3
Oxytocin Levels	1
Social Awareness/Perception	3
Social Cognition/Competence	4
Social Skills	1
Social/Social Functioning	2
Stress	1
Verbal Interaction	1

Intervention Procedures

The third research question sought to identify the intervention procedures that were implemented in each theatre-based program, as seen in Table 4.

Hunter Heartbeat Method. The *Hunter Heartbeat Method* (HHM) was implemented in two separate studies (Baran et al., 2018; Mehling et al., 2017). The HHM

incorporates Shakespeare's plays into games, while using the rhythm of the iambic pentameter to explore emotions, vocal expressions, and movement. In Mehling et al. (2017) important elements that were incorporated included predictability, calm environment, modeling, role playing, one-on-one practice with feedback, and execution and/or performance of the targeted skill.

Imagining Autism. *Imagining Autism* is a school-based intervention that takes place within an enclosed area that provides a multi-sensory themed environment (Beadle-Brown et al., 2018). Varying elements range from physical action, puppetry, and costumes to lighting, sound, and digital media. Each environment (e.g., forest, arctic, outer space, under water, under the city) is scaffolded to promote communication, social interaction, imagination, and creativity with both teachers and peers.

Social Emotional NeuroScience Endocrinology Theatre. *Social Emotional NeuroScience Endocrinology Theatre* (SENSE) was implemented in five research studies (Corbett et al., 2011, 2014, 2016, 2017, 2019). SENSE was originally designed as a pre- and post-treatment design to improve the socioemotional functioning and reduce stress in students with ASD, while paired with typically developing peers in a full musical theatrical production. Within the original study (Corbett et al., 2011), all interested individuals, with or without autism, were encouraged to audition for "Disney's The Jungle Book." Rehearsals were based on general community theatre approaches; broken down into specific scenes where songs were taught first, and then basic blocking, action, and choreography were rehearsed. Typically developing peers, who served as co-actors and models, performed participants' role on video to allow for viewing and practice

within the home environment. Rehearsals were initially scheduled one day per week, then gradually increased to three/four days per week. Overall, rehearsals lasted for two hours and the trial itself lasted three months.

Social Competence Intervention Program. *Social Competence Intervention Program* (SCIP) was piloted in one study (Guli et al., 2013). This intervention was developed from various traditional, creative drama activities to improve participant's social perceptions of nonverbal cues and social competence within natural settings. Traditional activities included cooperative games, story dramatization, and improvisation. Interaction between participants was emphasized throughout. The beginning sessions focused on participants' own experiences, while expanding their understanding of other's experiences and emotions. The first seven sessions, of a 16-session intervention, covered group dynamics, emotional knowledge, attention, facial expressions, body language, and vocal cues. The next five sessions focused on integration and interpretation of nonverbal cues. The remaining four sessions focused on using social perception techniques to effectively respond to others. Each session followed the same predictable pattern of warm-up activity, home challenge review, activities, and discussion, while implementing a response-cost system to reinforce positive behavior.

Theatrical Play Programme. *The Theatrical Play Programme* was designed to target social skills deficits in students with ASD by combining behavioral interventions with theatrical techniques (Mpella et al., 2019). Participants were organized into small groups to engage in various activities that focused on cooperation, improvisation, role-playing, body language, and non-verbal activities. The trial lasted two months, with 960

acts performed, and 16 sessions, with each session meeting twice a week for 45-minutes. Teachers assisted participants through verbal and physical prompting, redirection, modeling, shaping, and reinforcement to increase social interaction.

Table 4

Theatre-based Interventions

Type of Intervention	Number of Articles
Hunter Heartbeat Method	2
Imagining Autism	1
Social Emotional NeuroScience Endocrinology Theatre	5
Social Competence Intervention Program	1
Theatrical Play Programme	1

Studies Outcomes

The fourth research questions sought to identify if theatre interventions showed an improvement in social skills, as seen in Table 5. Improvement was defined as a noticeable increase, positive change, and/or statistical significance in all identified participants and measured social skills. All 10 articles showed improvement in one or more targeted social skills. Four articles showed improvement in all targeted areas (Baran et al., 2018; Beadle-Brown et al., 2018; Corbett et al., 2016; Corbett et al., 2019), while six articles showed partial improvement (i.e., two or less participants/social skills) in certain targeted areas (Corbett et al., 2011; Corbett et al., 2014; Corbett et al., 2017; Guli et al., 2013; Mehling et al., 2017; Mpella et al., 2019) as seen in Figure 3. None of the included articles showed no improvement or adverse reactions.

Baran et al. (2018) showed improvement within facial expressions. Beadle-Brown et al. (2018) found improvement in social interaction, communication, and emotion

regulation. Corbett et al. (2011) found improvement in facial memory and cognition, but not in emotional expression, cortisol levels, or oxytocin levels. Observed behaviors that were not quantified included increased empathy, social referencing, and communication. Corbett et al. (2014) showed improvement in social perception and interaction, but not cortisol levels. Corbett et al. (2016) found improvement in all areas of social, communication, group play, and memory of faces immediate and delayed. Corbett et al. (2017) showed improvement in trait anxiety and positive changes in group play. Cortisol levels were not affected, resulting in no improvement in stress. Corbett et al. (2019) found improvement in facial memory, cooperative play, and verbal interaction. Guli et al. (2013) showed improvement in social competence and social functioning. Social interaction was found to improve within the observed, naturalistic setting, but not within the clinical setting. This study was among the first to suggest that effects from theatre therapy interventions may generalize to other settings, which is the overall goal of social skills intervention. Mehling et al. (2017) found improvement in social and communication skills, as well as language use. There was no improvement found in facial expression recognition at the significance level. The last article reviewed, Mpella et al. (2019) showed improvement in social awareness, joint attention, and play. Only four out of six participants showed improvement in anxiety.

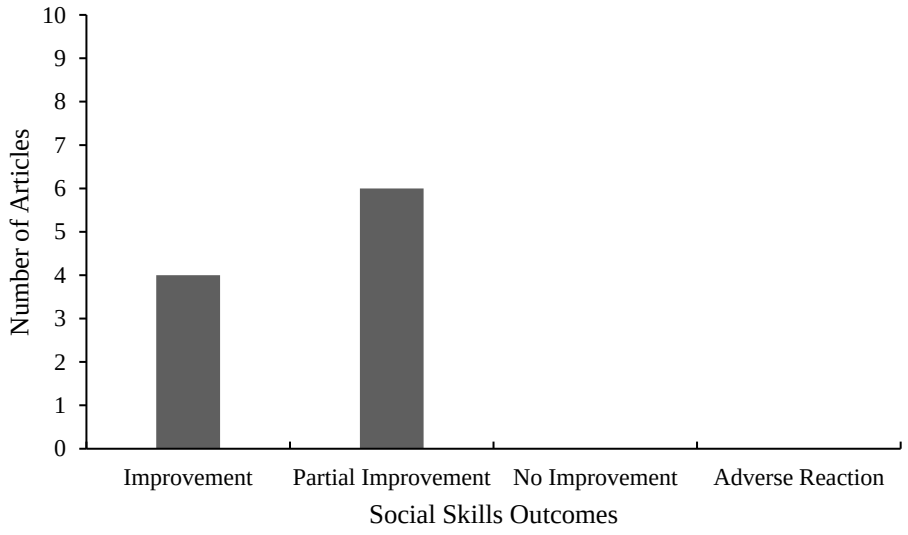
Table 5

Social Skills that showed Improvement

Social Skills	Number of Articles
Adaptive Behavior/Functioning	1
Anxiety	2
Communication/Communication Skills	3
Cooperative/Group Play	4
Emotion Expression/Regulation	2
Facial Expression Recognition	2
Facial Memory Immediate/Delayed	3
Joint Attention	1
Language Use	1
Social Interaction (Observed Naturalistic)	3
Social Awareness/Perception	3
Social Cognition/Competence	4
Social Skills	1
Social/Social Functioning	2
Verbal Interaction	1

Figure 3

Social Skills Research Outcomes



Discussion

This study sought to identify whether theatre interventions could improve social skills in students diagnosed with autism. Theatre-based interventions is a promising way to combine multiple evidence-based practices into an intervention that may address some of the core deficit areas for individuals with autism. While theatre-based interventions target social skills that can be addressed by other evidence-based interventions, it provides an alternate and natural approach to improve social skills. There are currently ten empirical studies that used a theatre-based intervention to improve social skills for individuals with autism. The research questions identified were (a) what participant characteristics, such as age, gender, and diagnoses, have theatre interventions targeted? (b) what types of social skills are targeted with theatre interventions? (c) what are the specific procedures included in theatre-based interventions? and (d) do theatre interventions show an improvement in social skills?

Participant characteristics that were identified across studies included male and female, ages 8-17, diagnosed with autism. Since autism affects more boys than girls, there were more male participants than female participants (CDC, 2020). Social skills targeted by theatre interventions included adaptive behavior/functioning, anxiety, communication/communication skills, cooperative/group play, cortisol levels, emotion expression/regulation, facial expression recognition, facial memory immediate/delayed, joint attention, language use, social interaction (observed naturalistic), oxytocin levels, social awareness/perception, social cognition/competence, social skills, social/social functioning, stress, and verbal interaction. Theatre programs, with varying evidence-

based intervention procedures, included the *Hunter Heartbeat Method*, which uses modeling, peers, and prompting, *Imagining Autism*, which uses modeling, peers, prompting, and scripting, *Social Emotional NeuroScience Endocrinology Theatre*, which uses exercise and movement, modeling/video modeling, peers, prompting, and scripting, *Social Competence Intervention Program*, which uses modeling and prompting, and *Theatrical Play Programme*, which uses modeling, peers, prompting, and scripts. All 10 articles showed improvement in one or more targeted social skills using a form of theatre therapy intervention.

Implications

Using theatre as an alternate and beneficial form of therapy is an emerging field for increasing social skills for students diagnosed with autism. A promising aspect of theatre-based interventions is that it is a natural way to combine multiple evidence-based practices into an age-appropriate activity. As social skills are contingent on the specifics of the environment, it is important for researchers and practitioners to identify validated social skill interventions that include typical peers in a natural environment. When taught in a contrived setting (such as 1:1 with an adult in a classroom), individuals may struggle with generalizing social skills to use with their peers. Therefore, theatre-based interventions are a natural bridge. While only 10 articles were included for the purpose of this study, evidence shows theatre is a wide-spread tool that can be used to target multiple purposes, populations, and diagnoses.

Limitations

One limitation to this study was the small number of participants found within the majority of research articles, including lack of female participants. Research shows that autism characteristics manifest and present differently in males and females. Therefore, the success of theatre-based interventions should be assessed in both populations. Another limitation was the likelihood of repeatability in certain studies, regarding cortisol and oxytocin levels. Researchers typically do not have the means or ability to access cortisol and oxytocin samples in participants making it difficult to successfully repeat these findings. Lastly, theatre-based intervention studies that have been conducted thus far have targeted a widespread number of various social skills. While this shows the impact and flexibility of theatre-based interventions, it may benefit the field if a more narrow and consistent scope of social skills were identified and targeted in future studies.

Future Directions

Currently, the field has focused on the effects of theatre-based interventions in school-aged participants diagnosed with autism. While the period of social development is drastically different from adolescence to adulthood, research shows that core social skills deficits will continue to impact individuals with autism, regardless of age. As individuals with autism age, it becomes harder to find beneficial and age-appropriate forms of therapy. Focusing on how theatre-based interventions impact adults with autism would not only further the field of theatre-based interventions but increase the access and quality of life for adults with autism.

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